Taking Mental Health-Primary Care Integration to Scale: Designing a System-Wide Program to Improve Care and Reduce Costs

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Abstract:

A quarter of American adults suffer from mental health disorders every year and primary care physicians manage between 40-80% of these patients. Rates of detection and adequate treatment in the primary care settings are suboptimal, leading to poor outcomes and excess costs. Here we present a strategic plan for a new initiative that integrates mental health and primary care across the Partners HealthCare network with the goal of improving clinical outcomes and reducing medical expenditures for the target population. We describe a comprehensive clinical service model built around five core tactics: 1) enhanced detection 2) coordinated mental health and primary care services 3) evidence-based care protocols 4) streamlined access to specialty care and 5) comprehensive monitoring and follow-up. We also outline a staged implementation strategy, and describe an in-depth plan for monitoring and evaluation. Finally, we construct a detailed financial model that projects cost savings associated with program under alternative payment contracts. We find that the intervention should reduce total costs by $70.85 million over 3 years. At an estimated implementation cost of $18.19 million, this represents a net savings of $52.66 million—a return on investment of nearly 3 to 1.

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SECTION 1: PROGRAM OVERVIEW AND DESIGN

1.1 Program Goals and Targeting

Partners HealthCare System (Partners) will implement a comprehensive clinical service model that embeds social workers and psychiatrists in primary care practices to integrate mental health[a] (MH) and primary care delivery. The program will target adult primary care patients across Partners' network of 1,200 physicians and 277 practices in Eastern Massachusetts with a focus on the 400,000 adult beneficiaries in alternative payment contracts.[b] Based on current prevalence data, we expect roughly 80,000 of these patients to have MH care needs.

We expect this program to produce immediate improvements in clinical outcomes and reduce costs. Medical expenditures are 40% higher for patients with MH diagnoses, the majority of which is due to non-psychiatric spending associated with poorly managed co-morbid conditions. Improved access to coordinated, evidence-based mental health services will improve management of mental health disorders and co-morbid conditions and decrease unnecessary utilization, leading to better outcomes at lower costs. We expect this intervention to reduce total medical expense (TME) by 0.75% over 3 years, resulting in cumulative savings of $70.89 million.

Delivery and payment innovation around MH and primary care is synergistic with Partners' overall mission to improve the value of care for the patients it serves, as well as its commitment to prospectively managing the health of populations. To achieve these aims, Partners has developed a strategy based on twenty discreet tactical approaches that are being applied across the Partners' network.[1] This proposal incorporates several of those tactics including: expanded virtual visit options; reduced low acuity admissions; defined delivery protocols; high-risk care management, chronic condition management; and measurement/dashboards for clinical outcomes, patient satisfaction, and utilization.

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[a] In this proposal, "mental health" is used to designate what is often referred to as "mental health and substance abuse (MH/SA)" or "behavioral health," as it represents a more concise and comprehensive term

[b] Partners has at-risk, accountable care contracts with Medicare (a Pioneer ACO), Medicaid (via Neighborhood Health Plan, a commercial carrier with a large managed Medicaid plan), Blue Cross Blue Shield of Massachusetts, and two other commercial payers.

1. 2 Comprehensive Description of the Clinical Model and Supporting Evidence Base

Description of Service Delivery Model

Partners will implement a comprehensive program that integrates MH services into primary care delivery. Due to their prevalence and health and economic impact, there will be a particular focus on depression, anxiety, and substance use disorders. The clinical model is built around five tactics (see below). The Driver Diagram in Appendix A offers a high level schematic of these various elements of the program.

1) *Enhanced detection.* A universal screening program for MH disorders using brief, well-validated screening tools (eg PHQ-2/9, GAD-2/7, AUDIT-C/AUDIT, NIDA-1/DAST-10) will improve the identification of patients with MH disorders. Screening will be administered upon intake using self-reported data captured by multiple modalities including web-based portals, mobile devices and other point-of-care collection methods equipped with Partners patient reported outcomes measures (PROM) infrastructure. The PROMS infrastructure allows for the seamless flow of screening data into the electronic medical record and reduces resource demands on primary care team member. Allied health professionals will perform follow up screening and clinical evaluation, and primary care providers (PCPs) will confirm diagnoses. For patients with documented or recognized MH disorders, this screening protocol will be by-passed, and patients will receive standard baseline MH assessments. Educational programs that train primary care team members to properly screen for, and diagnose, MH disorders will bolster detection.

2) *Coordinated mental health and primary care services.* A consulting psychiatrist (CP) and a clinical social worker, functioning as a Mental Health Specialist (MHS), will be integrated into the primary care team. The MHS will: assist with initial clinical assessment; coordinate initiation of a MH treatment plan; monitor the patient's response to treatment; provide recommendations for treatment change based on evidence-based protocols and guidance from a consulting psychiatrist; provide therapy and MH services to patients when indicated; and work closely with the patient to engage, activate, and educate him/her in order to promote disease management and treatment adherence. The CP will partner with the MHS and PCP to provide: evidence-based treatment plans,

monitoring and supervision of patients, consultation for treatment-resistant cases, and referral guidance for patients requiring specialty treatment. The MHS, PCP and CP will meet regularly to review cases and determine appropriate treatment. Sustained, network-wide educational programs will train primary care personnel in brief interventions for improved disease management such as motivational interviewing, behavioral activation, problem-solving therapy and other first-line interventions suitable for a primary care setting. There will also be a focus on improving PCP-managed pharmacotherapy for MH disorders. Protocols for evidence-based pharmacotherapy will be implemented across practices, and PCPs will have access to CPs for guidance on treatment plans. MH-specific modules and patient registries will be added to existing information systems to improve coordination and streamline care management. Registries will track MH outcomes and provide prompts to ensure that follow-up screening tests are administered at periodic intervals and that treatment plans can be modified if progress is insufficient.

3) *Evidence-based care protocols.* Treatment plans will be based on evidence-based protocols for delivering MH services in primary care, such as collaborative stepped care for depression and anxiety disorders,[2,3,4] and brief interventions for substance use disorders.[5] Screening tests will be used as an initial triage to determine the severity of illness and guide the duration, nature, and intensity of therapy (see Exhibit 1). For lower-severity patients, interventions will be asynchronous and technology-assisted. Online, patient-directed therapy options such as cognitive behavior therapy (iCBT) will increase access to effective, lower-cost services. Lower-severity patients will also benefit improved PCP-based management and pharmacotherapy. For medium-severity patients, interventions will be delivered by a MHS embedded within, or available to, the primary care practice. When indicated, MHSs will directly provide therapy such as behavioral activation, problem-solving therapy, motivational interviewing, relaxation techniques, and stress management. High-severity patients will receive specialty care from the CP or be referred for additional services.

4) *Streamlined access to specialty care.* For patients whose care needs require more intensive interventions, coordinated MH and primary care services will promote timely

transitions of care with appropriate information transfer between clinicians. Telehealth technologies will be used to improve access to specialty care and provide care in the most cost effective setting. Virtual visit options will be both synchronous and asynchronous. Synchronous technologies will provide the ability for psychiatrists to visit with patients by video link. Patients will also be provided with asynchronous options where they can provide structured reports of their progress and difficulties on a secure website that is reviewed by psychiatrists. Additionally, improved treatment and management of MH disorders in the primary care setting will free specialist capacity and promote timely access to specialty care.

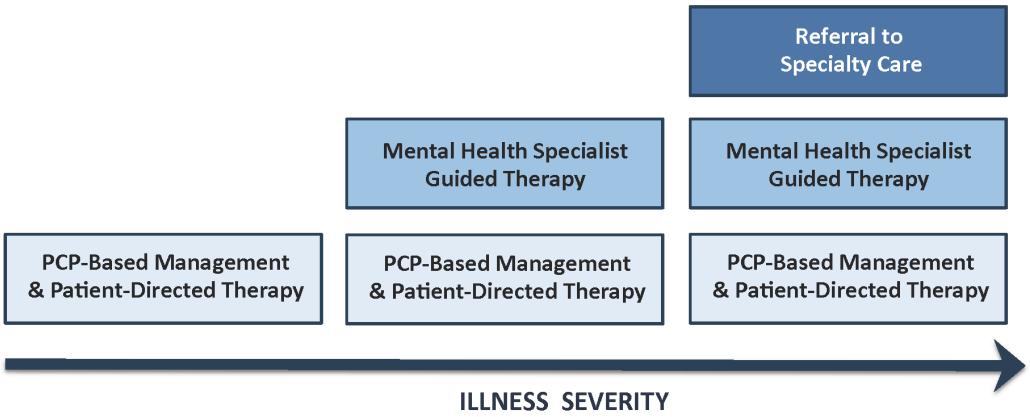

Exhibit 1: Overview of stepped treatment approach

5) *Comprehensive monitoring and follow-up*. Patients will be monitored for treatment adherence and adverse events, and treatment response will be tracked using well-validated clinical rating scales. Similar to screening, monitoring will utilize Partners PROMs infrastructure, allowing for monitoring at home (via patient portal or telephone) or during office visits and reduce resource demands. The frequency and intensity of follow-up will be based on the severity of illness. A specialized registry will allow primary care team members to track patients and review prescription refills, office visits, and clinical outcomes. Primary care-based MH services will be provided until remission or referral to specialty providers. For patients in remission, the primary care team will develop a relapse prevention plan that includes behavioral goals, continued use of medication, and identification of symptoms associated with worsening MH status.

Aligning patients with the proper intensity of services is crucial for maximizing the efficient use of clinical resources. Medically complex patients at risk of being high costs require additional services to improve disease management and control costs. Since MH disorders frequently occur within high-cost, medically complex patients, risk stratification takes on added importance for this model. Partners will use an internally developed algorithm that analyzes co-morbid conditions and health care utilization to identify patients who will benefit most from care management services. Risk stratification of our primary care population will yield two distinct subpopulations: high-risk, medically complex patients and low to moderate risk patients. The core tactics of the clinical model will be adapted to the needs of each population (see Exhibit 2).

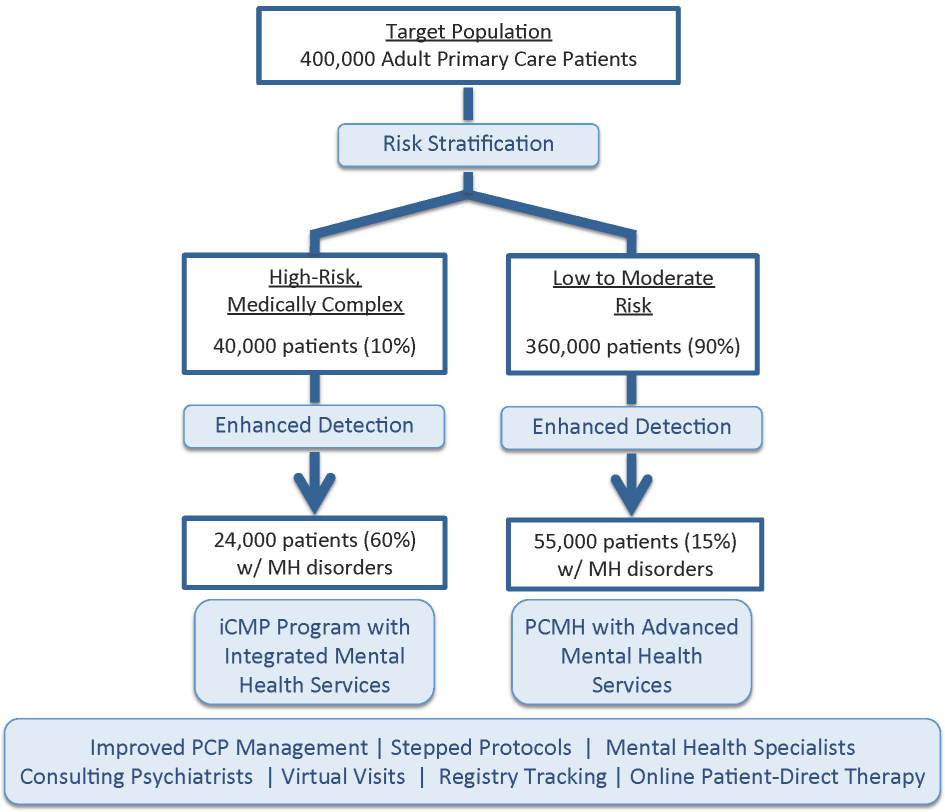

Exhibit 2: Overview of proposed service delivery model and risk stratification

High-risk, medically complex patients will receive comprehensive MH and care management services through Partners' integrated care management program (iCMP). The iCMP program centers around nurse care managers (CMs) who develop personal relationships with enrolled patients and work closely with primary care team members to identify gaps in patient care, coordinate providers and services, facilitate communication, and streamline transitions.

MHSs will be integrated into the iCMP program to improved MH care. Screenings will be conducting in accordance with the above protocol and MHSs will work with the CP to coordinate MH services. MH services will focus on anxiety, depression, and substance use disorders, but also target health related behavior problems such as difficulty with weight control, smoking cessation, and medication adherence. The CM and MHS will work with patients and other providers to develop a customized, comprehensive health care plan for each patient that addresses the MH disorder and co-morbid illnesses in an integrated manner.

Low to moderate risk patients will receive integrated MH services within the existing PCMH infrastructure, with referral to CPs as appropriate. PROM collection tools at each clinic will aid universal detection. Patients who screen positive will receive enhanced management from the primary care team with expert guidance from the CP. There will a focus on online patient-directed therapy and PCP management. MHSs, when available, will coordinate treatment and provide guided therapy. Large practices will have embedded MHSs, and telehealth technologies will enhance access to MHS services for smaller practices.

Expected Impact on Cost and Quality

A quarter of American adults suffer from diagnosable MH disorders every year and it is estimated that PCPs manage between 40-80% of these patients.[6,7] Rates of detection and adequate treatment in the primary care settings are currently suboptimal, leading to poor disease management and driving excess utilization. Within Partner's primary care population, medical expenditures are 45% higher for patients with a MH diagnosis. Other illnesses co-occur in 70% of MH patients and their presence complicates overall clinical management.[8] As a result, medical costs increase substantially, the majority of which is due to non-psychiatric medical spending.[9] Improved delivery of MH services in the primary care setting is critical for improving quality and lowering costs:

- *Improved Quality*: The proposed service delivery model will improve health care quality by increasing access to coordinated, evidence-based MH services. The model integrates tactics and strategies shown to reduce the symptom burden associated with MH conditions and improve the management of co-morbid illnesses.
- *Lower Costs:* Improved health care quality will reduce TME by decreasing utilization associated with poorly controlled MH disorders and co-morbid illnesses. Specifically,

cost decreases are expected in avoided all-cause inpatient, emergency department, and outpatient psychiatric utilization. As outlined in Section 4 , we expect this program to reduce TME by 0.75% over 3 years, resulting in cumulative savings of $70.85 million.

The Driver Diagram included in Appendix A offers a high level representation of how the various interventions in the program will achieve these aims.

Supporting Evidence Base

The proposed service delivery model is built around evidence-based protocols for the delivery of MH services in primary care. Randomized controlled trials and meta-analyses have shown that service delivery models that employ many of the tactics outlined above are successful at improving detection and treatment of MH disorders.[2,10,11] Cost-savings analyses for many of these programs demonstrate considerable savings and favorable ROI. A summary of programs that overlap with the tactics used in this model is presented below.

Several collaborative care models that use nonmedical specialists and consulting psychiatrists to augment the management of MH disorders for low to moderate risk primary care patients have been implemented:

- *Depression:* The IMPACT model, which has core elements similar to those outlined above, has been shown to double the effectiveness of depression treatment (measured in depression free days and remission) for older adults in the primary care setting,[12,13] and yielded $840 in per beneficiary per year (PBPY) savings over a four year program by decreasing medical and surgical inpatient costs.[14]
- *Anxiety:* A randomized trial of collaborative stepped care using non-expert care managers resulted in a greater improvement in anxiety symptoms during 18 months of follow-up compared to standard treatment.[15] Analysis of a randomized study of collaborative care for patients with anxiety found that the program yield $325 in PBPY savings over a one-year program by reducing both inpatient and outpatient utilization.[16]
- *Substance Use Disorders:* The Screening, Brief Intervention and Referral to Treatment (SBIRT) program, which utilizes many of the same screening, treatment, and referral components of the model in this proposal, has been shown to reduce high-risk drinking[5] and drug use.[17,18] Analysis of a statewide primary care-based SBIRT found that it

lowered costs by $178 PBPY over a four-year program by reducing ED and inpatient utilization.[19]

For high-risk, medically complex patients, improved care management and primary care-based MH services have been shown to improve outcomes and yield considerable costs savings:

- *Depression and Co-Morbid Illness:* A randomized trial found that collaborative care for patients with poorly controlled diabetes or congestive heart failure plus depression significantly improved clinical outcomes for depression, cardiovascular disease, and diabetes.[20] Improved care management decreased inpatient utilization and yielded cost savings of $125 PBPY over the two-year program.[21]
- *MH Integration for High ED Utilizers:* The health integration project in central Oregon deployed non-clinician community health workers, supported by care managers and MH professionals, to improved MH care for high ED utilizers. The program reduced ED costs by 71% among the target population.[22]
- *MH Care Management for Complex Patients:* The PCARE study, which provided care coordination and education for complex patients with MH care needs, resulted in sustained improvements in mental health-related quality of life as well as management of co-morbid illnesses. The program generated $357 in cost savings PBPY over the two-year program by decreasing ED, outpatient psychiatry, and inpatient utilization.[23]

There is also growing evidence that patient-directed therapy and virtual visit technologies can improve outcomes at reduce costs. Randomized controlled trials have shown that online, patient-directed therapy options such as iCBT significantly improve depression and anxiety symptoms, and can be more effective than usual modalities of care.[15,24,25] A trial of cognitive self-therapy for patients with depression and anxiety demonstrated savings of $585 PBPY over a 18 month program by reducing inpatient and psychiatric costs.[26] Synchronous virtual visits for psychiatry have been shown to be cost-effective when implemented at the scale proposed in this model.[27] Finally, a pilot of asynchronous virtual visits at the Massachusetts General Hospital decreased by 80% the average time needed for evaluation, management and documentation of a patient while maintaining provider and patient satisfaction.

Innovation

As summarized above, several evidence-based tactics have been developed to better manage specific MH disorders in the primary care setting. This proposal represents an innovative approach, in both scope and scale, to integrate these tactics into a comprehensive, population-wide strategy for managing MH care needs in the primary care setting:

- *Scope*: The proposed model targets a portfolio of MH conditions and illness severities rather than a specific MH population. This model also introduces new technologies, such as PROMs, iCBT, and virtual visits that will reduce operational costs and increase access to care. Another innovative feature is the use of risk-stratification to tailor appropriate services to the entire spectrum of patients. Unlike previous programs that target specific populations, this program provides an integrated approach to manage an entire primary care population directing additional services to medically complex patients at risk of being high cost.
- *Scale*: Previous efforts at MH and primary care integration typically have been conducted as small pilots or randomized trials with small intervention groups (~100), both of which limit generalizability. This proposal will assess the impact of integrated MH and primary care in a real-world practice setting, across a large and diverse network of 1,200 providers in 277 practices. These practices serve socioeconomically, ethnically, and geographically diverse groups of patients and are organized in a variety of practice settings and structures. Consequently, the results from this initiative will have implications not only for integrated delivery networks like Partners, but for a variety of primary care practices and usual care settings.

1.3 Participant Recruitment and Enrollment

The proposed model targets ~400,000 adult primary care patients across 1,200 providers and 277 practices. By targeting the entire population, we obviate the need for specific tools and techniques for recruitment and enrollment; our natural care delivery infrastructure will serve this purpose. All patients will be eligible for integrated MH services, and enhanced detection strategies will identify those with MH care needs.

Continuous coverage and retention are a challenge for any primary care-based strategy to provide coordinated, accountable care. Partners has extensive experience with accountable care

contracts, including the Pioneer ACO program, and has built capacities and information systems to better manage, track, and coordinate care for specific populations. Added MH capacities to existing registries will aid in identifying and tracking patients in need of MH services. By delivering services in the primary care setting, we will reduce poor retention and loss to follow-up often seen with specialty care. While these strategies improve retention for eligible patients, there will be some fluctuation in eligibility as patients cycle between payers. This is a reality for any real-world, primary care-based initiative executed across a large network.

1.4 Education and Outreach

Partners has well-developed channels for learning, diffusion, and outreach within its network of primary care practices. Partners network of primary care practices are organized in regional service organizations (RSOs), which provide a structure for practice leaders to make centralized decisions on care delivery strategies and priorities. This organizational and management structure affords Partners the ability to widely and effectively disseminate best practices across a large and diverse primary care network and rapidly scale new initiatives. This is evidenced by Partners ability to achieve 100% adoption of EHRs across 6,000 network physicians as early as 2009. Additionally, a comprehensive training program will teach primary care team members the skills and competencies to deliver integrated MH services.

For patients, education and outreach will occur at the level of the primary care practice. The clinical model described above is built on a foundation of high-touch, collaborative care, and primary care team members will inform patients about the program. As discussed earlier, the population wide approach does not require additional vehicles for education and outreach as it automatically, and actively, targets all eligible patients.

SECTION 2: ORGANIZATION AND IMPLEMENTATION

2.1 Organizational Context

Partners HealthCare is an integrated delivery system founded by Massachusetts General Hospital and Brigham and Women's Hospital. In addition to its two academic medical centers, the Partners system includes community and specialty hospitals, community health centers, a physician network, home health and long-term care services, and other health care entities. Partners is committed to the community, and dedicated to enhancing patient care, teaching, and research in service to our patients and their families.

2.2 Topical Expertise and Awareness of Needs

Partners understands that primary care is the lynchpin of a high-performing, high-value health care system. Partners has a large and geographically diverse network of 1,200 primary care physicians in 277 practices located both at academic medical centers and in the community. This network is the backbone of efforts to deliver longitudinal, coordinated, and patient-centered care at lower costs. Primary care physicians have more than 15 years of experience in achieving performance improvement under budget-based risk and pay-for-performance contracts.

Partners Psychiatry and Mental Health (PPMH), the Partners-wide MH delivery system, is the largest provider of MH services in Eastern Massachusetts. PPMH encompasses all of the psychiatric components of the Partners system and provides inpatient, outpatient, residential, emergency, and consultative care to adults of all ages. PPMH has a thorough understanding of the impact of poorly managed MH disorders, the opportunity for improvement, tactics for treating MH in the primary care setting, and optimal strategies for measurement and evaluation.

Integration of MH and primary care is a priority for our communities due to the health and economic impact of poorly managed MH disorders. Partners is committed to improving the health and wellbeing of local communities. Close ties with communities across Eastern Massachusetts will ensure that services delivered align with the needs and values of the patients we serve.

There is universal agreement from Partners leadership that population health management is a top organizational priority. Among key stakeholders in primary care and clinical improvement there is specific support for this program to integrate MH and primary care.

2.3 Capacity for Innovation and Improvement

Partners has developed a unique and comprehensive strategy to support and coordinate care innovation and improvement to deliver better care at lower costs. This work is led by the Division of Population Health Management (PHM) which directs network-wide activities. PHM has developed the capacity, infrastructure, and expertise to manage clinical strategy for the entire primary care network. This includes established leadership, management processes, tools, and incentives to promote care delivery innovation and improvement. Partners has developed internal measures in quality, efficiency, and technology infrastructure, and providers have financial and non-financial incentives for meeting targets established for each measure. Several core elements of this proposal, including medical resource utilization and coordinated primary care, are existing components of Partners' incentive structure. Additionally, Partners has operational groups dedicated to achieving a variety of clinical and utilization performance goals.

PHM activities are supported and enabled by a diverse array of information systems and technological supports. The majority of Partners information infrastructure has been built internally, which allows for rapid customization, flexibility, and enhanced coordination. Partners has developed and implemented patient registries and care management tools to help focus attention on patients most in need of interventions and to support quality reporting. In addition, we have developed a comprehensive data warehouse that incorporates a variety of clinical, administrative, and financial data sources to support advanced analytics for self-monitoring and continuous improvement.

This integrated, network-wide approach has enabled Partners to execute a variety of innovative care improvement projects. A Center for Medicare and Medicaid Services (CMS) demonstration project focusing on care management for high-risk patients was the top performer among all of Medicare's disease management and care coordination demonstrations, and the only one to achieve statistically significant cost savings.[28] Additionally, Partners Pioneer ACO achieved promising first year results, exceeding quality benchmarks and saving $14.4 million. Partners will leverage this experience to ensure that this project successfully achieves the goals of improving management of MH and co-morbid illnesses and reducing TME.

2.4 Program Oversight and Management

Governance for the project will be located at the Partners level and will include senior management from PHM. Additional oversight and guidance will come from Partners structures that oversee and coordinate activities in primary care and clinical innovation and improvement. At the corporate level, this includes Partners' Chief of Clinical Affairs. Partners' Primary Care Council, which guides Partners network-wide strategy for primary care redesign and improvement, will provide strategic oversight of this initiative and ensure that it aligns with current efforts in primary care transformation. Partners Psychiatry and Mental Health will provide expert guidance throughout the program.

2.5 Implementation Actions and Potential Risks

See Appendix B for a detailed matrix outlining key actions required to implement the program during the first six months, potential risks, and proposed mitigation strategies.

2.6 Milestone Work Plan for First 6 Months

See Appendix C for a detailed description of key implementation milestones during the first six months mapped to key component of the Driver Diagram (Appendix A) and program set-up needs (Appendix B).

SECTION 3: MONITORING AND EVALUATION

3.1 Overview

A robust monitoring and evaluation plan will assess progress in meeting the goals of improved management of MH and co-morbid illnesses and reduced TME. Quarterly monitoring dashboards will provide trended performance on utilization rates, costs, and process and outcome measures. Reports will also provide measures of program implementation such as training and the use of new technologies. The project management team, oversight groups, and practice leaders will review quarterly reports to assess the status of implementation and the program's impact on cost and quality. These collaborative reviews will be used to identify opportunities for improvement and develop appropriate changes to the program.

3.2 Evaluation Metrics

Exhibit 3 provides an overview of the core evaluation metrics and their data sources. Detailed information on the measures, including full definitions, can be found in Appendix D.

Exhibit 3: Overview of Evaluation Metrics and Data Sources

Domain	Measure	Data Source
Utilization	Total Cost of Care Index	Claims
	All Cause Inpatient Admission Rate	Claims
	All-Cause 30-day Readmission Rate	Claims
	ED Utilization	Claims
Patient Experience	Patient Experience	Patient Experience Survey
Care Quality	Screening for Depression	PROMs
	Screening for Anxiety Disorders	PROMs
	Screening for Substance Use Disorders	PROMs
	MH Treatment Initiation	Care Management/Claims
	MH Assessment and Care Planning	Care Management
Patient Outcomes	Depression remission at 6 mo	PROMs
	Anxiety remission at 6 mo	PROMs
	Substance use disorder remission at 6 mo	PROMs
	Ambulatory-care-sensitive admission rate	Claims
Program Structure	MH training for primary care personnel	Programmatic
	MH registries and care management software	Programmatic
	Co-Located MH Services	Programmatic

3.3 Data Sources and Collection

Monitoring and evaluation activities will utilize data from a variety of sources, as outlined in Exhibit 3. Each of these sources is described in detail below:

- *Patient Reported Outcome Measures (PROMs)*. As described in Section 1.2, well-validated instruments will be used to screen patients for depression, anxiety and substance use disorders and to assess outcomes/remission. Treatment response (remission/improvement in MH functioning) will be assessed using NQF endorsed measures (PHQ-9) or clinically appropriate changes in GAD-7, AUDIT and DAST-10 scores. These data will be collected using Partners internally developed PROM collection infrastructure. Data will be stored and displayed in real-time within Partners electronic health records, disease registries, and monitoring/evaluation data warehouses.
- *Care management data.* Electronic care management systems are already in use within Partners primary care clinics. These systems will be used to record patient assessments performed by care managers and MHSs, to translate assessments into care plans, and to record the outcome of patient contacts. Data generated from electronic patient care management systems will be used develop measures of care planning, patient engagement, and appropriate referral and delivery of MH services.
- *Programmatic data.* Programmatic data from a variety of sources will be collected to assess implementation activities. Data on the hiring and training of primary care personnel will be collected via electronic databases from Partners Human Resources and the MGH Psychiatry Academy. Additionally, MHSs will be surveyed about their experience integrating in the primary care practice; the level of clinical oversight provided by a psychiatrist; and their readiness to provide care, particularly for complex patients with co-morbid illnesses. We will also gather data on the use of new technologies and the co-location of MH services at each clinic through surveys of practice leaders.
- *Patient experience survey.* The CAHPS-ECHO survey,[29] an NQF endorsed survey designed to assess patients' experience with mental health care, will be used to collect data on patient experience. We plan to conduct 2 patient focus groups in the first 6 months of the project to identify concerns and develop additional survey items specific

to virtual visits and patient-directed therapy. We propose to conduct 4 survey waves, each 6 months apart, starting at month 6 of the program. We will sample at the RSO level, and within each RSO we will sample both high-risk and low- to moderate-risk cohorts. This sampling plan will allow us to examine differences in patient experience by medical complexity and local differences in program implementation.

- *Claims data.* Complete administrative claims data provided by CMS and commercial payers will be used for quality and cost monitoring. Partners' already collects these data for beneficiaries in the target population. Beneficiary files and 90-day medical and pharmacy claims for all services, regardless of location, are received monthly and are cleaned and integrated into Partners data warehouse. These data are linked to data in Partners' clinical systems via conservative patient matching algorithms that include patient name (allowing for partial matches), DOB, and gender as well as identifiers from health plans (i.e. member ID, Medicare HIC).

3.4 Data Analysis and Evaluation

An in-depth, detailed internal evaluation of the program will take place during Year 3 of implementation. Patient level data from the sources above will be combined to examine patient outcomes, experience, and costs over the course of the intervention. The impact of the clinical model on costs will be analyzed by examining trends in final allowed costs relative to baseline costs based on up to two years of baseline claims data. We will analyze total costs, as well as MH and general medical costs separately. Analyses will examine all patients, as well as patient cohorts defined by MH symptom severity and co-morbid conditions. We will construct multivariate models that include independent variables for baseline patient characteristics in order to identify any demographic disparities in program impact. Summative analyses will also examine the experiences of specific demographic and clinical subsets of patients and evaluate the impact in different practice settings. These additional analyses will provide rich, granular data that will help practices and payers across the country learn from this large-scale, real-world experiment.

SECTION 4: SIMULATING FINANCIAL PERFORMANCE

4.1 Overview

A comprehensive financial model was constructed to projects cost savings associated with the new clinical delivery model under alternative payment contracts. Under these payment arrangements, Partners stands to share in any savings generated by the program. The exact specifics nature of shared savings arrangements vary by payer cohort.

The assumptions and calculations used to build the financial model are detailed below. When representative calculations need to be shown, the Medicare cohort is used. The same methodology was used across the other 3 payer categories. These assumptions and calculations were used to generate the outputs provided in the Financial Worksheets (Appendix E). Section 4.7 summarizes the projections.

4.2 Baseline Demographics

For these calculations, the target population (adult primary care patients in risk-based contracts) was stratified into 3 groups: Patients with no mental health (MH) diagnosis (Sub-Population 1); High-risk, medically complex patients with MH diagnosis (Sub-Population 2); and Low to moderate risk patients with MH diagnosis (Sub-Population 3). The table below summarizes demographics for 389,068 patients in the target population during the baseline year:

Population	Sub-Pop 1	Sub-Pop 2	Sub-Pop 3	Total
Medicare	38,238	7,344	2,216	47,798
Medicaid	16,400	2,870	1,230	20,500
Dually Eligible	8,394	1,259	839	10,492
Commercial	248,222	11,170	50,886	310,278

Based on national prevalence data, it was estimated that 20% of the beneficiaries would have MH diagnoses and that this would be relatively constant across all payers. Therefore, the number of beneficiaries in Sup-Pop 1 was calculated as 80% of the total. To estimate Sub-Pop 2 we first calculated the number of high-risk (iCMP) patients in each payer cohort using existing risk stratification algorithms. We then applied the following assumptions for the prevalence of MH conditions in these populations based on preliminary calculations of clinical and claims data: Medicare (60%), Medicaid (70%), Dually Eligible (60%), and Commercial (60%). The

remaining beneficiaries with MH diagnoses (20% of total less those in Sub-Pop 2) were designated as Sub-Pop 3.

4.3 Baseline Cost Information

For the Medicare, Medicaid, and Commercial payer cohorts, baseline costs (total PBPM and service category breakdown) were calculated using existing claims data for the target populations. Some services—physical therapy, speech therapy, occupational therapy, and chiropractor—were grouped as "Other Services – Covered." Detailed cost information for Dually Eligible beneficiaries was not available. We estimated that baseline costs for the Dually Eligible would be 2.825 times higher than Medicare beneficiaries based on publically available data for dually eligible patients in MA.

For the Cost Reduction Calculations discussed below, it was necessary to determine baseline PBPM costs for each of the 3 subpopulations. We assumed that costs for patients with MH diagnoses (Sub-Pop 2 and 3) would be 45% greater than for patients with no MH diagnoses (Sub-Pop 1). For high-risk, medically complex patients with MH diagnoses (Sub-Pop 2) we assumed costs would be 35% greater than those for low to moderate risk patients with MH diagnoses (Sub-Pop 3). Both of these assumptions were based on internal analysis of existing claims data. This breakdown for Medicare beneficiaries is reproduced below:

Population	Baseline PBPM Cost
Sub-Population 1	1007.95
Sub-Population 2	1554.96
Sub-Population 3	1151.82
Total Medicare	*1098.67*

4.4 Cost Reduction Assumptions

The proposed service delivery model is built around evidence-based strategies for delivering MH services in primary care. Cost-savings analyses for many of these programs demonstrate considerable savings and favorable return on investment (ROI). Reproduced below is a summary of PBPM cost savings for existing programs that overlap with the tactics used in this model. A detailed discussion of these programs can be found in Section 1.2. Corresponding references from the literature are also provided for each estimate. Cost savings vary between Sub-Populations, so the assumptions below are stratified accordingly.

	ID	Ref	Target	Year 1	Year 2	Year 3
Sub-Pop 3 (Low Risk)	A	14	Depression	0	0	140
	B	19	Substance Abuse	14.8	14.8	14.8
	C	16	Anxiety	27.1	27.1	27.1
	D	26	iCBT	48.8	48.8	48.8
			Aggregate	***20.23***	***20.23***	***90.23***

	ID	Ref	Target	Year 1	Year 2	Year 3
Sub-Pop 2 (High Risk)	E	22	MH for High ED Utilizers	31	31	31
	F	21	Depression and Co-Morbid Illness	10.4	10.4	10.4
	G	23	MH Care Management for Complex Patients	0	44.7	44.7
	H	26	iCBT	48.8	48.8	48.8
			Aggregate	***27.86***	***50.21***	***50.21***

Aggregate PBPM cost saving estimates were calculated using weighted averages that factored in the prevalence of each disorder, the rate of use of technologies such as iCBT, and the incremental benefits associated with overlapping programs. For Sup-Pop 2, the following calculation was used: (.5)(E+G) + (0.2)(H) +(0.25)(F). For Sub-Pop 3, the following calculation was used: (0.5)A + (0.25)(B) + (0.25)(C) + (0.2)(D)

It is important to note that these PBPM reductions occur despite a $6 PMPM increase in pharmacy spending. Based on data available in these studies, we assumed that PBPM cost reductions occurred across the following service categories: Inpatient Hospital (50% of total); Emergency Services (40% of total); and Outpatient Psychiatry (10% of total).

The studies used for these calculations were conducted predominately in Medicare populations. Therefore, these PBPM values were used directly to project cost savings for Medicare beneficiaries. For other populations, we adjusted the numbers according to TME in order to standardize cost savings relative to the magnitude of total expenditures.

4.5 Cost Reduction Calculations

Calculating PBPM costs under the model requires projecting spending for each of the sub-populations, applying the effect of the intervention, and then calculating net PBPM cost. Since the intervention will not impact TME for Sup-Pop 1 (no MH diagnoses), we assumed 2% annual cost growth for that population. This same number was used to project cost increase from Baseline to Year 3 for each sub-population under the "No Model" scenario. Reproduced below

are the calculations performed for the Medicare population, which use the aggregate cost reductions calculated above.

Population	Baseline	Y1 No Model	Y1 Model	Y1 Δ
Sub-Pop 1	1007.95	1028.11	1028.11	0.00
Sub-Pop 2	1554.96	1586.06	1558.20	27.86
Sub-Pop 3	1151.82	1174.86	1154.63	20.23
Total	***1098.67***	***1120.64***	***1115.42***	**5.22**

Y2 No Model	Y2 Model	Y2 Δ
1048.67	1048.67	0.00
1617.78	1567.57	50.21
1198.36	1178.12	20.23
1143.05	***1134.40***	**8.65**

Y3 No Model	Y3 Model	Y3 Δ
1069.65	1069.65	0.00
1650.14	1599.93	50.21
1222.33	1132.09	90.23
1165.91	***1154.02***	**11.90**

Total savings were calculated by adding increased pharmacy costs ($1.2 PBPM for Medicare) to the net savings above. Total savings were then disaggregated by service category using the percentages above to yield absolute PBPM cost savings per category:

Service Category	Year 1	Year 2	Year 3
Inpatient (-)	3.21	4.93	6.55
ED (-)	2.57	3.94	5.24
Outpatient Psych (-)	0.64	0.99	1.31
Prescription Drugs (+)	1.20	1.20	1.20

These PBPM changes were converted to % changes for use in the Financial Plan Template. We assumed 2% annual cost growth to calculate costs for each category under the "No Model" scenario:

Category	Baseline	Y1 No Model	Y1 Model	Y1 Δ	Y2 No Model	Y2 Model	Y2 Δ	Y3 No Model	Y3 Model	Y3 Δ
Inpatient Hospital	293	298.37	295.16	1.08%	304.34	299.41	1.62%	310.43	303.88	2.11%
Emergency Services	27	27.30	24.74	9.40%	27.85	23.91	14.15%	28.41	23.17	18.44%
Prof Specialty Care	98	100.29	99.65	0.64%	102.30	101.31	0.96%	104.34	103.04	1.26%
Prescription Drugs	245	250.04	251.24	-0.48%	255.04	256.24	-0.47%	260.14	261.34	-0.46%

4.6 Target Population Growth

Based on internal analysis of historical data, it was estimated that each payer population would grow by 1% each year from the values provided in Baseline Demographics (Section 4.2). Since it was assumed that patients would stay engaged with the program throughout the year, the number of member months was calculated by multiplying the number of members by 12.

4.7 Summary of Cost Projections

As summarized in Worksheet #4 in Appendix E this model projects a reduction in total costs of 0.75% over 3 years, resulting in cumulative savings of $70.85 million. At an estimated implementation cost of $18.19 million, this represents a net savings of $52.66 million—a return on investment of nearly 3 to 1.

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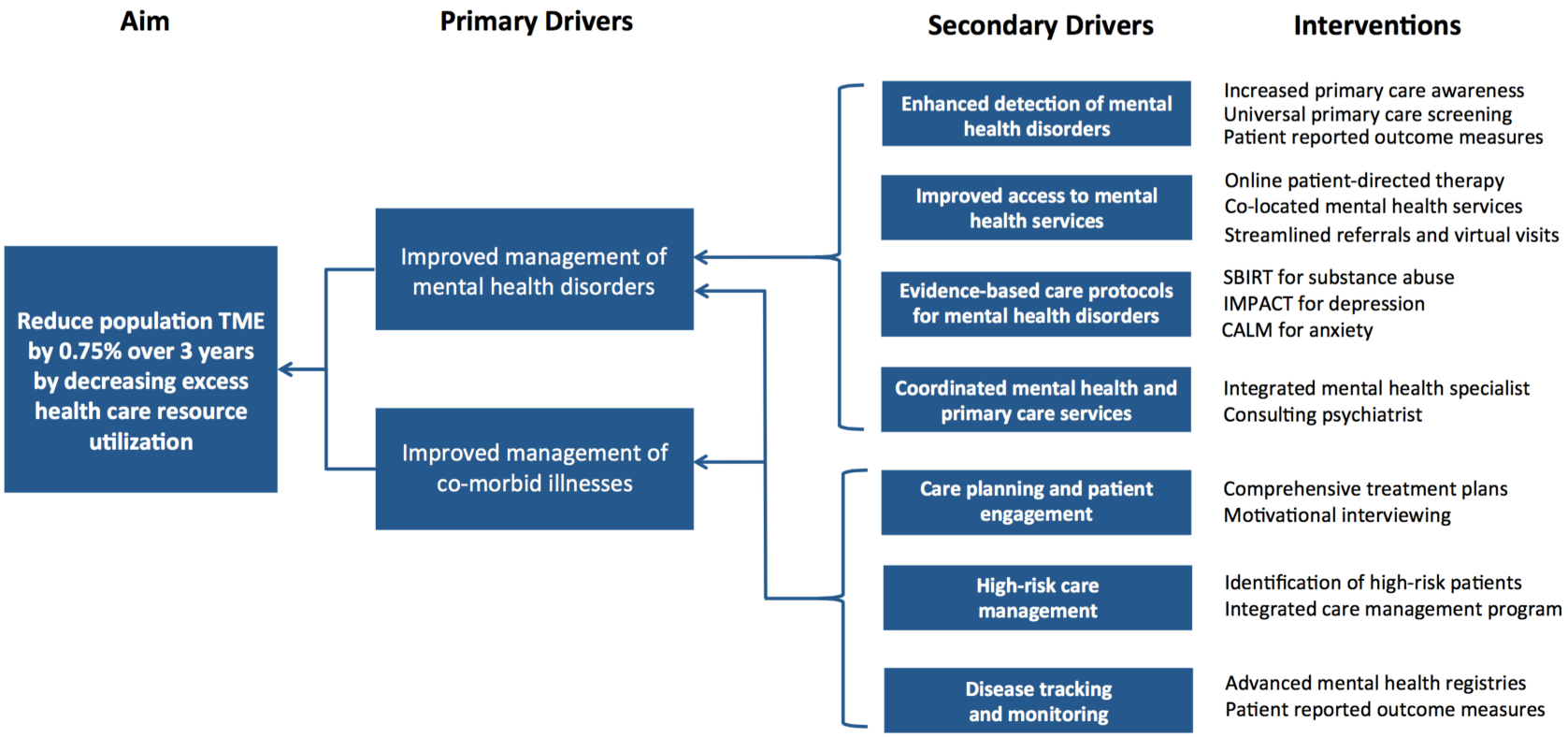
APPENDIX A: DRIVER DIAGRAM



APPENDIX B: IMPLEMENTATION ACTIONS AND POTENTIAL RISKS

Set-Up Needs	Implementation Actions	Potential Risks	Mitigation Strategies
Strategic Planning and Direction	Convene 4 meetings of full oversight/management team and external stakeholders during the first 6 months to monitor the status of implementation. Schedule quarterly meetings after initial 6 months. Establish regular meetings between project management staff to review progress and update driver diagram as needed.	Difficulty coordinating schedules; insufficient data to guide discussions and evaluations.	Oversight, governance, and management bodies associated with this project already meet with regular frequency. Discussions will be incorporated into existing meetings. Aligning meetings with the publication of quarterly reports will ensure adequate data and context for discussions.
Leadership and Governance Structure	Clarify roles among project governance, oversight, and management groups. Schedule monthly meetings of project management and quarterly meetings of full governance/oversight groups.	Difficulty establishing governance and oversight bodies; Confusion around roles and responsibilities; Difficulty establishing regular meetings	The governance and oversight structures for this project already exist. Discussions will be incorporated into existing meetings.
Clinical Model Development and Deployment	Activities in four broad categories are needed for implementation: hire additional staff, train new and existing staff, develop and launch new technologies, and establish and implement clinical protocols. The intervention will be deployed across the primary care network by the end of September 2014.	Challenges developing new technologies; Failure to integrate new technologies with existing information systems; Difficulty integrating new care protocols into existing workflows; Inability to scale model in 6 months	New technologies are being developed internally and most are expansions of existing prototypes with established compatibility. Clinical protocols will be based on existing evidence-based tactics. Project leadership already coordinates Partner's primary care strategy, ensuring integration with existing activities and the ability to rapidly implement the program across the network.

Set-Up Needs	Implementation Actions	Potential Risks	Mitigation Strategies
Patient Recruitment	Build awareness among primary care team members about the new program. Inform eligible patients about the program. NOTE: This program is part of routine clinical operations and does not require consent.	Difficulty reaching eligible patients	As a population-wide, primary care-based approach all eligible patients are automatically and actively targeted. Primary care team members will be in close contact with patients and will inform them about the program.
Staffing	Recruit program director, program manager and other administrative personnel. Recruit mental health specialists and consulting psychiatrists. Establish and execute programs at the MGH Psychiatry Academy to train primary care staff for improved recognition and treatment.	Difficulty hiring necessary staff; Inability to conduct required training	As the largest employer in Massachusetts, Partners has an experienced recruitment operation that can ensure the rapid fulfillment of staff needs. There is adequate internal capacity for coverage if recruitment lags, and many positions can be filled internally. The MGH Psychiatry Academy has extensive experience in teaching clinicians about tools and techniques such as motivational interviewing and problem solving therapy. Options for in-person or computer-based training, as well as CME credit, will promote engagement.
Capacity for Monitoring and Measurement	Add program-specific and mental health-specific capacities to existing performance monitoring and evaluation activities. Establish reporting formats for internal monitoring reports. Develop a plan for data transfer and management for evaluation purposes.	Poor integration of monitoring and measurement activities with implementation and service delivery	Staff at McLean and MGH have deep experience with this work and have been involved with many of the Partners activities on which this proposal builds. They have been close partners in developing the monitoring and evaluation plans discussed in Section Four of the Project Narrative.

Set-Up Needs	Implementation Actions	Potential Risks	Mitigation Strategies
New Technology Products	Develop and implement the following new technologies and ensure they are compatible with existing information systems: virtual visits; online patient-directed therapy; and patient reported outcome measurement. Add mental health-specific capabilities to existing registries and care management software.	Difficulty completing necessary HIT projects within 6 months; New technologies are not compatible with existing information systems	New technologies are being developed by Partners affiliates and are expansions of existing prototypes which will promote rapid development and ensure compatibility.

APPENDIX C: MILESTONE WORK PLAN FOR FIRST 6 MONTHS

Q1/Q2	Key Milestone	Aim / Driver[1]	Program Set-Up Needs[2]	Duration
Q1	Hire program management and admin/research staff	N/A – Project Management	Staffing; Leadership and governance structure	30 days
Q1	Hire new clinical staff (mental health specialists and psychiatrists)	Improved access to MH services; Coordinated MH and PC services; Care planning and patient engagement	Staffing	60 days
Q1	Align new clinical staff to practices	Improved access to MH services; Coordinated MH and PC services; Care planning and patient engagement; High-risk care management	Clinical model development and deployment	30 days
Q1	Develop training programs	Enhanced detection of MH disorders; Evidence-based care protocols; Care planning and patient engagement	Staffing	60 days
Q1	Engage clinicians in Phase 1 training	Enhanced detection of MH disorders; Evidence-based care protocols; Care planning and patient engagement	Staffing; Clinical model development and deployment	30 days

[1] See Appendix A for corresponding Driver Diagram

[2] See Appendix B for corresponding Set-Up Needs

Q1/Q2	Key Milestone	Aim / Driver[1]	Program Set-Up Needs[2]	Duration
Q1	Develop delivery protocols for low to moderate risk patients	Evidence-based care protocols; Improved access to MH services; Coordinated MH and PC services; Care planning and patient engagement	Clinical model development and deployment	60 days
Q1	Develop delivery protocols for high risk patients	Evidence-based care protocols; Improved access to MH services; Coordinated MH and PC services; Care planning and patient engagement; High-risk care management	Clinical model development and deployment	60 days
Q1	Build MH capabilities into registries and care management software	Evidence-based care protocols; Disease tracking and monitoring	Clinical model development and deployment; New technology products; Capacity for monitoring and measurement	90 days
Q1	Develop PROM tools and pilot at 20 sites	Enhanced detection of MH disorders; Disease tracking and monitoring	Clinical model development and deployment; New technology products; Capacity for monitoring and evaluation	90 days
Q1	Develop iCBT program at pilot at 20 sites	Improved access to MH services	Clinical model development and deployment; New technology products	90 days

Q1/Q2	Key Milestone	Aim / Driver[1]	Program Set-Up Needs[2]	Duration
Q1	Develop virtual visit technologies and pilot at 20 sites	Improved access to MH services; Coordinated MH and PC services	Clinical model development and deployment; New technology products	90 days
Q1	Finalize reporting formats for cost and quality monitoring reports	N/A – Overall monitoring and evaluation activities	Capacity for monitoring and evaluation	60 days
Q1	Finalize data transfer protocols for monitoring and evaluation	N/A – Overall monitoring and evaluation activities	Capacity for monitoring and evaluation	60 days
Q2	Conduct thorough review of implementation progress with full oversight and management group	N/A – Overall management and implementation	Strategic planning and direction; Leadership and governance structure	15 days
Q2	Roll out PROM infrastructure to remaining clinical sites	Enhanced detection of MH disorders; Disease tracking and monitoring	Clinical model development and deployment; New technology products; Capacity for monitoring and evaluation	60 days
Q2	Engage clinicians in Phase 2 training	Enhanced detection of MH disorders; Evidence-based care protocols; Care planning and patient engagement	Staffing; Clinical model development and deployment	90 days
Q2	Roll out iCBT program to remaining clinical sites	Improved access to MH services	Clinical model development and deployment; New technology products;	60 days
Q2	Roll out virtual visit technologies to remaining clinical sites	Improved access to mental health services; Coordinated MH and PC services	Clinical model development and deployment	60 days

Q1/Q2	Key Milestone	Aim / Driver[1]	Program Set-Up Needs[2]	Duration
Q2	Prepare and issue first quarterly monitoring report	N/A – Overall monitoring and evaluation activities	Capacity for monitoring and evaluation	15 days
Q2	Conduct focus group with patients for assessment of program status	Care planning and patient engagement	Clinical model development and deployment	15 days
Q2	Convene meeting of mental health specialists to discuss implementation, challenges, and best practices	N/A – Overall management and implementation	Clinical model development and deployment	30 days
Q2	Convene meeting of local practice leaders to discuss implementation, challenges, and best practices	N/A – Overall management and implementation	Clinical model development and deployment	30 days

APPENDIX D: DESCRIPTION OF EVALUATION METRICS

Measure Name	Measure Type[1]	Definition/Description[2]	Frequency
Total Cost of Care Index	NQF	All costs associated with treating members including professional, facility inpatient and outpatient, pharmacy, lab, and imaging	Quarterly
All Cause Inpatient Admission Rate	CMS	Discharges for any cause per 100,000 population	Quarterly
All-Cause 30-Day Readmission Rate	CMS, NQF	Hospital-level, risk-standardized rate of unplanned, all-cause readmission after admission for any eligible condition within 30 days of discharge	Quarterly
ED Utilization	CMS	Emergency department visit rate per 1,000	Quarterly
Patient Experience	AHRQ	The Experience of Care and Health Outcomes Survey collects consumer's ratings of their behavioral health treatment	Semi-Annually
Screening for Depression	CMS, NQF	Percentage of patients screened for clinical depression using a standardized tool and follow up plan documented	Annually

[1] Measures already endorsed by standard setting organizations are annotated with the organization name (eg CMS, NQF). All other measures are denoted as "Custom."

[2] For already endorsed measures a brief description is provided. For custom measures a complete definition of the numerator and denominator is provided.

Measure Name	Measure Type[1]	Definition/Description[2]	Frequency
Screening for Anxiety Disorders	Custom	Num: # of patients screened with GAD-2 Denom: # of patients in target population	Annually
Screening for Substance Use Disorders	Custom	Num: # of patients screened with AUDIT-C/NIDA-1 Denom: # of patients in target population	Annually
MH Treatment Initiation	Custom	Num: # of patients with MH diagnoses that initiate treatment Denom: # of patients with MH diagnoses	Quarterly
MH Assessment and Care Planning	Custom	Num: # of high-risk (iCMP) patients with MH diagnoses that complete an assessment and care plan with the MHS Denom: # of high-risk (iCMP) patients with MH diagnoses	Quarterly
Depression Remission at 6 Months	NQF	Patients with depression and an initial PHQ-9 score > 9 who demonstrate remission (PHQ-9 < 5) at 6 months	Semi-Annually
Anxiety Remission at 6 Months	Custom	Num: # of patients with anxiety and an initial GAD-7 score > 10 with a GAD-7 score < 5 at 6 months Denom: # of patients with anxiety and an initial GAD-7 score > 10	Semi-Annually

Measure Name	Measure Type[1]	Definition/Description[2]	Frequency
Substance Use Disorder Remission at 6 Months	Custom	Num: # of patients with SUD and an initial AUDIT score > 15 and/or DAST10 score > 4 who demonstrate remission (AUDIT < 8, DAST10 < 1) at 6 months Denom: # of patients with SUD and an initial AUDIT score > 15 and/or DAST10 score > 4	Semi-Annually
Ambulatory-Care-Sensitive Admission Rate	AHRQ, NQF	Admissions per 100,000 for each of the following conditions: DM, COPD, CHF, bacterial pneumonia, asthma, UTI	Quarterly
MH Training for Primary Care Personnel	Custom	Num: # of primary care personnel completing at least one training session at the Academy Denom: # of eligible primary care personnel	Quarterly
MH Registries and Care Management Software	Custom	Num: # of clinics with specialized MH functionality in registries Denom: # of clinics in network	Quarterly
Co-Located MH Services	Custom	Num: # of clinics with access (virtual or physical) to a MHS and consulting psychiatrist Denom: # of clinics in network	Quarterly

APPENDIX E: FINANCIAL WORKSHEETS

The following four worksheets provide outputs and summaries from the cost saving calculations described in Section 4:

- Worksheet #1 – PBPM Cost ($) Estimates Before Savings Applied
- Worksheet #2 – Reduction in PBPM Costs Due to Proposed Program
- Worksheet #3 – PBPM Cost ($) After Savings Applied from Proposed Program
- Worksheet #4 – Aggregate Savings ($) from Program Implementation

The assumptions and calculations used to generate these numbers are discussed in detail in Section 4.

The following abbreviations are used:

MC – Medicare

MA – Medicaid

Dual – Dual Eligible

Com – Commercial

PBPM – Per Beneficiary, Per Month

Worksheet #1 – PBPM Cost ($) Estimates Before Savings Applied

	Baseline				Year 1				Year 2				Year 3			
Service Categories	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**
Inpatient Hospital	293	151	826	85	298	154	843	86	304	157	860	88	310	161	877	90
Outpatient Hospital	97	30	274	75	99	31	279	77	101	31	285	78	103	32	290	80
Emergency Services	27	40	76	24	27	40	77	24	28	41	79	25	28	42	80	25
Prof Primary Care	51	32	144	43	52	33	147	43	53	34	150	44	54	34	153	45
Prof Specialty Care	98	101	278	84	100	103	283	86	102	105	289	87	104	107	295	89
Diagnostic Imaging	34	28	95	33	34	28	97	34	35	29	99	34	36	30	101	35
Laboratory Services	27	28	75	26	27	28	76	27	28	29	78	27	28	29	80	28
Durable Medical Equip	13	9	38	3	14	9	38	3	14	9	39	3	14	9	40	3
Dialysis Procedures	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0
Skilled Nursing Facility	65	2	183	2	66	3	186	2	67	3	190	2	69	3	194	2
Long Term/Post-Acute	3	0	10	0	3	0	10	0	4	0	10	0	4	0	10	0
Home Health	67	4	189	1	68	5	192	1	69	5	196	1	71	5	200	1
Hospice	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vision	6	0	16	5	6	0	16	5	6	0	17	5	6	0	17	5
Dental	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ambulance	13	0	37	0	13	0	37	0	14	0	38	0	14	0	39	0
Transportation	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0
Other - Covered	51	16	144	15	52	17	147	15	53	17	150	15	54	17	153	15
Other - Not Covered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prescription Drugs	245	154	693	71	250	157	706	72	255	160	720	74	260	163	735	75
Prof Admin Drugs	10	20	28	7	10	20	28	7	10	20	29	7	10	21	29	8
Total	***1099***	***621***	***3104***	***472***	***1121***	***634***	***3166***	***481***	***1143***	***646***	***3229***	***491***	***1166***	***659***	***3294***	***501***

Worksheet #2 – Reduction in PBPM Costs Due to Proposed Program

	Baseline				Year 1				Year 2				Year 3			
Service Categories	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**
Inpatient Hospital					1.1%	1.2%	1.0%	1.4%	1.6%	1.7%	1.5%	1.5%	2.1%	2.4%	2.3%	4.3%
Outpatient Hospital					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Emergency Services					9.4%	3.5%	9.0%	3.9%	14.2%	5.2%	12.7%	4.4%	18.4%	7.4%	20.3%	12.0%
Prof Primary Care					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prof Specialty Care					0.6%	0.3%	0.6%	0.3%	1.0%	0.5%	0.9%	0.3%	1.3%	0.7%	1.4%	0.9%
Diagnostic Imaging					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Laboratory Services					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Durable Medical Equip					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dialysis Procedures					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Skilled Nursing Facility					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Long Term/Post-Acute					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Home Health					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hospice					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Vision					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dental					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ambulance					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transportation					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other - Covered					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other - Not Covered					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prescription Drugs					-0.5%	-0.4%	-0.5%	-0.7%	-0.5%	-0.4%	-0.5%	-0.7%	-0.5%	-0.4%	-0.5%	-0.7%
Prof Admin Drugs					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Worksheet #3 – PBPM Cost ($) After Savings Applied from Proposed Program

	Baseline				Year 1				Year 2				Year 3			
Service Categories	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**	**MC**	**MA**	**Dual**	**Com**
Inpatient Hospital	293	151	826	85	295	153	834	85	299	155	847	87	304	157	857	86
Outpatient Hospital	97	30	274	75	99	31	279	77	101	31	285	78	103	32	290	80
Emergency Services	27	40	76	24	25	39	70	23	24	39	69	24	23	39	64	22
Prof Primary Care	51	32	144	43	52	33	147	43	53	34	150	44	54	34	153	45
Prof Specialty Care	98	101	278	84	100	102	282	85	101	104	286	87	103	106	291	88
Diagnostic Imaging	34	28	95	33	34	28	97	34	35	29	99	34	36	30	101	35
Laboratory Services	27	28	75	26	27	28	76	27	28	29	78	27	28	29	80	28
Durable Medical Equip	13	9	38	3	14	9	38	3	14	9	39	3	14	9	40	3
Dialysis Procedures	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0
Skilled Nursing Facility	65	2	183	2	66	3	186	2	67	3	190	2	69	3	194	2
Long Term/Post-Acute	3	0	10	0	3	0	10	0	4	0	10	0	4	0	10	0
Home Health	67	4	189	1	68	5	192	1	69	5	196	1	71	5	200	1
Hospice	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vision	6	0	16	5	6	0	16	5	6	0	17	5	6	0	17	5
Dental	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ambulance	13	0	37	0	13	0	37	0	14	0	38	0	14	0	39	0
Transportation	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0
Other - Covered	51	16	144	15	52	17	147	15	53	17	150	15	54	17	153	15
Other - Not Covered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prescription Drugs	245	154	693	71	251	157	710	73	256	160	724	74	261	164	738	76
Prof Admin Drugs	10	20	28	7	10	20	28	7	10	20	29	7	10	21	29	8
Total w/ Program	*1099*	*621*	*3104*	*472*	*1115*	*631*	*3152*	*479*	*1134*	*642*	*3208*	*489*	*1154*	*652*	*3256*	*494*
Total w/o Program	*-*	*-*	*-*	*-*	*1121*	*634*	*3166*	*481*	*1143*	*646*	*3229*	*491*	*1166*	*659*	*3294*	*501*
Net Savings	***-***	***-***	***-***	***-***	***5.22***	***2.89***	***14.02***	***1.86***	***8.63***	***4.66***	***21.59***	***2.20***	***11.85***	***7.04***	***37.41***	***7.13***

Worksheet #4 – Aggregate Savings ($) from Program Implementation

PBPM Savings	Year 1	Year 2	Year 3
Medicare	5.22	8.63	11.85
Medicaid	2.89	4.66	7.04
Dually Eligible	14.02	21.59	37.41
Commercial	1.86	2.20	7.13

Target Population Member Months	Year 1	Year 2	Year 3	Cumulative
Medicare	579,312	585,108	590,952	1,755,372
Medicaid	248,460	250,944	253,452	752,856
Dually Eligible	127,164	128,436	129,720	385,320
Commercial	3,760,572	3,798,180	3,836,160	11,394,912

Total Gross Cost of Care Savings	Year 1	Year 2	Year 3	Cumulative
Medicare	3,023,172	5,048,638	7,002,081	15,073,890
Medicaid	718,706	1,169,985	1,783,734	3,672,424
Dually Eligible	1,782,540	2,773,486	4,853,383	9,409,409
Commercial	6,978,531	8,360,602	27,355,242	42,694,374
Total Gross Savings	***12,502,949***	***17,352,710***	***40,994,439***	***70,850,098***