What Components of a Continuing Care Model Relate to Substance Use Outcomes over 5 Years in Adolescents?

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Abstract

Research Objective: To test the robustness of a continuing care (CC) measure with long-term data on a sample of adolescents who entered chemical dependency (CD) treatment in a managed care system. We re-examined an existing 3-year CC measure in relation to substance use (SU) outcomes with 5-year follow-up data. We expect CC to be associated with improved SU outcomes. *Data and Methods:* Respondents were interviewed at CD treatment intake (n=419) and at 3 and 5 years post intake. To develop our CC measure, we examined how patterns of primary care (PC), mental health (MH), and CD services received post index CD treatment and related to 3- and 5-year SU abstinence and remission. Measures included diagnoses and service utilization from administrative data. *Principle Findings:* At 3 years, PC visits each year were associated with abstinence (p=.04) and remission (p<.001). Those with at least 1 MH visit in the 2 years prior were more likely to be abstinent than those with no MH visits (p<.01). Among those not abstinent at 1 year, subsequent CD episodes were related to abstinence and remission at 3 years (p<.05). At 5 years, one visit per year since intake was related to drug abstinence (p=.03). At 5 years, at least one CD visit in years 3-5 was associated with remission (p=.04), although not abstinence. There were no findings for MH services at 5 years. *Implications:* Findings suggest that a CC model that includes receiving CD, PC and MH services as needed following index CD treatment contributes to better long-term outcomes of youth with SU problems. While providing CD services alone may produce short-term effects, the addition of PC and MH services may help maintain positive outcomes over the longer term. Our model reflects a disease management approach, with an emphasis on primary care management, and has implications for how health systems can address the multiple needs of this population.

Study Aims

- To re-examine a measure of Continuing Care based on 3-Year follow-up data with 5 year follow-up data.
- Assess primary care service use in combination with mental health and chemical dependency services.

Background

SU as a Chronic Disease

- SU is a chronic problem but treatment is episodic
  - Typically less than 90 days
  - Effects of index treatment decrease over time
- Treatment careers of multiple uncoordinated episodes (Hser et al., 1997)
- Low engagement with continuing care among adolescent patients
- Treatment outcomes tend to be stronger in the short-term than the long-term

What is Continuing Care?

- Typically presented as aftercare services
  - Additional chemical dependency treatment after usual care (6 mos - 1year)
  - Stepped down, lower intensity
  - Other psychosocial services
  - Any type of intervention between treatment system and patient (McKay, 2005)
- 12 step programs
  - Adolescents are less likely to attend

Continuing Care Studies

- Recovery Management Checkups (Dennis, Scott et al.)
  - Quarterly assessments over two years after intake. Those with problems referred to linkage managers. Used MI approach to address SU and other problems
  - Aim is for ongoing monitoring and linking them back to SU treatment
  - More likely to return to treatment; longer retention; improved outcomes
- Assertive Continuing Care (S. Godley, M. Godley et al.)
  - Specific to adolescents
  - Assertive case management for 90 days post discharge
  - Community outreach, home based
  - Associated with improved participation in continuing care, and outcomes
- Telephone interventions (McKay et al, 2001)
  - Evidence of association with improved outcomes, although might be more appropriate for less severe patients

Study's Conceptual Framework and Proposed CC Model

- Grounded in the chronic **disease management** framework, anchored in **primary care**
- Individual with a serious chronic problem (e.g., diabetes) is treated in specialty care, and when stabilized returns to PC for management and monitoring
  - referred back to specialty care for services as needed in the course of their health care
- Similarly, SU is a chronic condition requiring ongoing care or management delivered in more than one setting (McLellan, 2000; McLellan, 2002; Hser et al, 2007)
- A person may do well after treatment, but then relapse

Screen and treat in PC if moderate problem

Continue monitoring

Specialty care if needed

Back to PC for monitoring

Continuing care

Data and Methods

- Baseline interviews with adolescents (and a parent) at intake to CD treatment at 4 Kaiser sites (Oakland, Sacramento, Vallejo, Vacaville)
- Follow-up interviews with adolescents and parents at 6 months and 1,3, and 5 years (Response rates = 92%, 92%, 86% and 85%, respectively)
- Clinical ICD-9 diagnoses from automated records
- Health plan administrative utilization and cost databases

- Analysis:
  Bivariate tests examining the association between 30-day abstinence and remission with:
  - 1 or more PC visit each year after intake and after 3 and 5 years of FU
  - Subsequent MH or CD services if needed, either within or outside KP

- Treatment Programs:
  - Each site offers 1-year program; same modalities of other CD programs in the country
  - Intensive, structured outpatient treatment, abstinence based, breathalyzer and urine screens
  - Group therapy, education, relapse prevention, family therapy.
  - Individual counseling available as needed
  - Require participation of a parent or guardian
  - Attendance at 12-step programs expected and monitored
  - 3 Phases: 8 weeks more intensive treatment
    4 months of relapse prevention/continuing recovery;
    6 months of after care to maintain abstinence

Sample Characteristics and Problem Severity over Time

Sample

- 419 adolescents (143 girls, 276 boys)
- Mean age of initiation (11.5)
- Age ranged from 13 to 17 years (mean = 16.15)
- Ethnicity: 6% Asian, 9% Native American, 16% African-American, 20% Hispanic, 49% White

Matched Controls: 2,084 adolescents from the health plan, no documented alcohol or drug history, matched on gender, age, length of health plan enrollment, and catchment area

Substance use (%) at Treatment Entry (N=419)

	%
Any alcohol	85
5+ drinks of alcohol at one time	45
Marijuana	92
Tobacco	76
Hallucinogens	25
Stimulants	21
Party drugs	20
Sedatives	10
Painkillers	25
Cocaine (powder or crack)	17
Inhalants	12
Heroin	2

Medical Conditions among Adolescent CD Treatment Intakes (%)

	Tx Intakes	Controls	p-value
Abdominal Pain	10.6	5.7	<.001
Respiratory System Cond.	54.5	37.8	<.0001
Gastroenteritis	6.5	3.9	<.05
Conjunctivitis	6.9	3.2	<.001
Muscle Pain	8.4	3.9	<.0001
Scoliosis	3.1	1.3	<.01
Injury & Poisoning	49.6	36.4	<.0001
Urinary Tract Infection	3.4	2.0	<.05
STDs	4.8	1.5	<.0001

Mental Health Conditions of Adolescents in CD Treatment & Matched Controls (%)

	Tx Intakes	Controls	p-value
Depression	36.3	4.2	<.0001
Anxiety Disorder	16.3	2.3	<.0001
Eating Disorders	1.2	0.43	.067
ADHD	17.2	3.0	<.0001
Conduct Disorder	19.3	1.2	<.0001
Conduct Disorder (w/ODD)	27.3	2.3	<.0001
Any Psychiatric DX	55.5	9.0	<.0001

One Reason for Continuing Care: Alcohol and Drug Use after Treatment

	Year 1	Year 3	Year 5
abstinent from alcohol (%)	61	38	29
abstinent from drugs (%)	59	57	55
abstinent from both (%)	47	30	23
in remission (%)	36	26	17

Remission: used alcohol no more than once/week and never more than 2 drinks, OR used marijuana, but only once/month or less, AND b) Used no other drugs (excluding tobacco); AND, c) No dependence/abuse symptoms

Findings for PC-based Continuing Care

- Three years after treatment:
  - 1 or more PC visits/year was associated with abstinence and remission
    - 32% abstinent vs. 18% (p<.05)
    - 28% remitted vs. 14% (p<.05)
  - For those with any MH symptoms at 1 year, 1 or more MH visits was related abstinence
    - 40% vs. 25% (p<.05)
  - Among those not abstinent at 1 year, CD readmission were related to abstinence
    - 40% vs. 33%

- Five years after treatment:
  - 1 or more PC visits/year up to 4 years was associated with drug abstinence
    - 52% vs. 39% (p<.05)
  - Among those not abstinent at 3 years, CD visits in years 3-5 were associated with remission
    - 12% vs. 5% (p<.05)
    - No findings for abstinence
  - We did not finding findings for MH at 5 years similar to those at 3 years.

Discussion

- Primary care is important ***after*** CD treatment as well
  - There is little coordination with CD treatment by PC after treatment
- The opportunity to help return more severe adolescents to treatment and improve outcomes
- Population also has a high level of medical conditions, even in adolescents
  - Need to have these addressed (Institute of Medicine, "*Improving the Quality of Health Care for Mental and Substance-Use Conditions," 2006)*
- Important for individuals to become accustomed to talking about substance use and other behavioral problems to physicians as a life pattern
- Specialty CD services were important in the long-term for those not abstinent, but specialty treatment does not last someone's whole life; even "aftercare" ends at some point
  - They will have ongoing medical care
- The lack of findings for MH may indicate a threshold of MH services are needed in the longer term to see a relationship. We will examine this relationship further, based on sample size

Clinical Implications

- Training PC providers to screen for problems, especially in those who have been in treatment or diagnosed
- "Patient-centered" approach (IOM)
  - Empowers patient
  - Educates patient and family about importance of managing SU problems similar to medical problems
  - Addresses stigma, communication, how to raise the issue with providers

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