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Evaluation of the Medicaid Value Program: Health Supports for Consumers with Chronic Conditions

Johns Hopkins Healthcare Case Study

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JOHNS HOPKINS HEALTHCARE'S INTEGRATED CARE INTERVENTION

Johns Hopkins Healthcare, LLC (JHHC) and a consortium of community health centers jointly own Priority Partners, a Maryland Medicaid managed care organization with about 116,000 enrolled Medicaid beneficiaries.[1] For the Medicaid Value Program (MVP), JHHC implemented a patient-based intervention to better coordinate care for Medicaid beneficiaries aged 21 or older with both a history of substance abuse and high predicted utilization costs. The prediction was based on Adjusted Clinical Group (ACG) Case-Mix Software, a tool that utilizes claims and demographic data to generate the probability that individual enrollees' costs will be in the top 5 percent of medical costs in the coming year. This integrated care intervention targeted Priority Partners members meeting these eligibility criteria in nine Eastern Shore counties of Maryland, and compared their outcomes to similar patients in seven other Maryland counties.[2]

The intervention employed a team approach to better integrate patients' medical and mental health care and substance abuse treatment. While patients already had formal access to case management, mental health care, and substance abuse treatment (that is, the services were either covered in the benefit package or paid for separately), many were not enrolled in these services. A major goal of the intervention was to make members aware of these services and get them enrolled as appropriate. The intervention also aimed to increase communication about patients' treatment among each patient's providers (including the primary care physician, the case manager, the substance abuse treatment provider, and the mental health provider), so each could better "break down the silos of care" and "treat the whole patient." Through better care integration, reducing barriers to better self-management of medical conditions, and linking patients to community resources as needed, the intervention aimed to reduce inappropriate or avoidable use of services (such as some inpatient admissions and readmissions), and ultimately improve participating patients' health status while reducing overall utilization costs.

To develop this intervention, JHHC drew from existing evidence on care integration from a number of sources. Given limited funding resources, however, JHHC decided that it had to create an intervention that worked largely within existing programs and services. As a result, the intervention simply focused on improving use of those services and increasing communication among those who provided them (rather than developing an intervention with new staff).

ORGANIZATIONAL CONTEXT

As a Medicaid managed care organization in Maryland, Priority Partners is paid on a capitated basis, which gives it an incentive to provide care efficiently. However, some services

[1] While Priority Partners is jointly owned by JHHC and several Maryland community health centers, JHHC manages the plan.

[2] Counties whose patients comprised the treatment group include Caroline, Cecil, Kent, Queen Anne's, Talbot, Dorchester, Somerset, Wicomico, and Worcester; counties whose patients comprised the comparison group include Allegany, Frederick, Garrett, Washington, Calvert, Charles, and St. Mary's.

are not included in the capitation rate. The benefit package in Maryland's Medicaid capitated care is constructed to balance Medicaid concerns for overall accountability and integration with the concerns of state-sponsored mental health and substance abuse programs for control over their services (Gold et al. 1999). In Maryland, mental health services are carved out (that is, Medicaid managed care organizations are not at risk for these costs). The MMCO benefit package includes medical, pharmacy and substance abuse treatment. Some of the substance abuse services are provided by state-sponsored services. With many separate sets of providers and institutions, this arrangement historically has made coordination difficult for Medicaid managed care, and the fact that many mentally ill also have substance abuse problems only compounds the challenges. Substance abuse is reportedly one of JHHC's most serious challenges in serving a portion of its Medicaid population.[3]

Like many states, Maryland's Medicaid program is under continued fiscal pressure. Maryland cut capitation rates by 0.5 percent in 2006 (which translated to about a $2 million loss in revenue for JHHC). However, JHHC also reported that the financial strength of Medicaid managed care in Maryland was improving over the period of the intervention and was strong in Priority Partners, who viewed this intervention as a potentially manageable product. Maryland's government also reportedly had diminished health department leadership over the period of the MVP intervention, as state elected a new governor, leading to change and less experience in the department's health leadership.[4]

Johns Hopkins, the sponsor of Priority Partners, has historically been a central part of the safety net for Maryland's low-income population, providing a disproportionate amount of care to Medicaid patients. Because Priority Partners has tended to attract vulnerable patients with complex needs since its inception in 1997, the organization says it devotes about 25 percent of its administrative budget to care management and coordination, which reportedly is quite unusual for a managed care organization.[5] JHHC places high priority on interventions like the MVP project, especially if it can show return on investment for such projects.[6] However, JHHC was concerned that treatment of physical conditions often is not possible until mental and substance abuse issues are dealt with, and therefore believes that getting members into behavioral health services is a high priority. As a result, organizational commitment to this particular intervention was strong.

The JHHC intervention represents an effort to better coordinate medical, mental health and substance abuse care, with enhanced communication across providers working in each of these somewhat different systems. From the mental health perspective, the intervention involves the

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[3] Half of all study patients with an ACG score of 0.4 or greater had identified substance abuse problems.

[4] In November 2006, Maryland elected a Democratic governor who in turn appointed a new health secretary with substantial state experience. Although some view this as a return to more aggressive health leadership, the change occurred at the end of the MVP intervention and hence is relevant only to the future.

[5] Personal communication with Patricia Brown, JHHC President, March 16, 2006.

[6] While JHHC strongly supports case management (up to the level of the president), there remains some operational resistance to such expenditures. Senior executive staff believe that some of the operations staff do not really understand the need to spend money on case management now to avoid costs in the future, so internally staff continually need to make the "business case" for these types of projects in order to leverage internal support.

Mental Health Administration (MHA) of the Maryland Department of Health and Mental Hygiene and MAPS-MD, the statewide mental health carve-out administered by APS Healthcare. Together, these organizations formed a stakeholder task force, along with representatives from JHHC and Priority Partners. The task force generally met every one to two months to have cases currently in care management presented by nurse care managers. The stakeholders then discussed the issues that arose in care coordination and worked together on solutions, since all the organizations have the common mission to improve care for the Medicaid beneficiaries they serve. MHA provided JHHC with monthly outpatient, inpatient, and pharmacy claims data on mental health services as well as office space for the stakeholder meetings (MAPS-MD physically sent the data to JHHC as requested by MHA).

Although not official partners on the stakeholder task force, local health departments also proved useful for this intervention, we were told by JHHC staff. They helped the case managers locate members when necessary, and also served as a community resource link, helping to provide patient transportation to medical appointments as needed.

PROGRAM INTERVENTION

JHHC's integrated care intervention targeted high-cost Medicaid members (based on ACG scores) with a history of substance abuse (as identified by claims data) on the Eastern Shore of Maryland and recruited them to participate in (existing) substance abuse programs and case management.[7] The team that helped carry out the intervention included:

- ***Substance Abuse Coordinator*** (also referred to internally as the behavioral health staffer). Plan-based staff member (with a bachelor's degree and some experience in counseling) located in Baltimore who conducted outreach activities by telephone with treatment group patients. If the patient was amenable, the coordinator arranged for substance abuse treatment and/or case management (if not already enrolled).

- ***Case Managers.*** Five nurse case managers, three of whom resided in the care delivery settings of the Eastern Shore of Maryland, developed care plans for participating patients and coordinated with the patient's various providers; they also provided patient education and linked patients to community resources as needed. Patient contact was made both by telephone and in person.

- ***Specialty Care Coordinator.*** Plan-based social worker who arranged for patients' substance abuse treatment (by telephone) and coordinated that care with a substance abuse treatment provider.

As part of the intervention, the staff listed above worked to open lines of communication with participating patients' primary care physicians. In some cases, the staff also communicated

[7] This project is similar to an intervention already operating in Baltimore that JHHC developed as part of a Business Case for Quality (BCQ) grant (also funded by CHCS). This intervention is reportedly much more team-focused and has a larger mental health focus than the BCQ project.

with mental health treatment providers and substance abuse treatment providers as needed.[8] (See Figure 1 for intervention activities.) Prior to the intervention, the Eastern Shore case managers reportedly were not involved at all in substance abuse treatment or mental health services for their patients, so the focus on such services for this intervention represented a significant change. The nurse case managers saw value in having a better understanding of their patients' mental health conditions and substance abuse problems; in the words of one nurse case manager, "you can't teach an alcoholic about diabetes if they are addicted to alcohol." Accordingly, the intervention also included periodic training for the integrated care team—which occurred either in-person or via teleconference on topics like motivational interviewing, stages of change/readiness to change, and the care management of patients with pain.

The intervention began in October 2005, when JHHC sent letters to all eligible Priority Partners members residing in the Eastern Shore of Maryland who met the intervention's eligibility criteria.[9] The substance abuse coordinator located in Baltimore then proceeded with outreach calls to these members. The primary goals of the initial call were to establish a rapport with the patient and, if possible, enroll him/her into substance abuse treatment. In addition, if the member agreed to case management (and was not already enrolled), the substance abuse coordinator referred the patient to case management and contacted the appropriate nurse case manager on the Eastern Shore.

As part of the intervention, the substance abuse coordinator and the Eastern Shore nurse case managers met (starting in the fall of 2005) twice monthly for case conferences about the patients in the treatment group and whether additional management measures could be taken. The case conferences were divided into: (1) a presentation and review of a case, and (2) a didactic presentation by the psychiatrist leading the conference on clinical topics such as psychiatric disorders, psychotropic medications and the management of chronic pain. The presentation of a specific case reportedly helped orient staff away from a "medicalized" approach to treating a patient, and towards consideration of a broader set of issues—including the patient's support systems, psychosocial issues, and medical conditions. Moreover, the didactic presentations helped nurse case managers—most of whom had relatively limited background in mental health issues—to better understand the conditions of their patients.

Nurse case managers contacted patients assigned to the treatment group more frequently than their other case management patients—though outreach and other activities for those patients in the intervention were not standardized or protocolized as part of the project—due primarily to their substance abuse problems and their overall poor health.[10] Nurse case managers

[8] Typically, the integrated care team has not worked with patients' other specialist providers (such as endocrinologists or cardiologists).

[9] At the start of the intervention, JHHC recognized it had the staff capacity to include approximately 125 – 130 patients in the treatment group. Because there were 119 (originally 124, but 5 were deemed ineligible at enrollment) members in the treatment counties who met the intervention's eligibility criteria, all were assigned to treatment. JHHC, therefore, had to select a comparison group of patients from other similar counties in Maryland.

[10] One nurse case manager reported that she contacts case management participants at least once per month, but attempts to contact those assigned to the MVP treatment group at least two to three times per month because "they are involved in behaviors that are not so healthy."

tried to conduct a home visit when possible (if the patient was amenable). As a part of care coordination for the intervention, nurses also tried to get these patients to enroll in substance abuse treatment and/or mental health treatment, if the substance abuse coordinator was not successful in doing so. Finally, the nurse case managers connected the patients to community resources (such as the local food bank) as needed or referred them to a social worker on staff. Given the complex needs of patients in the treatment group, the integrated care team generally saw these patients as part of the intervention for at least one year.

In addition to the twice-monthly conferences described above, six case conferences were held with the stakeholders in the project. Specifically, Maryland's MHA hosted a Medicaid MCO (JHHC's PPMCO) and the mental health carve-out administrative services organization, MAPS-MD. The conferences afforded an opportunity to coordinate care and address systemic issues in medically managing this population.

PROCESS AND OUTCOME MEASURES

Johns Hopkins reported a number of process and outcome measures related to its intervention. Process measures included the proportion of clients in the intervention group (1) who were successfully contacted by the substance abuse coordinator or case manager, (2) whose primary care, substance abuse treatment, or mental health treatment provider was successfully contacted by the substance abuse coordinator or case manager, and (3) who received case management services, substance abuse treatment, or mental health treatment.[11] These process measures were based on data from the JHHC case management/disease management database, and provided useful information on the intervention's intensity (see the activities and outputs boxes of Figure 1). JHHC also tracked claims-based outcome measures, including medical costs per member per month, inpatient admissions (per 1,000 member months), and readmissions within 31 days of a discharge (per 1,000 member months). JHHC reported the first set of process measures for the intervention group and all other process and outcome measures for the intervention and comparison groups.

Care coordination process measures suggest that JHHC had mixed success at communications with patients and providers (Table 1). JHHC successfully contacted about 75 percent of eligible intervention group patients over the intervention period (November 2005 through January 2007). Case managers and the substance abuse coordinator contacted more than 90 percent of primary care providers for patients enrolled in case management through January 2007.[12] However, these staff had less success in contacting substance abuse providers or mental health providers, reaching them for only 41 percent and 21 percent of patients with substance abuse or mental health claims, respectively. Mental health providers were not on the panel of PPMCO providers because, as noted previously, mental health services were carved out of the MMCO benefit packages.

[11] JHHC initially attempted to measure whether communication was occurring between primary care, substance abuse treatment, and mental health treatment providers, but found that it did not have the means to collect these data.

[12] This reflects communication for patients in case management, not communication for all intervention group patients overall and does not account for the frequency of communication.

TABLE 1

CARE COORDINATION MEASURES FOR INTERVENTION GROUP MEMBERS AS OF JANUARY 2007

	Number of Patients	Percent with Successful Contact/Communication
Patient Contact with Case Manager or Substance Abuse Coordinator	124	76
Case Manager or Substance Abuse Coordinator Contact with:		
Primary care physician	48[a]	92
Substance abuse provider	38[b]	41
Mental health provider	75[c]	21

Source: JHHC MVP Workbook reported on June 11, 2007.

Note: Sample sizes for the last three measures represent the number of patients with claims in the three months ending January 2007 but sample sizes were similar over JHHC's last three reporting periods.

[a]Patients in case management.
[b]Patients with a claim for substance abuse treatment.
[c]Patients with a claim for mental health treatment.

The care integration focus of the intervention suggests that increased communication between various providers is important. Indeed, communication between the case managers and primary care physicians for intervention patients in case management was substantial, but communication with substance abuse and mental health providers (a focus of the intervention) occurred much less often. For the intervention to have a noticeable impact on patient outcomes related to substance abuse and mental health treatment, it is likely that more communication between intervention staff and specialty providers is warranted.

To compare its intervention to usual care, JHHC drew a comparison group of enrollees in other Maryland counties with histories of substance abuse but with somewhat lower (better) average ACG scores.[13] Initially, the groups included 119 (intervention) and 127 (comparison) patients, but due to attrition related to long-term disenrollment from Priority Partners or death, each group numbered around 90 patients by the end of the intervention. This comparison group is a weak counterfactual for the intervention primarily because average ACG scores were so different from the intervention group's scores. This difference is reflected in the many baseline differences between the two groups (see measures in Tables 2 and 3).[14] The dissimilarity between these two groups (and their small sample sizes) makes inferences about the

[13] The treatment group included those with ACG scores of 0.39 or higher, and the comparison group included those with ACG scores of 0.10 or higher.

[14] JHHC was able to produce a regression analysis for average costs per member month controlling for ACG scores, but other measures are not controlled for these scores.

intervention's potential impacts challenging; however, some of the trends in the data are nonetheless noteworthy.

Reported process measures on case management enrollment and the provision of specialty services to patients were generally favorable for the intervention. At one point, half of all intervention patients (not shown) were enrolled in case management, compared with a quarter at baseline (Table 2). However, at the end of the intervention only 41 percent remained in case management, with the balance leaving due to disenrollment or death. The proportion of comparison group patients enrolled in case management was flat over the intervention period and never larger than 11 percent (not shown), which was much lower than the intervention group.

TABLE 2

PROVISION OF HEALTH CARE SERVICES AMONG INTERVENTION AND COMPARISON GROUP PATIENTS AT BASELINE AND FOLLOWUP

	Sample Size		Percent with Services		
	Intervention	Comparison	Intervention	Comparison	Difference
Case Management					
Baseline	124	134	26.6	6.0	20.6
Followup	88	85	41.1	5.5	35.6
Substance Abuse Treatment					
Baseline	119	127	16.8	26.8	–10.0
Followup	119	127	31.1	25.2	5.9
Mental Health Treatment					
Baseline	119	127	53.8	51.2	2.6
Followup	119	127	61.3	53.5	7.8

Source: JHHC MVP Workbook reported on June 11, 2007.

Note: Baseline measures reflect the three months ending October 2005 and followup measures represent the three months ending January 2007.

The proportion of intervention group patients with specialty treatment was larger than in the comparison group. While different from the comparison group at baseline, the proportion of intervention group patients with substance abuse treatment nearly doubled from 16.8 percent to 31.1 percent, while the percentage in the comparison group dropped slightly (26.8 percent to 25.2 percent). JHHC staff also noted in interviews that the proportion of clients receiving substance abuse services might be underreported, as these services are sometimes bundled with mental health treatment at local health departments but billed as mental health services.

Unlike substance abuse services, the proportion of patients with mental health treatment was similar at baseline across the study groups (53.8 percent and 51.2 percent). At followup, however, the proportion of intervention group patients with mental health treatment was 15 percent larger than the comparison group (61.3 percent versus 53.5 percent). These process measures suggest that intervention group patients may have received more targeted care than the comparison group for their substance abuse and mental health problems, due to participation in

the intervention. However, it is just as likely that these differences are due to other unobserved factors or that these differences are not statistically different from zero.

For all reported outcome measures, intervention-comparison group differences were large at baseline—more than 40 percent for each measure—highlighting the fact that these two groups were dissimilar. Because of these differences, it is more appropriate to examine differences in the trends in these outcome measures over the intervention period (compared with the baseline) rather than a head-to-head comparison between the two groups. However, even this approach is suspect given the large baseline differences and small sample sizes (about 100 in each group).

Compared in this way, reported outcome measures suggest that the intervention had mixed success. For example, average monthly medical costs fell by only 7 percent in the intervention group compared with a 17.3 percent drop in the comparison group (Table 3). In a regression analysis that controlled for ACG scores (not shown), average monthly medical costs were shown to be significantly lower for the comparison group ($p < .049$). Given that the intervention sought to increase the use of certain medical services, it is not surprising to see a slower reduction of costs in the intervention group within only 15 months.

Though no statistical tests were available, the rate of decrease in inpatient admissions (compared with baseline) across the two groups was similar (30.7 percent versus 27.7 percent), suggesting the intervention had no impact on overall hospitalizations during the 15-month study period. However, the decrease in readmissions (admits within 31 days of a discharge) was more than twice as large for the intervention group (48.6 percent decline) as it was for the comparison group (21.3 percent drop). Even with the small sample, controlling for ACG scores, this last result is likely statistically significant and suggests that while overall admissions were unaffected, the intervention may have reduced the rate of readmissions significantly. Of course, it would be challenging even in a well-designed evaluation to find significant differences for all three outcome measures for such a small sample over such a short follow-up period.

INTERVENTION CHALLENGES

Johns Hopkins encountered some challenges in implementing this intervention. One significant challenge was a lack of provider communication, particularly on the part of mental health providers. While this situation reportedly improved somewhat over time, these providers still remained reluctant to share documentation and other information, in part because of patient privacy issues. As noted previously, the mental health providers were not on the PPMCO panel because of the carve-out of mental health services. This clearly limited communication (as evidenced in the process measures) and made it more difficult for the nurse case managers to do their jobs. Moreover, despite the intervention's goal of increasing communication between case managers and providers, staff noted that the amount and frequency of communication between the primary care providers and case managers was "not overwhelming." This was attributed to two causes: (1) primary care physicians reportedly often like to work autonomously, rather than have to coordinate their work with a case manager, and (2) primary care physicians had no financial incentive to cooperate with the intervention. In addition, mental health providers were concerned about privacy and reluctant to share information, though some resistance was overcome with the support of the mental health leadership.

Another major challenge was related to the nature of substance abuse itself. Patients with substance abuse problems often deny needing substance abuse treatment. The substance abuse coordinators and case managers, therefore, often had difficulty getting patients to agree to treatment. Also, staff initially had difficulty finding some patients assigned to the intervention group (in part because patients with substance abuse problems are often mobile), though local health departments aided case managers in locating these members. Family members were also not useful sources of contact information, as many intervention patients had broken family ties. In addition, at the start of the intervention, patients did not understand why they were being contacted by plan staff in Baltimore (rather than their local case managers), but this improved somewhat when the Baltimore staff and the nurse case managers began to more fully integrate their work. Some members identified as having a substance abuse problem were prescription drug abusers (often taking medications for chronic pain), and denied that they had a substance abuse problem. Consequently, there were the added challenges of assisting the member to recognize the problem and, secondly, to address it. During the intervention, nurse case managers identified a number of patients with these traits and JHHC has responded by starting a pain management initiative.

Two aspects of the study design were also problematic. First, the intervention began with relatively small numbers (119 in the intervention group and 127 in the comparison group). Over time, there has been more than 25 percent disenrollment from the intervention (because of death, imprisonment, or otherwise being disenrolled from Priority Partners for a substantial time period). The small sample size of the intervention contributed to the difficulty in detecting statistically significant differences between the intervention and comparison groups. Second, the comparison group and the treatment group were not comparable to one another in terms of many measurable outcomes. JHHC used different threshold ACG scores for the intervention and comparison groups (0.39 and 0.10, respectively) in order to obtain groups of approximately equal size. The lower average ACG scores of the comparison group, however, meant that members of the comparison group were healthier than the intervention group, thereby compromising its comparability.[15] Also, whereas the intervention group counties of the Eastern Shore were generally quite rural, some of the counties selected for inclusion in the comparison group were less rural and even have suburban or urban components, likewise affecting comparability.

CONCLUSIONS

JHHC's project addressed a key area of concern in Medicaid: the integration of physical health, mental health, and substance abuse care. While the intervention did not remove all the adverse financial and structural incentives that serve as barriers to integration, it did strive to surmount them. While JHHC concluded the intervention in January 2007, there are certain aspects of the intervention that appear sustainable for a few reasons. First, the nurse case

[15] Total per-member per-month medical costs and hospitalization rates were more than 40 percent higher in the intervention group relative to the comparison group in the pre-intervention period. In addition, there may also be some environmental factors that differentially affected the provision of care across these two sets of counties. For example, in the pre-intervention period, enrollment in case management services appeared higher among intervention counties relative to comparison counties.

managers in the Eastern Shore have become aware of and trained in the idea of care integration. The concept seems to have been institutionalized in that setting, and the nurses reportedly understand the futility of trying to deal with medical problems before the more fundamental issue of substance abuse is tackled. Second, the fact that the intervention worked within the existing infrastructure (using existing case managers) meant that it required little in the way of direct funding. Accordingly, the nurse case managers can continue serving many of the same patients in the future. Intervention activities, such as integrated team meetings, were replaced by the permanent presence of a behavioral staff person in the Complex Medical team. Behavioral health topics and those pertaining to nurse-patient interactions have been a core theme in the monthly clinical training meeting for the entire Care Management Department. The conference calls and in-service training by the psychiatrists have concluded.

JHHC's integrated care intervention was in place for approximately 15 months, allowing a substantial amount of time to track process and outcome measures. JHHC was able to provide these measures for several quarters and did not face major challenges with reporting. This may be due in part to the fact that organizational interest in and capacity for measuring process and outcome measures was high. However, the comparability of the comparison group, along with the relatively small sample size of the intervention, limited the capability to measure the intervention's success in meeting its objectives.

The primary challenges faced by the intervention involved provider cooperation and patient resistance. Provider cooperation in terms of reporting sensitive patient information appears to have improved somewhat over time. While patient resistance is an issue that is likely inherent to any intervention targeting substance abusers, JHHC also had to engage patients by telephone. Some patients initially balked at speaking with case managers over the phone, but eventually became engaged as case managers persisted. JHHC has taken a first step towards engaging the population by starting a pain management initiative—a common comorbidity of substance abusers that JHHC case managers identified during the intervention.

The problem of patient engagement also raises the question of whether or not a telephone-based intervention was the appropriate mode for a population with high levels of substance abuse. However, enrolling as many as half of all eligible clients in case management at any one time is actually a noteworthy accomplishment for such a challenging population. This suggests that a dedicated case management staff willing to contact patients often is an important component to engaging patients. And, at least in the short term, some process measures (use of substance abuse and mental health treatment services) did improve for the intervention group, suggesting with more time long-term measures might also be affected.

In terms of replicability, the intervention is more replicable in a general rather than a specific sense, given that JHHC did not explicitly standardize and protocolize its case management approach for intervention patients. In the words of one JHHC staff person, "It's not replicable in the sense of 'here's the manual, here's what you do'." However, the intervention's underlying idea of care integration is highly replicable, and JHCC has received several inquires from other health plans about this work.

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TABLE 3

MEDICAL COSTS, HOSPITAL ADMISSIONS, AND READMISSIONS AMONG INTERVENTION AND COMPARISON GROUP PATIENTS AT BASELINE AND FOLLOWUP

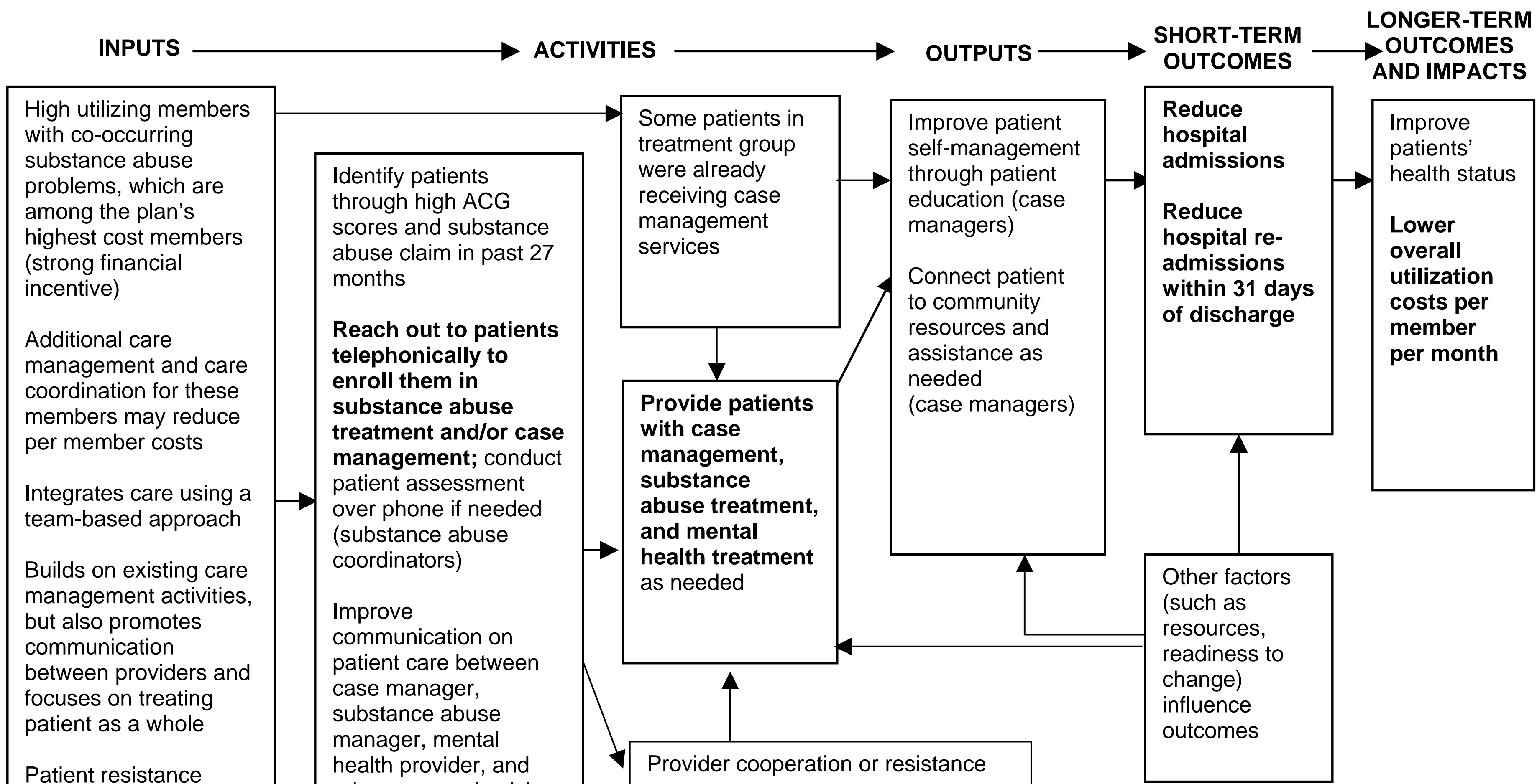
	Intervention Group				Comparison Group			
	Sample Size	Baseline	Followup	Percent Difference	Sample Size	Baseline	Followup	Percent Difference
Average monthly medical costs per member per eligible month	119	$2,826	$2,629	–7.0	127	$1,611	$1,332	–17.3
Inpatient admissions per 1,000 eligible member months	119	1,715	1,189	–30.7	127	947	685	–27.7
Readmission per 1,000 eligible member months	119	418	215	–48.6	127	225	177	–21.3

Source: JHHC MVP Workbook reported on June 11, 2007.

Note: The baseline period was November 2004 to October 2005 and the follow-up period was November 2005 to January 2007 (the entire intervention period). Statistical tests controlling for ACG score at baseline confirm that the trend in average monthly medical costs for the intervention group was significantly different from the trend for the comparison group ($p = .049$). Hopkins chose to conduct a statistical analysis for only this variable.

FIGURE 1

LOGIC MODEL FOR HOPKINS'S INTEGRATED CARE INTERVENTION



Note: **Bold** indicates reported process and outcome measures.