Factors associated with psychiatric hospital length of stay among children and adolescents: A systemic perspective

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Indicators of a Healthy System of Care

- Level of care "appropriate" and "rational"
- ***Amount (dose) of care "appropriate" and "rational"***
  - Length of Stay (LOS)
- Appropriate type of care (quality)
- Effective (outcomes)

A mismanaged healthcare care system led to the following by the mid-90s in Illinois:

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  - 5-10% of high-end emotionally disturbed youth were served out of state
  - Lengths of stay in the hospital lasting several months to a year were common
  - Children sent across the state to receive care with no family or case manager contact

Monitoring inpatient services

- Screening, Assessment, Supportive Services (SASS)
  - Began in 1992. Full implementation in 1996
  - Wards referred when thought to be a risk to themselves or others
  - SASS interviews tied to hospital reimbursement
  - Referrals made by caregiver or caseworker

Screening, Assessment, Supportive Services

- 30 independently operated agencies covering the state.
- Mobile: SASS workers drive to site of psychiatric crisis
- 85% of workers have Master's degrees in Social Work, Counseling, or Clinical Psychology

Range of SASS Services

- Initial screening
- Crisis management
  - Must make contact within 4 hours of call
- Post-crisis services:
  - Short-term family therapy
  - Short-term individual therapy
- Hospital monitoring
- Discharge planning

Research Question

- Is use of length of stay "rational"?
  - Primarily influenced by clinical variables
  - Less influenced by non-clinical variables

Prior research on LOS

- Clinical*
  - Suicide
  - Danger to Others
  - Depression
  - Behavioral Problems
  - Substance Abuse
  - Chronicity (prior hospitalizations)
- Non-clinical*
  - Caregiver burden
  - Lack of other treatment options (e.g., community)
  - Race/Ethnicity
  - Poorer quality of services by other providers (e.g., residential)
  - The hospital serving the youth

There is a need for more research on the role of the community and the hospital in LOS research

*Leon, Uziel-Miller, Lyons et al., 1999; Leon, Snowden, Bryant et al, 2006

Sample

- n = 1,473 Medicaid-insured youth admitted to 32 hospitals (2005-2006):
  - Department of Children and Family Services (DCFS)
  - Department of Human Services (DHS)
- Demographics:
  - 50% Female
  - 55% African-American
  - 31% Caucasian
  - 10% Hispanic/Latino(a)
  - Mean Age: 14.3 years (*SD* = 3.2)
- DSM -IV Diagnoses:
  - 35% Mood Disorder
  - 20% Impulse Control Disorder
  - 17% PTSD
  - 17% Anxiety Disorders
  - 8% Psychotic Disorders

Predictors of Length of Stay

- Children's Assessment of Needs and Strengths (CANS)
- 2000 Census tract data*
- DCFS versus DHS involved
- Hospitals

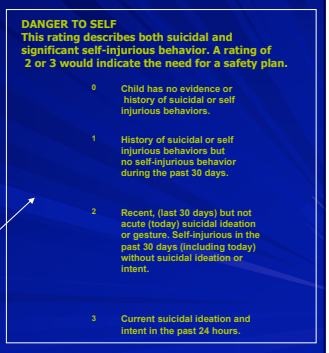
*United States Census Bureau, 2002

Measure of Psychiatric Severity: Children's Assessment of Needs and Strengths (CANS)

- Clinical and environmental factors developed from focus groups and indications from the literature (Lyons, 1995)
- Severity ratings made on 0-3 scale
- 25 dimensions across five factors
  - Presenting Problems
  - Risk factors
  - Functioning
  - Comorbid factors
  - Placement/system factors

Outcome Measurement

- The Child and Adolescent Needs and Strengths (CANS; Lyons, 1997)
- Clinical and environmental factors related to adolescent development
- 0 to 3 scale



Reliability: CSPI Intraclass Coefficients

- Northwestern Research Team: .89
- SASS workers directly after training: .78
- SASS workers in the field*
  - 1997: .70
  - 1998: .72
  - 1999: .70
  - 2000: .73

*Lyons, Rawal, Leon et al., 2002

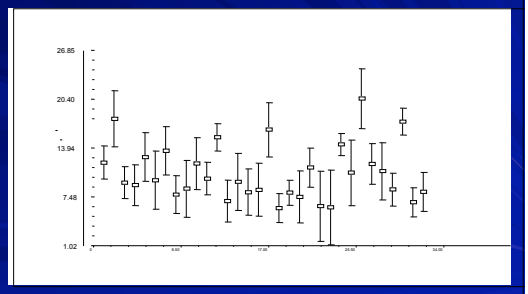
Statistical Strategy

- Hierarchical Linear Modeling (HLM)
  - Accounts for dependencies in the data (youth nested within hospital)
  - Estimates how much variability in dependent variable (LOS) is attributed to the various levels (2).
  - Allows researcher to study predictors at both levels
    - Child (e.g., CANS, Census)
    - Hospital (e.g., organizational variables)

Results

- Percent variance attributable to child
  - 85%
- Percent variance attributable to hospital
  - 15%

Results: Variation in LOS across Hospitals



Results

Two-level HLM analysis of client and hospital predictors of LOS

Fixed Effect	Coefficient	se	t	p
Level 1				
DCFS (Yes)	1.54	.69	2.25	.03
Suicide	-1.71	.56	-3.05	.005
Other Self-Harm	1.41	.44	3.19	.004
Living Situation	.90	.30	2.99	.006
Caregiver Health	-.86	.33	-2.64	.013
Caregiver Supervision	-.71	.22	-3.21	.003
Level 2				
Percent DCFS	.16	.03	4.16	<.0001

Summary and Future Directions

- Youth account for majority of variability in LOS, but hospital still accounts for 15%
- Census tract data do not predict LOS
- DCFS status predicts at level 1 and level 2
- Caregiver health and supervision problems predict shorter LOS

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