The Effect of Benefit Limits in Mental Health on Delivery of Care and Outcomes

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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2014

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Abstract

The purpose of this dissertation is to investigate the effects of the institution of annual limits on certain community based mental health services for adults on Medicaid in the state of Ohio. The first chapter provides an overview of the relevant literature that is used in the dissertation. The second chapter identifies which populations may be likely to experience care limitations as a result of these benefit limits. This is achieved using a log-binomial analysis of utilization data prior to the implementation of the policy. The third chapter of the dissertation explores quantitatively how care delivery changed after the implementation of the policy. The fourth chapter provides a qualitative analysis of the operational changes made by providers of community based mental health services, as well of the antecedents of these changes. The fifth and final chapter aims to summarize the achievements of the dissertation and to highlight areas where further research is needed.

For Baba and Yingrui.

Acknowledgments

I would like to acknowledge the following individuals who provided expert guidance and insights, mentored me as a researcher and made this dissertation possible: Helen Anne Sweeney, Sharon Schweikhart, Eric Seiber, Manus Rungtusanatham, Abigail Shoben, Sandra Tanenbaum, Hong Zhu, Kwok Tam, Tom Wickizer, Ann McAlearney, Paula Song, Wendy Xu, Brian Hilligoss and all the people who volunteered their time and advice when I needed it. I would also like to acknowledge my family and my in-laws who have done everything for me that they could. I have been blessed to be supported, encouraged and challenged by my amazing wife who never lost faith in me even when I lost faith in myself many times. Finally I would like to acknowledge my colleagues in the Ohio State University College of Public Health Health Services Management and Policy PhD program. It has been a great joy to share this journey with you all.

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Fields of Study

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List of Common Acronyms

ABD – Aged, Blind, and Disabled Medicaid enrollment

ACT – Assertive Community Therapy

BHC – Behavioral Health Counseling

CBMH – Community Based Mental Health

CFC – Covered Families and Children Medicaid enrollment

CMHA – Community Mental Health Agency

CPST – Community Psychiatric Supportive Therapy

DANP – Diagnostic Assessment by a non-Physician

DAP – Diagnostic Assessment by a Physician

DBT – Dialectical Behavioral Therapy

EPSDT – Early Periodic Screening Diagnosis and Testing

FY – Fiscal Year

ICD-9 – International Classification of Diseases Revision 9

IHBT – Intensive Home Based Therapy

MSA – Metropolitan Statistical Area

PH – Partial Hospitalization

OAC – Ohio Administrative Code

Chapter 1: Introduction and Review of Literature

The effort to limit expenditures while maintaining quality of services and access to necessary treatments remains a paramount struggle for health care in the United States (Institute of Medicine, 2012). There have been many methods proposed to achieve this goal. Prominent examples include utilization review (Feldstein, Wickizer, & Wheeler, 1988), gatekeeping (Franks, Clancy, & Nutting, 1992), and prospective payment (Feder, Hadley, & Zuckerman, 1987). However, even as these strategies have become commonplace, the blunter instrument of annual limits on benefits continues to be used in some instances. This dissertation provides a systematic approach to evaluating the consequences of mental health benefit limits on care delivery.

Mental health care represents a useful context for evaluating benefit limits. The delivery of mental health care in the United States is highly sensitive to changes in insurance coverage (Gronfein, 1985). As insurance coverage changes so too does utilization (Keeler, Manning, & Wells, 1988) . For this reason mental health care is considered price elastic (Keeler et al., 1988). This means that, if a change in mental health benefits occurs, one can expect a corresponding change in care delivery and utilization. This can be extended to a hypothesis that if mental health benefits changed, and care delivery and utilization subsequently change, that the change in reimbursement

caused the change in care delivery. Given this relationship, a significant change in benefits, such as the introduction of a limit, provides an opportunity to evaluate its effects on care delivery.

This dissertation evaluates the consequences of Ohio's annual limits for each Medicaid beneficiary on utilization of six Community-Based Mental Health (CBMH) services. Nationally, Medicaid is the single largest payer for mental health service in the United States (Garfield, 2011). In response to budgetary pressures several states have implemented limits for Medicaid coverage on some health services (Smith, Gifford, Ellis, Rudowitz, & Snyder, 2011). Ohio implemented limits on CBMH services in fiscal year (FY) 2012. Prior to FY 2012, in Ohio there were no defined caps on the amount of mental health services Medicaid would reimburse each year. The move to limit benefits represents a major change that is likely to have consequences for CBMH providers and their consumers

Ohio's Medicaid utilization limits are as follows. There are limits on two types of medical assessment services. These are diagnostic assessment by a physician (DAP) at two hours per year, and diagnostic assessment by a non-physician (DANP) at four hours per year (Plouck, 2011). There is a limit of 104 hours a year on community psychiatric supportive treatment (CPST) (Plouck, 2011). CPST is a broad service category that includes ten specific types of service including "ongoing assessment of needs" and work related to coordination of a service plan. It can be delivered remotely or in person, and in group or individual sessions (*OAC - 5122-29-17- Community psychiatric supportive treatment (CPST) service*, 2011). Behavioral health counseling (BHC) and therapy was

limited to 52 hours a year (Plouck, 2011). This service, like CPST, can be delivered in a group or individual setting. Partial hospitalization (PH) was limited to 60 days a year (Plouck, 2011). The last service capped was pharmacy management (PM) at 24 hours a year (Plouck, 2011). The CPST and PH limits can be overridden for adults and children if prior-authorization from the state's contracted managed care agency is granted to the provider (Plouck, 2011). No other service limits can be overridden for adults, but can be overridden for children to comply with federal legal requirements (Plouck, 2011).

The fact that mental health care delivery changes based on the way services are reimbursed has consequences for both providers and consumers. Therefore, the dissertation seeks to understand the way that this change in policy has affected both parties. In order to understand the effects on both parties qualitative and quantitative research methods are utilized. The dissertation begins with a review of the literature. This is followed by an investigation of which consumers are most likely to have their treatment altered by these limits. The next chapter identifies the specific changes in consumer care resulting from the limits. The fourth chapter provides a qualitative investigation of the responses to the policy by provider agencies expressed is conducted. From this it will be possible to understand what the consequences of these benefit limits are for providers and consumers.

The Relationship between the Studies

The dissertation outlined contains three original studies. The first study is an investigation of the population that will be affected by the Ohio policy and other mental health benefit limits. The second study will investigate the consequences of this policy on

the identified vulnerable population. The third study will be an ordered inquiry into the perceptions of those agencies tasked with caring for Medicaid CBMH service recipients. In this section an overview of the research that ties these studies together is provided.

All three studies included in this dissertation examine the effects that mental health benefit limits may have on populations that have a need for services. We first identify the individuals at risk of encountering a benefit limit for CBMH services, and then assess the effects of the limits on clinical outcomes in the second study. The first study identifies the relationship between variables associated with a need for service and utilization using an established theoretical model (Andersen & Newman, 1973; Leaf et al., 1988). Study two explores the relationship between factors identified in study one and outcomes in the post-limit period. The first and second studies utilize quantitative analysis, and employ Ohio Medicaid's database of CBMH service utilization. A final study which is qualitative in nature analyzes the results of a qualitative investigation of the responses of agencies that provide CBMH services. In total, this dissertation shows which characteristics are associated with utilization above a benefit limit, how care for individuals with these characteristics changes in the post-limit period, and how individuals working in agencies responsible for caring for these populations perceive the effects of this policy on their organization.

Chapters 2 through 4 may be considered as standalone essays. For each essay an introduction or discussion of the specific motivation for the study, the research questions to be answered, the methods used, the results and a discussion is provided. The introduction section provides historical context and an overview of the relevant literature.

The research questions highlight the key contributions of the study to the literature in terms of the specific new insights it will offer. The methods section describes the data sources to be utilized and the analytic methods that will be used. The results section highlights the findings of the studies. Lastly, the discussion identifies what the results mean for the field. The goal is that each provides a significant contribution to the understanding of benefit limits in mental health.

Review of Literature

The following literature review highlights several important studies in the fields related to my dissertation. It starts with a brief discussion of the papers that provide the model of mental health utilization that I used for the essays that comprise Chapters 2 and 3. It then describes several important studies in the field of behavioral health services utilization management with a goal of highlighting what work has already been done and the limitations of this work. It concludes with a brief discussion of what my dissertation contributes to the literature. The goal of this is to provide a foundational understanding of related research that has informed my dissertation.

Theoretical Model

The primary model that I utilize to conceptualize the reasons why individuals utilize health services was proposed by Andersen and Newman (1973). Andersen and Newman suggest that there are three "individual determinants" for seeking health care; 1) "predisposition", which can include socio demographic characteristics, 2) "enabling", which considers the individual's ability to access health services, and 3) "illness-level", which considers the severity of the illness of the individual. Their framework is useful

because it provides a means of conceptualizing what different attributes contribute to the amount of care individuals receive. Moreover their paper provides a list of potential variables under each of the categories of "individual determinants" which aids future researchers. A limitation of their work is the fact that it is not specifically tailored towards mental health services utilization (Andersen & Newman, 1973; Leaf et al., 1988). With that said it is an immensely valuable contribution to analysis and understanding of health services utilization.

Andersen and Newman's work was adapted to the mental health context by Leaf and colleagues (1988). Their paper builds on the work of Andersen and Newman by detailing what is unique about mental health services utilization. It utilizes diagnostic interviews of a sample of individuals from 13 towns to identify whether or not they had a need for mental health services, and then examined whether or not they sought care either directly from a mental health clinician, or by discussing their concerns with a general medical provider. Thus they were able to identify what factors influenced individuals in the samples likelihood of seeking care. What Leaf and colleagues found was that absent need, as quantified by the diagnostic assessment interview, other individual determinants were unlikely to be associated with seeking care. However, conditional upon need, other factors were correlated with utilization (Leaf et al., 1988). This finding is useful for the analyses conducted in chapters 2 and 3, as the individuals must all have a need for service defined by a diagnosed mental illness. A limitation of their study is that it does not contain claims data, thus validation of utilization is difficult. Further, it does not take into account intensity of utilization. Nevertheless, Leaf and colleagues' study's validation of

the fact that “enabling” and “predisposition” play a role in care seeking among individuals with mental illnesses was useful for my dissertation.

Benefit Limits and Cost Containment

Soumerai, McLaughlin, Ross-Degnan, Casteris, & Bollini's (1994) study on the effect of Medicaid benefit limits on prescription drug reimbursements represents an important basis for the research in this dissertation. Their study evaluated the impact of a policy in the state of New Hampshire to limit the amount of prescriptions that would be reimbursed by Medicaid each month to three. This decision, like the Ohio policy, was across the board and did not allow for individuals with conditions, such as severe mental illnesses to exceed it (Soumerai et al., 1994). As the New Hampshire policy was discontinued by the state eleven months after it was implemented, the researchers could consider Medicaid claims data from before implementation, during its effect, and after it was discontinued. The study concluded that among Schizophrenic individuals that had qualified for Medicaid through a permanent disability and that resided outside of an institution, the policy increased Medicaid costs and use of crisis services, while reducing the amount of several drugs that Medicaid recipients used (Soumerai et al., 1994).

While the Soumerai and colleagues study does demonstrate concerns about the effects of benefit limits on costs and outcomes in mental health, it does have several limitations. The limit which they evaluate was not a specific mental health benefit limit (Soumerai et al., 1994). It was a limit on the number of any pharmaceuticals a beneficiary could receive (Soumerai et al., 1994). Therefore, it is possible that a policy specifically targeting mental health services would have different consequences for the severely

mentally ill. A second issue worth mentioning is that the policy they evaluated does not limit the amount of mental health services an individual could receive (Soumerai et al., 1994). In fact, the amount of CBMH services beneficiaries received went up after the limits on drugs went into effect, suggesting perhaps a substitution effect among beneficiaries (Soumerai et al., 1994). Even with these differences, this study demonstrates how impediments to treatment can affect costs and outcomes in mental health.

William Goldman, McCulloch, & Sturm (1998) developed several interesting findings from their investigation of a large private business' mental health cost containment program. The program that the business used was a mental health carve-out (W. Goldman et al., 1998). They define carving out as separating mental health insurance from physical health insurance. In their study there was one, unique, mental health managed care provider that imposed benefit limits of $15,000 per year, and a $100,000 lifetime limit (W. Goldman et al., 1998). This policy reduced mental health costs for the business by 40%, while at the same time increasing the number of individual employees that accessed mental health services each year (W. Goldman et al., 1998). Moreover, it achieved sustained cost savings six years after the program went into effect. It achieved these savings, primarily, by shifting costly inpatient services to less expensive outpatient settings and in the amount of outpatient visits used for treatment of each individual (W. Goldman et al., 1998). However, although this study indicates a significant effect of managed care with a benefit limit in reducing costs, it does not indicate the effects of this approach on outcomes.

There are several other factors which limit the generalizability of the Goldman, McCullough and Sturm (1998) article. First among these is the fact that the policy was implemented in the context of a private business (W. Goldman et al., 1998). Therefore, those that saw that may have seen their care limited by the policy must have been employed. This is not the case for the men and women covered by Ohio's Medicaid program for the aged, blind, and disabled. This is worth noting because the disabled are precisely the population that were shown to experiences an increase in total expenditures when benefit limits were put in place in New Hampshire (Soumerai, et al., 1994). Secondly, because no comments were made on the effects on outcomes for the mental health carve-out, one cannot definitively say whether quality was affected by the limits, particularly with regard to the most vulnerable beneficiaries (W. Goldman et al., 1998). Therefore, the Goldman , McCullough and Sterm paper represents an interesting example of the effects of a mental health cost containment program with benefit limits effect on costs that does not similarly provide insights on outcomes.

A study by Leslie & Rosenheck (2000) evaluated differences in quality between private sector mental health insurance and the U.S. Department of Veterans Affairs (VA), though it ignored costs. That study was interesting primarily because it demonstrated how difficult it is to accurately assess the quality of an insurance program when that program includes benefit limits. According to the authors' This is the case because comprehensive measures of mental health quality, such as the VA's "Mental Health Program Performance Monitoring System" consider intensity of certain services as a measure of the quality of care an individual is receiving (Leslie & Rosenheck, 2000). The trouble

with this type of measure when a benefit limit is in place is obvious. Those individuals that exceed the limits on their coverage will not have a claim for services after that limit. Instead, they are forced to pay it themselves (Leslie & Rosenheck, 2000). Therefore, the insurer's claims data will suggest that under benefit limits clients received higher quality care based on service intensity metrics.

As this it is the case that private insurance claims data is incomplete, it should be no surprise that Leslie and Rosenheck (2000) found the private insurers to be providing higher quality care than the VA. This was determined based on claims data which shows much higher utilization of inpatient services from those covered by the VA, rather than private insurance (Leslie & Rosenheck, 2000). The VA does not have a limit on benefits for mental health care, while many private insurers do, therefore the actual number of inpatient services received by their served population will be in the claims data for their system (Leslie & Rosenheck, 2000). From this study we can see the inherent difficult of determining the cost and outcome implications of mental health benefit limits, particularly in the private sector where data is often incomplete.

Managed Behavioral Health Care

A study by Frank & McGuire (1997) demonstrated why behavioral health managed care carve-outs offer useful insights on the effects of benefit limits on costs and outcomes. That study examined the effectiveness of a managed care program for behavioral health care services in Massachusetts Medicaid. The program evaluated in that study was outsourced to a contractor, rather than being administered by the state. Unlike benefit limits, the policy evaluated by Frank and McGuire did not have an overt

statement of how many services an individual could receive or a limit on total expenditures. Rather, they used a process called utilization review (UR) (Frank & McGuire, 1997). UR allows an insurer to review whether or not a service was acceptable prior to reimbursing it or authorizing it to be performed. The study goes on to show that UR can be used similarly to benefit limits.

The managed care company that Massachusetts Medicaid used to administer the program was given target levels of inpatient service utilization without strong financial motivation to conserve utilization beyond those target levels (Frank & McGuire, 1997). The study results showed that in the years of the study total utilization of inpatient services was very close to government targets. The authors therefore suggest that the managed care company "managed to the contract (page 1151)." That is, the company could make UR stricter, allowing fewer services, or more lax, allowing more services, depending on the target level of utilization (Frank & McGuire, 1997). In the study, o interviewees from the company confirmed that this was the case. This ability to internally set and meet targets of utilization under UR, though not as explicit and rigid as benefit limits, suggest that informal limits are in place under managed care in programs that nominally offer unlimited services (Frank & McGuire, 1997). Therefore research on mental health managed care provides useful insights on the effects of limits on costs and outcomes and mental health.

The fact that managed care has been effective at reducing costs and utilization, like benefit limits, has raised concerns about quality and access to mental health services (H. H. Goldman et al., 2006). A 2006 article by H. H. Goldman, et al. starts from the

premise that "[s]trictly limiting coverage for mental health and substance-abuse care is an effective means of controlling costs, but it also limits access and distorts the insurance market. (Page 1379)." This article compares costs and quality of care before and after insurance parity was implemented in mental health services for the Federal employee benefit program. Parity, as described by the authors, refers to a requirement that mental health insurance coverage be equal, in terms of expenditure, outpatient visits, and length of stay limits, to physical health insurance coverage. The study finds that expenditures for individuals whose primary diagnosis was mental health related did not increase after implementation of parity, relative to insurers without parity requirements. Further, there did not appear to be a decline in quality after parity, as judged by the length of follow up time after a person was treated for depression (H. H. Goldman et al., 2006). Thus, we can see that there is evidence managed care is able to keep costs low, even without strict limits, without an effect on quality of care.

There are several limitations to this study with regard to generating conclusions about the impact of benefit limits on costs and outcomes. First, the study does not set out to compare limits to no limits (H. H. Goldman et al., 2006). Rather, it compares strict limits to no limits to more generous limits. Further, it is within the context of managed care where insurers are able to limit coverage without explicitly stating what the limits are (Frank & McGuire, 1997; H. H. Goldman et al., 2006). Second the study does not have an evaluation of outcomes of care (H. H. Goldman et al., 2006). It stands to reason that duration of services received, went up when insurance coverage was made more generous. However, this study was not able to address whether the health state of

consumers improved. Nevertheless, it adds to the body of literature suggesting that costs can be kept low without benefit limits under certain managed care conditions.

Two studies that evaluated effects of Medicaid managed care on access raised concerns about whether such programs might leave certain populations without sufficient care. Tang et al (2008) conducted a study using parental response data from a survey investigating whether there was a relationship between a child whose insurance source was only Medicaid, who had a "emotional, developmental or behavioral problem for which s/he need[s] treatment or counseling" residing in a state with Medicaid managed care, and that child not getting adequate access to service (Page 884). The studies comparison group was states with full fee-for-service reimbursement in Medicaid (Tang et al., 2008). That study found higher odds of individuals, mostly the parent of the child, reporting a child in the house had unmet mental health needs in the managed care states than in the fee-for-service states. It also found that the disparity was greatest among states that had a managed care carve out (Tang et al., 2008). Thus, although costs appear to be lower under managed care, there appear to be legitimate concern that individuals are not getting the care that they need (Tang et al., 2008).

A second, and similar study on this subject is Mandell, Boothroyd, & Stiles (2003) paper investigating the use of mental health services under different Medicaid program structures. Unlike the Tang, et. al (2008) paper this paper looks at the odds of a Medicaid-covered child receiving any mental health services (Mandell et al., 2003). It utilized both claims data and self-report to ascertain this outcome (Mandell et al., 2003). The study results control for "caregiver report of need" for services (page 228), and

"Pediatric Sympton Checklist [PSC]" (page 231) scores. According to the authors The PSC score can be used as an indicator of need for mental health services The study found that in states with HMOs operating their Medicaid programs there is significantly lower odds of a child receiving mental health service, controlling for need, than in states with strict fee-for-service reimbursement. This is troubling because it shows something more than a perception of unmet need (Mandell et al., 2003).The study shows that where need is perceived to exist or necessary; children are more likely to receive no care at all in the HMO than under strict fee-for-service reimbursement (Mandell et al., 2003). This does not provide direct insights on costs or outcomes but it does show how coverage under limiting systems may put consumers at a lower likelihood of receiving care (Mandell et al., 2003).

The two studies examining unmet need under managed care have several commonalities that limit their generalizability to an investigation of the effects of benefit limits on mental health costs and outcomes. In particular, both studies used care-givers perception of the child's need as a basis for need (Mandell et al., 2003; Tang et al., 2008). Limiting care by UR suggests that, in some instances, the consumer seeks care which is denied by the insurer (Goldman, McCulloch, & Sturm, 1998). Therefore, it should not be a surprise that perceptions of unmet need are greater under this system. In fact, this may be true by definition. Second, both of these studies group all systems of managed care and HMOs together (Mandell et al., 2003; Tang et al., 2008). There is no clear statement of which, if any, of the managed care programs imposed a limit on services. Lastly, there is no absolute cost data provided to understand how much expenditures per-consumer

were in the fee-for-service states and the managed care states. It could be the case that more services were provided in managed care states, if the costs of services were lower. In that case, perceptions of unmet need might be unfounded. These are the key issues with generalizing the conclusion that inadequate care results from limits on care from the two studies on unmet need under Medicaid managed care (Mandell et al., 2003; Tang et al., 2008).

Contribution of this Dissertation

The following dissertation makes several contributions to the existing literature. First, it builds on the understanding of determinants of utilization and evaluates and compares multiple forms of benefit limits to ascertain whether different forms of limits have different implications for different populations. It does not treat all limits as equal for the purposes of comparison. Second, it evaluates the effect of a policy of limiting services with data from the pre- and post- periods with regard costs of care delivery and a measurable outcome, utilization of crisis intervention services. This serves as a demonstrable clinical test of whether any significant changes in costs and outcomes have occurred. Finally, it provides a qualitative understanding of the changes that organizations made in response to the policy. It builds a theoretical frame for understanding how these organizations changed and why they changed as they did. In summary

Chapter 2: A Comparison of Benefit Limits in Mental Health

Utilization limits placed on publicly financed community based mental health (CBMH) services have the potential of affecting individuals differently. These limits may represent an access barrier for those who have treatment needs beyond the limit and who rely on publicly financed CBMH services. Therefore, it is important for policymakers to understand the relationship between individual service needs and the probability of individuals having their CBMH services limited as a result of changes within the publicly financed CBMH service system.

The Great Recession, which is considered to be the worst economic downturn since the Great Depression, technically began in December 2007 and ended in June 2009(Garfield, Clemans-Cope, Lawton, & Holahan, 2012; National Bureau of Economic Research, n.d.). This downturn continued to affect economic growth throughout 2010 (Garfield et al., 2012). Between June 2007 and June 2010, as individuals lost their jobs and health insurance coverage, Medicaid enrollment nationally rose by 19% (Garfield et al., 2012). Over this same time period, Ohio experienced a 20.2% increase in Medicaid enrollment and a 30% rise in the number of Medicaid enrollees accessing CBMH services (The Ohio Department of Job and Family Services, n.d.; The Ohio Department of Mental Health, n.d.). To assist with the financial pressures of increased Medicaid-

covered services if states did not restrict eligibility (Kaiser Commission on Medicaid and the Uninsured, 2009). This additional federal funding expired in June 2010.

After the enhanced Medicaid federal funding expired, states continued to experience financial pressures to pay for Medicaid-covered services. As a consequence, states developed various strategies to manage these pressures (Smith et al., 2011). As an example, Ohio's State Mental Health Authority (SMHA) administrators developed a cost containment strategy to limit the amount of Medicaid-covered CBMH services that an enrollee could access during a Fiscal Year (FY) (Olesiuk, Sweeney, Seiber, Tanenbaum, & Tam, 2013).[26] Prior to this, Ohio did not restrict the quantity of Medicaid-covered CBMH services, with the condition that medical necessity was adequately documented (Olesiuk et al., 2013). [26]

The purpose of this study is to identify groups of enrollees who will likely be affected by the cost containments policies that limit Medicaid-covered CBMH service utilization in one state; Ohio. This study will simulate the cost containment provisions to determine the policy's effects with relationship to individual characteristics of Medicaid enrollees who have mental illness and who have utilized Medicaid-covered CBMH services. (Refer to Table 1 for a summary of the limits per specific Medicaid-covered CBMH service). This simulation is undertaken by using Andersen & Newman's (1973) framework, which was adapted for mental health by Leaf et al. (1988), that classifies individual characteristics into three categories; need, "predisposition", and "enabling" factors. This study further explores the effects of two hypothetical expenditure based limits, with regard to need, "predisposition", and "enabling" factors (Andersen &

Newman, 1973; Leaf et al., 1988). One hypothetical annual expenditure limit scenario is uniformly set for all study participants. The other hypothetical scenario will have different expenditure limits based on a participant's primary mental health diagnosis. Ultimately, study results will provide policymakers with a better understanding of the effects of the cost containment policy on different groups of Medicaid-covered enrollees. The specific areas to be addressed by the study are described below.

One aim of the study is to determine the effect of the cost containment policy on Medicaid-covered enrollees who have serious mental illness and who access CBMH services. This policy may have the greatest impact on individuals who have serious mental illness and have the greatest need for treatment, since limits on mental health benefits shift the risk of serious mental illness from the insurer to the individual (Hodgkin, Horgan, Garnick, & Merrick, 2009; Zuvekas, Banthin, & Selden, 1998). Without limits on insurance coverage, no matter how many services individuals access, the insurer must pay for the service usage. However, when insurance limits the quantity of services, an individual that requires services in excess of a limit may not have access. Therefore, individuals who are diagnosed with severe mental illness are potentially placed at risk since they may require additional mental health services above the threshold. To understand whether this possibility is likely, the factors associated with need for a service must be distilled away from other reasons that an individual utilizes services. Need variables are associated with an individual's health state, (i.e. disability status and diagnosis) (Andersen & Newman, 1973; Leaf et al., 1988). "Predisposition" variables included demographics which may influence the type of health services and

providers that a client seeks (Andersen & Newman, 1973; Leaf et al., 1988). Finally "enabling" factors are associated with an individual's ability to access certain services, such as region where the individual resides (Andersen & Newman, 1973; Leaf et al., 1988).

Another aim of the paper is to compare hypothetical expenditure and utilization limits. Benefit limits have been used since insurance coverage was extended to include mental health services(Frank & McGuire, 1997; Hodgkin et al., 2009; Salkever, Shinogle, & Goldman, 1999). These limits have either been in the form of expenditure limits or in the form of utilization limits (Frank & McGuire, 1997; Hodgkin et al., 2009; Salkever et al., 1999). To date, research has not addressed whether a utilization limit or expenditure limit has a greater effect on vulnerable populations served by public community mental health systems. While a utilization limit allows the insurer to define specific services types and allowable quantities that a client can receive, an expenditure limit allows the provider more latitude to develop a treatment plan based on services available within a community. Previous research has shown that the amount and quality of public financed CBMH services available varies among communities (Hogan, 1999; Human & Wasem, 1991). Therefore, a policy that limits particular CBMH services may have the unintended consequence of altering treatment for individuals whose total CBMH expenditures are low, but may need to access a specific service above the limit.

A final consideration of this paper is to examine the possibility that risk-adjusted benefit limits reduce the relationship between need and the risk of encountering a benefit limit. In a previous study, Barry, Weiner, Lemke, & Busch (2012) indicated that, utilizing

sophisticated risk adjustment methods, a cross-subsidy can be developed whereby insurance plans that enroll higher risk (i.e. more severely ill) clients are compensated by insurance plans that enroll less severely ill clients. This adjustment might help solve the issue known as adverse selection. Adverse selection arises when insurers that offer more generous mental health benefits end up enrolling a population with greater levels of mental health needs, and thus must charge more, placing a significant financial burden on individuals with mental illness (Barry et al., 2012).For this cross-subsidy to work, risk must be measurable. To understand how easily measured risk is in mental health, this study investigates whether a simpler risk adjustment, based on diagnostic category, corrects disparities in the effects of a limiting policy based on need, or shifts the risk onto another, uncontrolled (latent) for, need variable. This specific example considers whether controlling for diagnosis results in individuals enrolled in Medicaid through the ABD program, being at an increased risk of encountering a benefit limit relative to the CFC Medicaid population. The ABD Medicaid population in general has higher per-capita CBMH expenditures than the CFC Medicaid population, therefore it is important to understand whether diagnosis adjustment addresses this disparity as well. A detailed description of the study methodology is provided below.

Methods

Data

Ohio's FY 2010 CBMH Medicaid claims was the primary data source and were extracted from Ohio's Multi-Agency Community Services Information System (MACSIS). MACSIS serves as the billing system for public financed CBMH services. It

includes both Medicaid and non-Medicaid services (Ohio Department of Mental Health, n.d.). Data were extracted from this system for all FY 2010 Medicaid-reimbursed claims. Claims data were only compiled for individuals with a birth year indicating age between 19 and 64. Extracted data included: the individual's year of birth, a flag to indicate if the individuals was continuously enrolled in Medicaid or only part year of the year, Medicaid program enrollment, mental health board of residence (roughly equivalent to county of residence), and a unique identifier. For each service visit, the date of service, service type, amount of service, cost of service, whether the claim was reimbursed by Medicaid, and an agency level code for the utilized provider was extracted. Data analysis was restricted to individuals between the ages of 19 and 64 that were enrolled in Medicaid for at least part of the year and utilized at least one Medicaid-covered CBMH service in FY 2010. Analysis of data was conducted using Stata version 11 (StataCorp, 2009).

Measures

Study participants

The data obtained from MACSIS were classified and measured in the following way. The data on Medicaid program enrollment described whether the Medicaid-covered client was enrolled as Aged, Blind, and Disabled (ABD) Medicaid, which only includes those with a Social Security Agency (SSA) disability, whether the client was enrolled in the Children and Families Medicaid (CFC), and whether the client was not covered by Medicaid (non-Medicaid). For each program enrollment category, it was noted whether a client was enrolled for a full year or only part of the year as well as whether or not the client was enrolled in more than one Medicaid program during the year (i.e. clients that

were enrolled in CFC Medicaid in the beginning of the year and ABD Medicaid for the remainder of the year).

Geographic classification

The mental health board of residence was sub-classified into three categories; urban, mid-size and rural. Boards classified as urban are located in counties that had populations of more than 300,000 individuals. Rural boards' service areas only include counties located outside of Standard Metropolitan Statistical Areas (SMSA) (Office of Management and Budget, n.d.). Board areas that encompass counties which that have populations less than 300,000 people and are located within an SMSA were classified as mid-size. In Ohio, some boards served more than one county. If a board served both a rural and mid-size county, the board would be classified as mid-sized.

Diagnostic categories

Diagnostic categories were classified into eight groups based on the ICD-9 diagnosis code of an individual's last service visit in the fiscal year. These categories were: 1) schizophrenia and other psychotic disorders; 2) bipolar disorder; 3) depressive disorders; 4) attention-deficit, conduct, oppositional defiant, and disruptive behavior disorder, 5) Anxiety disorders, 6) adjustment disorders, 7) other mood disorders, and 8) other disorders not otherwise classified. Diagnostic category classifications were in accordance with Ohio's SMHA procedures and were similar, though not identical, to those included in the U.S. Agency for Health Care Research and Quality's Clinical Classification's Software (U.S. Agency for Health Care Research and Quality, 2013). The categories for types of service and units of service were CPST (group or individual)

in fifteen minute intervals, behavioral health counseling (group or individual) in fifteen minute intervals, diagnostic assessment by a physician in hours, diagnostic assessment by a non-physician in hours, partial hospitalization in days and pharmacy management in hours.

Benefit Limits to Be Compared

This study compares three limit types: service utilization limits, expenditure limits which set uniform limits on Medicaid reimbursable costs for all Medicaid enrollees, and Medicaid reimbursable cost limits that are set based on the enrollee's primary diagnosis. Service utilization limits are modeled on Ohio's policy effective in Fiscal Year (FY) 2012. This policy placed limits on the amount of certain Medicaid-covered CBMH services that Medicaid enrollee could access annually. Table 2.1 specifies the limits for each of the Medicaid-covered CBMH services. The other two limits are hypothetical expenditure-based limits which cap an enrollee's total CBMH service costs that Medicaid will reimburse in a FY. The first expenditure limit considered capped costs for all Medicaid-covered clients at the same level. The second expenditure limit set different caps based on each Medicaid-covered client's primary diagnosis.

This study will examine expenditures and utilization of six categories of CBMH services in Ohio in FY 2010, in comparison to the utilization limits enacted by the state in FY 2012 and two hypothetical expenditure limits. The services under consideration in this study are described below. Two of the limited services considered in the study fall under the rubric of behavioral health counseling which can either be delivered in a group or provided as individual counseling. A licensed counselor or social worker must provide

any behavioral health counseling service. Two other limited services included in the study fall in the CPST category. CPST, like behavioral health counseling, can either be provided in a group or an individual setting. Unlike behavioral health counseling, CPST does not require a licensed counselor or social worker to provide the service. CPST service examples include skill building, monitoring, care coordination, and advocacy. A fifth service limited under the policy and included in the study analysis is pharmacy management which is concerned with prescription-based treatments. A sixth limited service included in the analysis is partial hospitalization which is an ambulatory day-treatment service offered to non-institutionalized individuals in need of CBMH services. There are also limits on two diagnostic services: diagnostic assessment by a physician and diagnostic assessment by a non-physician. Ohio's limits on the two diagnostic-assessments were not included in the utilization limit variable, as the study sought to evaluate the effects of limits on treatment. Based on an examination of FY 2010 Medicaid claims data, it was possible to simulate which enrollees would most likely experience the effects of utilization and expenditure limits on Medicaid-covered CBMH services.

Hypothetical expenditure limits were chosen such that a similar number of Medicaid enrollees would be affected by each of the three limits. This approach enables direct comparisons between the relative probabilities of exceeding each of the limits because the baseline amount is approximately equal. Approximately 3% of all full-year Ohio Medicaid enrollees in FY 2010 would have exceeded the FY 2012 utilization limits.

Thus, hypothetical expenditure limits were created such that approximately 3% of full-year Medicaid enrollees would exceed the limits (Refer to Table 2.1).

Table 2.1 – Summary of Benefit Limits to Be Compared

Utilization Limits (Ohio's Policy)	
Community Psychiatric Supportive Therapy (CPST)	104 Hours/Year
Behavioral Health Counseling	52 Hours/Year
Pharmacy Management	24 Hours/Year
Partial Hospitalization	60 Days/Year
Diagnostic Assessment By a Physician	2 Hours/Year*
Diagnostic Assessment By a Non-Physician	4 Hours/Year*
*Not included in the simulated utilization limit	
Expenditure Limit	
97th Percentile for Continuous Medicaid Beneficiaries	$9,354.61/ Year
Diagnosis Adjusted Expenditure Limit	
Schizophrenia	$16,153.76/Year
Anxiety	$5,378.86/Year
Adjustment	$5,276.99/Year
Disruptive and ADHD	$6,068.09/Year
Depression	$7,024.08/Year
Mood	$6,616.75/Year
Other Disorder	$6,984.31/Year
Bipolar	$8,808.81/Year

Analysis

The primary research objective of this study was to identify factors associated with exceeding each of the three limits. For each of the three limits, a log-binomial generalized linear model (glm) (McNutt, Wu, Xue, & Hafner, 2003) was used to calculate the distinct influence of each of many variables on a binary outcome -- whether or not an individual's FY 2010 utilization exceeded the limit. Results are reported as a

relative probability or risk ratio, which is a more intuitive measure of association compared to the relative odds that would be obtained from multiple logistic regression model(Cohen, Cohen, West, & Aiken, 2003; McNutt et al., 2003; Pagano & Gauvreau, 2000). From these three regression models the difference in the effect of key need factors, diagnosis and ABD Medicaid status, can be compared across limits.

Table 2.2 – Sample Characteristics

Sample Size	139517
Mean Age	39.7 (sd =12.3)
Schizophrenia	16.9% (n=24,062)
Bipolar Disorder	17.9% (n=25,842)
Adjustment Disorder	10.7% (n= 14,581)
Anxiety	7.1% (n=9,950)
Depression	32.4% (n= 44,886)
ADHD and Other Behavioral Disorders	1.7% (n=2,284)
Mood	5.4% (n= 7,683)
Other Diagnosis	7.9% (n= 10,229)
Full Year – ABD Medicaid	43.1% (n=60,089)
Full Year – CFC Medicaid	26.2% (n = 36,561)
Full Year Medicaid – Part-Year ABD/Part-Year CFC	1.7% (n = 2,363)
Full Year Medicaid – Program Unknown	0.2% (n = 259)
Partial Year ABD Medicaid only	15.0% (n = 20,887)
Partial Year CFC Medicaid only	12.3% (n = 17,140)
Partial Year Medicaid – Part-Year ABD/Part-Year CFC	0.7% (n = 953)
Partial Year Medicaid – Program Unknown	0.9% (n = 1,265)
Male	35.3% (n= 49,200)
White, non–Hispanic	72.4% (n= 100,989)
African American	22.6% (n= 31,552)
Hispanic-Latino	0.6% (n= 762)
Native American/Pacific Islander	0.3% (n= 430)
Asian	0.2% (n= 303)
Multiracial	2.6% (n= 3,598)
Unknown/Missing	1.3% (n=1,872)
Urban	42.3% (n=58,989)
Mid-size Urban	28.4% (n=39,685)
Rural	29.3% (n=40,843)

Table 2.3 – Risk Ratios with Diagnostic Predictors Only

Diagnosis	**Utilization Limits (SE) (N= 139517, DF=139509)**	**Expenditure Limits (SE) (N= 139517, DF=139509)**	**Diagnosis Adjusted Expenditure Limits (SE) (N= 139517, DF=139509)**
Adjustment Disorder	1.00 (ref)	1.00 (ref)	1.00 (ref)
Schizophrenia	7.38 (0.587)***	11.04 (1.065)***	1.03 (0.066)
Anxiety	1.02 (0.122)	1.07 (0.155)	1.07 (0.084)
Other Diagnosis	1.59 (0.167)***	1.71 (0.217)***	1.00 (0.079)
Disruptive Behavioral Disorder and ADHD	1.52 (0.265)*	1.60 (0.335)*	1.00 (0.139)
Depression	1.42 (0.120)***	1.66 (0.171)***	1.01 (0.059)
Bipolar Disorder	2.44 (0.207)***	2.97 (0.305)***	1.00 (0.064)
Mood Disorders	1.34 (0.160)*	1.49 (0.211)**	0.97 (0.085)

*P<.05, **P<.01, ***P<.001

Table 2.4 – Risk Ratios (Full Model)

	Utilization Limits (SE) (N=139506, DF=139481)	Expenditure Limits (SE) (N=139506, DF=139481)	Diagnosis-Adjusted Expenditure Limits (SE) (N=139506, DF=139481)
Diagnosis (Ref: Adjustment Disorder)			
Schizophrenia and Other Psychotic Disorders	3.77 (0.308)***	5.26 (0.517)***	0.51 (0.034)***
Anxiety	0.82 (0.097)	0.84 (0.121)	0.87 (0.068)
Other Diagnosis	1.19 (0.126)	1.23 (0.157)	0.76 (0.060)***
Disruptive Behavioral Disorder and ADHD	1.41 (0.248)*	1.44 (0.303)	0.94 (0.131)
Depression	1.01 (0.086)	1.13 (0.117)	0.71 (0.042)***
Bipolar Disorder	1.65 (0.141)***	1.91 (0.197)***	0.66 (0.042)***
Mood Disorders	1.09 (0.130)	1.18 (0.167)	0.80 (0.069)**
Medicaid Status (Ref: Full-year CFC)			
Full Year – ABD Medicaid	3.38 (0.224)***	4.76 (0.390)***	3.90 (0.228)***
Full Year Medicaid – Part-Year ABD/Part-Year CFC	3.58 (0.438)***	4.22 (0.610)***	4.25 (0.458)***
Full Year Medicaid – Program Unknown	0.81 (0.573)	0.00 (0.000)	0.67 (0.475)
Partial Year ABD Medicaid only	2.44 (0.179)***	3.07 (0.273)***	2.71 (0.187)***
Partial Year CFC Medicaid only	0.22 (0.042)***	0.14 (0.041)***	0.26 (0.040)***

Continued

Table 2.4 - Risk Ratios (Full Model) Continued

	Utilization Limits (SE) (N=139506, DF=139481)	Expenditure Limits (SE) (N=139506, DF=139481)	Diagnosis-Adjusted Expenditure Limits (SE) (N=139506, DF=139481)
Partial Year Medicaid – Part-Year ABD/Part-Year CFC	2.27 (0.487)***	3.23 (0.735)***	3.23 (0.584)***
Age (10-Year Increments)	1.10 (0.015)***	1.07 (0.016)***	1.07 (0.016)***
Race (Ref: White, non-Hispanic)			
African American	0.80 (0.031)***	0.83 (0.033)***	0.92 (0.039)*
Hispanic-Latino	0.46 (0.151)*	0.66 (0.196)	0.48 (0.159)*
Native American/Pacific Islander	0.58 (0.192)	0.60 (0.208)	0.88 (0.260)
Asian	0.63 (0.193)	0.60 (0.194)	0.57 (0.253)
Multiracial	0.67 (0.074)***	0.76 (0.084)*	0.82 (0.091)
Unknown/Missing	0.80 (0.103)	0.73 (0.104)*	0.77 (0.119)
Geographic Area (ref: Rural County)			
Midsize County	0.97 (0.042)	0.88 (0.041)**	0.78 (0.036)***
Urban County	1.08 (0.043)	1.06 (0.045)	1.13 (0.047)**
Male (vs. Female)	1.04 (0.033)	0.98 (0.033)	0.91 (0.032)*

*P<.05, **P<.01, ***P<.001

Table 2.2 indicates the demographic, diagnostic, and Medicaid-enrollment characteristics of the study population. It can be seen that Medicaid enrollees who are diagnosed with depressive disorders represent the largest share of the sample. Also, only 35% of the study population was male, as compared to more than 48% of all Ohioans, and 72% white compared to 80% of all Ohioans (US Census Bureau, 2013). The composition of the study population means that relative to the total population of Ohio

those Medicaid-recipients accessing CBMH services have a disproportionately higher share of females and minorities. Individuals residing in urban mental health boards represented 42% of the sample. Of note is the fact that over 43% of the study population was enrolled in Medicaid through the ABD program for the entirety of FY 2010.

Table 2.3 shows the relationship between a Medicaid enrollees' diagnosis and their risk of encountering each benefit limit. What is particularly obvious is the risk posed to Medicaid enrollees who have a primary mental health diagnosis of schizophrenia or bipolar disorder for both the utilization limit and the expenditure limit without diagnosis adjustment. Medicaid enrollees who have a diagnosis of schizophrenia have relative risk of more than seven times that of enrollees with adjustment disorders of encountering a utilization limit, and more than 11 times that of enrollees with adjustment disorders of encountering the expenditure limit. The diagnosis adjusted limit ensures that each enrollee, regardless of diagnosis, has approximately the same probability of encountering his/her respective limit, which explains why none of the relative risks for any other diagnosis is significantly different than adjustment disorder.

Table 2.4 examines the relative risk of exceeding a utilization or expenditure threshold based on diagnosis and disability status, adjusting for other variables. Table 2.4 shows that Medicaid enrollees who have a diagnosis of schizophrenia and bipolar disorder still have a significantly increased probability of exceeding the utilization and general expenditure limits than individuals with adjustment disorders, controlling for other variables. It also indicates that when the other factors such as race and disability are considered, diagnosis-adjusted expenditure limits actually place individuals with

adjustment disorders at a relatively greater risk of exceeding a diagnosis-specific benefit limit than individuals with schizophrenia. Further, Table 2.4 shows that for the three limits simulated, controlling for gender, diagnosis, board of residence and Medicaid status, white individuals and older individuals have a significantly increased risk of encountering a benefit limit than African-Americans and younger individuals.

Discussion

Need variables play a significant role in influencing whether a Medicaid enrollee who accesses Medicaid-covered CBMH services are likely to exceed any of the three benefit limits proposed in this analysis. According to Table 2.4, for all three limits ABD Medicaid enrollees who had Medicaid coverage for the entirety of FY 2010 had a probability of between 3.58 and 4.25 times that of CFC enrollees in utilizing CBMH services in excess of one of the thresholds, controlling for geographic, diagnosis, and demographic factors. Further, when diagnosis is not adjusted for in setting the benefit limit, the risk of a Medicaid enrollee who has a diagnosis of schizophrenia and who accessed CBMH services beyond either utilization or expenditure thresholds is significantly higher than for those enrollees who have other mental health diagnoses. Under the expenditure limit scenario, the relative risk of Medicaid enrollees who have schizophrenia exceeding the limit compared to those who have adjustment disorders is 5.26; under the utilization limit scenario, the relative risk is 3.77. These results mean that the disparity in the relative risks among diagnoses is more than 40% greater for the expenditure limit than the utilization limit. Thus, it can be seen very clearly that disparities are greater from expenditure limits than utilization limits.

The analysis provides an evaluation of the effectiveness of diagnosis adjustment as a tool for reducing the relationship between needs and the risk of an individual exceeding a benefit limit. As shown in Table 2.3, the general expenditure limit and the utilization limits discriminate on the basis of diagnosis alone. Also, according to the results (Table 2.3), a policy that uniformly caps expenditures or utilization of certain CBMH services poses a significant risk to individuals who are diagnosed either with schizophrenia or bipolar disorder. Study results show that by controlling for Medicaid eligibility status (i.e., ABD vs. CFC), access, and demographic variables, the relationship between diagnosis and the risk of encountering a benefit limit is statistically significant. This relationship is statistically significant because simple diagnosis adjustment does not address the issue of confounding; effects of other unmeasured variables, such as Medicaid eligibility status, access and demographics associated with both an enrollee's diagnosis and his/her risk of encountering a benefit limit (Cohen et al., 2003; Pagano & Gauvreau, 2000). When these non-diagnoses factors are controlled for, according to Table 2.4, schizophrenia alone is actually negatively associated with encountering a diagnosis adjusted benefit limit. This result should not be taken to mean that Medicaid enrollees diagnosed with schizophrenia are at reduced risks of encountering a diagnosis-adjusted benefit limit. Table 2.3 clearly shows that the risk without control variables is almost identical among all diagnoses. The relationship in Table 2.4 is understandable since many Medicaid enrollees who have a primary diagnosis of schizophrenia are enrolled in ABD Medicaid which is the result of an SSA-approved disability. ABD

Medicaid enrollment is a positive predictor of encountering a benefit limit, but diagnosis-adjustment alone does not account for this.

Diagnosis adjustment alone does not appear to eliminate the relationship between need and the risk of exceeding a benefit limit. The diagnosis adjusted expenditure limit still places ABD enrollees at increased risk of exceeding a benefit limit, relative to CFC enrollees. Therefore, diagnostic severity by itself is not a predictor of whether or not an enrollee will encounter a diagnosis adjusted limit, but other need factors still are. Until all measures of need can be adequately controlled for, benefit limits create the potential for some Medicaid enrollee sub-groups to be denied necessary care.

More generally, it can now be seen that the structure of a benefit limit has a significant effect on which Medicaid enrollees will be likely affected. While utilization limits that cap different Medicaid-covered CBMH services at different levels appear to be less discriminatory based on diagnosis and disability status than general expenditure limits, diagnosis adjusted expenditure limits appear capable of reducing the need-based disparities caused by either of these limit types. Therefore, controlling for *any* need factor may be preferable to creating a universal limit without any risk adjustment.

Limitations

Several limitations must be taken into account when reviewing this study. First, there were no limits in place during the period when the data was collected. Providers had no incentive to try and find substitutable treatment practices that could allow them to provide care within limits. Second, the diagnoses were grouped by category. Within diagnostic categories there were varying levels of severity, which if taken into account,

may have offered improved potential for diagnosis adjustment (Steinwachs, 2013). Finally, the selection of the 97th percentile may have been considered arbitrary. A robustness analysis was run by considering whether the results would have been different if the utilization and general expenditure limits were set at levels 10% higher or 10% lower. The results indicate that as the limits increase the proportion of individuals affected by the policy that are disabled or have a diagnosis of schizophrenia increases. Thus, higher limits have a greater proportional effect on individuals who have been diagnosed with the most severe mental illnesses.

Implications for Behavioral Health

In addition to demonstrating the value of controlling for need, this study points to the importance of integrating evidence-based practice guidelines into any system of limiting service coverage. The only way to truly be sure that limits are set at levels that will allow for adequate care is to have a very clear understanding of what adequate care may be in all circumstances. By working with physicians, therapists, case managers and other behavioral health specialists, need-adjusted benefit limits can be accompanied by practice recommendations that help providers to meet their consumer's needs. It is important to note that Ohio did solicit stakeholder feedback prior to implementation of its benefit limits.

Chapter 3: Do Mandated Mental Health Benefit Limits Increase Costs and Utilization?

Community –based mental health [CBMH] services, such as behavioral health counseling [BHC] and community-psychiatric supportive therapy [CPST], offer individuals with mental illness an opportunity to receive treatment while they reside outside of an institution. In recent years, a number of factors including rising Medicaid costs and decreases in state revenues have resulted in states taking steps to contain their Medicaid budgets (Young, Garfield, Clemans-Cope, Lawton, & Holahan, 2013). Herein, we will investigate the changes in expenditures and treatment after one state's decision to place limits on the annual amounts of CBMH services received by Medicaid beneficiaries.

This study seeks to evaluate the ways in which CBMH service expenditures in Ohio changed as a result of utilization limits for Medicaid reimbursement. In Fiscal Years 2010, 2011, and 2012 more than 130,000 Ohio Medicaid recipients per year between the ages of 19-64 utilized a CBMH service that was reimbursed by Medicaid. These individuals were enrolled in Medicaid in one of the States two Medicaid programs; the Aged, Blind and Disabled (ABD) program, and the Covered Families and Children program (CFC). While the ABD program includes individuals that qualify for Medicaid on the basis of age or a physical condition, the CFC individuals include families with children under the age of 19. Both programs require the individual to have an income near the federal poverty level to qualify for Medicaid. Therefore, it can be seen that those

that utilize Medicaid for CBMH services are vulnerable to any unforeseen consequences to a change in policy.

The literature demonstrates a controversy regarding how expenditures and treatment may change when limits are instituted. Chernew, Cutler, & Keenan (2005) demonstrated that insurance benefits have become more limited largely as a response to total medical costs increases. This suggests that insurers view limits as a means to reduce costs. Further Barry et al. (2003) state that the pervasive use of benefit limits in mental health may account for reductions in mental health expenditures relative to physical health expenditures. They state that this may pose issues for access as well. However, there is good reason to be skeptical about benefit limits for individuals with severe mental illness being an aggregate cost saver for the health care system. Soumerai et al. (1994) documented in increase in emergency expenditures for individuals with Schizophrenia when limits were placed on the number of prescriptions individual Medicaid enrollees could have filled each month. Also, certain community based mental health services, such as dialectical behavioral therapy (DBT) (Brazier et al., 2006), and assertive community therapy (ACT) (Marshall & Lockwood, 1996) have demonstrated the potential to be cost effective. Further, the availability affect, as described by Roemer (1961) suggest that if efforts are not made to reduce the supply of health services, non-essential expenditures may not decrease. The following study seeks to determine whether expenditures on community based mental health services decrease as a result of benefit limits on specific services and whether there is reason to suspect that costs are being shifted to other areas of the health care system as a result of these limits.

Community –based mental health [CBMH] services, such as behavioral health counseling [BHC] and community-psychiatric supportive therapy [CPST], offer individuals with mental illness the ability to receive treatment outside of an institution of mental disease. These CBMH services are incentivized by some insurers, including certain state Medicaid programs, to reduce the total costs of mental health service delivery (Frank & McGuire, 1997; W. Goldman et al., 1998). The fact that these services have been regarded as potential net cost savers raises an interesting question; when these services are subject to limits by an insurer would costs rise in response and how would it affect the health of the population served?

There are a wide range of services classified as CBMH. Services ranging from behavioral health counseling to pharmacy management all fall under this umbrella of services. Assertive community treatment (ACT) is an example of one CBMH service which was developed in order to effectively treat individuals with severe mental illness outside of a hospital setting (Marshall & Lockwood, 1996). This service has been shown to decrease rates of hospitalization and reduce the expenditures on hospital-based treatment (Marshall & Lockwood, 1996). Another CBMH service which evidence suggests may reduce hospital costs is dialectical behavioral therapy (DBT) (Brazier et al., 2006). DBT has been shown to reduce in-patient treatment and emergency hospitalization costs among individuals with borderline personality disorder, although it has not been demonstrated to significantly lower total health care costs (Brazier et al., 2006). Given the breadth of services that are classified as CBMH and the evidence of their

effectiveness at reducing emergency treatment costs, it is important to understand what the consequences of imposing limits on these services are in terms of costs and outcomes.

Evidence suggests that changes in provider financial incentives, such as limits, have contributed to changes in the delivery of mental health services. Mental health providers have been shown to modify treatment practices through substitution in response to financial incentives (Frank & McGuire, 1997; W. Goldman et al., 1998; Gronfein, 1985). This can be seen through shifting of services from an inpatient setting to an outpatient setting when managed care is introduced (Frank & McGuire, 1997; W. Goldman et al., 1998). In non-psychiatric medicine, changes in the quantities of services provided have been shown to be correlated with changes in the financial incentives offered to providers (Ransom, McNeeley, Kruger, Doot, & Cotton, 1996). Therefore a question raised is whether or not changes in service offerings occurs when benefit limits are in place.

Another question that should be considered is how CBMH providers utilize their excess capacity when limits are instituted. The ability to make use of available resources in medical care is referred to as an availability effect(Pauly & National Bureau of Economic Research, 1980). The availability effect has not been documented in CBMH, though it has been seen in a number of health care settings. In particular, when the availability effect was first proposed by Roemer, evidence was given that as more hospital capacity is added to a region, more inpatient days are billed in that region, except for childbirths, a service that could not be increased by provider availability (Roemer, 1961). Also, Pauly showed that there is a greater availability effect on less educated

individuals in urban areas (Pauly & National Bureau of Economic Research, 1980) However, evidence suggests that a provider's ability to find demand for services is not limitless. For example, data shows that as more providers move to an area, the capacity of each of them to provide service is limited by competition (Stano, 1985). Therefore, it is important to identify whether or not the enhanced competition that results from benefit limits overwhelms the ability of providers to maintain their care provision levels at those in the two years prior to the implementation of benefit limits, or if the providers are unable to find additional demand.

In spite of the evidence suggesting that CBMH services can contribute to lower costs and reduced rates of emergency treatment, at least one state has tried to reduce its Medicaid expenditures by placing annual limits on utilization of these services. In recent years, a number of factors including rising Medicaid costs and decreases in state revenues have forced states to take steps to contain their Medicaid budgets (Young et al., 2013). This is significant to mental health delivery because Medicaid is the largest payer for mental health services in the United States (Garfield, 2011). As a result changes to the Medicaid program have significant consequences on the way mental health care is delivered in this country. For example, the rule that prohibits Medicaid reimbursement to state mental hospitals is widely credited for vastly reducing the number of individuals residing in those institutions(Frank, Goldman, & Hogan, 2003; Gronfein, 1985). For this reason a major change to the way care is paid for by Medicaid, such as a limit, will likely have consequences on mental health care delivery that should be investigated. Herein, we

will investigate the consequences for costs and treatment of one state's decision to place limits on the annual amounts of CBMH services received by Medicaid beneficiaries.

Methods

Our study evaluates changes in the delivery of CBMH services among the Ohio Medicaid population before and after the institution of limits on utilization of these services. We used generalized linear models with identity link and robust sandwich estimators to calculate expenditures in the two years prior to benefit limits, and the year after limits were instituted. We first consider the relationship between diagnosis and changes in average expenditures on crisis service, and then evaluate whether or not an individual is enrolled in the Medicaid ABD program to evaluate changes in total Medicaid expenditures. We controlled for demographic factors including age, whether an individual was a male, and whether an individual was white, non-Hispanic. We also control for an access factor; whether an individual resides in an urban, rural or midsize mental health board.

Data

Data were extracted from Ohio's Multi-Agency Community Services Information System (MACSIS) for all adult CBMH claims that were either reimbursed by Medicaid or the local mental health board in from July 2010 to June 2012 (fiscal years 2010-2012). MACSIS data included demographic information as well as medical claims information. A description of the sample population is provided in Table 3.1. It indicates mean age, as calculated by birth year, is approximately 40 in each year. 35 percent of the population was male each year. Race was dichotomized into two variables, white – non-Hispanic,

and other. White individuals represented over 70 percent of the study population each year. Whether an individual was urban classified as urban, midsize or rural was determined by their mental health board of residence. If a person resided in a mental health board serving a county with more than 300,000 individuals they were classified as urban. On the other hand, individuals that resided in boards serving counties outside of Standard Metropolitan Statistical Areas (SMSA) they were classified as rural. If an individual resided in a board that served a county that had population of less than 300,000 people but outside of an SMSA, then that individual was classified as mid-size. In the event a board served two counties of differing size, the board would be classified based on the largest sized county. Over 42% of the study population was classified as urban each year.

Medical claims information included dates of service, type of service, primary diagnostic category, whether the individual was Medicaid eligible for the full year or part of the year, and what Medicaid program the individual was enrolled in (ABD or CFC). Types of service were categorized broadly into seven categories, six of which were limited under Ohio's policy. The six limited services were community psychiatric supportive therapy (CPST), both group and individual, behavioral health counseling (BHC), both group and individual, pharmacy management, partial hospitalization, diagnostic assessment by a physician, and diagnostic assessment by a non-physician. The one CBMH service not subject to a limit was crisis intervention. Primary mental health diagnoses were sub-classified from ICD-9 into eight categories: 1) schizophrenia and other psychotic disorders; 2) bipolar disorder; 3) depressive disorders; 4) attention-

deficit, conduct, oppositional defiant, and disruptive behavior disorder, 5) Anxiety disorders, 6) adjustment disorders, 7) other mood disorders, and 8) other disorders not otherwise classified. This classification was done in the standard method of Ohio's SMHA and is similar to the method used by U.S. Agency for Health Care Research and Quality's Clinical Classification's Software (U.S. Agency for Health Care Research and Quality, 2013)

Table 3.1 – Sample Characteristics

Sample Attributes			
	SFY 10	**SFY 11**	**SFY 12**
Sample Size	**139517**	**145842**	**147355**
Age	**40.3**	**40.4**	**40.1**
Male	**0.353**	**0.355**	**0.356**
White - Non Hispanic	**0.724**	**0.709**	**0.716**
Location - Urban	**0.423**	**0.435**	**0.437**
Location - Mid-size	**0.284**	**0.280**	**0.282**
Schizophrenia	**0.169**	**0.166**	**0.167**
Bipolar Disorder	**0.179**	**0.175**	**0.175**
Adjustment Disorder	**0.107**	**0.105**	**0.100**
Anxiety	**0.071**	**0.075**	**0.082**
Depression	**0.324**	**0.322**	**0.327**
ADHD and Other Behavioral Disorders	**0.017**	**0.017**	**0.018**
Mood	**0.054**	**0.059**	**0.067**
Other Diagnosis	**0.079**	**0.072**	**0.041**
Full Year ABD	**0.431**	**0.426**	**0.413**
Full Year CFC	**0.262**	**0.270**	**0.266**
Full Year ABD&CFC	**0.017**	**0.018**	**0.018**
Full Year - Unknown Medicaid	**0.002**	**0.002**	**0.001**
Partial Year ABD	**0.150**	**0.147**	**0.137**
Partial Year CFC	**0.123**	**0.120**	**0.136**
Partial Year ABD/CFC	**0.007**	**0.007**	**0.011**
Partial Year Unknown	**0.009**	**0.009**	**0.009**
Significant Different than FY10 at 95% Confidence Level			

Measures

Outcomes.

The outcomes we considered were person-fiscal year annual Medicaid-reimbursed CBMH expenditures and person-fiscal year Medicaid-reimbursed expenditures on crisis intervention. We first assessed total Medicaid expenditures on crisis intervention among individuals with schizophrenia in fiscal year 2012, as compared to fiscal years 2010 and

2011. We also calculated total Medicaid expenditures on CBMH services among adults enrolled in the CFC Medicaid program in fiscal year 2012, as compared to fiscal years 2010 and 2011.

All data was drawn from Ohio's Multi-Agency Community Services Information System (MACSIS). The data on Medicaid program enrollment described whether the Medicaid-covered client was enrolled as ABD Medicaid which only includes those with a Social Security Agency (SSA) disability, whether the client was enrolled in the Children and Families Medicaid (CFC), and whether the client was not covered by Medicaid (non-Medicaid). For each program enrollment category, it was noted whether a client was enrolled for a full year or only part of the year as well as whether or not the client was enrolled in more than one Medicaid program during the year (ie. clients that were enrolled in CFC Medicaid in the beginning of the year and ABD Medicaid for the remainder of the year).

To calculate person-fiscal year Medicaid reimbursed CBMH expenditures we first restricted our sample to individuals that used at least one CBMH service and were enrolled in Medicaid for at least part of a fiscal year. We then tabulated total Medicaid expenditures on each service used. A similar method was used for the calculation of crisis intervention expenditures.

We selected crisis intervention as we suggest that crisis intervention utilization indicates a failure to prevent crisis events. Further, a previous study indicated that individuals with schizophrenia were more likely to seek crisis care when benefit limits are in place for pharmaceuticals (Soumerai et al., 1994). Also, changes in expenditures on

capped CBMH services among were of interest, as a goal of the policy was to reduce expenditures on these populations (Paper 1).

Explanatory variables

For each of the outcomes of interest we assessed two explanatory variables. First, we used diagnostic category as the explanatory variable. We sought to test whether costs of crisis care rose for individuals with schizophrenia when limits on benefits were instituted. Therefore we used interaction terms between the diagnosis and fiscal year. If the interaction terms are positive it indicates that spending was greater in later fiscal years for individuals with that specific diagnosis (e.g., schizophrenia) relative to the change in spending between years for the reference diagnosis category (adjustment disorder).

Next, we used enrollment in the ABD Medicaid program. To be enrolled in ABD Medicaid an individual must be SSI eligible. SSI eligibility has previously been used as an indicator of need among individuals with mental illness (Horvitz-Lennon, McGuire, Alegria, & Frank, 2009).

Statistical Analysis

Each of the outcomes was tested by calculating a change in their mean predicted value before and after implementation of utilization limits. Therefore, the calculations for each were quite similar. Due to the fact that health care expenditure and utilization data is typically right skewed, which means more individuals have expenditures below the mean than above, generalized linear modeling will be used rather than ordinary least squares regression(Slade, McCarthy, Valenstein, Visnic, & Dixon, 2013). The analyses will control for three types of factors. These are the individuals need for services and mental

health status, their demographic characteristics, and their ability to access services(Andersen & Newman, 1973; Leaf et al., 1988; Slade et al., 2013).

Results

Table 3.2 – Crisis Intervention Utilization (Diagnosis and Year Only)

	Expenditure on Crisis Intervention		
	Estimate	**Standard Error**	**Significance**
Intercept	**32.66**	**1.29**	***
Time (Ref: Fiscal Year 2010)			
Fiscal Year 2011	**-4.23**	**1.70**	*
Fiscal Year 2012	**-0.99**	**2.14**	
Diagnosis (Ref: Adjustment Disorder)			
Schizophrenia	**23.39**	**2.28**	***
Bipolar	**8.08**	**1.80**	***
Mood	**12.90**	**2.76**	***
Anxiety	**-12.95**	**2.16**	***
ADHD And Disruptive Behavior	**-13.27**	**2.62**	***
Depressive Disorders	**-2.14**	**1.50**	
Other Disorders	**18.36**	**2.19**	***
Diagnosis-by-Time interaction			
Schizophrenia FY11	**5.22**	**3.30**	
Bipolar FY11	**3.95**	**2.43**	
Mood FY11	**1.28**	**3.50**	
Anxiety FY11	**2.79**	**2.70**	
ADHD And Disruptive Behavior FY11	**-1.23**	**3.35**	
Depressive Disorders FY11	**3.72**	**1.99**	
Other Disorders FY11	**0.04**	**3.01**	
Schizophrenia FY12	**16.12**	**3.56**	***
Bipolar FY12	**7.60**	**2.62**	**
Mood FY12	**-0.37**	**3.75**	
Anxiety FY12	**0.91**	**3.02**	
ADHD And Disruptive Behavior FY12	**-1.01**	**3.92**	
Depressive Disorders FY12	**7.57**	**2.48**	**
Other Disorders FY12	**-6.77**	**3.63**	

*P<.05, **P<.01, ***P<.001

Table 3.3 - Crisis Intervention Utilization (MCD Status By Year Only)

	Expenditure on Crisis Intervention		
	Estimate	Standard Error	Significance
Intercept	**15.93**	**1.30**	***
Time (Ref: Fiscal Year 2010)			
Fiscal Year 2011	**0.45**	**0.87**	
Fiscal Year 2012	**-0.99**	**2.14**	
Medicaid Status (Ref: Continuously CFC Medicaid)			
Continuously ABD Medicaid	**31.59**	**1.58**	***
Continuously ABD&CFC Medicaid	**10.05**	**1.15**	***
Continuously Medicaid (Unknown)	**9.04**	**1.44**	***
Partial Year ABD Medicaid	**-12.89**	**1.15**	***
Partial Year CFC Medicaid	**-25.47**	**1.55**	***
Partial Year ABD&CFC Medicaid	**4.74**	**0.98**	***
Partial Year Medicaid (Unknown)	**13.30**	**9.53**	***
Diagnosis-by-Time interaction			
Continuously ABD Medicaid FY11	**-2.77**	**1.62**	
Continuously ABD&CFC Medicaid FY11	**5.66**	**5.98**	
Continuously Medicaid (Unknown) FY11	**-31.39**	**9.24**	**
Partial Year ABD Medicaid FY11	**-0.22**	**2.40**	
Partial Year CFC Medicaid FY11	**0.26**	**1.63**	
Partial Year ABD&CFC Medicaid FY11	**-6.98**	**9.61**	
Partial Year Medicaid (Unknown) FY11	**-11.20**	**6.71**	
Continuously ABD Medicaid FY12	**6.80**	**1.58**	***
Continuously ABD&CFC Medicaid FY12	**-4.22**	**5.20**	
Continuously Medicaid (Unknown) FY12	**-22.85**	**11.70**	
Partial Year ABD Medicaid FY12	**2.30**	**2.49**	
Partial Year CFC Medicaid FY12	**1.13**	**1.76**	
Partial Year ABD&CFC Medicaid FY12	**6.27**	**10.80**	
Partial Year Medicaid (Unknown) FY12	**20.60**	**7.19**	**

*P<.05, **P<.01, ***P<.001

Table 3.4 – Crisis Intervention Utilization (Full Model)

	Expenditure on Crisis Intervention		
	Estimate	**Standard Error**	
Intercept	**18.55**	**1.58**	***
Demographics			
White	**5.61**	**0.79**	***
Male	**5.66**	**0.76**	***
Large City	**-15.17**	**0.78**	***
Mid-Size Urban	**4.15**	**0.97**	***
Age (Centered)	**0.97**	**0.03**	***
Time			
Fiscal Year 2011	**-3.95**	**1.70**	*
Fiscal Year 2012	**-0.35**	**2.14**	
Medicaid Status			
Continuously ABD Medicaid	**22.29**	**0.96**	***
Continuously ABD&CFC Medicaid	**19.14**	**2.36**	***
Continuously Medicaid (Unknown)	**11.32**	**4.15**	**
Partial Year ABD Medicaid	**20.75**	**1.16**	***
Partial Year CFC Medicaid	**-1.04**	**0.71**	
Partial Year ABD&CFC Medicaid	**29.61**	**4.30**	***
Partial Year Medicaid (Unknown)	**13.05**	**2.67**	***
Diagnosis and Interaction			
Schizophrenia	**24.29**	**2.34**	***
Bipolar	**6.17**	**1.81**	***
Mood	**-9.07**	**2.75**	**
Anxiety	**-14.22**	**2.15**	***
ADHD And Disruptive Behavior	**-25.54**	**2.66**	***
Depressive Disorders	**-0.41**	**1.52**	
Other Disorders	**15.34**	**2.20**	***
Diagnosis by time interaction			
Schizophrenia FY11	**5.03**	**3.29**	
Bipolar FY11	**4.27**	**2.42**	
Mood FY11	**0.79**	**3.49**	
Anxiety FY11	**2.98**	**2.70**	
ADHD And Disruptive Behavior FY11	**-0.21**	**3.36**	
Depressive Disorders FY11	**4.12**	**1.98**	*
Other Disorders FY11	**-1.79**	**-9.51**	
Schizophrenia FY12	**16.10**	**3.55**	***
Bipolar FY12	**8.19**	**2.89**	**
Mood FY12	**-0.42**	**3.74**	
Anxiety FY12	**1.01**	**3.01**	
ADHD And Disruptive Behavior FY12	**0.35**	**3.93**	
Depressive Disorders FY12	**8.36**	**2.47**	**
Other Disorders FY12	**-10.32**	**3.65**	**

*P<.05, **P<.01, ***P<.001

Table 3.5 – CBMH Expenditures (Diagnosis and Year Only)

	CBMH Expenditures		
	Estimate	**Standard Error**	**Significance**
Intercept	**1015.76**	**14.47**	***
Time			
Fiscal Year 2011	**3.37**	**20.47**	
Fiscal Year 2012	**-76.58**	**18.42**	***
Diagnosis			
Schizophrenia	**2379.05**	**34.79**	***
Bipolar	**753.39**	**22.56**	***
Mood	**254.23**	**29.50**	***
Anxiety	**72.05**	**23.17**	**
ADHD And Disruptive Behavior	**173.81**	**49.25**	***
Depressive Disorders	**379.01**	**17.74**	***
Other Disorders	**124.54**	**24.78**	***
Diagnosis-by-Time interaction			
Schizophrenia FY11	**-44.00**	**48.58**	
Bipolar FY11	**-3.00**	**31.38**	
Mood FY11	**-30.33**	**40.75**	
Anxiety FY11	**7.14**	**32.30**	
ADHD And Disruptive Behavior FY11	**-52.37**	**65.23**	
Depressive Disorders FY11	**-7.89**	**24.90**	
Other Disorders FY11	**-1.99**	**36.30**	
Schizophrenia FY12	**-450.14**	**43.12**	***
Bipolar FY12	**-66.95**	**28.56**	***
Mood FY12	**-50.37**	**35.91**	
Anxiety FY12	**48.83**	**29.39**	
ADHD And Disruptive Behavior FY12	**-18.31**	**60.03**	
Depressive Disorders FY12	**-13.79**	**22.58**	
Other Disorders FY12	**130.05**	**37.06**	***

*P<.05, **P<.01, ***P<.001

Table 3.6 – CBMH Expenditures (MCD Status By Year Only)

	CBMH Expenditures		
	Estimate	**Standard Error**	**Significance**
Intercept	**1055.86**	**8.08**	***
Time			
Fiscal Year 2011	**18.48**	**11.06**	
Fiscal Year 2012	**38.65**	**10.82**	***
MCD Status			
Continuously ABD Medicaid	**1340.43**	**17.12**	***
Continuously ABD&CFC Medicaid	**1039.19**	**64.20**	***
Continuously Medicaid (Unknown)	**-248.55**	**76.41**	**
Partial Year ABD Medicaid	**782.23**	**23.13**	***
Partial Year CFC Medicaid	**-474.17**	**10.63**	***
Partial Year ABD&CFC Medicaid	**574.28**	**79.49**	***
Partial Year Medicaid (Unknown)	**-542.38**	**33.46**	***
Diagnosis-by-Time interaction			
Continuously ABD Medicaid FY11	**-50.90**	**23.67**	*
Continuously ABD&CFC Medicaid FY11	**5.39**	**87.32**	
Continuously Medicaid (Unknown) FY11	**96.25**	**147.60**	
Partial Year ABD Medicaid FY11	**-32.80**	**32.72**	
Partial Year CFC Medicaid FY11	**15.49**	**15.12**	
Partial Year ABD&CFC Medicaid FY11	**-3.24**	**108.63**	
Partial Year Medicaid (Unknown) FY11	**-178.96**	**38.97**	***
Continuously ABD Medicaid FY12	**-278.02**	**21.83**	***
Continuously ABD&CFC Medicaid FY12	**-356.26**	**73.78**	***
Continuously Medicaid (Unknown) FY12	**-250.57**	**98.63**	*
Partial Year ABD Medicaid FY12	**-327.52**	**29.52**	***
Partial Year CFC Medicaid FY12	**-0.29**	**14.64**	
Partial Year ABD&CFC Medicaid FY12	**-180.59**	**94.59**	
Partial Year Medicaid (Unknown) FY12	**-234.17**	**39.28**	***

*P<.05, **P<.01, ***P<.001

Table 3.7 – CBMH Expenditures (Full Model)

	Total Medicaid CBMH Expenditures		
	Estimate	Standard Error	Significance
Intercept	784.26	15.52	***
Demographics			
White	73.38	10.30	***
Male	-74.32	9.11	***
Large City	291.81	10.61	***
Mid-Size Urban	-66.41	9.76	***
Age (Centered)	-4.76	0.40	***
Time			
Fiscal Year 2011	6.52	10.97	
Fiscal Year 2012	21.99	10.74	*
Need			
Continuously ABD Medicaid	858.21	17.07	***
Continuously ABD&CFC Medicaid	871.03	63.65	***
Continuously Medicaid (Unknown)	-311.16	72.50	***
Partial Year ABD Medicaid	255.35	23.14	***
Partial Year CFC Medicaid	-463.56	10.79	***
Partial Year ABD&CFC Medicaid	369.92	78.61	***
Partial Year Medicaid (Unknown)	-912.28	36.82	***
Schizophrenia	1710.53	18.52	***
Bipolar	478.97	11.68	***
Mood	138.53	14.46	***
Anxiety	-9.68	12.05	
ADHD And Disruptive Behavior	121.33	24.47	***
Depressive Disorders	162.03	9.35	***
Other Disorders	-28.15	14.82	
ABD or CFC Medicaid by Time Interaction			
Continuously ABD Medicaid FY11	-39.46	23.09	
Continuously ABD&CFC Medicaid FY11	22.70	86.41	
Continuously Medicaid (Unknown) FY11	1.11	140.15	
Partial Year ABD Medicaid FY11	-18.96	32.01	
Partial Year CFC Medicaid FY11	27.32	15.19	
Partial Year ABD&CFC Medicaid FY11	-46.40	106.38	
Partial Year Medicaid (Unknown) FY11	-155.43	44.52	***
Continuously ABD Medicaid FY12	-274.63	21.27	***
Continuously ABD&CFC Medicaid FY12	-388.90	73.24	***

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Continuously Medicaid (Unknown) FY12	**-329.23**	**98.85**	****
Partial Year ABD Medicaid FY12	**-328.28**	**28.92**	****
Partial Year CFC Medicaid FY12	**-17.18**	**14.78**	
Partial Year ABD&CFC Medicaid FY12	**-201.28**	**93.40**	*
Partial Year Medicaid (Unknown) FY12	**-243.98**	**44.14**	****

*P<.05, **P<.01, ***P<.001

Table 3.2 and Table 3.3 display the results of the unadjusted models evaluating the relationship between crisis intervention expenditures over time and diagnostic category or Medicaid status respectively. Table 3.2 shows a significant positive interaction between diagnosis and FY 2012 for the following primary diagnoses: schizophrenia ($16.12, standard error (SE): 3.56), bipolar disorder($7.60, SE: 2.62), and depressive disorders ($7.57, SE: 2.48). In addition, Table 3.2 also shows that all mental health diagnoses, with the exception of depressive disorders, have significantly different levels of expenditure than the base diagnosis of Adjustment Disorder on crisis intervention in the base year of FY 2010. Table 3.3 shows a significant positive interaction between continuous enrollment in ABD Medicaid and FY 2012 ($6.80, SE: 1.58) indicating a greater increase in crisis expenditures in this group between FY 2012 and FY 2010 compared to the reference group of adjustment disorder. We also see that all Medicaid enrollment categories, considered (ie. ABD, CFC, full-year, partial year) have significantly different levels of expenditure on crisis intervention in the base year of FY 2010.

Table 3.4 is a full model, which evaluates the relationship between crisis intervention expenditures over time and diagnosis, controlling for age, race, sex, MSA

classification of residence and Medicaid status. It shows that, even after controlling for these factors, between diagnosis and FY 2012 for the following primary diagnoses: ($16.10, SE: 3.55), bipolar disorder ($8.19, SE: 2.89), and depressive disorders ($8.36, SE: 2.47). It also shows a statistically significant negative interaction between diagnosis of "other disorders" and FY 2012 (-$10.32, SE.3.65). Further, we see that whites ($5.61, SE=0.79), males ($5.66, SE=0.76), and individuals residing in boards in mid-size urban MSAs ($4.15, SE=0.97) tend to spend more on crisis intervention services, controlling for all other variables.

Tables 3.5, 3.6 and 3.7 display the results of the models where the outcome is total Medicaid CBMH expenditures. In the model adjusted only for diagnostic category (Table 3.5) there is a significant negative interaction between FY2012 and both schizophrenia (-$450.14, SE: 43.12) and bipolar disorder ($-66.95, SE: 28.56). Table 3.6 shows that there was a significant negative interaction on Medicaid CBMH between FY 2012 and all categories of Medicaid recipients with the exception of partial-year CFC enrollees and partial-year ABD & CFC enrollees, there was actually a significant positive main effect of FY 2012 with base enrollment category CFC Medicaid ($38.65, SE: 10.82). Table 3.7 reinforces the findings of Table 3.6 by indicating that the results hold, even when age, MSA size, race and diagnosis are controlled for. Adjusting for those factors, the main effect of FY 2012 with base enrollment category CFC Medicaid was $21.99 with a standard error of 10.74.

Discussion

Individuals with schizophrenia, bipolar disorder and depression experienced increases in their Medicaid expenditures on crisis intervention services in the year after the benefit limits went into place. Our findings support the hypothesis that these individuals, with severe mental illnesses, are particularly vulnerable to cuts in benefits. This increase in the cost of crisis intervention for these individuals compared to those with less severe illness is a troubling finding. The Ohio Administrative Code (OAC) defines crisis intervention as "… face-to-face interventions that are responding to emergent situations with the intended result of crisis stabilization or prevention of crisis escalation" (Ohio Administrative Code, 2010). In short, to receive crisis intervention an individual must be in a crisis. More money spent on crisis care, suggests that either the average length of crises have increased, the number of crises has increased or both. Neither of these scenarios represents a positive outcome of the policy, as it was hoped that consumers would be able to get all necessary care within the limits. The fact that crisis intervention costs have increased also shows, that not only pharmaceuticals (Soumerai et al., 1994), but also CBMH services are effective in reducing crisis costs, and limiting them can have adverse consequences.

Individuals experiencing a mental health crisis may seek care at locations other than CBMH providers; such as emergency departments of hospitals. The change in expenditures for Medicaid on treatment of individuals with schizophrenia, depression or bipolar disorder in emergency rooms is not calculated in this study. However, the fact that expenditure on crisis intervention at community based mental health institutions,

suggests that other forms of crisis treatment may be increasing as well. Further research is necessary to assess the extent to which other, non-CBMH institutions, have experienced increases in demand for crisis services after limits were established.

Care to individuals enrolled in ABD Medicaid declined significantly under benefit limits while care to CFC Medicaid recipients increased. These findings support the hypothesis that an availability effect is present. Individuals enrolled continuously throughout FY 2012 in the CFC program, based on previous research, were considered to be at comparatively lower likelihood of having care disrupted by benefit limit then those in the ABD Medicaid program, as shown in the previous chapter. These findings suggest that providers utilized available capacity in their networks, perhaps freed up by benefit limits, and used it to administer care to those of their clients who were less likely to reach a benefit limit. As Pauly (1980) notes, this does not necessarily imply that these providers were providing unnecessary or excessive services, which would have been difficult given the strict medical necessity documentation requirements of the state's Medicaid program. Rather, it may be a result of an unmet need in the CFC population that could now be addressed as a result of these limits which disproportionately affect the ABD population. Further research, evaluating specific instances of more extensive treatment for CFC adults is necessary to determine which explanation is more plausible.

Limitations

There are limitations to the study which should be noted. First, the benefit limits which were instituted were only in place for the last 8 months of fiscal year 2012. A provider was not limited in the amount of medically necessary services that Medicaid for

any Medicaid recipient between July 1, 2012 and October 31, 2012. The effects observed, in terms of changes in expenditures on crisis intervention and total CBMH services, in this study may not be as large as if the limits were in place for an entire year. A second limitation of this study was calculation of crisis expenditures only from Medicaid expenditures on community based crisis intervention services. Many CBMH in Ohio do not offer crisis intervention services, therefore, this calculation of crisis intervention is inherently limited. It was the only data available to the research on crisis expenditures in the state, and does have the benefit of being directly associable with expenditures on other services by the population of interest. An additional limitation is that the study population could have changed each year. Therefore, differences in the sample composition may partially explain the differences in utilization. A final limitation is the lack of comprehensive medical expenditure information. Without understanding how other, non-CBMH, medical expenditures were affected by these limits it is difficult to accurately forecast what savings to the health care system, if any, can be achieved through this policy.

Chapter 4: How Do Community Mental Health Agencies Respond to Mandated Limits on Benefits

Introduction

In order to continue to provide services to their consumers and stay solvent, community mental health agencies in Ohio were forced to make operational changes as a result of a limit on insurance benefits instituted by the state's mental health authority. This created a tension between these organizations clinical goals, including providing all necessary services to their consumers, and their financial goal of maintaining solvency. The state reimburses services at the cost to deliver the service. Therefore, any uncompensated care would result in a financial loss to the provider agency. The way that these organizations responded to the limiting of Medicaid benefits an interesting operational problem to evaluate.

Certain facts are known about the operational changes organizations might make in response to external policy changes. First, the literature shows that while privatization of social services beginning in the 1980's originally led to the development of diversity in service structures, the need for accountability and standardization has greatly reduced this diversity (Austin, 2003). Therefore, it is reasonable to expect agencies to respond to changes in common ways. Further, research has demonstrated the difficulty of developing an overarching theory of change as the way organizations respond to external are highly nuanced and related to many factors including customer size (Anand, 2004)

and organizational stakeholders (Moulton & Eckerd, 2012). Therefore, we can expect characteristics of the organizations to have a subtle influence on the way they respond to the policy. Community based mental health agencies are an interesting context to evaluate organizational change due to the fact that they are so highly regulated.

The goal of this study is to understand why community based mental health agencies in Ohio responded as they did to an unfunded mandate issued by the State mental health authority. We accomplish this goal using a semi-structured interview approach. This approach enables researchers to grasp not only what changes an organization made but also the rationale for those changes (Eisenhardt, 1989). It also allows us to develop a theoretical framework for understanding responses to changes in external environments for community based mental health organizations. In turn this may have broader implications for the behavior of safety-net social social service providers.

Background

Community mental health agencies are responsible for providing services that keep people in school or work, out of jail and in safe housing. With Medicaid as their largest source of revenue, these agencies are likely to be highly responsive to changes in funding rules and mandates from the Medicaid program (Garfield, 2011; Keeler et al., 1988). The agencies responsiveness to these policies requires policymakers to understand the way these organizations will respond to a change as these changes may affect other health care organizations, schools, the criminal justice system and other social services organizations. How mental health services providers respond to external mandates that

affect demand for their services is an important issue because changes in care can affect clinical outcomes for those with mental illnesses. Nearly 60 million American adults suffer from a diagnosable mental illness each year ("NIMH · The Numbers Count: Mental Disorders in America," n.d.), which means that ensuring care is delivered properly should be a concern for all Americans.

This study assesses the responses of community mental health agencies (CMHAs) in the state of Ohio to mandated service limits. In addition it describes what characteristics of these organizations are antecedents of their responses. It develops a framework for understanding how these organizations responded to changes in payment from one of their most important payers.

Methods

This study utilized a case-based qualitative study design in order to develop a more complete understanding of the way community mental health agencies responded to the policy change (Eisenhardt, 1989; Salvador, Forza, & Rungtusanatham, 2002). We sampled a diverse group of organizations to participate in the study (Eisenhardt, 1989). A more detailed discussion of the methodology employed is described in this section.

Unit of Analysis

The unit of analysis for this study was the community mental health agency. The data includes the responses of either a CEO, or a senior administrator designated by the CEO, and a member of the agency's clinical leadership, typically a clinical director. Twelve agencies participated in the study. The community mental health agency was an

ideal choice for the unit of analysis as we were interested in changes made by agencies, and not simply the individuals within the agencies.

Sample Selection

Agencies were selected for participation in this study on the basis of the method described herein. First, data on adult consumer utilization of Medicaid or local mental health board reimbursed mental health services for fiscal year 2010 was collected from Ohio's Multi-Agency Community Services Information System (MACSIS). This system contains transaction information on all Medicaid and board reimbursed CBMH services in Ohio (Ohio Department of Mental Health, n.d.).. This data set had characteristics for each individual service utilization occurrence including an anonymous code for the consumer, the consumer's primary mental health diagnosis, whether the consumer resided in an urban, mid-size urban, or rural mental health board (note: see geographic classification on page 22 for more information on board size), and a code for the provider from whom they sought services. Provider code corresponded to a billing unit within an agency, not a specific agency, clinic, or provider within an agency. Agency level information could not be obtained from these data. For agency level information IRS Form 990 from 2011 was utilized.

Agency date obtained from the IRS form 990s dated 2011 revealed it that the agencies studied differed significantly on three characteristics of interest. The first was size. The size of the organization was determined by the number of employees listed on the 990. An agency was classified as large if they employed more than 200 employees. Five of the 12 agencies studied were classified as large. Another characteristic considered

was the year of agency formation. It was determined that seven of the agencies were formed after 1965, the year that Medicare and Medicaid were instituted. A final distinguishing attribute was proportion of revenue from program services delivered. Five agencies received more than 90% of their revenue from providing services

Data Collection

To recruit agencies to participate, letters were then sent to a point of contact at the agency from a faculty member of the Ohio State University's College of Public Health requesting their participation in the study. The letter informed the agency that the results generated would be reported to the Ohio Department of Mental Health (ODMH) and that ODMH was funding the study. A $100 incentive to be paid to the agency, not the individual participant, was offered. When an agency agreed to participate meetings were scheduled with a senior executive, most often a CEO, and a clinical director. These interviews were conducted separately. In some instances a third interview was conducted, however, only the clinical director and most senior administrator interviews were used in the analysis. All interviews were conducted by the same member of the research team. Two tape recorders were used to document the interviews. The interviews were then transcribed by the interviewer.

Interview Guide

A semi-structured interview guide was developed with input from researchers from the fields of public health, policy, management, and economics. An employee of Ohio's state mental health authority approved the interview guide prior to the beginning of interviews, and the guide was reviewed by Ohio State University's Institutional

Review Board. The questions cover an individual's understanding of Ohio's benefit limit policy and their perception of the policies goals. Questions specifically explore the agency's ability to substitute services, as well as the challenges and opportunities Ohio's benefit limit policy has created. The interview questions were designed to probe not only the way that benefit limits have affected the agency, but also the key informant's perceptions.

Coding and Analysis

After the interviews were transcribed they were coded, using a two phase approach. First, interview quotations were open-coded based on the question being asked or the topic being addressed (ie. Has there been an increase in administrative burden?), using QSR International's NVivo 10 for windows (Namey, Guest, Thairu, & Johnson, 2007; QSR International Pty Ltd, 2012). Open-coding is a "data reduction technique" that helps to reduce qualitative data sets into manageable units by sorting it into manageable units (Namey et al., 2007). These codes, or "Nodes" as they are called in NVivo, were used to make the data more manageable to analyze (Namey et al., 2007). Node names were generated concurrently with interview analysis. Next, NVivo's coding summary by node command was used to produce open-coded interview transcript with each interviewee's responses organized under the appropriate code.

In phase two, the open-coded data summary was then further analyzed by creating a spread sheet using a list of three care processes each agency performed. These care processes are similar to what Porter (2001) calls "primary activities." Interviewee quotations were classified on the worksheet as corresponding to one or more of the

activities. The activities identified were 1) intake, 2) assessment and treatment plan development, and 3) delivery and monitoring. A list of words or phrases identified in the interview quotations that were found to correspond to each of the categories on the worksheet is included as table 1. Further, the quotations in the worksheet were color coded to indicate whether what was being discussed was likely to be, potentially, or unlikely to be related to the benefit limits instituted by the state of Ohio. After the worksheets were completed, cases were compared iteratively to identify attributes that may have influenced their responses to the policy. We followed the work of Porter (2001) who suggests that the "primary activities" that an organization engages in are a result of antecedent factors.

Table 4.1 – Words Associated With Each Care Process

Intake	Assessment and Treatment Plan Development	Delivery and Monitoring
"access"	"assessment"	"authorization" "auth"
"admission"	"Diagnostic"	"bill" "billing"
"admission"	"different"	"burden" "administrative burden"
"Contact time"	"Dose"	"caseload" "case load"
"emergency"	"fiscal year"	"Clinical" "Clinically Significant""clinical judgement"
"first appointment"	"groups"	"Counseling"
"First contact"	"interchangeable"	"CPST"
"get 'em in"	"ISP"	"data"
"getting in" "get in" "get into"	"level of care"	"MACSIS"
"intake appointment"	"level" "functioning"	"MITS"
"phone screen"	"mix of services"	"monitoring" "monitor"
"refer" "referral" "referrals"	"mix services	"portal"
"Wait list" "waitlist" "waiting list"	"modified"	"reduced"
"walk in"	"rather than"	"reports"
"we see patients within"	"shift" "Shifted"	"services"
	"substitution" "substitute"	"Tracking"
	"supplementing" or "instead"	"treat""treated"
	"test" "testing"	"utilization"
	"treatment plan(s)"	"visit" "visits"
	"triage"	"watching"

Results

Following the method described above we identified three care processes for all the agencies in the sample; 1) intake, 2) assessment and treatment plan development, and 3) delivery and monitoring. For each of these care processes we provide a definition and a description of what it entails across the diverse organizations we studied.

Care Processes

Intake

We define intake into a community mental health agency as the process by which an individual becomes a registered consumer at the mental health agency. Intake can be emergent (i.e. a crisis) or non-emergent. Several agencies that participated in the study had a distinctive process for individuals in crisis or with severe and immediate mental health concerns to receive treatment immediately. This was done through either walk-in appointments or a triage conducted by administrative staff when calls are made from either a consumer in crisis or a third party, such as a referrering physician, to the agency. A leader at one of the agencies not classified as large described emergent intake as follows:

> "Now, with that being said we have emergency spots, we have a walk in clinic, we have other ways and true emergencies do get in, so I don't wanna say we're not getting people in but for just a general mental health concern, it's gonna be two months before they get in."

Non-emergent or standard intake processes are slightly more complex and entail several phases; referral, initial contact and completion of documentation, and acceptance.

Referral can be either self-referral or third party referral. A leader at another agency not classified as large stated, "[w]hen they come in or a referral's given to me first thing I do is check the Medicaid portal to make sure they got the hours and make sure they're Medicaid eligible". Examples of third parties making referrals include the court system, the local mental health board in the case of consumers leaving inpatient psychiatric admission, other medical service providers, or the school system in the case of children.

After the client seeks care or is referred, the agency and consumer make initial contact by phone or in-person. A leader at an agency not classified as large that used phone intake commented "[I]t basically starts at the phone intake." A leader at a large agency that used in person intake appointments mentioned:

> "[B]ut on the flip side of that [the policy] makes us less efficient when we are trying to do an intake with a new client because it takes a lot more than 90 minutes. So now we need to bring the client back twice."

During this initial contact information is shared with the agency by the consumer. Also, consent is provided by the consumer to the agency granting the agency access to the consumer's service utilization history. According to a leader at one of agencies not classified as large, the state requires that a form granting this consent to the agency must be completed by consumers, kept on file by the agency and updated every six months. They stated:

> "Now when it comes to diagnostic the bad thing is, is like with the web portal, you have to have a client sign a release saying that you can check the web portal, we have all the clients sign that release if their Medicaid, for both drug and

> alcohol and mental health when they come into the agency. Now we have to track those releases too, because those releases are only good for a maximum of 6 months."

When this form is completed the agency is granted access to a state administered web portal which provides information on the consumer's year-to-date service utilization and how many units of service the consumers can still receive within the benefit limits for the remainder of the year. Many agencies had established processes to check utilization prior to accepting a new consumer to ensure they receive compensation prior to providing treatment. However, an issue other agencies encountered was the lack of current information in the online portal created that was intended to provide consumer utilization information to providers. A leader at an agency not classified as large stated

> " Just today I looked up a couple people this morning just to see if I would be able to find anything… Both people I would consider to be pretty high end users of our services and the information that was available through the web portal indicates that they had not used any units of service whatsoever which I know is not the case."

This presents a significant barrier to ascertaining a consumer's utilization history in a timely manner.

Assessment and Treatment Plan Development

According to the Ohio Administrative Code 5122-29-04 (B) (2009) "[a]n initial mental health assessment must be completed prior to the initiation of any mental health services," with the exception of certain emergencies. This assessment involves

ascertaining, among other things, the mental health state of the individual and their capacities to perform certain functions. An additional part of the diagnostic assessment is the crafting of a treatment plan. Many of the agencies that participated in the study indicated that they used a global assessment of functioning, level of care systems, or care stratification for the highest need consumers. A leader at a large agency described their tools by stating "…we have an outcome tool that we use. It helps us to determine their GAF level, which determines their level of care.." However these were not universally used. A leader at a not large agency after being questioned about their triage process for identifying high need consumers stated "I know a number of agencies do. We don't…each of our divisions is pretty unique."

Service plans were typically constructed for 52 weeks. A leader at a large agency stated, "[i]t's an annual [benefit], depending on whenever the first one was done and basically, let me take that back. It's done at 11 months, so that we try not to have any gaps in treatment services." Also a leader at an agency not classified as large stated "…the treatment plans are good for one year and I guess it just depends on when they come in."

In the advent of the policy, a variety of general changes to treatment plans occurred. Several agencies identified specific services which could no longer be provided, or had to be significantly modified in order to be offered with benefit limits in place. Examples of these services included group therapy, intensive home based services and dialectical behavioral therapy (DBT). A leader at a not large agency described the issue by stating "[f]or DBT to be effective, a client has to be in therapy and attend group

and do the outpatient department therapy and we get 52 hours a week, you can't, or a year, you can't do that."

A leader at a large agency also mentioned:

> "But then the other part is I know that there's been definitely a drastic reduction in the group work we do. Significant. … I haven't looked at that data lately 'cause it, that was, because we're now just doing it, but you know, but group counseling and group CPST service has drastically been reduced."

Substitution of services was identified as very difficult to practically implement under benefit limits. A leader at an agency not classified as large stated stated "[w]ithin the limits. No, I don't, I don't think. I mean, the case management hours are all gonna reflect, there's like 7 or 8 billable services within case management like advocacy, monitoring, eliminating barriers, assessment and what not, so there's not a lot of wiggle room in the treatment plan." Therefore there was a tendency to reduce services rather than find alternate arrangements to provide services. A leader at a agency not classified as large stated described the changes by saying, "treatment plans mostly in terms of frequency not in terms of modality. We're basically providing the same type, the same therapy, but just less frequently." Many agencies identified the fact that the low benefit limits for assessment made ongoing assessment of chronically ill individuals, or individuals that had been treated by other agencies, immensely difficult. Several providers considered the amount of services an individual had remaining under the benefit limits when constructing the initial treatment plan. A leader at an agency not classified as large stated stated:

> "If we inherit folks from other systems, we have to look at what their usage has been on therapy, because therapy caps are hard. That 52 hours of therapy, that's it for the year, so we can't necessarily enter somebody into therapy if they've used up all their units. But CPST, because we can ask for more of it, and once that's authorized it's authorized to the client and the agency so we're better able to bring people into, to CPST."

Others drafted treatment plans that corresponded to what they thought constituted appropriate care and hoped that the state would approve any pre-authorization requests initiated by the agency. A leader at an agency not classified as large stated stated:

> "I won't rewrite the treatment plans because of the caps. So, I'm going to write in the plan this is what's recommended for the client, this is what they would need in order to be successful, just as I would in the assessment, and then if for some reason we cannot meet those, for whatever reason, because, you know, the client won't come. Or the clients on a cruise to Jamaica or whatever, or were missing that. We're gonna do notes that say, and so the same thing if we've reached our caps, we send them for prior-authorization, prior-authorization denied that and so my plan still says this is what he needs, we're just not able to provide it under Medicaid."

Thus, there was significant variability between agencies in the way treatment plans were developed, which will be discussed in greater detail below.

Delivery and Monitoring

Delivery and monitoring is a two part process. Delivery refers to the provision of scheduled therapeutic services such as behavioral health counseling (in a group or individual setting), CPST or case management (in a group or individual setting), partial hospitalization (referred to by some agencies as Adult Day Program), and pharmacy management. We also classify the provision of crisis intervention services, or other emergency services as delivery.

The monitoring phase refers to how the agencies track the number of hours utilized by their clients. Because the limits instituted by the state are for each consumer/each fiscal year it is imperative that the agencies monitor the utilization of their consumers. This process can involve checking the state commissioned web portal, developing utilization reports through the internal billing system, and asking therapists and case managers to monitor their own utilization. In addition, the state only reimburses at the full rate for the first 90 minutes of CPST an individual receives each day. This utilization must also be monitored internally by some form of tracking system. The next section discusses the underlying characteristics of the agencies which may affect their responses to the policies

Underlying Characteristics

In this study we defined underlying characteristics of the agencies as attributes of the agencies that shaped the way they responded to benefit limits. These characteristics are similar to the "support activities" defined by Porter, which enable the performance of "primary activities" (2001). In our study we identified three underlying characteristics of

interest; 1) information technology, 2) utilization management approach, and 3) adaptability of human resources

Information Technology

Each of the agencies contacted utilized information technology, such as billing systems and electronic health records, to implement this policy. The web-portal commissioned by the state was not the only, or even the primary, method of tracking utilization used by the agencies. Key informants noted that the information displayed in the portal was not current, and that it was not a user friendly system. The way agencies monitored utilization and planned ongoing treatment depended greatly on the IT systems that were in place at the agency prior to the implementation of the policy. A leader at one of the agencies not classified as large stated stated:

> "It's more accurate and useful for us to look at our information on clients because we have our MIS system and I can call the person who does that and say can you run me a report…So we kind of look at it from that direction, rather than what the client has used and we have delivered, it's more useful information because sometimes we just can't get the other information."

IT systems were used to monitor utilization in one or more of the following ways for each of the agencies. The standard process adopted by the majority of agencies was to run reports periodically. Frequencies varied from biweekly to monthly. Reports were run through the billing system to identify consumers that were high-utilizers. A leader at a large agency stated "We also track it internally … I get those reports every 2 weeks." A leader at a agency not classified as large stated "the electronic data that we keep here is

pretty much up to date and we're watching that on a monthly basis to see who's where with what they're doing." A second process utilized was to triage, either through a level of care system or by being admitted to an intensive treatment program at the agency for which they sought care. A leader at a large agency stated, "[w]e have a stratified level system. So we have some that are receiving regular [services], some are receiving intensive [services]." A final strategy which was widely used was to monitor utilization at the agencies through the billing system at the transaction level. A leader at a large agency stated:

> "Tiered billing, if we want to talk about that. We designed, we track productivity, and then we reconcile productivity each month so that staff only get unit productivity in CPST based on the tiered billing. So if they're above the hour and a half, their productivity credit drops to 50%. So we've developed all of our data systems to reflect that."

This required the agencies to track whether or not they would receive full reimbursement for each services a provider offered, and if not, not to count the hours toward the provider's weekly productivity target.

Several methods of adapting IT were utilized by the agencies in the study. These approaches were not mutually exclusive. However, these methods were largely based on the existing IT infrastructure at the agencies prior to the implementation of the policy. This is why we consider IT infrastructure in underlying characteristic or antecedent, rather than an outcome of the policy.

Utilization Management Approach

A second attribute that emerged as an important underlying characteristic related to organizational response to benefit limits was utilization management approach. As with information technology systems, utilization management was universally adopted as a strategy to succeed within the benefit limits. The way utilization was managed varied considerably across agencies.

The differences in utilization management across agencies can be broadly classified in three categories; treatment plan based, provider based, and consumer based. A treatment plan based system is defined as a system which addresses potential limits prior to commencement of treatment. These strategies included reducing the number of group services included in a treatment plan and modifying or substituting services to continue a program (such as IHBT or DBT). A leader of an agency not classified as large stated

> "We were able to rework one of our therapy programs and convert everything to a curriculum base in the groups, so that those groups are now billed as CPST group. We had to with that, the DBT program, do both that and shorten the amount of time somebody can be in that program in order to maintain everything under the caps."

A provider based system is defined as an approach that relies on the actual service providers, such as case managers, counselors and medical staff, to limit care. Generally, these systems required providers to be time conscious while delivering care, and often to

limit visit frequency with consumers. One leader at an agency not classified as large described their approach as follows:

> "So you know, clinicians need to be aware that they have a limited time… so I've asked the therapists and the case managers to, you know, keep track of how many sessions they see them. Obviously, see the [consumers] that are more stable less often and you know make sure that, you know, that you see the [consumers] based on medical necessity as always, and if we go over the [limit] we go over, and if we need to petition the state for more we'll do that. But I think people are aware that they need to, you know, watch how many hours they use."

A consumer based system was also used in some cases. With this approach, consumers were informed about the limits, and worked with providers to 'budget' their utilization. That is to say, they would be told that they had a finite number of hours each year, or month, or week, and that they could use them as they felt was most appropriate. One of the leaders at an agency not classified as large described their process as telling the clients, "you have, here's your ticket for 8 and a half hours a month…and I have to be honest with you, the people that are keeping the closest reign on it are our clients." These approaches were not mutually exclusive.

Adaptability of Human Resources

The third underlying characteristic which was found to be an antecedent to organizational response to benefit limits was the adaptability of staff. Agencies ability to alter their practices and reallocate their resources varied significantly. Broadly speaking, they fit into three categories. These were: 1) agencies that reallocated administrative staff

to assist with monitoring utilization, 2) agencies that were able to repurpose clinical staff to comply with limits or serve other clients, 3) agencies that could do both.

The reassignment of administrative and clinical resources was a common point of discussion in the interviews. Commonly, support staff were being utilized to generate clinical utilization reports and monitor use. One large agency leader stated "[t]here's been no additions or reductions" in staff. The individual continued, "[t]here's certainly new responsibilities within our support staff that are running all of our reports, that help us manage utilization." Also, clinical staff were being used to provide services that they were not initially recruited to perform. Examples of this repurposing of clinical staff include counselors providing skill building services which are billable as CPST. A leader at an agency not classified as large explained:

> "The therapist bills under CPST and they have to limit, they limit themselves primarily to doing just that skill building, that coordination, all that sort of things. They simply have a higher level of, of background, education, understanding to be able to deal with the more complicated cases…"

As well as counselors providing revisiting a diagnostic assessment during a therapy session, which could be billed as counseling if a consumer utilized all of their assessment hours. A leader at a large agency described these appointments as:

> "So it ends up being coded as counseling and really is let's get to know each other, let's, I see we have this assessment here, let's go over it and is there anything you want to add...it's coded as counseling and we're gonna do an interim

treatment plan so that we can call it counseling so that I can get paid for this time."

Human resource adaptations was an important component of the organizational response of these agencies. The organizations response to the benefit limits varied based on what human resources they were able to reassign in order to comply with the policy. These limitations on adaptability were underlying characteristics intrinsic to the agencies and not a result of the policy.

Discussion and Theoretical Development

To understand why we posit that information technology systems, utilization management approach, and adaptability of human resources are considered underlying characteristics, and not outcomes of organizational responses to the limit on Medicaid benefits an explanation is required. First, information technology as an antecedent will be described. Of all the agencies interviewed, none indicated that they specifically purchased or acquired a new information technology system for the purpose of complying with these benefit limits. They all used IT to monitor utilization, but it was by means of some adaptation of an existing system or use of the web portal provided by the state mental health authority. Therefore, the legacy systems shaped the way IT would be used by the agencies in their efforts to comply with the policy. It was not outcome but an underlying characteristic that shaped the outcome.

Approach to utilization management may not seem to be an underlying characteristic, but we that a suggest a strong theoretical explanation exists. The explanation is that an organization's existing care delivery processes dictated which of

the utilization management approaches described above would be used by the agencies. An organization that has adopted practices that require extensive services, such as Dialectical Behavioral Therapy and intensive home based treatment, is going to need to address benefit limits during the construction of the initial treatment plan. Conversely, an agency which is most concerned about encountering a 90 minute daily limit for CPST would be more likely to adopt a strategy that emphasizes the role of the CPST provider in decreasing the amount of time they spend with a consumer on any given day.

The third underlying characteristic is the adaptability of human resources. This characteristic shows responses were largely dependent on the type of staff and clinicians employed by the agencies and their level of training. The fact that adaptability of human resources is such an important underlying characteristic is a byproduct of the fact that no money was provided by the state to hire new administrative staff to aid the agencies in compliance with the policy. The absence of new resources meant that agencies were largely left to repurpose their existing resources in order to comply with the policy.

The operational impact of the benefit limits instituted by the state of Ohio on community mental health agencies was contingent on the CBMHA's information technology systems, utilization management approach, and adaptability of human resources. Each of these factors influenced the way the agencies were able to carry out their care processes of intake, assessment and treatment plan development, and delivery and monitoring.

Conclusions

This study suggests that the way a community mental health agency responds to this policy is largely contingent on their information technology systems, utilization management approach, and adaptability of human resources prior to the implementation of the policy. These agencies possible operational responses are limited by what they already have in place prior to the implementation of an unfunded mandate. Although we have reasons to propose this relationship, further research is necessary to validate whether objective predictions can be formulated about how any particular agency will respond to this policy.

We believe our results may be relevant beyond the scope of community mental health and the specific policy of benefit limits. It is possible that other non-profit social service providers required to comply with unfunded mandates may experience similar limitations in their ability to respond to the policies. However, future study is necessary to identify whether agencies in these areas are more adaptable than CMHAs.

In summary, we have provided a useful framework for understanding why community mental health agencies respond to benefit limits as they do. We show that factors that impact these policies have much to do with how the agencies operate prior to the policies implementation. Further, due to our sampling approach we were able to include a diverse group of agencies in our study and thus believe the results to be robust and generalizable. We do not, however, extend our conclusion to state that these agencies are not able to transform in a response to a policy, only that in this instance they did not.

The results are useful to policymakers and leaders in mental health agencies. They show that policymakers should understand what factors limit the ability of agencies to respond to their policies. It is useful to the leaders of the agencies for planning purposes. It shows how decisions made regarding things like training requirements for clinical and administrative personnel and IT purchases may alter their organizations capabilities to respond to external policy changes. We hope that both of these parties benefit from this broader description of the factors that influence the outcomes of policies.

Limitations

There are several inherent limitations to our study. First, the data is self-reported. Although the interviewees had a high level of credibility in understanding the way their organizations had changed, given their leadership roles in the agencies, as Polkinghorne (2005) points out, "[a]lthough self-report evidence is necessary and valuable for inquiry about human experience, it is not to be misconstrued as mirrored reflections of experience (Page 139)." Participant responses cannot be regarded as exact descriptions of what did or did not occur in response to the institutions of benefit limits. A second limitation is that in order to preserve respondent confidentiality only limited, general information could be provided about the individual respondents who were quoted. This is a common limitation when working in the highly-sensitive area od mental health care. Lastly, the sample size was limited to twelve cases. A larger sample may have generated more insights or divergent observations. However, given the diversity present within the sample there are good reasons to believe that even this size sample can be used to describe a wide group of agency responses (Eisenhardt, 1989).

Chapter 5: Conclusion

The purpose of this dissertation was to identify the relationship between benefit limits in community mental health and changes in care delivery and outcomes. In order to achieve this goal, analysis was conducted on Ohio community mental health claims data from 2010 through 2012, and transcribed interviews conducted with leadership from 12 community mental health agencies in the state of Ohio. What follows is a summary of the key findings of each of the studies and an overview of what the implications of the studies are for future research.

Key Findings

The second chapter of this dissertation presents several important results related to the relationship between need for services and benefit limits. The first result is that individuals with severe mental illness diagnoses are those most likely to receive care in excess of limits during periods when benefit limits are not in place. This was found to be true whether limits were set based on total expenditures or utilization levels of specific services. A second result that this study presents is the finding that individuals that qualify for Medicaid based on a disability are also more likely to receive care in excess of the benefit limits specified. Taken together, these results suggest that care in community mental health agencies is highly related to the severity of illness of the individual. A third

finding in the study is that, based on the relative odds of individuals with severe mental health diagnoses exceeding benefit limits, a cap on total expenditures causes a greater disparity in the impact of the policy compared with utilization limits. Thus, we found support for the idea that exceeding utilization limits on certain services may be based on what services are available for consumers at a given agency, rather than their absolute need for services. Lastly, we found that although diagnosis adjustment does eliminate disparities in odds of encountering a benefit limit based solely on diagnosis, disparities based on other need factors, such as Medicaid disability status, remain even after the limits are adjusted. In summary, this study shows a strong relationship between need for services and the odds of exceeding a benefit limit, and that simple diagnosis adjustment does not fully correct for disparities based on need.

The third chapter of this dissertation identifies changes to costs and care delivery in the period after benefit limits were implemented for community mental health services in Ohio. In terms of costs, this study points to the fact that there was a significant decrease in expenditures after limits were implemented. This was particularly true for individuals that qualified for Medicaid based on disability and those with schizophrenia. These individuals were among the populations found to be more likely to receive services in excess of a benefit limit prior to the policy's implementation. The study also finds that individuals in this category had greater expenditures on crisis intervention services in the period after the benefit limits were implemented. This may be a result of increased incidence of crises, or the fact that agencies referred consumers in the midst of crises to crisis departments rather than provide the services as CPST or BHC, as these services are

limited under the policy. The implications are that there is increased demand for a crisis services apparatus when benefit limits are in place. In summary, this dissertation identifies significant cost savings and an increase in crisis service expenditures in the post-limit period for individuals that qualify for Medicaid on the basis of a disability.

The fourth chapter of this dissertation identifies the relationship between the responses to a benefit limits policy implemented by community mental health agencies in Ohio and the organizational and management characteristics of those agencies. In particular it identifies the essential function each of these agencies must perform with a three category classification; intake, assessment and treatment plan development, and delivery and monitoring. It also identifies the characteristics of the firm which were found to influence their response to the policy; information technology, relationship with consumers, and adaptability of human resources. It concludes with the proposition that there are predictable relationships between the ways intake, assessment and treatment plan develop, and delivery and monitoring will change in response to a benefit limit policy based on information technology, relationship with consumers, and the adaptability of human resources prior to the implementation of the policy. In summary it provides a theoretical framework for understanding how the landscape of community mental health is likely to change after implementation of a limit on benefits for services.

Implications for Future Research

This dissertation motivates several areas of research. Study one (chaper two) points to the need for research on how it is possible, if at all, to create a need-adjusted benefit limit in mental health. This question arises from the fact that it was not possible to

simply adjust for diagnostic category and eliminate disparities based on need. Researchers should seek to understand what proxy measures can be taken into account to determine whether or not utilization of services is based on factors other than clinical needs. If this is done, it would be possible to construct limits in such a way that they would identify individuals that are receiving services that have no clinical benefits.

A question raised by the first and second studies of the dissertation is whether there are measurable declines in health and wellbeing for the populations that experience decreases in care under benefit limits. The second study points to an increase in per capita expenditures on crisis services, but it does not have sufficient data to determine whether there were other adverse clinical events that resulted from the limits. Examples of these may be hospitalizations or incarcerations, concerns over both of which were raised by interviewed parties in the qualitative piece of the dissertation. An integrated adverse event database that could be tied to community mental health utilization data could bes used to more accurately measure the effects of these policies on the health of the individuals that rely on the services limited by this policy.

The qualitative study generated a theoretical framework which should be validated. To assess whether this model for understanding how community mental health agencies will respond to the benefit limits is accurate a survey should be designed such that it can assess the attributes of agencies prior to implementation of the policy. Then, a follow up survey could be administered to classify the responses of the agencies. Finally, an analysis could be conducted on the results of the survey to determine whether or not the predictions generated by the theoretical framework are valid.

Conclusion

The studies included in this dissertation provide several useful contributions to the understanding of the effects of benefit limits on costs, outcomes and care delivery in community mental health. In addition it has significant implications for policy makers considering a policy of benefit limits and social service providers responding to such a policy.

References

Anand, J. (2004). Redeployment of corporate resources: A study of acquisition strategies in the US defense industries, 1978–1996. *Managerial and Decision Economics*, *25*(6-7), 383–400. doi:10.1002/mde.1197

Andersen, R., & Newman, J. F. (1973). Societal and Individual Determinants of Medical Care Utilization in the United States. *The Milbank Memorial Fund Quarterly. Health and Society*, *51*(1), 95–124. doi:10.2307/3349613

Austin, M. J. (2003). The Changing Relationship Between Nonprofit Organizations and Public Social Service Agencies in the Era of Welfare Reform. *Nonprofit and Voluntary Sector Quarterly*, *32*(1), 97–114. doi:10.1177/0899764002250008

Barry, C. L., Gabel, J. R., Frank, R. G., Hawkins, S., Whitmore, H. H., & Pickreign, J. D. (2003). Design Of Mental Health Benefits: Still Unequal After All These Years. *Health Affairs*, *22*(5), 127–137. doi:10.1377/hlthaff.22.5.127

Barry, C. L., Weiner, J. P., Lemke, K., & Busch, S. H. (2012). Risk Adjustment in Health Insurance Exchanges for Individuals With Mental Illness. *American Journal of Psychiatry*, *169*(7), 704–709. doi:10.1176/appi.ajp.2012.11071044

Brazier, J., Tumur, I., Holmes, M., Ferriter, M., Parry, G., Dent-Brown, K., & Paisley, S. (2006). Psychological therapies including dialectical behaviour therapy for borderline personality disorder: a systematic review and preliminary economic evaluation. *Health Technology Assessment (Winchester, England)*, *10*(35), iii, ix–xii, 1–117.

Chernew, M., Cutler, D. M., & Keenan, P. S. (2005). Increasing Health Insurance Costs and the Decline in Insurance Coverage. *Health Services Research*, *40*(4), 1021–1039. doi:10.1111/j.1475-6773.2005.00409.x

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied Multiple Regression - Correlation Analysis for the Behavioral Sciences*. Lawrence Erlbaum Associates, Incorporated.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review*, *14*(4), 532–550. doi:10.5465/AMR.1989.4308385

Feder, J., Hadley, J., & Zuckerman, S. (1987). How Did Medicare's Prospective Payment System Affect Hospitals? *New England Journal of Medicine*, *317*(14), 867–873. doi:10.1056/NEJM198710013171405

Feldstein, P. J., Wickizer, T. M., & Wheeler, J. R. (1988). Private cost containment. The effects of utilization review programs on health care use and expenditures. *The New England Journal of Medicine*, *318*(20), 1310–1314. doi:10.1056/NEJM198805193182006

Frank, R. G., Goldman, H. H., & Hogan, M. (2003). Medicaid And Mental Health: Be Careful What You Ask For. *Health Affairs*, *22*(1), 101–113. doi:10.1377/hlthaff.22.1.101

Frank, R. G., & McGuire, T. G. (1997). Savings from a Medicaid carve-out for mental health and substance abuse services in Massachusetts. *Psychiatric Services*, *48*(9), 1147–1152.

Franks, P., Clancy, C. M., & Nutting, P. A. (1992). Gatekeeping Revisited — Protecting Patients from Overtreatment. *New England Journal of Medicine*, *327*(6), 424–429. doi:10.1056/NEJM199208063270613

Garfield, R. (2011). *Mental Health Financing in the United States: A Primer* (No. 8182). Kaiser Commission on Medicaid and the Uninsured. Retrieved from http://kff.org/medicaid/report/mental-health-financing-in-the-united-states/

Garfield, R., Clemans-Cope, L., Lawton, L., & Holahan, L. (2012). *Enrollment-Driven Expenditure Growth: Medicaid Spending during the Economic Downturn, FFY2007-2010* (No. 8309). Kaiser Commission on Medicaid and the Uninsured. Retrieved from http://www.kff.org/medicaid/upload/8309.pdf

Goldman, H. H., Frank, R. G., Burnam, M. A., Huskamp, H. A., Ridgely, M. S., Normand, S-L. T., … Blasinsky, M. (2006). Behavioral Health Insurance Parity for Federal Employees. *New England Journal of Medicine*, *354*(13), 1378–1386. doi:10.1056/NEJMsa053737

Goldman, W., McCulloch, J., & Sturm, R. (1998). Costs and use of mental health services before and after managed care. *Health Affairs, 17*(2), 40–52. doi:10.1377/hlthaff.17.2.40

Gronfein, W. (1985). Incentives and Intentions in Mental Health Policy: A Comparison of the Medicaid and Community Mental Health Programs. *Journal of Health and Social Behavior, 26*(3), 192–206. doi:10.2307/2136752

Hodgkin, D., Horgan, C. M., Garnick, D. W., & Merrick, E. L. (2009). Benefit Limits for Behavioral Health Care in Private Health Plans. *Administration and Policy in Mental Health and Mental Health Services Research*, *36*(1), 15–23. doi:10.1007/s10488-008-0196-5

Hogan, M. F. (1999). Perspective: Public-Sector Mental Health Care: New Challenges. *Health Affairs, 18*(5), 106–111. doi:10.1377/hlthaff.18.5.106

Human, J., & Wasem, C. (1991). Rural mental health in America. *American Psychologist*, *46*(3), 232–239. doi:10.1037/0003-066X.46.3.232

Institute of Medicine. (2012). *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*. Washington, D.C.: The National Academies Press. Retrieved from http://books.nap.edu/openbook.php?record_id=13444&page=1

Kaiser Commission on Medicaid and the Uninsured. (2009, March 4). American Recovery and Reinvestment Act (ARRA): Medicaid and Health Care Provisions. Retrieved from http://kff.org/medicaid/fact-sheet/american-recovery-and-reinvestment-act-arra-medicaid/

Keeler, E. B., Manning, W. G., & Wells, K. B. (1988). The demand for episodes of mental health services. *Journal of Health Economics*, *7*(4), 369–392. doi:10.1016/0167-6296(88)90021-5

Leaf, P. J., Bruce, M. L., Tischler, G. L., Freeman, D. H., Weissman, M. M., & Myers, J. K. (1988). Factors Affecting the Utilization of Specialty and General Medical Mental Health Services. *Medical Care*, *26*(1), 9–26. doi:10.2307/3765237

Leslie, D. L., & Rosenheck, R. A. (2000). Comparing Quality of Mental Health Care for Public-Sector and Privately Insured Populations. *Psychiatric Services*, *51*(5), 650–655. doi:10.1176/appi.ps.51.5.650

Mandell, D., Boothroyd, R., & Stiles, P. (2003). Children's use of mental health services in different Medicaid insurance plans. *The Journal of Behavioral Health Services & Research*, *30*(2), 228–237. doi:10.1007/BF02289810

Marshall, M., & Lockwood, A. (1996). Assertive community treatment for people with severe mental disorders. In *Cochrane Database of Systematic Reviews*. John Wiley & Sons, Ltd. Retrieved from http://onlinelibrary.wiley.com.proxy.lib.ohio-state.edu/doi/10.1002/14651858.CD001089/abstract

McNutt, L.A., Wu, C., Xue, X., & Hafner, J. P. (2003). Estimating the Relative Risk in Cohort Studies and Clinical Trials of Common Outcomes. *American Journal of Epidemiology*, *157*(10), 940–943. doi:10.1093/aje/kwg074

Moulton, S., & Eckerd, A. (2012). Preserving the Publicness of the Nonprofit Sector Resources, Roles, and Public Values. *Nonprofit and Voluntary Sector Quarterly*, *41*(4), 656–685. doi:10.1177/0899764011419517

Namey, E., Guest, G., Thairu, L., & Johnson, L. (2008). Chapter 7: Data reduction techniques for large qualitative data sets. In *Handbook for Team-Based Qualitative Research*, Lanham: Altamira.

National Bureau of Economic Research. (n.d.). U.S. business cycles expansions and contractions. *National Bureau of Economic Research*. Retrieved May 16, 2014, from http://www.nber.org/cycles.html

NIMH · The Numbers Count: Mental Disorders in America. (n.d.). Retrieved February 4, 2014, from http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml

OAC - 5101:3-27-02 Coverage and limitations of medicaid community mental health services. (2012). Retrieved from http://codes.ohio.gov/oac/5101:3-27-02

OAC - 5122-29-17- Community psychiatric supportive treatment (CPST) service, Ohio Administrative Code (2011). Retrieved from http://codes.ohio.gov/oac/5122-29-17

Office of Management and Budget. (n.d.). OMB Bulletin No. 13-01 Revised delineations of metropolitan statistical areas, micropolitan statistical areas, and combined statistical areas, and guidance on uses of the delineations of these areas. Office of Management and Budget. Retrieved from http://www.whitehouse.gov/sites/default/files/omb/bulletins/2013/b-13-01.pdf

Ohio Department of Mental Health. (n.d.). MACSIS. *Ohio Department of Mental Health*. Retrieved April 4, 2013, from http://mentalhealth.ohio.gov/what-we-do/protect-and-monitor/macsis/index.shtml

Olesiuk, W., Sweeney, H. A., Seiber, E., Tanenbaum, S., & Tam, K. (2013). *An Appraisal of the Impact of Utilization Limits on Costs of and Access to Community-Based Mental Health Care in Ohio*. Columbus, OH: The Ohio Department of Mental Health and Addiction Services.

Pagano, M., & Gauvreau, K. (2000). *Principles of Biostatistics* (2nd ed.). Duxbury/Thomson Learning.

Pauly, M. (1980). Doctors and Their Workshops: Economic Models of Physician Behavior. In *The Availability Effect: Empirical Results* (pp. 65–90). University of Chicago Press. Retrieved from http://www.nber.org.proxy.lib.ohio-state.edu/chapters/c11525.pdf

Pauly, M., & National Bureau of Economic Research. (1980). *The Availability Effect Empirical Results*. Cambridge, Mass: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/c11525

Plouck, T. (2011, September 30). Implementation of the Medicaid Benefit Package, Service Limits & Prior Authorization. Memorandum. Retrieved from http://www.healthtransformation.ohio.gov/LinkClick.aspx?fileticket=PTsmZr-uzAU%3D&tabid=122

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology*, *52*(2), 137–145. doi:10.1037/0022-0167.52.2.137

Porter, M. (2001). Chapter 5: The value chain and competitive advantage. In *Understanding Business Processes* (1st. ed.). New York: Routledge.

QSR International Pty Ltd. (2012). *NVivo qualitative data analysis software* (Version 10.).

Ransom, S. B., McNeeley, S. G., Kruger, M. L., Doot, G., & Cotton, D. B. (1996). The Effect of Capitated and Fee-for-Service Remuneration on Physician Decision Making in Gynecology. *Obstetrics and Gynecology*, *87*(5), 707–710.

Roemer, M. I. (1961). Bed supply and hospital utilization: a natural experiment. *Hospitals*, *35*, 36–42.

Salkever, D. S., Shinogle, J., & Goldman, H. (1999). Mental Health Benefit Limits and Cost Sharing Under Managed Care: A National Survey of Employers. *Psychiatric Services*, *50*(12), 1631–1633.

Salvador, F., Forza, C., & Rungtusanatham, M. (2002). Modularity, product variety, production volume, and component sourcing: theorizing beyond generic prescriptions. *Journal of Operations Management*, *20*(5), 549–575. doi:10.1016/S0272-6963(02)00027-X

Slade, E. P., McCarthy, J. F., Valenstein, M., Visnic, S., & Dixon, L. B. (2013). Cost savings from assertive community treatment services in an era of declining psychiatric inpatient use. *Health Services Research*, *48*(1), 195–217. doi:10.1111/j.1475-6773.2012.01420.x

Smith, V. K., Gifford, K., Ellis, E., Rudowitz, R., & Snyder, L. (2011). *Moving Ahead Amid Fiscal Challenges: A Look at Medicaid Spending, Coverage and Policy Trends Results from a 50-State Medicaid Budget Survey for State Fiscal Years 2011 and 2012* (No. 8248). Kaiser Commission on Medicaid and the Uninsured. Retrieved from http://kff.org/medicaid/report/moving-ahead-amid-fiscal-challenges-a-look-at-medicaid-spending-coverage-and-policy-trends-results-from-a-50-state-medicaid-budget-survey-for-state-fiscal-years-2011-and-2012/

Soumerai, S. B., McLaughlin, T. J., Ross-Degnan, D., Casteris, C. S., & Bollini, . (1994). Effects of a limit on Medicaid drug-reimbursement benefits on the use of psychotropic agents and acute mental health services by patients with schizophrenia. *The New England Journal of Medicine*, *331*(10), 650–655. doi:10.1056/NEJM199409083311006

Stano, M. (1985). An analysis of the evidence on competition in the physician services markets. *Journal of Health Economics*, *4*(3), 197–211. doi:10.1016/0167-6296(85)90029-3

StataCorp. (2009). *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP.

Steinwachs, D. (2013, June 25). *Per Case Payment for Psychiatric Admissions: Improving APR-DRGs and Policy Implications*. Presented at the AcademyHealth Annual Research Meeting, Baltimore, MD. Retrieved from http://academyhealth.org/files/2013/tuesday/steinwachs.pdf

Tang, M. H., Hill, K. S., Boudreau, A. A., Yucel, R. M., Perrin, J. M., & Kuhlthau, K. A. (2008). Medicaid Managed Care and the Unmet Need for Mental Health Care among Children with Special Health Care Needs. *Health Services Research*, *43*(3), 882–900. doi:10.1111/j.1475-6773.2007.00811.x

The Ohio Department of Job and Family Services. (n.d.). ODJFS Online | Public Assistance Monthly Statistics. *The Ohio Department of Job and Family Services*. Retrieved May 16, 2014, from http://jfs.ohio.gov/pams/archive.stm

The Ohio Department of Mental Health. (n.d.). Multi-Agency Community Services Information System Data Mart. Retrieved May 16, 2014, from http://macsisdatamart.mh.state.oh.us/

U.S. Agency for Health Care Research and Quality. (2013, March 8). Appendix A - Clinical Classification Software-DIAGNOSES (January 1980 through September 2013). *Healthcare Cost and Utilization Project*. Retrieved May 16, 2014, from http://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixASingleDX.txt

US Census Bureau. (2013, June 27). Ohio QuickFacts from the US Census Bureau. US Census Bureau. Retrieved from http://quickfacts.census.gov/qfd/states/39000.html

Young, K., Garfield, R., Clemans-Cope, L., Lawton, E., & Holahan, J. (2013). *Enrollment-Driven Expenditure Growth: Medicaid Spending During the Economic Downturn, FY 2007-2011* (No. 8309-2). Kaiser Commission on Medicaid and the Uninsured. Retrieved from http://kff.org/medicaid/report/enrollment-driven-expenditure-growth-medicaid-spending-during/

Zuvekas, S. H., Banthin, J. S., & Selden, T. M. (1998). Mental health parity: what are the gaps in coverage? *The Journal of Mental Health Policy and Economics, 1*(3), 135–146. doi:10.1002/(SICI)1099-176X(1998100)1:3<135::AID-MHP17>3.0.CO;2-S