Patterns of Utilization and Costs for Persons with Serious Mental Illness Involved in the Criminal Justice System

American Public Health Association	USF UNIVERSITY OF SOUTH FLORIDA COLLEGE OF BEHAVIORAL & COMMUNITY SCIENCES	Philadelphia, PA 11/10/2009

Presenter: Gregory B. Teague, Ph.D.

Louis de la Parte Florida Mental Health Institute
College of Behavioral & Community Sciences
University of South Florida

Presenter Disclosures

- The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months
  - Industry-sponsored grant for research: Financial support for this project provided by Ortho-McNeil Janssen Scientific Affairs, LLC

    ORTHO-McNEIL JANSSEN SCIENTIFIC AFFAIRS, LLC

- No other relationships to disclose

Sample & Data

- Population: 3,769 persons with SMI with at least one day in jail 7/02-6/03 in one FL county
- Data
  - Drawn from collaborative database incorporating jail and other county services, statewide arrest and service events, & Medicaid
  - Individual characteristics, incarceration, public behavioral & general healthcare, and social services
  - Expenditures
  - One year prior to index year and two years following
  - Grouped in 90-day periods for analysis
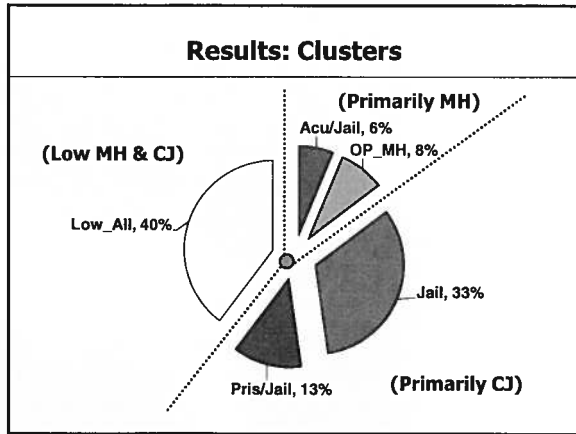

Study Sample: Demographic & Clinical Characteristics

Age	Mean ± s.d. = 36.0 ± 10.3		
Gender	59% Male, 41% Female		
Race / Ethnicity	74% White, 20% Black, 5% Hispanic, 1% Other		
Psychiatric Diagnosis	22% Psychotic, 29% Bipolar, 31% Major Depression, 18% Other mood		
Crime	57% Felony, 86% Misdemeanor		
SUD Diagnosis	67%	History of Homelessness	13%

Methods: Cluster Analysis

- Purpose
  - ID groups of people with similar utilization patterns
  - Examine differences in characteristics
  - Derive inferences: alternative intervention strategies
- Input variables = days of use in 4 categories, 4 yrs
  - 2 Mental Health (MH): • Outpatient (OP);
    - Acute (hospital, emergency, crisis)
  - 2 Criminal Justice (CJ): • Jail; • Prison
- Data modifications
  - Annual days adjusted for proportion of time in county
  - Square root transformation
  - Standardized for clustering procedure

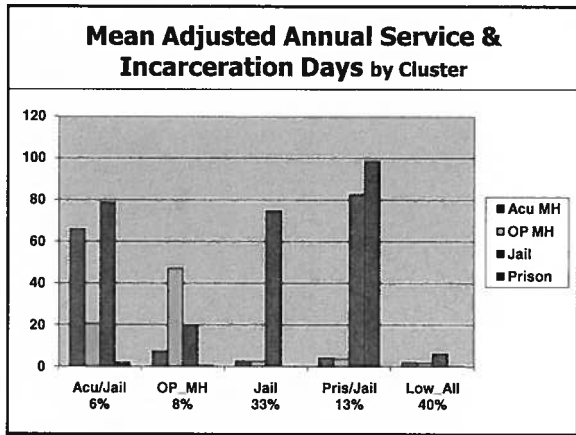**Cluster Identification & Comparison**

- 2-step cluster procedure (SPSS), multiple runs
  - In random order (results sensitive to order)
  - # of clusters not specified
  - Variance in #s of clusters produced, but solutions with same #s of clusters very similar
- # of clusters selected empirically and theoretically
- Multiple second-level cluster analysis
  - Cluster assignments from first set as input; similar
  - Selected solution close to first-level with good fit
- Comparisons: univariate (anova, chisquare) & multivariate (multinomial logistic regression)

Results: Clusters

(Primarily MH)
Acu/Jail, 6%
OP_MH, 8%
(Low MH & CJ)
Low_All, 40%
Jail, 33%
Pris/Jail, 13%
(Primarily CJ)

Clusters: Service Patterns & Size

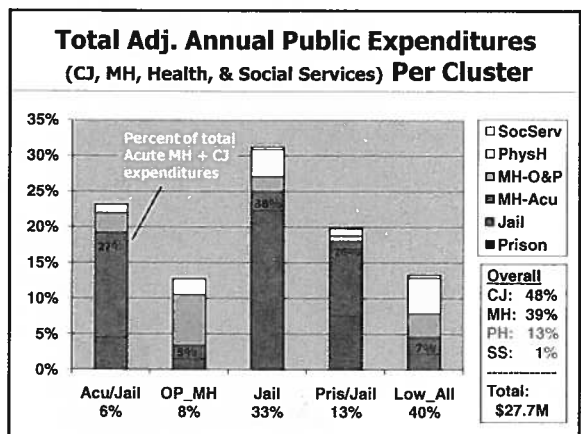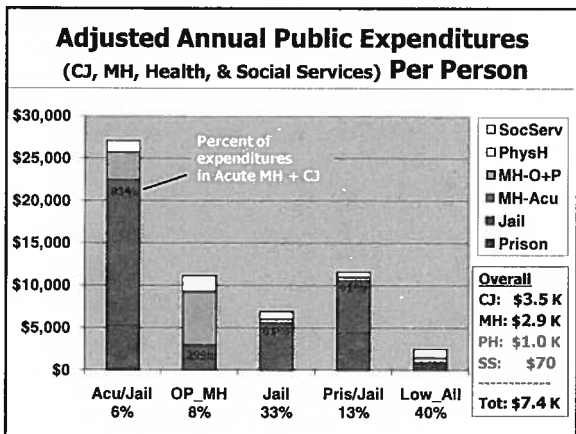| Label	Pattern	%
Acu/Jail	High use of MH inpatient, emergency, and involuntary hospitalization; high jail time	6%
OP_MH	High use of MH outpatient services; other MH use low; lower incarceration	8%
Jail	High # of days of incarceration in jail; low MH and prison	33%
Pris/Jail	High # of days of incarceration in prison and jail; low MH	13%
Low_All	Low in all categories	40%

USF UNIVERSITY OF SOUTH FLORIDA   8

Mean Adjusted Annual Service & Incarceration Days by Cluster

Legend: Acu MH, OP MH, Jail, Prison

X-axis: Acu/Jail 6%, OP_MH 8%, Jail 33%, Pris/Jail 13%, Low_All 40%

Arrests & Charges

Cluster	Annual Arrests Obs.	Adj.	% w/ Felony	Relatively Frequent Charge Categories
Acu/Jail	1.2[2]	2.6[1]	71%[2]	Violation; Public; Person
OP_MH	.8[3]	.9[3]	41%[3]	
Jail	1.5[1]	2.0[2]	75%[2]	Drug; Public
Pris/Jail	1.2[2]	2.8[1]	85%[1]	Drug; Property
Low_All	.8[3]	.9[3]	35%[4]	
Total	1.1	1.6	43%	% with charge: Property (45%), Person (39%), Drug (35%), Public (27%), Violation (15%)

(Colors & superscripts indicate significantly different rates [p<.05])

Adjusted Annual Public Expenditures
(CJ, MH, Health, & Social Services) Per Person

Percent of expenditures in Acute MH + CJ

Legend: SocServ, PhysH, MH-O+P, MH-Acu, Jail, Prison

Overall
CJ: $3.5 K
MH: $2.9 K
PH: $1.0 K
SS: $70
Tot: $7.4 K

Total Adj. Annual Public Expenditures
(CJ, MH, Health, & Social Services) Per Cluster

Percent of total Acute MH + CJ expenditures

Legend: SocServ, PhysH, MH-O&P, MH-Acu, Jail, Prison

Overall
CJ: 48%
MH: 39%
PH: 13%
SS: 1%
Total: $27.7M

Gregory B. Teague, Ph.D.
University of South Florida

Demographic & Clinical Characteristics

- Significant variance across clusters

	Chi-sq	df	p (2-s)
Age group	69.1	12	< .000
Gender	73.3	4	< .000
Race / Ethnicity	106.0	12	< .000
Diagnosis	227.0	12	< .000
SUD diagnosis	73.5	4	< .000
Medicaid	118.9	4	< .000
Homeless	123.1	4	< .000
Juvenile Justice history	8.5	4	.076

UNIVERSITY OF SOUTH FLORIDA   13

Clusters & Characteristics: Odds Ratios
(MLR Reference categories: Low_All & most others are largest)

*<.05, **<.01, ***<.000, '' ns	Adv/Jail	OP_MH	Jail	Pris/Jail	Low_All
< 21		.5 *		.5 *	+
40-50		1.4 *		.6 ***	
51-64	1.7 *		.6 **	.4 ***	+
Female	.6 ***	1.4 **	.8 ***	.6 ***	+
Black	1.4		1.9 ***	2.9 ***	−
Hispanic	3.5 ***				
Psychotic	6.3 ***	6.4 ***	1.7 ***	2.5 ***	−
Bipolar	2.5 ***	3.7 ***	2.0 ***	2.6 ***	−
Oth. Mood	1.8 *	.4 ***	.6 ***	.4 ***	
SUD Dx.	2.3 ***	2.1 ***	1.9 ***	2.3 ***	−
Homeless	2.8 ***	1.6 *	3.3 ***	2.6 ***	−
Medicaid	2.2 ***	2.3 ***	.8		
Juv. Just.			1.6 **		

Summary: Characteristics Associated With MH & CJ Use Patterns

Age	Young adults & prison; older & OP-MH
Males	Incarceration & acute MH; less OP-MH
African-Americans	Incarceration, especially prison
Hispanics	Acute MH + Jail
Psychotic disorders	Acute MH + Jail; OP-MH
Major depression	Lower use overall
SUD diagnosis	All high-use patterns
Homelessness	Any high service use, esp. incarceration & high-intensity MH services

UNIVERSITY OF SOUTH FLORIDA   15

Implications for Interventions

- Co-occurring SUD/SMI in community & forensic populations
- Community-based MH services for different groups
  - People with arrest history not engaged in MH services
  - People with arrest history using acute MH services
  - Youth in transition
- Homelessness prevention
  - Supportive housing programs for homeless persons w/ SMI
  - Re-entry focus on housing & service engagement

UNIVERSITY OF SOUTH FLORIDA   16

Other Implications • Limitations

- More general strategies in response to selective service access & pervasive system/ community/ societal issues
  - E.g., engagement in culturally acceptable services for African Americans & other minorities with SMI; males
- Limitations
  - Single county/state & time period, jailed persons only
  - Data for only public services and expenditures
  - No data on treatment in prison/jail
  - Prison/jail expenditures data not person-specific
  - Incomplete MH/SA data during one year
  - Clinical diagnosis, partial demographics

UNIVERSITY OF SOUTH FLORIDA   17

Contact Information

Gregory B. Teague, Ph.D.
Department of Mental Health Law & Policy
Louis de la Parte Florida Mental Health Institute
College of Behavioral & Community Sciences
University of South Florida
13301 Bruce B. Downs Blvd
Tampa, FL 33612
Voice: 813-974-7185
E-mail: teague@fmhi.usf.edu

UNIVERSITY OF SOUTH FLORIDA   18