Introduction

What is a substance abuse treatment “system of care”? Is it the state? The county? Something else? In this presentation, I explore this question through the use of social network analysis. Social network analysis focuses on the relations among actors and not individual actors and their attributes. My research conceptualizes service systems as networks of interacting organizations of which patient referrals, joint programs, and collaborative planning are constitutive elements (Montgomery, Johnson, & Callesey, 1997).

The main questions that I address here are: To what extent do treatment providers in California cluster together in networks? Do they cluster within counties? What are the structural positions of detox facilities vis-à-vis other treatment providers in their network? This presentation provides descriptive data on the relationships between substance abuse treatment providers in 32 counties within California in 2008-2009. The analysis is the first step in a study on the impact of provider cohesion on readmissions to detox. The relation between providers is defined as the exchange of patients that transition from one service to another.

Methods

Sample

The 32 counties were chosen based on having at least twenty detoxification admissions in 2008-2009. The data are from the California Outcomes Measurement System (CalOMS). CalOMS is California’s data collection and reporting system for alcohol and other drug treatment services that reports to the federal Treatment Episode Data System (TEDS). Treatment providers send patient treatment data to the California Department of Alcohol and Drug Programs each month. Analysis was done at the service delivery level because treatment organizations often provide more than one service. Service delivery units are specific service modalities, e.g., detox, residential, within a treatment organization. I chose to look at service units in order to capture inter- and intragorganizational ties. All service delivery units are publicly-funded.

Of the 1,940 service units captured in CalOMS, only 1,082 units had ties with other units based on patient transitions. Among the 1,082 service units, 52.4% were outpatient drug-free or narcotic treatment programs, 9.8% were day care programs, 12.2% were day programs, and 25.6% were residential programs.

Network Analysis

Each service delivery unit was assigned a unique ID number. The study assumes that patient transitions between service units within 14 days of discharge constitute provider ties. If a patient was discharged from one service and readmitted to another service within 14 days, the “sending” unit and the “receiving” unit were considered to be linked. Fourteen days has been validated as a meaningful window for effective continuity of services in the addiction field (Garnick et al., 2009). Patient-level data allow researchers to construct service networks from the “ground-up” as opposed to the reports of program administrators who may or may not have adequate information about service-level images.

In the graphs to the right, the squares are service delivery units and the lines are the ties between them. A components analysis was done to identify connected sub-networks or components. A component is a connected sub-network. Clustering of units within networks was measured by the clustering coefficient. The clustering coefficient is a measure of the likelihood that 2 associates of an actor are associated themselves. Clustering coefficients indicate the level of embeddedness within networks. UCINET was used to conduct the network analysis.

Results

Figure 1: Graph of ties between service delivery in the main component. Colors represent different counties and size of the units is based on number of direct connections.

Figure 2: Three examples of detox units and their immediate neighborhood (direct ties). The size of the units is based on their number of ties. The detox units in networks a and b are more clustered than network c (most of the detox units’ ties are not tied to each other in c).

Conclusions & Next Steps

Treatment systems are thought to be fragmented, with little coordination across modalities (McLellan et al., 2005; Salz et al., 2003). At the point of discharge from detox, patients are at high risk of relapse and, therefore, vulnerable to system failures. To improve systems of care for vulnerable populations, we need to first examine their structure and effectiveness (Montgomery, Johnson, & Callesey, 1997). This study is the first to examine substance abuse treatment systems from an interorganizational network perspective.

Next steps in this research include:

- Continue to operationalize the construct of provider cohesion using network theory and network measures.
- Validate patient transitions, as a measure of interorganizational ties, by 1) checking patients’ discharge status to see if their coding was coded as a referral, and 2) conducting qualitative interviews with staff members at substance abuse treatment facilities to assess discharge procedures and identify common referral sources.
- Specify a multi-level model to examine the relationship between provider cohesion and readmission to detox.

References:


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