Summary for the Alcohol and Drug Policy Commission

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Introduction: This paper introduces research methodologies that can improve the match of client need to available treatment programming. These methods, summarized here, can be used to answer each of the following questions:

1. What is the effectiveness of each Alcohol and Drug (A&D) provider in Oregon?
2. Do some clients do better with some providers? Can we identify the best provider for each client?
3. Can we identify the best providers given the current client population?
4. If the best treatment bed is not available for each client, can we quantify the effects of being served by a less desirable provider?
5. Can we identify the client populations not well served with existing services?

Data: The data include Oregon arrest data (Law Enforcement Data System or LEDS) and the Alcohol and Drug Treatment data (Client Process Monitoring System or CPMS); earlier analyses included data from the Department of Corrections mainframe data system. The CPMS data include over 535,000 episodes of clients receiving A&D treatment and the LEDS data include over one million arrests in Oregon between 2000 and 2010. The datasets were combined by the Criminal Justice Commission. The outcome variable is reconviction of a felony within three years after beginning A&D treatment.

Questions and Methodologies

What is the effectiveness of each A&D provider in Oregon? DOC research has developed an automated "propensity matching" system that identifies control groups for each program and service. Each treatment client is matched with a demographically identical "twin" who does not receive treatment. The matching variables include those client characteristics known to be statistically associated with the outcome (i.e. recidivism in this study).

The current academic evaluations usually require years of service and additional time to recognize the outcome. Quantifying program effectiveness cannot tolerate years of service and a recidivism period before ineffective programs are improved or eliminated. This matching process provides immediate results for both programs and those funding the program. In addition, the propensity matching system allows program effectiveness to be quantified for every program; program effectiveness requires time after treatment but does not require a finite period (e.g. 3 years).

The methodology was presented at the national Program Evaluators Network meeting (Baltimore 2007) and summarized on the DOC website (http://www.oregon.gov/doc/RESRCH/docs/aea_2007.pdf). The equations for the largest 256 Oregon A&D providers have been generated. Automating a program evaluation system that quantifies effectiveness could be achieved within one year.

Do some clients do better with some providers? Can we identify the best provider for each client? Between 2000 and 2010, there were 535,000 alcohol and drug treatment episodes that included 300,000 different clients. The difference between the number of episodes (535K) and number of clients (300K) might suggest that relapse is common with the recovery process. The large proportion of repeat

clients could also suggest some clients may not be referred to their best provider. Some A&D providers do well with long-term heroin users, some do well with DUII offenders, and some do better with criminally involved A&D users. When the matching of clients with providers is marginal, multiple episodes would be expected before sobriety is achieved.

For every client being considered today, there are many very similar clients who were previously served. Knowing how these similar clients did with each provider will identify the best provider for each new client. Researchers can estimate the success rates for each new client referred to each provider by developing equations. Identifying the best provider for each new client is simplified using these equations.

This methodology was developed using the CPMS data. For the 10 largest A&D providers, the likelihood of success for any particular client often differed by 40-50 percentage points; many had low estimates for success for one provider (e.g. 15%) and high estimates from another provider (e.g. 85%). Although some informal alignment between clients and providers does exist today, more clients can benefit from identifying their "best" provider. Equations for all 256 providers have been generated.

Can we identify the best providers given the current client population? Quantifying the effectiveness of programs will generally identify your best programs. If program effectiveness estimates are available, most administrators would enlarge the best programs and eliminate the least effective programs. Although logical, the effectiveness of the program could be low if the wrong clients are referred. To insure the best programs are identified despite the client population referred, a different methodology was developed.

Some research methods are best explained through example. For this example, we will have 1000 clients being served by 10 providers each with 100 beds. All 1000 clients are awaiting placement in the 1000 beds within the 10 facilities. We randomly select one of the 1000 clients awaiting placement and consider each of the 10 providers. We have estimates of success for this client for each of the 10 A&D providers; we place the first randomly selected client with the "best" provider. You randomly select a second client from the 999 remaining clients and place that individual with their "best" provider. The first and second randomly selected clients may be placed with the same provider if they have similar characteristics and similar histories. If the clients are very different, each will likely be placed with a different provider. As you continually randomly select clients and place each with their provider that has historically done well serving similar client populations, eventually one provider will fill their 100 beds. This provider is your best provider. Eventually the second provider reaches capacity, then the third provider, and so on. Clients selected late will not be placed with the "best" provider but will be placed with the "best available" provider. The difference between the "best" placement for each client and the best available bed recognizes the lack of congruence between client need and services available. When this methodology is repeated 1000 times, a ranking of providers can be determined.

If the best treatment bed is not available for each client, can we quantify the effects of being served by a less desirable provider? Clients accessing their "best" provider will have more successful outcomes than individuals who cannot access their best provider. When the best provider is filled, the next best available provider is used. The difference between the unavailable "best" provider and the "next best" available provider can be quantified. For example, if a client's success rate for their best provider for a client is 75% and success rate for the next best available provider is 50%, the likelihood of success for this client is 25 percentage points lower if the best provider has no available beds. When the difference in best and next best available provider is summed for every client, the decreased success attributable

to availability can be quantified. This decreased success rate recognizes the misalignment between the types of beds offered by the providers and the actual beds needed by the clients. This misalignment between beds provided and beds needed should decrease over time. Although the optimum system will perfectly align the types of beds with client need, achieving that optimum will be difficult. Despite difficulty achieving perfect alignment, agencies should quantify differences and modify contracts to better serve the client population. Agency metrics that estimate performance should include the difference between the current state and the ideal state. The "ideal" state would reflect the perfect alignment between beds provided by the agency and the beds needed by the clients. The metric would identify changes necessary to better align providers' strengths with clients' needs.

Can we identify the client populations poorly served by existing services? The methodology described above identifies the best provider for a particular client. Most new clients will have some providers with proven success rates for similar clients. In addition to some very good providers, most new clients will have some providers with lower success rates serving similar clients. Although most new clients will have a mix of "best" and "worse" providers, some clients will not have any good success estimates from any existing provider. These clients cannot benefit from the existing group of providers. Identifying the group of clients not adequately served with existing resources is the first step toward developing a new program that fills an existing service gap. Profiling clients with low success rates should allow treatment experts to develop new programs that cater to the needs of this population.

Summary: The methods developed for these analyses can be used in other disciplines. School districts with numerous schools can maximize graduation by matching students with schools. Agencies with multiple programs or services can identify the single service or program with the greatest impact. Families served by competing agencies can identify the best agency to serve a client (e.g. child welfare versus juvenile justice). Agencies with disparate populations can identify client populations not benefitting from the current array of services. Systems with minority over-representation issues can identify the most effective and responsive programs for each sub-population. Lastly, agencies can use these analyses to develop realistic agency performance metrics. When agency resources fluctuate, agency outcomes also fluctuate. Despite fluctuating resources that may influence client outcomes, an agency's ability to align programs with clients does not fluctuate; using this metric as an agency performance measure should maximize outcomes regardless of resources.

These collaborative efforts generate new ideas and methodologies that may improve service delivery systems. In addition, these collaborative efforts promote the exchange of data among agencies. Expanding beyond the agency data silos can provide a more realistic view of Oregon's children and families. If used correctly, these data can generate more accurate equations and a wider array of outcomes. Although the results from these analyses can be implemented today, more useful conclusions can be obtained by using data from multiple sources.