

Comparing community based services & inpatient admissions:

The evolving role of hospitalization

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Introduction

- Inpatient:
 - ✓ costliest service in the system of care
 - ✓ Necessary in a subset of acute cases
- In-home services:
 - ✓ are alternatives to hospitalization
 - ✓ used to deflect at-risk youth
- Insufficient information on youth served in each service

Introduction: Study Questions

1. What are the clinical and demographic similarities and differences between youth in each service modality?
2. What are the key factors in youth receiving inpatient services?
3. What is the role of psychiatric hospitalization in a system of care?

Methods

- Planning study of a state public mental health system
- Examined subset of community inpatient and home-based crisis intervention cases
 - ✓ CIP programs: private and not-for-profit acute hospitals
 - ✓ HBCI programs: in-home crisis services to prevent hospitalization

Methods: Study Sample

Sample Size	N (CIP) = 156 N (HBCI) = 169
Gender	Males: 53.8% (N = 175) Females: 44.6% (N = 145)
Age	12.0 yrs (SD = 3.13, range 3 – 17 yrs)
Race/Ethnicity	Non-Hispanic White = 45.8% African-American = 26.5% Hispanic = 17.5%
Placement	Parental custody = 74.5% Department of Social Services = 11.1%, Other relatives = 9.2%

Methods: Data Collection

- On-site retrospective chart reviews
- Standard protocol used to collect:
 - demographic data
 - current and prior treatment history
 - current and prior placement history
 - discharge information (if applicable)

Methods: Child & Adolescent Needs and Strengths Assessment (CANS)

- CANS used to collect data on:
 - ✓ Problem Presentation
 - ✓ Risk Behaviors
 - ✓ Functioning
 - ✓ Care Intensity and Treatment
 - ✓ Caregiver Capacity
 - ✓ Strengths
- 4 pt anchor scale (0 = no problem, 3 = immediate intervention required)
- Used widely in several state child service systems
- Weighted reliability = 0.81

Methods: Statistical Analyses

- CIP and HBCI cases compared using Chi-square analyses and T-tests
- Stepwise logistic regression used to predict placement based on CANS

Results: Demographic Variables

Variable	Inpatient treatment	HBCI programs	Chi-square value	T-test value, CI*
Mean age of youth in years	12.85	11.27	NA	4.70* 0.92-2.24
Custody			22.44*	NA
parental custody	66.7%	81.7%		
state custody	19.2%	3.6%		
Juvenile justice				NA
Judged delinquent	10.9%	2.4%	14.65*	
History of detention	7.1%	1.2%	14.13*	
With prior outpatient treatment	57.7%	72.8%	8.18*	NA
With prior residential treatment	13.5%	3.6%	10.46*	NA
Youth with prior inpatient treatment	51.3%	28.4%	17.79*	NA

All analyses used a 95% confidence interval; p < .05

Results: CANS Problem Presentation

Domain	Inpatient	HBCI	T-test	CI
Symptoms (Total)	6.63	7.16	-1.94*	-1.07 - 0.01
Psychosis	0.47	0.38	1.05	-0.08 - 0.26
Attention Deficit/Impulsivity	1.09	1.50	-3.87*	-0.62 - -0.20
Depression/Anxiety	1.35	1.61	-2.63*	-0.46 - -0.07
Oppositionality	1.26	1.50	-2.45*	-0.43 - -0.05
Antisocial Behavior	0.72	0.85	-1.36	-0.31 - 0.06
Substance abuse	0.45	0.17	3.71*	0.13 - 0.43
Adjustment to Trauma	1.29	1.15	1.13	-0.10 - 0.38

Results: CANS Risk Behaviors

Domain	Inpatient	HBCI	T-test value	CI
Risk Behaviors (Total)	4.95	4.72	0.82	-0.32 - 0.77
Danger to self	1.58	1.08	4.27*	0.27 - 0.73
Danger to others	1.19	1.39	-1.70	-0.43 - 0.03
Elopement	0.53	0.32	2.24*	0.03 - 0.40
Sexually abusive behavior	0.14	0.15	-0.13	-0.11 - 0.10
Social behavior	1.19	1.44	-2.27*	-0.47 - -0.03
Crime/Delinquency	0.31	0.34	-0.38	-0.18 - 0.12

Results: CANS Functioning & Treatment Intensity

Domain	Inpatient	HBCI	T-test	CI
Functioning (Total)	4.18	3.81	1.83	-0.38 - 0.61
Intellectual	0.53	0.21	4.50*	0.18 - 0.46
Physical/Medical	0.35	0.29	1.00	-0.06 - 0.19
Family	1.90	1.78	1.15	-0.09 - 0.33
School	1.40	1.54	-1.20	-0.35 - 0.09
Treatment intensity needs (Total)	5.02	4.18	3.73*	0.40 - 1.29
Monitoring	1.90	1.12	7.96*	0.59 - 0.98
Treatment	1.97	1.78	2.84*	0.06 - 0.34
Transportation	0.40	0.42	-0.31	-0.16 - 0.12
Service Permanence	0.74	0.86	-1.09	-0.34 - 0.10

Results: CANS Caregiver Capacity

Domain	Inpatient	HBCI	T-test value	CI
Caregiver Capacity (Total)	5.57	5.57	0.01	-0.92 – 0.93
Physical Needs	0.12	0.56	-6.40*	-0.58 – -0.30
Supervision	1.05	0.80	2.52*	0.06 – 0.45
Involvement	0.74	0.70	0.43	-0.14 – 0.22
Knowledge	1.16	1.30	-1.34	-0.34 – 0.06
Organization	0.81	0.71	1.06	-0.09 – 0.30
Resources	1.20	1.07	1.27	-0.07 – 0.34
Safety	0.48	0.43	0.57	-0.12 – 0.22

Results: CANS Strengths

Domain	Inpatient	HBCI	T-test value	CI
Strengths (Total)	8.81	7.71	3.99	0.56 – 1.65
Family	1.78	1.05	7.37*	0.54 – 0.93
Interpersonal	1.46	1.62	-1.80	-0.33 – 0.01
Relationship permanence	1.65	1.28	3.74*	0.17 – 0.55
Educational	1.81	1.65	1.44	-0.06 – 0.39
Vocational	2.72	2.89	-2.66*	-0.29 – -0.04
Well-being	2.12	2.11	0.05	-0.12 – 0.12
Spiritual/Religious	2.87	2.53	4.21*	0.18 – 0.50
Creative/Artistic	2.49	2.67	-2.44*	-0.34 – -0.04
Inclusion	1.74	1.90	-1.48	-0.36 – 0.05

Results: Logistic Regression

Variable	B	Standard error (SE)	Wald	Level of sig	Exp (B)
Problem presentation*	0.19	0.05	13.31	0.00	1.21
Risk behaviors	-0.07	0.08	1.67	0.20	0.93
Functioning	-0.03	0.08	0.13	NA	0.97
Treatment intensity and needs*	-0.21	0.06	10.55	NA	0.81
Caregiver capacity	0.05	0.03	2.76	NA	1.05
Strengths*	-0.18	0.48	5.86	NA	3.17

* Significant variables in the final model, with values from the final stepwise logistic regression.
Exp(B) is the predicted change in odds for a unit increase in the predictor. When Exp(B) is greater than 1, the likelihood increases for a unit increase in the predictor. When Exp(B) is greater than 1, the likelihood increases for HBCI treatment and when it is less than 1, the likelihood for inpatient treatment increases.

Results: Discharge Placements

- HBCI youth:
 - ✓ significantly more likely to be discharged to home settings ($X^2 = 3.79, p < .05$)
 - ✓ Only 8% of HBCI youth placed in institutional care
- CIP youth:
 - ✓ significantly more likely to be discharged to residential treatment ($X^2 = 4.61, p < 0.03$)

Discussion: CANS-MH Differences

- HBCI youth:
 - ✓ overall higher symptom rates
 - ✓ caregivers significantly higher rates of physical/mental health needs
- CIP youth:
 - ✓ Higher risk of suicide and elopement
 - ✓ Higher monitoring needs
 - ✓ Demographic differences
 - ✓ Fewer family strengths and supports

Discussion: Discharge Placement

- HBCI programs:
 - ✓ significantly less likely to discharge to congregate care settings
 - ✓ HBCI programs are successful in deflecting psychiatric hospitalization



Discussion: The system of care

- Hospitalization reserved for most severe cases with complex patterns of symptoms, risks, and support
- There are cases that cannot be adequately served in the community
- Emerging pattern of use across the state



Conclusions

- Evidence does not indicate that complex cases cannot be served in the community
- However, hospitalization may be necessary in high-risk cases
- Building the infrastructure to serve youth in community services is a key goal
- Inpatient services play a necessary & distinct role in a system of care



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