The Need For Measurement-Based Care and Remote Patient Monitoring In Behavioral Health & Substance Use Disorder

October 2021

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Introduction

One in five people experience a Mental Health Disorder in any given year (HHS & Han, 2020), with over half of adults in the United States being diagnosed with a Mental Health Disorder within their lifetime (HHS & Han, 2020). A study performed by the Centers for Disease Control and Prevention discovered that Anxiety and Depression diagnoses had increased four-fold during the COVID-19 pandemic in the United States (Czeisler et al., 2020). Moreover, three out of fifty people in the United States struggle with Substance Use Disorders (SUD), costing the economy $600 Billion per year (NIH & Volkow, 2018), while deaths from overdoses have tripled since 1990 (CDC et al., 2013). Studies show that Mental Health Disorders can spark SUDs, with 20% of those who struggle with Anxiety and Depression ending up struggling with SUD (Pettinati & Dundon, 2011). Furthermore, a study performed by the Department of Human and Health Services (HHS) in the United States indicates that 97.94% of those who struggle with Substance Use Disorder have an underlying Mental Health Disorder, with over a third of these individuals classified as having severe Mental Health Disorders (HHS & Han, 2020).

The purpose of this article is to validate the need for Measurement-Based Care (MBC) to effectively prevent and treat Mental Health Disorders, along with better reporting in behavioral health (BH). This article provides evidence around the benefits of adopting Remote Patient Monitoring (RPM) technology to solve the prominent barriers of widespread use of MBC. The combination of RPM-enabled MBC can improve outcomes for patients while decreasing treatment times drastically, costs, and administrative burden on providers.

Measurement-Based Care (MBC)

Measurement-based care (MBC) is the systematic evaluation of patient symptoms before, during, and after an encounter to inform behavioral health (BH) treatment for Mental Health Disorders and allow adjustments as needed. One of the main contributors to poor outcomes in routine care is that providers do not systematically use Symptom Rating Scales (SRS). These typically include the Patient Health Questionnaire-9 (PHQ-9), General Anxiety Disorder-7 (GAD-7), and Perceived Stress Score (PSS) (Appendix A, B, C) to determine quantitatively whether their patients are improving even though diagnostic-specific rating scales are proven to be highly clinically actionable (Fortney et al., 2015). Real-world research has shown that providers can only detect deterioration of patients 24.1% of the time without administering a MBC approach (Hatfield et al., 2009). That means that over three-quarters of patients may not be receiving the proper treatment they need.

Furthermore, without a MBC approach, providers cannot demonstrate to payors the value of their treatment and services, resulting in chronic underfunding of BH services (Fortney et al., 2015). Mental Health Disorders account for 27% of disability claims (Vos et al., 2012), yet only BH accounts for only 6.8% of spending budgets (Melek et al., 2014). The inability to track outcomes

in a systematic and administratively feasible way additionally prevents an industry-wide transition towards value-based -care (VBC). Beyond the alignment of priorities amongst payors, providers, and patients where all parties involved work together to provide better Quality of Care (QoC), achieve better outcomes, and thus patient satisfaction, Blue Cross Blue Shield (BCBS) was able to realize savings of over 12% in treatment performed in a VBC setting (NEJM Catalyst, 2017). Furthermore, there is substantial evidence supporting the improved outcomes when a VBC model is applied. Researchers at Brown University in the United States reviewed readmission rates of Accountable Care Organizations (ACOs) within Medicare/ Medicaid built on the VBC model compared to traditional fee-for-service organizations. These studies found that health systems that adopted the VBC model saw a 14.9% decrease in readmissions within thirty days and an even more significant decrease in readmissions by 19.1% within the first three days of patient discharge (Winblad et al., 2017).

Despite MBC's demonstrated ability to enhance usual care by expediting improvements and rapidly detecting patients whose health would otherwise deteriorate, it is underused, with typically less than 20% of behavioral health providers integrating it into their practice. Only 18% of psychiatrists and 11% of psychologists in the United States routinely administer Symptom Rating Scales (SRS) (Fortney et al., 2015). The limited use of SRS to provide BH care is equivalent to treating hypertension without using a blood pressure cuff to determine whether a patient's blood pressure is beyond acceptable thresholds (Fortney et al., 2015). For MBC to be effective in BH, data from SRS must be current, accurate, interpretable, and readily available during clinical encounters (Fortney et al., 2015). Currently, providers consider SRS as a diagnostic tool used at the beginning of a patient lifecycle only. However, the same SRS has been proven in studies to be trans-diagnostic, meaning SRSs can be incorporated into routine care management regardless of the patient population, types of clinical procedures, or treatment state (Fortney et al., 2015). The evidence suggests that MBC via SRS is effective and beneficial during all stages of the patient lifecycle.

MBC has been proven in psychotherapy to improve outcomes two-fold on the Outcomes Rating Scale (ORS) (Duncan et al., 2021). The ORS (Appendix D) has been proven reliable for the past two decades and is a long-form SRS questionnaire (Miller et al., 2003). Beyond outcomes, MBC offers benefits across multiple levels. Patients are more involved with their treatment, helping them better understand their symptoms while quantifying and communicating their experiences. Providers can be alerted when patients lack progress, which is especially important given that many providers typically overestimate how well patients are doing throughout treatment.

The United States Army, State Government of Washington, Anthem Blue Cross Blue Shield, United Healthcare, Aetna, and Medicare/Medicaid programs have all launched incentives or requirements to adopt MBC. Furthermore, health payors can benefit from the aggregate data on the efficacy of various forms of treatments on varying populations to inform improved

population health approaches (Fortney et al., 2015). Studies show that MBC to be effective across many patient populations, diagnoses, and treatment types, from marriage counseling to individual psychotherapy to pharmacotherapy (Fortney et al., 2015). Additional evidence supporting the efficacy of MBC is its use as a standard operating practice in randomized controlled trials in behavioral health drug development for the past few decades, providing frequent and timely feedback on patient symptoms to providers and pharmaceuticals developers to demonstrate outcomes and trends towards significance. Regulatory agencies such as the Food and Drug Administration (FDA) in the United States rely on this evidence to approve the resulting medications for sale. With this, MBC has been a proven and effective method in the development of treatments. Recent studies have found that 94% of psychiatrists found MBC approaches to improve Depression severity, with 100% of them finding MBC helpful in monitoring response to treatment, 82% using it to tailor their treatment plans, and 71% using it as a tool to monitor the risk of suicide. Washington State has now mandated MBC approaches after finding that patients could recover 256% faster at twenty-five weeks versus sixty-four weeks (Fortney et al., 2015). After seeing a substantial improvement in outcomes by over fifty percent, the United States Veteran Affairs (V.A.) has also mandated the adoption of MBC across 150,000 patients who are part of Anxiety, Depression, SUD, and PTSD programs (Fortney et al., 2015).

A study performed in Shanghai identified multiple barriers to the adoption of MBC via SRS (Murphy et al., 2021). From a provider perspective, there is an additional administrative burden imposed on the provider in collecting SRS data from patients and the analysis/processing of this data into a patient's chart. Providers were also concerned about the accuracy of the data collected from patients via SRS due to the self-reported nature of these assessments; patients may be biased when completing these questionnaires or responding incorrectly for the sake of completing them. Additionally, the SRS assessments collect data at a single point on the time scale, which may not provide full context into the patient's real-world life events. From a patient's perspective, SRS may be bothersome. In most cases, results from SRS assessments may not be shared with the patient, resulting in patients not understanding the value or utility of SRS assessments, further disincentivizing patients to complete these correctly and with care (Murphy et al., 2021).

In the treatment of SUD, a recent study performed with providers at one publicly-funded and two-privately-funded SUD treatment clinics concluded in a recommendation to implement MBC to replace existing practices or workflows for evaluating & communicating patient progress (Tauscher et al., 2021). Providers in the study agreed that MBC could improve treatment times and relapse rates through a better and more efficient ability to detect clinical improvement or decline, improved therapeutic alliance, and more accurate judgments to allow for modification of intervention plans based on the assessment measures collected (Tauscher et al., 2021). Beyond improved outcomes, providers expressed additional benefits of MBC, including improved patient-clinician communication, empowerment of

patients, improved case information communication amongst providers in a collaborative care model, and the ability to quantify results over time for more efficient reporting (Tauscher et al., 2021). Another study conducted by researchers at the Society for the Study of Addiction found MBC to be effective in personalizing the delivery of medications and therapeutics for opioid use disorder, resulting in better outcomes and reduced treatment times (Marsden et al., 2019).

Remote Patient Monitoring (RPM)

Today, most Americans take a proactive approach to Physical Health, from annual physicals to regular labs and genetic testing to identify potential health risks. We now even have multiple devices to detect potential physical health issues early and passively built into everyday wearables such as watches—from heart rate monitors that detect irregular heart rhythms to blood oxygen monitors. The same approach is not taken in behavioral health, with most Americans seeking treatment only during crisis moments. Furthermore, a recent report from the Anxiety and Depression Association of America (AADA) demonstrated that only one-third of those with a mental health disorder seek mental health professional assistance (AADA, 2021). The symptoms and effects of Mental Health Disorder typically grow exponentially without intervention, requiring higher levels of treatment over time if left untreated.

Remote Patient Monitoring (RPM), a technology that allows for monitoring patients outside of typical clinical environments such as at home, has proved to decrease costs by ten percent in the real world for physical health (Peretz et al., 2016). Although some providers will ask patients to complete SRS Assessments such as the Patient Health Questionnaire 9 (PHQ-9), General Anxiety Disorder 7 (GAD-7), or Perceived Stress Score (PSS) remotely either via telephone or email, very few patients complete these questionnaires in advance of the clinical encounter, and more importantly, accurately. The flaw in the current system contributes to over half of patients in primary care who have depression never receiving a diagnosis or treatment (Siniscalchi et al., 2020). Studies show that for measurement-based care to be effective and clinically actionable in behavioral health treatment, feedback must be received quickly, in context, and accurately (Fortney et al., 2015).

In 2011, Dr. Gregory Skipper and Dr. Robert Dupont published an article in Addiction Professional discussing RPM use in Physicians who developed Substance Use Disorders and completed initial treatment. 79% of those who opted into a long-term RPM program did not relapse (Skipper & Dupont, 2019). Further research conducted at the University of Nebraska indicates relapse is broken into three sequential phases; the first being an emotional relapse, the second being a mental relapse, and finally, the physical relapse. Prevention could happen at any of these three phases, and that early detection and prevention results in improved outcomes and decreased costs (Guenzel et al., 2021). Symptoms of emotional relapse include isolation in a specific location, not attending meetings, focusing on other people's problems,

poor sleeping or eating habits (Guenzel et al., 2021). RPM technologies such as those from LivNao can be used for the early detection of these symptoms. Beyond the capability of predicting SRS assessment scores such as the PHQ-9, GAD-7, and PSS, LivNao's RPM technology provides context into the computation of these SRS predictions, including the detection of changes to sleep, geolocation, and mobility habits (Leung, 2020), all of which are indicative of an upcoming or current emotional relapse. The use of RPM technology for early detection of relapse to allow for intervention could help prevent relapse from progressing to the physical stage, barring a complete relapse.

Combining Remote Patient Monitoring with Measurement-Based Care

While MBC is proven to be highly effective in reducing costs and improving outcomes, it is not adopted widely due to the additional administrative burden on providers and patients. A study performed in 2018 showed that seventy-eight percent of providers are experiencing burnout, primarily because they spend twenty-three percent of their time on administrative burdens and frustrating paperwork (Price et al., 2018). A passive approach, such as the utilization of RPM, could help eliminate any administrative burden associated with MBC, in addition to providing some alleviation to one of the top reasons leading to provider burnout.

These barriers to adoption are further evidenced by a recent study performed by LivNao, a startup that uses RPM technology to drive MBC in behavioral health. Their research performed across two employers and one healthcare network demonstrated that although eighty-five percent of individuals have experimented with wellness products validated to improve mental health, only nineteen percent reported continued bi-weekly use. Direct feedback from user-testing indicates that users were frustrated with the lengthy questionnaires to inform a MBC approach to recommend interventions. Users did not see value in completing the long questionnaires regularly, which was necessary for effective treatment (Leung, 2020). Further into the study, LivNao experimented with using passively-collected mobile device data to predict answers to and replace these lengthy SRS questionnaires. These experiments demonstrated initial success in predicting SRS assessments such as the Patient Health Questionnaire 9 (PHQ-9), General Anxiety Disorder 7 (GAD-7), and Perceived Stress (PSS) scores with a fair degree of accuracy at sixty percent to eighty percent (Leung, 2020). Further development is underway to improve accuracy rates and continue to validate the efficacy of this product in clinical settings.

The 2021 study (Tauscher et al., 2021) identified multiple barriers to adopting MBC in SUD. The top two barriers were the subjectiveness of patient-reported SRS and the burden of time and potentially increased administrative work for providers. Providers noted that patients struggling with a SUD were more likely to provide unreliable, incomplete, or inaccurate information when completing SRS assessments. Unreliable, incomplete, or inaccurate SRS data eliminates the utility of MBC. Additionally, the manual inputting of this data creates an

additional administrative burden for providers, one of the top contributors to provider burnout (Tauscher et al., 2021). Incorporating RPM into MBC in SUD can eliminate both barriers, presenting providers and patients with accurate, contextual, and up-to-date SRS data without any additional administrative burden.

Applying Remote Patient Monitoring Enabled Measurement-Based Care

Multiple stakeholders stand to benefit from bringing truly passive RPM to MBC. Patients, providers, health systems, and payors can see both quantitative and qualitative benefits when adopting RPM-enabled MBC.

Patients can expect improved and faster outcomes, allowing them to redirect their focus towards other aspects of their lives, such as work and family. Additionally, studies show that providing progress and outcome feedback to patients helps them fully understand their condition, fluctuations, and context, allowing them to better communicate with their provider and feel more involved in their treatment plan (Fortney et al., 2015). Patients can expect a 256% reduction in treatment time (Fortney et al., 2015) and fifty percent better outcomes (Fortney et al., 2015). Additionally, better and faster outcomes can mean extended longevity and lower mortality for patients. Patients diagnosed with mild anxiety are twenty percent more likely to die over ten years when compared to patients without anxiety when left untreated (Goodman & Chang, 2012). In the case of depression, longevity is negatively affected by ten to twelve years across both women and men when left untreated, much more than the effects of smoking (Gilman et al., 2017). Earlier detection and better treatment powered by RPM-enabled MBC has the opportunity to reduce the impact of anxiety and depression on both mortality and longevity rates. As evidenced by Dr. Skipper and Dr. Dupont's 2011 article, RPM reduced relapse rates in physicians with SUDs by 21%. Furthermore, early detection of relapse in the emotional relapse phase can prevent a complete relapse.

Beyond patients—providers and health systems can expect to see improved and faster outcomes due to the speedy feedback informing any necessary adjustment to treatment as needed. Additionally, providers and health systems can expect streamlined data collection and analysis, cutting down on administrative burden, one of the leading causes of provider burnout (Rao et al., 2017) while enabling better QOC (Fortney et al., 2015).

Primary Care Providers (PCPs) can also expect an additional fifty dollars to seventy dollars in reimbursements per patient per visit when employing RPM-enabled MBC (Appendix E). The average PCP sees 19.7 patients per day in the U.S., translating to a minimum of $985 to $1,379 in additional revenue per provider per day if RPM-enabled MBC were adopted (Price et al., 2018). Annually, this could mean an additional $257,085 to $359,919 in revenue for a provider working in their private practice or $248,087,025 to $347,321,835 for a health system, given the average number of PCPs in a health system is 691 providers (HHS, 2017).

Behavioral Health Providers (BHPs) can expect between $50 to $183.71 in additional reimbursements per patient per visit if they were to employ RPM-enabled MBC (Appendix E). The average BHP has a caseload of twenty-five patients per week, equating to five patients per day (Edmondstone, 2021). These statistics would translate to $250 to $918.55 in additional revenue per day if RPM-enabled MBC were adopted (Appendix E).

Payors can realize substantial cost savings and better transparency and accountability of providers and BH treatments (Fortney et al., 2015). The cost savings, transparency, and accountability could help payors realize the returns on their investments into BH, helping drive a more equal and proportional distribution of funding towards BH and SUD treatment. Payors can also identify treatments and provider networks leading with the best outcomes in a VBC setting and learn from their practices, turning them into best practices adopted across their broader networks. These learnings and adjustments ultimately result in better outcomes at a larger scale across the general population (Fortney et al., 2015). The annual cost of substance abuse to payors and governments in the United States is $510.8 Billion. The adoption of RPM-enabled MBC has the potential to reduce this spending by 21%, resulting in a potential savings of over $107.27 Billion per year (Skipper & Dupont, 2019).

Conclusion

In conclusion, all stakeholders, including patients, providers, payors, and health systems, would benefit from RPM-enabled MBC in behavioral health & Substance Use Disorders. There is clear evidence on how RPM-enabled MBC would improve outcomes, quality of care, relapse rates, and patient satisfaction while reducing the total cost of care. Based on the substantial evidence provided in this article, Primary Care Providers, BH Providers and substance treatment centers must implement RPM-enabled MBC with the help of payors who already have programs in place to financially incentivize providers to do so for the long-term sustainability of our populations.

Appendix A — Patient Health Questionnaire-9 (PHQ-9)

PHQ-9 Questionnaire

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or if that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
Add the score for each column	**+**	**+**	**+**	

Total Score *(add your column scores)* =

PHQ-9 Scoring

For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment
2. If there are at least 4 answers in the shaded section, consider a depressive disorder. Add score to determine severity.

Consider Major Depressive Disorder:

- If there are at least 5 answers in the shaded section

Consider Other Depressive Disorder:

- If there are 2-4 answers in the shaded section

Note: Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.

Diagnoses of Major Depression Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Q10) and ruling out normal

bereavement, a history of Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of depressive symptoms.

To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (i.e. every 2 weeks) at home and bring them in at their next appointment for scoring or they may compete the questionnaire during each scheduled appointment.
2. Add up answers by column.
3. Add together column scores to get a Total Score
4. Refer to the accompanying PHQ-9 Scoring Box to interpret the Total score
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention

Total Score:	Result
1 to 4	Minimal depression
5 to 9	Mild depression
10 to 14	Moderate depression
15 to 19	Moderately severe depression
20 to 27	Severe depression

PHQ-9 total score for the nine items ranges from 0 to 27.

Appendix B — General Anxiety Disorder-7 (GAD-7)

GAD-7 Questionnaire

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
Add the score for each column	**+**	**+**	**+**	

Total Score *(add your column scores)* =

GAD-7 Scoring

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day."

Total Score:	Result
0 to 4	Minimal Anxiety
5 to 9	Mild Anxiety
10 to 14	Moderate Anxiety
15 to 21	Severe Anxiety

GAD-7 total score for the seven items ranges from 0 to 21.

Appendix C — Perceived Stress Scale (PSS)

PSS Questionnaire

In the last month, how often have you:	Never	Almost Never	Some Times	Fairly Often	Very Often
1. Been upset because something that happened unexpectedly?	0	1	2	3	4
2. Felt that you were unable to control the important things in life?	0	1	2	3	4
3. Felt nervous and "stressed"?	0	1	2	3	4
4. Felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. Felt that things were going your way?	0	1	2	3	4
6. Found that you could not cope with all the things you had to do?	0	1	2	3	4
7. Been able to control irritations in your life?	0	1	2	3	4
8. Felt that you were on top of things?	0	1	2	3	4
9. Been angered because of things outside of your control?					4
10. Felt difficulties were piling so high. you could not overcome them?	0	1	2	3	4

PSS Scoring

The Perceived Stress Scale PSS is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The PSS was designed for use in community samples with at least a junior high school education. The items are easy to understand and the responses alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.

Evidence for Validity — Higher PSS scores were associated with for example:

1. Failure to quit smoking
2. Failure among diabetics to control blood sugar levels
3. Greater vulnerability to stressful life-event-elicited depressive symptoms
4. More colds

Health Status Relationship To PSS — Cohen et al. (1988) shows correlations with PSS and Stress Measures, Self-Reported Health and Health Services Measures, health Behavior Measures, Smoking Status, Help Seeking Behavior.

Temporal Nature — Because levels of appraised stress should be influenced by daily hassles, major events, and changes in coping resources, predictive validity of the PSS is expected to fall off rapidly after four to eight weeks.

Scoring — PSS scores are obtained by reversing responses (i.e. 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0) to the four positively stated items (items 4, 5, 7, 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5, and 10 of the PSS 10 item scale.

Norm Groups — L. Harris Poll gathered information on 2,387 respondents in the U.S.

Category	N	Mean	S.D.
Gender			
Male	926	12.1	5.9
Female	1406	13.7	6.6
Age			
18 to 29	645	14.2	6.2
30 to 44	750	13.0	6.2
45 to 54	285	12.6	6.1
55 to 64	282	11.9	6.9
65 & older	296	12.0	6.3
Race			
White	1924	12.8	6.2
Hispanic	98	14.0	6.9
Black	176	14.7	7.2
Other	50	14.1	5

Appendix D — Outcomes Rating Scale ORS

ORS Questionnaire

Looking back over the last week, including today, helps us understand how you have been doing in the following areas of your life, where marks to the left represent low levels and marks to the right indicate high levels.

Individually (Personal well-being):

|——|

Interpersonally (Family, close relationships):

|——|

Socially (Work, School, Friendships):

|——|

Overall (General sense of wellbeing):

|——|

Attention Clinician: To insure scoring accuracy print out the measure to insure the item lines are 10 CM in length. Alter the form until the lines print the correct length. Then erase this message.

ORS Scoring and Administration

Rationale:

Change early in therapy is a good predictor of outcome.

Early ratings of the alliance are a good predictor of retention and outcome.

The ORS & SRS can be useful teaching tools in supervision.

Protocol:

1. During every session every client will be given the appropriate ORS & SRS
2. When meeting with the client for the first time, provide a rationale for approach:
    i. "We work a little differently here at…. Our first priority is making sure that you get the results you want. For this reason, it is very important that you are involved in monitoring our progress throughout counseling. We do this by formally using a measure called the Outcome Rating Scale. It takes about a minute. You fill it out at the beginning of each session and then we talk about the results. Research shows that if we are going to be successful in our work together, we should see signs of improvement earlier rather than later. If what we're doing works, then we'll continue. If not, then we'll try to change or modify what we're doing. If things still don't improve, then I'll work with you to find someone or someplace else for you to get the help you want. Does that make sense to you?
    ii. At the end of each session, you will fill out one additional form, the Session Rating Scale. Again, it's very short, taking about a minute or less to complete and score. This scale helps me know how the session went. It takes the temperature of the visit, so to speak. We are doing this because the research shows your experience of our work together during the visit is a good predictor of whether we're successful. I'll explain more about this at the end of the session. Does this make sense?"

Beginning of each session

3. Clients will complete the Outcome Rating Scale (ORS) at the beginning of each session. It is helpful to remind clients of the directions. Their answers should reflect how they have been doing over the last week (or since the last session).
4. The counselor will score, plot on a graph the scores, and then review the ORS during the first few minutes of that session to clarify client's answers.
    i. "I noticed that you indicated on the ORS that you were not doing as well today interpersonally. Can you tell me a little bit more about that?"
    ii. As times goes by you can compare results from previous weeks and use it as a tool to talk about change.
    iii. "This week your rating on the interpersonal scale is much higher than last week. Can you tell me what is different? What are you doing different?"
5. After the session the ORS can be scored using the template and the "total score" will be plotted on the ORS graph provided in the counselor packet.

At end on each session

6. At the end of each session clients will complete the appropriate Session Rating Scale (SRS). Leave 5 minutes at the end of each session to complete SRS.
7. The counselor will score and review the SRS during the last few minutes of that session to clarify client's answers.
    i. "I noticed that you felt like the approach to therapy was not a good fit for you. Can you tell what you were expecting and what you would like to be different?"
    ii. The Rating on the SRS can be very helpful to you as you try to create a therapeutic environment that helps meet the needs of the client. It is this end of session conversation that will be helpful to the counselor and client as they work to form a working alliance.
8. The "total score" will be plotted on the SRS graph provided in the counselor packet

ORS

9. Use clinical cut off to frame discussion.
    i. "Scales below the dotted line indicate that you have responded to the items more like people in counseling and say that they would like some of aspects of their life to change or be different. Scores above the dotted line indicate that you responded more like people who are not in therapy and who are saying that things in their life are on track and that little change needs to take place."
10. When client scores fell below dotted line:
    i. "It's easy to see that you are feeling pretty bad at the moment. Is that right? Can you tell me what's been happening; what brought you in today?"
    ii. "OK. Now here's the good news. As bad as it is right now, people who score in this range are in fact most likely to experience improvement in treatment—and to do so sooner rather than later."
11. When scores fall nearer to but not beyond the cutoff:
    i. "As you can see, your scores do fall below the dotted line. And while you did respond to the items more like people who are in counseling and wanting something to change, your scores are not super low. Life isn't terrible. You're not in crisis. Does that sound right? Can you tell me what brought you in today?"
12. When scores fall above the cutoff:
    i. Explore reasons why client is in counseling. You are not to discourage them from getting treatment but rather to clarify reasons for treatment.
    ii. If referred by someone, ask to get the client's view of the referral source's score. This might help with addressing motivation for treatment.
        a. Second and subsequent sessions — Go over results, with interpretation depending on the amount and rate of change.
            (1) Reliable change = improvement of 6 pts. or more but **below** clinical cut-off score of 25
                - reinforce changes

- help client fine-tune their change strategy
- continue to see client
- consider spacing sessions out once slope of client's scores

(2) Clinically significant change = improvement of 6 or more points and **above** clinical cut-score of 25

- help fine tune client change strategy
- prepare client for eventual setbacks
- consider spacing sessions

(3) Reliable deterioration = decrease in 6 points of more and below clinical cut-off

- are at risk for dropping out and suffering poor outcome
- explore reason for client's worsening
- review Session Rating Scale item-by-item to determine if unreported problems in alliance exist
- **consider changing frequency, mode, intensity, or provider of treatment if matters have not started to improve by third visit**

(4) No Reliable Change

- **After 3rd session,** review Session Rating Scale item-by-item and consider making changes to treatment process
- **After 6th session,** consultation, supervision or staffing is advised.

***** Try to connect scores with experience of client's life.

Appendix E — CPT Codes For Reimbursement Billing (United States)

The chart below contains the Current Procedural Terminology (CPT) billing codes that could be used for reimbursement purposes in RPM-enabled MBC. The CPT codes included in the chart below are representative and relevant for reimbursement by both private payors such as Aetna, Anthem Blue Cross Blue Shield, Cigna, United Health in addition to Medicare and Medicaid programs in the United States. The most commonly used Symptom Rating Scales used for these procedures include the Patient Health Questionnaire-9 (PHQ-9), General Anxiety Disorder-7 (GAD-7), Hamilton Anxiety (HAM-A), Hamilton Depression (HAM-D) assessments. A corresponding International Classification of Diseases 10th Edition Clinical Modification (ICD-10-CM) diagnosis code is required when submitting a procedure for reimbursement is required. Commonly used ICD-10-CM codes are provided in Appendix F.

CPT Codes Chart:

CPT Code	Description	Average Value
96127	Brief emotional/behavioral assessment with scoring and documentation, per standardized instrument	$24.00
96136	Psychological or neuropsychological test administration/scoring by physician or other qualified healthcare professional	$48.00
96138	Psychological or neuropsychological test administration/scoring by technician	$38.92
96146	Psychological or neuropsychological test administration, with single automated instrument via electronic platform, with automated result only	$2.16
96130	Psychological testing evaluation services by physician or other qualified healthcare professional	$133.71
99453	Remote monitoring of physiologic parameter, initial; set-up and patient education on use of equipment.	$21.00
99454	Remote monitoring of physiologic parameter, initial; set-up and patient education on use of equipment.	$69.00
99457	Remote physiologic monitoring treatment management services	$54.00
99458	Remote physiologic monitoring treatment management services	$42.00
99091	Collection and interpretation of physiologic data	$59.00
96127	Brief emotional/behavioral assessment with scoring and documentation, per standardized instrument.	$20.00
96136	Psychological or neuropsychological test administration and scoring, two or more tests	$48.00
96138	Psychological or neuropsychological test administration and scoring, two or more tests	$39.00
96146	Psychological or neuropsychological test administration, with single automated instrument via electronic platform with automated result only.	$2.00
96130	Psychological testing evaluation services including integration of patient data, interpretation of standardized test results and clinical data, clinical decision making, treatment planning and, report, and interactive feedback to the patient, family, member(s) or caregiver	$122.00

Appendix F — Reimbursement Charts - United States

The chart below contains the International Classification of Diseases 10th Edition Clinical Modification (ICD-10-CM) diagnosis codes that are relevant to the Current Procedural Terminology (CPT) codes for reimbursement (Appendix E). ICD-10-CM codes are required when submitting procedures for reimbursement by both private payors and Medicare Medicaid payors.

ICD-10-CM Codes Chart:

Disorder Type	ICD-10-CM Code	Description
C5: Mental and behavioral disorders due to psychoactive substance use (F01-F99)	F10.94	Alcohol / Substance use, unspecified with induced mood disorder
C5: Mental and behavioral disorders due to psychoactive substance use (F01-F99)	F10.980	Alcohol / Substance use, unspecified with induced anxiety disorder
C5: Mental and behavioral disorders due to psychoactive substance use (F01-F99)	F10.982	Alcohol / Substance use, unspecified with induced sleep disorder
C5: Mood [affective] disorders (F30-F39)	F30.8	Other manic episodes
C5: Mood [affective] disorders (F30-F39)	F32.0	Major depressive disorder, single episode, mild
C5: Mood [affective] disorders (F30-F39)	F32.1	Major depressive disorder, single episode, moderate
C5: Mood [affective] disorders (F30-F39)	F32.2	Major depressive disorder, single episode, severe without psychotic features
C5: Mood [affective] disorders (F30-F39)	F32.3	Major depressive disorder, single episode, severe with psychotic features
C5: Mood [affective] disorders (F30-F39)	F32.4	Major depressive disorder, single episode in partial remission
C5: Mood [affective] disorders (F30-F39)	F32.5	Major depressive disorder, single episode in full remission
C5: Mood [affective] disorders (F30-F39)	F32.81	Premenstrual dysphoric disorder
C5: Mood [affective] disorders (F30-F39)	F32.89	Other specified depressive episodes
C5: Mood [affective] disorders (F30-F39)	F32.9	Major depressive disorder, single episode, unspecified
C5: Mood [affective] disorders (F30-F39)	F32.A	Depression, unspecified
C5: Mood [affective] disorders (F30-F39)	F41.1	Generalized anxiety disorder

Disorder Type	ICD-10-CM Code	Description
C5: Mood [affective] disorders (F30-F39)	F41.3	Other mixed anxiety disorders
C5: Mood [affective] disorders (F30-F39)	F41.8	Other specified anxiety disorders
C5: Mood [affective] disorders (F30-F39)	F41.9	Anxiety disorder, unspecified
C5: Mood [affective] disorders (F30-F39)	F43.0	Acute stress reaction

ICD-10-CM Codes Chart (Cont'd):

Disorder Type	ICD-10-CM Code	Description
C5: Mood [affective] disorders (F30-F39)	F43.10	Post-traumatic stress disorder (PTSD)
C5: Mood [affective] disorders (F30-F39)	F43.9	Reaction to severe stress, unspecified
C5: Mood [affective] disorders (F30-F39)	F51.05	Insomnia due to other mental disorder
C5: Mood [affective] disorders (F30-F39)	F51.13	Hypersomnia due to other mental disorder
C18: Symptoms and signs involving cognition, perception, emotional state and behavior (R40-R46)	R46.6	Undue concern and preoccupation with stressful events
C21: Persons with potential health hazards related to socioeconomic and psychosocial circumstances (Z55-Z65)	Z56.3	Stressful work schedule
C21: Persons with potential health hazards related to socioeconomic and psychosocial circumstances (Z55-Z65)	Z56.6	Uncongenial work environment
C21: Persons encountering health services in other circumstances (Z69-Z76)	Z73.0	Burn-out
C21: persons encountering health services in other circumstances (Z69-Z76)	Z73.3	Stress not elsewhere classified
C21: Persons with potential health hazards related to family and personal history and certain conditions influencing health status (Z77-Z99)	Z86.51	Personal history of combat and operational stress reaction
C21: Persons with potential health hazards related to family and personal history and certain conditions influencing health status (Z77-Z99)	Z86.59	Personal history of other mental and behavioral disorders

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