

# 2011 Military Health System Conference

## Complex Chronic Conditions among TMA Beneficiaries

*The Quadruple Aim: Working Together, Achieving Success*

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# The Quadruple Aim



This briefing supports aims:

- **Per Capita Cost**
  - Creating value by focusing on quality, eliminating waste, and reducing unwarranted variation; considering the total cost of care over time, not just the cost of an individual health activity
- **Population Health**
  - Reducing the generators of ill health by encouraging healthy behaviors and decreasing the likelihood of illness through focused prevention and the development of increased resilience



# Research Team



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# Primary Findings



- Prime enrollees have higher proportion of asthma, depression, lower back pain, and PTSD but are less likely to have multiple chronic conditions overall; reflects younger age and inclusion of active duty
- Compared to non-Prime enrollees, Prime enrollees generally have higher costs after adjusting for age, region, sex, and health care utilization
- Based on total claims data, Purchased Care is more costly for the management of complex chronic illness compared to Military Treatment Facility Direct Care controlling for age, region, sex, and health care utilization

# Primary Findings, cont.



- Enrollees with combinations of non-concordant conditions cost more  
(e.g., depression & lower back pain)
- Mental health conditions are major contributors to increased costs and resource use among those with complex chronic conditions

# Research Objectives & Outcomes



- Objectives
  - Examine rates, health care utilization and costs among TMA beneficiaries with multiple chronic conditions
  - Compare rates of complex chronic illness between Prime and non-Prime enrollees
  
- Outcomes
  - Rates of selected complex chronic illnesses, both single conditions and multiple chronic condition clusters
  - Location of care: outpatient visits, ED visits, hospitalizations
  - Costs by TRICARE Prime status and location of care

# Research Rationale



- Complex chronic illnesses are often described and studied in isolation
- Large segment of the U.S. population has multiple chronic conditions
  - Among adults age 18-64, 31.8% of those with private health insurance and 45.1% of those with only public insurance have two or more chronic conditions\*
  - Among adults age 18-64, prevalence of chronic diseases is highest for hypertension, mood disorder, diabetes \*\*

\*Machlin, S. & Woodwell, D. (2009). Agency for Health Research & Quality, Statistical Brief #243.

\*\*Druss BG, Marcus SC, Olfson M, et al. (2001). *Health Affairs*, 20(6):233+



# Definitions: Complex Chronic Illness



- Complex Chronic Illness (CCI)
  - Defined by Agency for Healthcare Research and Quality (AHRQ) as conditions with **at least one year duration** and which impact life style (AHRQ, Statistical Brief #243)
  - National Committee for Quality Assurance (NCQA) defines chronic conditions by high-cost conditions
  
- Multiple Chronic Conditions (MCC)
  - Two or more of the complex conditions defined by NCQA and AHRQ

# Selected Chronic Conditions



- Priority conditions identified by AHRQ and Centers for Medicare & Medicaid Services plus conditions important to DOD (PTSD, Low Back Pain)

<b>Asthma</b>	<b>COPD</b>
<b>Diabetes</b>	<b>Hypertension</b>
<b>Depression</b>	<b>Ischemic heart disease</b>
<b>Serious and persistent mental illness</b>	<b>Stroke</b>
<b>Post-traumatic stress disorder</b>	<b>Low back pain</b>

# Data Sources



- Defense Enrollment Eligibility Reporting Systems (DEERS)
- Direct Care claims: Standard Inpatient Data Record, Standard Ambulatory Data Record
- Purchased Care claims: Health Care Services Records, TRICARE Encounter Data – Institutional (TED-I)
- All - ICD9 and CPT codes, Pharmacy Detail Transaction Service (PDTs)

# Methods: FY06 Cohort



- Cohort of TMA beneficiaries with continuous enrollment over 2 years (FY06 – FY07), age 18 – 64 in FY06, and alive through FY06
  - Chronic conditions identified in FY06
  - Costs of care measured in FY07
- Conditions selected based largely on NCQA HEDIS criteria (e.g. 1 inpatient event, 2 outpatient events or Rx use)
- Clusters of conditions defined as mutually exclusive combinations (e.g. diabetes + hypertension; lower back pain + depression + diabetes)

# Methods: Cohort Inclusion/Exclusion



- Included all categories of benefits:
  - PRIME
  - PRIME Remote
  - Prime Remote Overseas
  - Standard & Extra
  - Standard Overseas
  - Reserve Select
  - Retired Reserve

# RESULTS: FY06 Cohort Characteristics



MCC Group is older, more likely to be female, retirees or spouses of retirees, and living in the South.

	MCC Group	No MCC Group	p
N=	969,359	2,907,007	
Average Age	47.0	36.1	<.001
Male	42.8	53.6	<.001
DEERS beneficiary category			<.001
e.g. Retirees	29.3%	14.7%	
Region			<.001
e.g. South	56.5%	51.7%	

# RESULTS: Number of FY06 Patients with Complex Chronic Conditions



Conditions	N = 969,359	%
Hypertension (HTN)	473,635	48.9
Diabetes	228,295	23.6
Depression	219,181	22.6
Lower Back Pain (LBP)	215,056	22.2
Asthma	56,732	5.9
COPD	35,685	3.7
Serious, persistent mental illness (SPMI)	33,153	3.4
Ischemic heart disease (IHD)	25,214	2.6
Post Traumatic Stress Disorder (PTSD)	19,513	2.0
Stroke	9,742	1.0

# Number of Patients with Multiple Chronic Conditions and % Total FY07 Costs



# MCC's			FY07 Costs	
	N	%	Avg Cost	% total cost
0	2,907,007	75.0	\$ 3,173	55.0
1	695,961	18.0	\$ 6,313	26.2
2	214,449	5.5	\$10,098	12.9
3	47,008	1.2	\$15,314	4.3
4	9,767	.5	\$21,263	1.2
5	1,830	.1	\$26,532	.3
6	394	<.1	\$30,747	<.1
7	39	<.1	\$25,824	<.1
8	1	<.1	\$28,001	<.1

**2+ conditions are ~ 7% of population but ~20% of healthcare costs**



# Number of Multiple Chronic Conditions by Health Care Utilization and Cost



# MCC's		Purchased Care Only	MTF Only	Shared Care
1	N	315,996	152,637	227,328
	Avg Outpt Visits	11.6	6.5	10.7
	Avg Inpt Stays	.15	.11	.17
	<b>Avg Cost</b>	<b>\$6,460</b>	<b>\$4,918</b>	<b>\$7,045</b>
2	N	116,713	28,372	69,364
	Avg Outpt Visits	16.2	8.1	15.1
	Avg Inpt Stays	.26	.17	.27
	<b>Avg Cost</b>	<b>\$10,217</b>	<b>\$7,783</b>	<b>\$10,844</b>
3	N	28,655	2,855	15,498
	Avg Outpt Visits	22.0	10.9	20.4
	Avg Inpt Stays	.51	.32	.48
	<b>Avg cost</b>	<b>\$15,212</b>	<b>\$12,587</b>	<b>\$16,005</b>

# Top 8 Multiple Chronic Condition Clusters and FY07 Cost



MCC Cluster	N	%	Avg Cost	Additive Predicted Cost	Ratio
Diabetes + HTN	88,805	9.2	\$8,970	\$12,953	.71
HTN + LBP	24,760	2.6	\$9,404	\$11,895	.79
HTN + <b>Depression</b>	19,517	2.0	\$9,780	\$12,165	.80
<b>Depression + LBP</b>	15,520	1.6	\$12,076	\$12,644	.96
COPD + HTN	7,630	0.8	\$11,597	\$15,752	.74
<b>Depression + SPMI</b>	7,393	0.8	\$11,400	\$15,524	.73
Diabetes + HTN + LBP	7,308	0.8	\$13,050	\$18,780	.69
Diabetes + HTN + <b>Depression</b>	6,416	0.7	\$14,611	\$19,050	.77

# Incremental Costs for Complex Chronic Illness When Paired with HTN, Depression, LBP and Diabetes



Mental health disorders contribute significantly to total costs.

<b>MCC clusters with lowest incremental costs</b>	
HTN + Diabetes	\$1818
HTN + LBP	\$2172
HTN + Depression	\$2,231
PTSD + Diabetes	\$2,323

## **MCC clusters with highest incremental costs**

Stroke + Depression	\$7,480
SPMI + LBP	\$7,041
Stroke + Diabetes	\$6,863
COPD + Diabetes	\$6,681
COPD + Depression	\$6,661
SPMI + Diabetes	\$6,232
Depression + LBP	\$5,469
Depression + Diabetes	\$5,241

# Comparison of Complex Chronic Illness by TRICARE Prime Status



- Among Prime enrollees, more patients with asthma, depression, lower back pain, and PTSD.
- Among non-Prime enrollees more patients with hypertension, diabetes, COPD, and ischemic heart IHD.
- Prime enrollees have more single complex chronic conditions, but fewer multiple chronic conditions, most likely due to younger age.

	Prime Status*	
	No	Yes
Asthma	4.8%	6.3%
COPD	6.4%	2.5%
Diabetes	33.1%	19.4%
HTN	55.3%	46.1%
IHD	4.1%	2.0%
<b>Depression</b>	<b>18.0%</b>	<b>24.6%</b>
SPMI	3.9%	3.2%
Stroke	1.5%	0.8%
<b>LBP</b>	<b>15.4%</b>	<b>25.1%</b>
PTSD	1.3%	2.3%

# Adjusted Claims Cost by Prime Status and Location of Care



- Prime enrollees usually had higher claims cost after adjusting for differences in age, region, sex, number of outpatient visits in FY06, number of inpatient stays in FY06, and presence of other chronic conditions.

Adjusted Increased Cost	HTN	Depression	LBP	Diabetes
PRIME Enrollee	\$ 1,230	\$291	\$912	\$2,382
Purchased Care Only	Ref. Group	Ref. Group	Ref. Group	Ref. Group
Military Treatment Facility Only	\$(1,311)	\$(373)	\$(1,119)	\$(2,080)
Shared Care	\$593	\$1,147	\$972	\$(798)

# Conclusions



- About 33% of TRICARE beneficiaries who submitted health care claims in FY2006 have one or more CCI, consistent with 2005-2006 AHRQ rates for the U.S. population, age 18–64, with private health insurance (32%).
- Results support need for **preventive health care**, particularly for illnesses related to health behaviors (e.g., diet, exercise, tobacco use) that may lead to or complicate hypertension, depression, diabetes, and COPD

# Conclusions, cont.



- Findings are useful for planning and evaluating patient-centered medical homes with respect to:
  - Type of health care expertise most needed
  - Capacity needed
  - Patients who would benefit most from managed care interventions
- Lower rates of CCI among Prime enrollees due to younger age and perhaps level of complexity
- Higher rates of PTSD, depression and LBP among Prime enrollees most likely due to inclusion of all active duty service members within the Prime options

# Recommendations



- Promote the use of MTF among those with complex chronic illness who can be managed effectively with primary care providers
- Set up patient-centered medical homes around most common multiple chronic conditions
- Integrate experienced mental health providers into patient-centered medical homes
- Develop and implement best practices for managing multiple complex chronic conditions within MTF and Prime providers





# Questions?