The Longitudinal Study of Change in Service Patterns:
An Investigation into the Impact of Ohio's Economic Downturn on Service Use
Executive Summary

The purpose of this report is two-fold.   Part I provides an introduction to the purpose and goals of the Longitudinal Study of Change in Service Patterns.   Part II presents the results of baseline analyses of several explanatory variables associated with duration, an indicator of service patterns over time.

Part I

To investigate the association between an economic recession and variation in service patterns for adults served in Ohio's public mental health system, the Office of Research and Evaluation (ORE) initiated The Longitudinal Study of Change in Service Patterns in late 2009.   Research questions guiding this investigation are:

- *Do patterns in clinical services change in response to environmental stressors such an economic recession?*
- *Will changes in consumer demand or provider capacity associated with unemployment, increased poverty, funding reductions, or expanded Medicaid coverage translate into different patterns in the amount, scope, and duration of services?*

Part II

The Longitudinal Study uses an interrupted time series design to assess patterns of service use prior to, during, and following the economic recession of 2008. The Study's primary hypothesis is that consumer characteristics will change during the time period of economic recession due to increased eligibility for Medicaid coverage under Covered Families and Children (CFC) and the situational stress of increased unemployment and poverty. Characteristics of consumers covered by ABD Medicaid and by NonMedicaid funding will also be examined. The initial focus of the Study involves examining how the hypothesized change in caseload mix is associated with *service use duration*.

- Analysis of claims for Medicaid-billable services in the MACSIS database show that although total enrollment between SFY 2002 and SFY 2008 increased, the percent of newly enrolled consumers declined from about 40% to 29% of the total adult caseload during that time period.   The number of previously enrolled members who received services for two or more years increased from about 60% to 71.5% of the caseload.
- These trends illustrate the concept of *spell dynamics*: Some people enter and leave the service system within a relatively short time period, while others stay for an extended period.   The study is designed to examine if and how spell dynamics change during the recession.

To explore utilization patterns among service recipients in a database with a half-million unique patients having hundreds of millions of service claims, the research team identified a representative panel or sample of individuals who received services at a point in time known as the index year (SFY 2006).

- Panel 1 in the Longitudinal Study is made up of 206,106 adults who received services in SFY 2006. Panel 1 constitutes 35% of all adults in the MACSIS database from SFY 2001 through SFY 2008.

Before patterns in *service use duration* for the Study panel could analyzed, it was necessary to define a treatment episode. Current data mining practices and standard, usual practice in the field suggested using breaks of at least 180 days to delimit the beginning and end of a treatment episode. To control for breaks in time between treatment episodes, the total number of days between first and last date of service also were calculated. This variable--called *service longevity*--provided a way to analyze service use across years, despite multiple episodes of care**.**

Examination of the relationship between number of treatment episodes and service longevity showed that:

- The number of treatment episodes correlates positively with service longevity. Although this is an expected correlation, it only explains total length of service in 31% of the cases. For 69% of the sample, there was either a single episode of short duration or more than one episode within a short time span.

The statistical technique of survival analysis is used to examine duration of time between onset and the occurrence of an event, such as termination of services. This technique was used to explore the relationship between service longevity and the consumer characteristics of diagnostic group, type of coverage, and continuity of coverage. Results show that:

- Among individuals with schizophrenia and bipolar disorder, a respective 42% and 39% percent remained in services for 1,000 days, while only 10% to 27% of individuals in the other the diagnostic categories reached 1,000 days of service longevity.
- Similar percentages--22% and 20% respectively--of individuals with major depression covered by CFC-Medicaid and Non-Medicaid funding reached 1,000 days of service longevity.
- Regardless of coverage type, 41% of individuals with major depression remained in services for 1,000 days *if* they had continuous eligibility for Medicaid coverage. By comparison, 29% of those with major depression and discontinuous Medicaid eligibility reached 1,000 days of service longevity.

Chi-square analysis of coverage continuity and number of treatment episodes showed that:

- Among individuals with two or more treatment episodes, a disproportionate number have discontinuous Medicaid eligibility compared to those with continuous Medicaid or NonMedicaid funding coverage.

Next steps in the analysis of service duration will examine:

- Survival rates for individuals in clusters and the effects of coverage and service continuity on the cluster sample;
- The relationship between number of treatment episodes, length of treatment episodes, and consumer characteristics.