Modeling Aftercare Decision-Making for Hospitalized Adolescents

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19th Annual Research Conference-A System of Care for Children’s Mental Health: Expanding the Research Base
February 23, 2006

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Research Question

What are the factors that influence aftercare decision-making?

Are decisions about aftercare based solely on clinical need or do other non-clinical factors influence whether a child will have access to services?

Background

Why examine aftercare decision-making?

- Decisions affect child outcomes
  - Where a child will be placed
  - Effectiveness of care
- Compromised decision-making
  - Insurance
  - Time pressure
  - Agency/organizational factors
  - Resource availability
  - Provider knowledge
- Lack of quality-of-care guidelines /decision-support tools

Guiding Principle on Quality of Care

Children should have access to appropriate care

What is appropriate care?

- Placement in least restrictive treatment settings
- Level of care that best matches children’s needs
- Services that are long enough in duration (dose) to achieve therapeutic benefit

Prior Research

Effect of Aftercare

- Linkage to appropriate and timely aftercare associated with positive outcomes following hospitalization.

Clinical Decision-Making

- Little is known about decision-making processes in assigning children to different levels of care.
- Multiple factors other than clinical need influence decision-making:
  - Demographics
  - Provider characteristics
  - Organizational context

Conceptual Framework

Adapted From Andersen’s Behavioral Health Model

- Need Factors
  - Diagnosis/symptoms
  - Functioning
  - Risk Factors
  - Service History

- Enabling Factors
  - Individual/Family Resources
  - Community Resources
  - Organizational context

- Presdisposing Factors
  - Demographics
  - Age
  - Race/ethnicity
  - Gender
Method

**Design**
- Retrospective cohort

**Sample**
- Universe of Medicaid eligible adolescents
- Aged 11-17.99
- Admitted to 3 hospitals

**Data Sources**
- Hospital records
- Medicaid claims
- Area Resource File

**Sample Description**
- Mean age = 14.3
- Race/ethnicity
  - African-American = 51%
  - Caucasian = 45%
  - Other = 4%
- Gender
  - Male = 46%
  - Female = 54%
- State Custody = 38%

Sample

**Step 1:**
- Identifying Eligible Adolescents That Meet Inclusion Criteria 1-4

**Step 2:**
- Review Hospital Records and Apply Exclusion Criteria

**Total Adolescent Population Admitted to 3 Hospitals FY 1998**
(N=508)

**Pool of Eligible Adolescents**
(N=345)

**Excluded Cases**
(N=37)

**Study Sample**
(N=508)

Measures

**Dependent Variable**

**Recommended Type of Aftercare**

- Four Levels –
  - Level 1: Outpatient Only (Reference Category)
  - Level 2: Intermediate Non-Residential
  - Level 3: Intermediate Residential
  - Level 4: Residential Treatment Center

**Independent Variables**

**Predisposing Factors**
- Age
- Race/ethnicity
- Gender

**Enabling Factors**
- Availability of providers
  - Ratio of providers per 1,000 adolescents in county
- Hospital
- Custody status

* From the Childhood Severity Psychiatric Illness Scale

**Need Factors**
- Symptom severity
  - Emotional
  - Behavioral
- Neuropsychiatric
- Risk behaviors
  - Suicidality
  - Dangerousness
  - Elapsement
- Family Functioning
- Length of stay
- Prior services
  - Past 30 days (Type)
  - Out of home placements
  - Prior hospitalizations

Analysis Strategy

- Multinomial logistic regression of aftercare decisions
- Model specification
  - **Model 1:** Predisposing factors
    - Age, race/ethnicity, gender
  - **Model 2:** Need factors
    - Symptom severity, risk behaviors, family functioning, prior services, length of stay
  - **Model 3:** Enabling factors
    - Availability of providers, hospital, custody status

Type of Recommended Aftercare Services

- Output: 15G
- Intermediate: 104
- Residential: 136
- Residential Treatment: 161
Type of Aftercare by Level of Clinical Need

- Emotional Disturbance
- Behavioral Disturbance
- Neurological Disturbance

Multinomial Results
Intermediate Non-Residential *

- Enabling Factors
  - Hospital Provider
  - Availability of Providers
  - Custody Status
- Clinical Need
  - Neuropsychiatric
  - Emotional Disturbance
  - Behavioral Disturbance
  - Danger to Others
  - Elopement Risk
  - Family Impairment
  - Prior Services
  - Prior Hospitalizations
  - Multiple Out-of-Home Placements
  - Length of stay

Predisposing Factors
- Age
- Race

Reference Category: Outpatient Care

Multinomial Results
Intermediate Residential *

- Enabling Factors
  - Hospital Provider
  - Availability of Providers
  - State Custody
- Clinical Need
  - Neuropsychiatric
  - Emotional Disturbance
  - Behavioral Disturbance
  - Danger to Others
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Predisposing Factors
- Age
- Race

Reference Category: Outpatient Care

Effect of Predisposing and Enabling Factors on Aftercare Decision-Making

- Odds Ratio
  - Race
  - State Custody
  - Availability of Providers

<table>
<thead>
<tr>
<th>Level of Aftercare</th>
<th>Odds Ratio</th>
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</thead>
<tbody>
<tr>
<td>Intermediate Non-Residential</td>
<td>NS</td>
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<tr>
<td>Intermediate Residential</td>
<td>3.41</td>
</tr>
<tr>
<td>Residential Treatment</td>
<td>NS</td>
</tr>
</tbody>
</table>

Odds Ratios
Hospital Provider

- Hospital A
- Hospital B
- Hospital C
- Hospital D

Recommended Aftercare

- Intermediate Non-Residential
- Intermediate Residential
- Residential Treatment
Effect of Selected Need Factors on Aftercare Decision-Making

<table>
<thead>
<tr>
<th>Need Factor</th>
<th>Intermediate Non-Residential</th>
<th>Intermediate Residential</th>
<th>Residential Treatment</th>
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<tbody>
<tr>
<td>Mental Health</td>
<td>1.28</td>
<td>NS</td>
<td>2.36**</td>
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<tr>
<td>Emotional</td>
<td>1.9</td>
<td>NS</td>
<td>NS</td>
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<tr>
<td>Behavioral</td>
<td>2.22</td>
<td>NS</td>
<td>2.36**</td>
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<tr>
<td>Family Functioning</td>
<td>1.05</td>
<td>NS</td>
<td>1.64</td>
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</tbody>
</table>

Odds Ratios
Prior Service Use

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Intermediate Non-Residential</th>
<th>Intermediate Residential</th>
<th>Residential Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior hospitalizations</td>
<td>2.12*</td>
<td>NS</td>
<td>3.36**</td>
</tr>
<tr>
<td>Prior residential stay</td>
<td>NS</td>
<td>20.61***</td>
<td>11.02***</td>
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<tr>
<td>Multiple out of home placements</td>
<td>NS</td>
<td>4.25**</td>
<td>5.71***</td>
</tr>
</tbody>
</table>

| Reference Category: No Prior Services * p<.05 -- **p<.01 --- ***p<.001

Summary and Conclusions
- Findings indicate that aftercare decision-making is strongly influenced by non-clinical factors:
  - Socio-demographics
  - Resource Availability
  - Service system characteristics
  - Provider and organization characteristics
- Differential access to services for minorities and racial bias in decision-making
- Different standards of care for youths who are wards of the state
- Availability of services reduces the likelihood of placement in more restrictive levels of care
- Placement decisions are influenced by provider behavior.

Strengths and Limitations
- Strengths
  - Large sample from three hospitals
  - Controls for multiple confounding factors
  - Examines contextual factors
  - Multiple data sources
- Limitations
  - Data quality
    - Medical records
    - Medicaid claims
  - Generalizability

Clinical and Policy Implications

**Study findings underscore the need for:**
- Standardized assessment tools and level of care criteria to guide decision-making
- Access to a continuum of mental health services
- Improvements in quality of care