

Considering Gambling-related Treatment Need in Massachusetts: From Construct to Care

Prepared for the Office of Problem Gambling Services
Massachusetts Department of Public Health

by the Division on Addiction

May 18, 2018

TABLE OF CONTENTS

CONSIDERING GAMBLING-RELATED TREATMENT NEED IN MASSACHUSETTS: FROM CONSTRUCT TO CARE 3

A PARTIALLY ADJUSTED ALGORITHM 4

COMPLICATING FACTORS FOR ESTIMATING TREATMENT NEED: FULLY ADJUSTING THE ALGORITHM 9

Natural Recovery..... 9

Treatment for Co-occurring Disorders..... 11

Self-Help/Mutual Help..... 13

A FULLY ADJUSTED ALGORITHM 18

ASSESSING AVAILABLE MASSACHUSETTS DATA FOR ESTIMATING TREATMENT NEED..... 21

Nelson et al. (2013) 22

MCCG (2013)..... 24

Okunna et al. (2016)..... 25

The Social and Economic Impacts of Gambling in Massachusetts Baseline General Population Survey
 (Volberg et al., 2015)..... 26

The SEIGMA Baseline Online Panel Survey (Williams et al., 2017)..... 29

SUMMARY OF THE SUFFICIENCY OF AVAILABLE MASSACHUSETTS DATA 30

RECOMMENDATIONS 31

REFERENCES 36

Considering Gambling-related Treatment Need in Massachusetts: From Construct to Care

During the current period of gambling expansion and beyond, the Commonwealth of Massachusetts is using the Substance Abuse and Mental Health Service Administration’s five-step planning process (Substance Abuse and Mental Health Services Administration, 2017) to guide its prevention and intervention activities (MassTAPP, 2016). The first step in this planning process is assessment: systematically gathering and examining relevant data from a variety of sources to ensure that the Commonwealth is using its prevention and intervention resources effectively. Gaps between services provided and services needed can exist at every stage of the Continuum of Services, from prevention and health promotion, to screening and referral, to treatment, to recovery support (MassTAPP, 2016). This document concerns the potential treatment gap, or an estimate of the difference between the number of people who need treatment services and the number of people who receive them (Shepard et al., 2005). Public health officials can use treatment gap estimates to make informed decisions about deploying specific resources for treatment services, which in Massachusetts are delivered by psychologists, psychiatrists, social workers, and mental health, and substance abuse counselors (MassTAPP, 2016). Consequently, how well Massachusetts public health officials estimate treatment need can affect the quality of these resource deployment decisions.

Treatment need is an elusive construct with important ramifications. Underestimating need risks prolonging the suffering of people who would benefit from treatment that is unavailable; overestimating treatment need risks misapplying valuable resources. Thus, an essential first step to minimize harm and allocate resources appropriately is to identify a nuanced approach to estimating treatment need. This work is especially important for the Commonwealth of Massachusetts, where residents currently are experiencing an expansion of legal gambling opportunities with potential incident gambling-related problems¹ adding to existing gambling-related problems. To progress toward such an estimate of treatment need, this document presents for consideration two models for

¹ Terminology in this field has been inconsistent over time and across authors. We use the term “gambling-related problems” to refer to the full scope of such problems, apart from any particular diagnostic framework. We use the formal term “Gambling Disorder” to refer to the condition characterized in the DSM-5, and we use the term “sub-clinical Gambling Disorder” to refer to the condition of meeting 1-3 diagnostic criteria for DSM-5 Gambling Disorder.

estimating treatment needs: (1) a partially adjusted algorithm, and (2) a fully adjusted algorithm. Following this, we evaluate the available data from the Commonwealth of Massachusetts with respect to these algorithms. Finally, we conclude by identifying data needs for existing Commonwealth of Massachusetts research programs to fulfill the requirements of these algorithms.

A Partially Adjusted Algorithm

One potential approach to estimating gambling treatment need within a given community involves administering diagnostic criteria checklists to a survey sample representative of the Commonwealth estimating the prevalence of gambling-related problems and using that prevalence estimate as a proxy for treatment need. Though this approach is appealing in its simplicity, it is problematic, in part, because diagnostic criteria were developed for clinical decision making, not public health decision making. Psychiatric epidemiologists caution against conflating “presence of a disorder” with “need for treatment” (Pincus, Zarin, & First, 1998; Spitzer, 1998). Moreover, this simplistic approach is insufficient because a gross prevalence rate fails to control for known aspects of treatment need and demand. Therefore, algorithms generated to estimate treatment need should attempt to address such known aspects.

This document provides two algorithms that differ in the extent to which they recommend controlling for known aspects of treatment need. The first algorithm represents a relatively uncomplicated approach to estimating treatment need via representative population surveys. This approach requires two basic sets of survey questions: (1) questions assessing gambling-related problems, ideally using a validated mental health assessment tool derived from an accepted classification system such as the DSM-5 (American Psychiatric Association, 2013) and (2) questions assessing treatment seeking. More specifically, this approach requires evaluators to use an accepted and psychometrically validated symptom checklist, such as the DSM-5, to assess gambling-related problems. We suggest using a current (i.e., past-year) timeframe for the presence of symptoms. Assessing gambling involvement with questions about gambling frequency or money spent gambling (e.g., “How often do you gamble?” “How

much money do you spend?”) is helpful to address a number of research questions, but insufficient to estimate treatment need.

This approach also requires evaluators to use appropriate treatment seeking questions among respondents who endorse a minimum number of symptoms (e.g., 1 DSM-5 criteria), such as the following questions:

1. In the past year, have you *sought* professional help for your gambling? By “professional help,” we mean a psychiatrist or other medical doctor (e.g., primary care provider), psychologist, other mental health professional (e.g., counselor, therapist, social worker), or religious advisor (Picco et al., 2018).
2. If yes: In the past year, have you *participated* in professional help for your gambling?²
3. If yes: Do you continue to need professional help for your gambling?

We consider seeking treatment to be distinct from participating in treatment. Because treatment might be unavailable or unaffordable, someone who has sought help for gambling might not have received it, for example. We also suggest using a broad definition of professional help when assessing treatment seeking and participation because, in Massachusetts, gambling treatment services occur in a variety of settings. According to the Strategic Plan for Services to Mitigate the Harms Associated with Gambling in Massachusetts (MassTAPP, 2016, p. 15), the majority of gambling-related treatment occurs “...within independent practices or outpatient services.”

This sequence of treatment-seeking questions is beneficial because it enables researchers to classify respondents who report gambling-related problems according to four mutually exclusive treatment status categories:

1. Respondents who report that they have sought, received, and feel they no longer require professional treatment represent **Met Demand** (Brownsberger, Love, Doherty, & Shaffer, 2004).
2. Respondents who report that they have sought and received but still require professional treatment represent **Enduring Demand**.

² We recommend following up with a question asking respondents to indicate the source of professional help (e.g., psychiatrist, psychologist, other mental health provider). This question will be useful for resource allocation but is not essential for categorizing respondents according to treatment-seeking status.

3. Respondents who report that they sought but did not receive treatment represent **Unmet Demand** (McAuliffe et al., 1994).
4. Respondents who report that they did not seek – and therefore did not receive – treatment represent **Absent Demand**.

Together, respondents in the Enduring Demand, Unmet Demand, and Absent Demand represent the extent of potential **Unmet Need**. We also can consider this group to represent **treatment potential**.

As indicated in Figure 1, analytically, this relatively uncomplicated approach involves four steps. The first step involves estimating the prevalence of gambling-related problems within a given jurisdiction. This step yields an Initial Estimate of Gambling-related Problems. The second step is to use responses to treatment-seeking questions to categorize respondents with gambling-related problems, yielding Estimates of Met, Enduring, Unmet, and Absent Demand. The third step is to remove the sub-set of respondents who represent Met Demand. This step yields estimate of Enduring Demand, Unmet Demand, and Absent Demand (i.e., treatment potential). Fourth and finally, within each of these three treatment-seeking categories (i.e., Enduring, Unmet, and Absent Demand), researchers can separate respondents according to the severity of gambling-related problems (e.g., Gambling Disorder or sub-clinical Gambling Disorder, if using an assessment derived from the DSM-5), which would yield estimates of Enduring Demand, Met Demand, and Absent Demand for Gambling Disorder and sub-clinical Gambling Disorder.

We intentionally retain people experiencing sub-clinical Gambling Disorder in this algorithm because research indicates that some of them experience psychosocial distress to the extent that they might benefit from professional or paraprofessional treatment. To illustrate, Weinstock, April, and Kallmi (2017) examined psychosocial functioning among people reporting 2-3 Gambling Disorder criteria (i.e., sub-clinical gamblers). They also examined people with mild severity *substance use disorder* (i.e., those who met 2–3 SUD criteria) and individuals with no psychopathology. They observed that sub-clinical gamblers reported significantly poorer psychosocial functioning compared to those endorsing no current psychopathology; moreover, in terms of psychosocial functioning, sub-clinical gamblers were equivalent to individuals with mild severity SUD. Among individuals with sub-

clinical gambling disorder, psychosocial impairment took the form of lower marital satisfaction, happiness, life satisfaction, family functioning, and social support; more stressful life events; and increased levels of overall stress.

Epidemiological evidence suggests that sub-clinical Gambling Disorder is more prevalent than diagnostic-level Gambling Disorder. To illustrate, using a meta-analytic approach, Shaffer, Hall and Vander Bilt (1999) reported that lifetime sub-clinical gamblers compose about 3.85 percent of the adult population compared to pathological gamblers, who compose about 1.6 percent of the population. To estimate the potential treatment needs of a population, if the target population includes 1,000,000 people and only people who meet diagnostic criteria are taken into account (i.e., 1.6%), then the prevalence estimate will be 16,000; however, an additional 38,500 (i.e. 3.85%) people will be ignored despite have some level of gambling-related problems and concomitant suffering. Therefore, estimates based just on those who reach a diagnostic threshold can underestimate treatment need by failing to include those who are experiencing adverse gambling-related events.

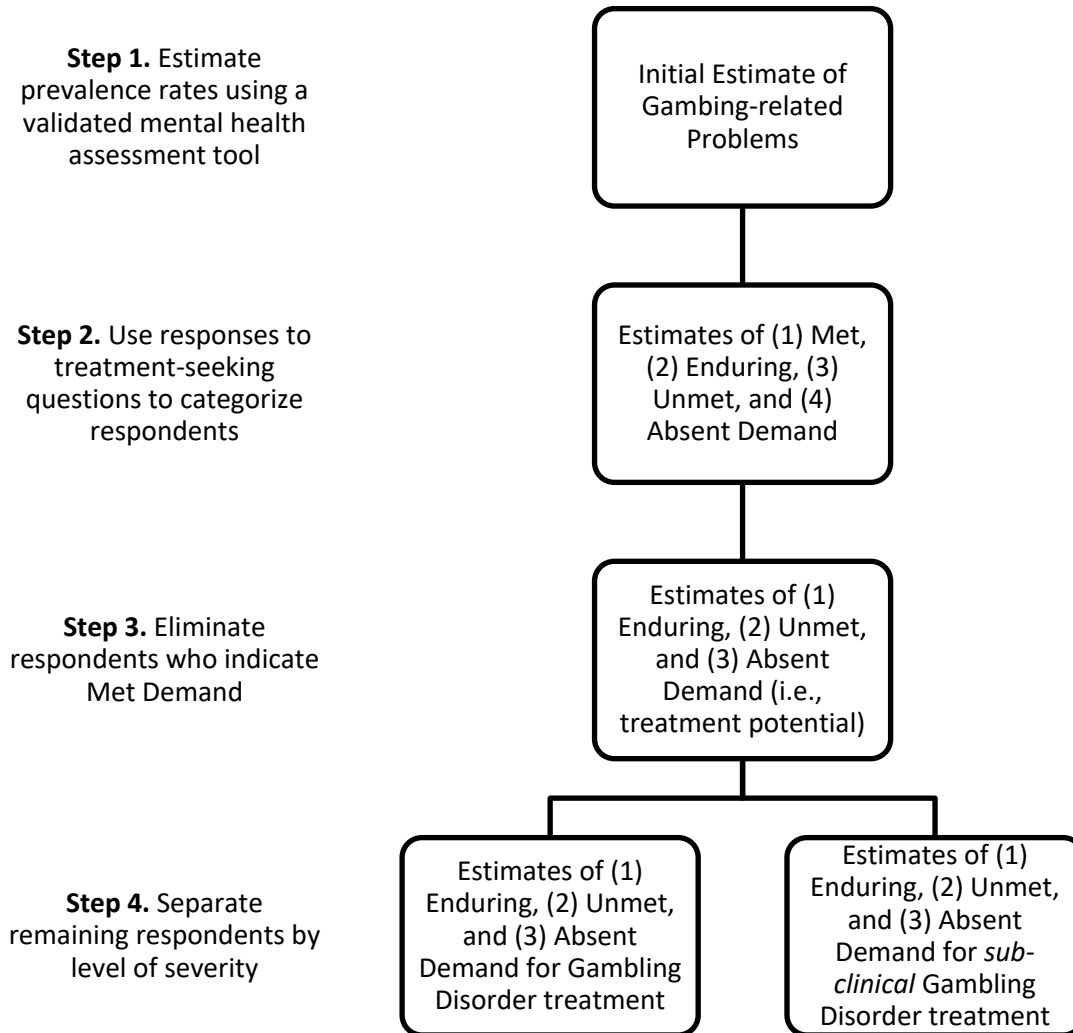


Figure 1: Partially Adjusted Algorithm

The Partially Adjusted Algorithm provides a total of six estimates of treatment need: Enduring, Unmet, and Absent Demand for Gambling Disorder and sub-clinical Gambling Disorder. Generating fine-grained estimates would allow the Commonwealth to distribute limited secondary and tertiary treatment resources in a more informed way. For instance, a high rate of Absent Demand could indicate need for greater awareness among MA residents of the nature, consequences, and potential treatment of gambling-related problems. A high rate of Unmet Demand, on the other hand, could indicate that residents are aware of their gambling-related problems and the potential for effective treatment, but are experiencing that such treatment is unavailable or unaffordable. Finally, a high rate of Enduring Demand indicates high engagement with the treatment system and continuing need.

In addition, with regard to the severity of gambling-related problems, we recommend matching addiction treatment settings, interventions, and services to an individual's particular needs (Albanese & Shaffer, 2003; National Institute on Drug Abuse, 2018; Norcross & Wampold, 2011). Broadly speaking, individuals with Gambling Disorder likely need relatively intense treatment options, such as intensive outpatient treatment. Many of those with sub-clinical Gambling Disorder might need less intensive treatment. For instance, they might benefit from brief interventions delivered by healthcare providers, including primary care providers or providers managing co-occurring substance use or mental health conditions (Petry, Weinstock, Ledgerwood, & Morasco, 2008). The Commonwealth could monitor changes in these six indices over time to examine, for instance, whether attempts to make treatment more available and affordable are reducing the rate of Enduring, Unmet, and Absent Demand.

Complicating Factors for Estimating Treatment Need: Fully Adjusting the Algorithm

A more expansive approach recognizes the true complexity of treatment need as a multifactorial concept (Aoun, Pennebaker, & Wood, 2004). At least three primary factors might necessitate additional adjustments to the treatment need algorithm, beyond Steps 1-3 of the Partially Adjusted Algorithm. These factors are (1) natural recovery, (2) treatment for co-occurring disorders, and (3) use of self-help resources. In the following, first we describe these primary factors and their individual adjustments, then we describe how those factors might be incorporated into a fully adjusted treatment need algorithm.

Natural Recovery

In the broader addiction and mental health field, recovery has been defined as “a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential” (Substance Abuse and Mental Health Services Administration, 2012). Natural recovery occurs when a person accomplishes this state without professional treatment (Chiauzzi & Liljegren, 1993; Shaffer & Jones, 1989). Natural recovery is well documented within the substance use disorder research (Shaffer, 2007; Shaffer & Jones, 1989; Smart, 1975-1976; Sobell, Ellingstad, & Sobell, 2000; Waldorf & Biernacki, 1979, 1981, 1982). These studies report high abstinence or low-risk use of a variety of substances (e.g., alcohol, cigarettes, opiates), a finding that

contradicts the commonly held belief that all people with substance use disorders experience persistent, lifetime harm.

Similarly, Gambling Disorder symptom patterns vary considerably over time and present in different ways depending on the number of and type of symptoms present (Nelson, Gebauer, Labrie, & Shaffer, 2009; Slutske, Jackson, & Sher, 2003). Slutske and her colleagues reported that between 33-36% of individuals with gambling-related problems recovered naturally, as indicated by the absence of symptoms in the previous year without treatment-seeking for gambling (Slutske, 2006). Though most individuals who experience natural recovery report abstinence from gambling, others report recent (i.e., past year) gambling in the absence of gambling disorder symptoms (Slutske, Piasecki, Blaszczyński, & Martin, 2010).

Natural recovery findings demonstrate that a meaningful portion of the population who meet diagnostic criteria for Gambling Disorder will decrease their gambling behavior without any professional or paraprofessional treatment. The observation of natural recovery has important implications for estimating gambling treatment need: professional or paraprofessional treatment is not requisite for all individuals experiencing gambling-related problems. Therefore, estimates of gambling treatment need must anticipate natural recovery. Failing to account for the likelihood of natural recovery might result in an overestimation of treatment need.

Accounting for Natural Recovery

Leading psychiatric epidemiologists have accounted for natural recovery from substance use and mental health conditions by applying clinical significance criteria (Frances, 1998; Narrow, Rae, Robins, & Regier, 2002; Ustun, Chatterji, & Rehm, 1998). They reason that survey respondents who indicate that they are experiencing mild or transient disorders--in other words, those who do not meet clinical significance criteria-- will be more likely to recover on their own without treatment (Albanese & Shaffer, 2003; Narrow et al., 2002; Shepard et al., 2005).

To illustrate, two large epidemiologic studies—the National Institute of Mental Health’s Epidemiologic Catchment Area Program (ECA; conducted between 1980 and 1985) and the National Comorbidity Survey (NCS; conducted 1990-1992)—took this approach by including clinical significance questions. One commonly used clinical significance question is *functional impairment* (i.e., “Did your symptom(s) interfere with your life or activities

a lot?”). Examining NCS and ECA data for a variety of substance use/mental health conditions, Narrow et al. (2002) observed that prevalence rates dropped substantially when the clinical significance questions were applied. For example, in the NCS, the prevalence of any substance use disorder was 11.5% before the clinical significance questions were applied and 7.6% after these questions were applied. In the ECA, the prevalence of any drug use disorder was 4.0% before the clinical significance questions were applied and 1.5% after the questions were applied. These reductions indicate that a meaningful number of respondents who met DSM-III symptom criteria did not meet clinical significance criteria; in other words, they were experiencing more mild and transient symptoms.

Even modest changes in estimates of treatment need can meaningfully impact the planning of mental health service systems. For example, according to Narrow et al.’s (2002) estimates, the overall drop in ECA and NCS prevalence rates corresponds to a decrease of over 13 million Americans who need professional mental health or substance use services.

Narrow et al. (2002, p. 116-117) note that, although “clinical significance has been a part of the DSM definition of mental disorder starting with DSM-III,” there is “no consensus as to how it should be defined or operationalized.” In the DSM-5, clinical significance of Gambling Disorder appears in the introduction to the symptom description and is *assumed* to be present if individuals report at least four symptoms; functional impairment is not listed *per se* in the diagnostic criteria. False positives—people whose symptoms satisfy DSM criteria but are so mild as to not cause harm or require treatment—therefore might result (Spitzer & Wakefield, 1999). Therefore, we recommend that researchers reduce their estimates of treatment need by eliminating respondents who report no functional impairment.

Treatment for Co-occurring Disorders

Second, comorbid disorders, such as mood disorders or other expressions of addiction, can contribute to the course and ultimate outcome of treatment for gambling-related problems. Comorbidity is common among people experiencing gambling-related problems (Lorains, Cowlishaw, & Thomas, 2011). Using a representative national sample, Kessler et al. (2008) reported that approximately 96% of people with Gambling Disorder (then known as Pathological Gambling) also qualified for a lifetime diagnosis of one or more other disorders (e.g.,

substance use disorder, anxiety disorder; see also, Afifi, Nicholson, Martins, & Sareen, 2016). More recently, Rodriguez-Monguio, Errea, and Volberg (2017) analyzed the diagnostic history and treatment-seeking patterns of commercially-insured, treatment-seeking Massachusetts adults with a diagnosis of Pathological Gambling. They observed a high burden of co-occurring disorders, particularly anxiety disorders (evident in 28% of the Pathological Gambling sample), mood disorders (26%), and substance use disorders (18%).

Further, these co-occurring disorders often are the reason people struggling with gambling-related problems first enter the mental health/substance use treatment system (Kessler et al., 2008). In their analysis of Massachusetts claims data, Rodriguez-Monguio et al. (2017, p.413) observed that treatment-seeking patients “did not seek care from family physicians for their gambling problems as their main clinical condition but as a bundle involving multiple disorders and conditions.” Primary care providers and behavioral health providers who are trained to screen and provide brief interventions for gambling-related problems are positioned to reduce the need for specialist gambling treatment. Indeed, effective brief interventions for gambling-related problems can be delivered with substance use disorder treatment without a great deal of additional provider or client burden (Petry et al., 2008). For researchers and public health officials, the implication of these findings is that we must consider the potential for recovery from gambling-related problems following treatment for comorbid conditions alone. Failing to consider favorable gambling treatment outcomes from care focusing on other disorders will result in overestimates of treatment need.

Accounting for Treatment for Co-occurring Disorders

Accounting for treatment for co-occurring disorders requires gathering additional information. More specifically, researchers will need to assess whether respondents are currently participating in treatment for a substance use disorder or other mental health condition using a question such as, “Are you participating in professional help for a concern about your mental health or substance use?” By “professional help,” we mean a psychiatrist or other medical doctor (e.g., primary care provider), psychologist, other mental health professional (e.g., counselor, therapist, social worker), or religious advisor. We recommend that researchers reduce their treatment

need estimates by eliminating respondents who indicate that they are receiving professional help for co-occurring mental health or substance use concerns.

Self-Help/Mutual Help

Third, self-help resources also hold the potential to reduce gambling-related problems, without professional treatment. Gamblers interested in self-help strategies can find these resources online or in hard copy formats (e.g., Blaszczynski, 2017; Shaffer, Martin, Kleschinsky, & Neporent, 2012). Self-help activities aim to reduce a problematic behavior via structured application of psychotherapy principles, often cognitive behavioral therapy. Guided self-help tools combine self-help material with brief therapeutic encounters, either in-person, by telephone, or online.

Self-help strategies are appealing for those experiencing gambling-related problems and other health conditions for a variety of reasons. Experiencing these problems is often stigmatizing (Gainsbury, Hing, & Suhonen, 2014; Horch & Hodgins, 2008; Suurvali, Cordingley, Hodgins, & Cunningham, 2009), and self-help strategies are one way to avoid the stigma that comes with identifying as someone in need of professional treatment. Self-help strategies hold additional benefits: they are low (or no cost) to individuals and ideally are readily accessible, such as through online portals or written materials freely available at health clinics, libraries, and other locations.

Researchers have proposed seven categories of gambling self-help strategies: (1) information seeking; (2) self-assessment and monitoring; (3) alternative activities; (4) cash control and financial management; (5) stimulus control; (6) cognitive strategies; and (7) social strategies (Lubman et al., 2013). Those who have studied the effectiveness of these resources generally find greater improvement among respondents who receive a self-help guide *plus* a brief intervention; however, a meaningful proportion of those who receive a stand-alone self-help guide report improvements. For example, Hodgins, Currie, and el-Guebaly (2001) studied respondents with gambling problems who completed a self-help workbook based on the cognitive-behavioral model of problem gambling (Blaszczynski & Silove, 1995). They also followed respondents who completed the workbook *plus* a motivational enhancement interview with a clinician, and a final group of respondents who remained on a waitlist. All three

groups reported improvement during the first month of the study. Only respondents who completed the motivational enhancement interview plus the workbook reported more improvement than the waitlist control group; however, 61% of the workbook only group, and 44% of the waitlist control group, improved their gambling problems or quit gambling altogether during that month. At 12 months post treatment, 79% of respondents who completed the workbook alone reported either improving their gambling or abstaining from gambling. At a 2-year follow-up, 63% of the workbook alone condition reported either improvement or abstinence.

Other researchers have identified similar success using self-help strategies. For example, LaBrie et al. (2012) evaluated a toolkit, *Your First Step to Change: Gambling (1st edition)*, as a brief self-help intervention for gambling-related problems. Respondents either (1) received the toolkit alone, (2) received the toolkit *and* received guidance about it by telephone from a member of the research team, or (3) remained on a waitlist. Results indicated that toolkit recipients were more likely than waitlist respondents to report recent abstinence from gambling; at the 1-month follow-up, 41-49% of respondents who received the toolkit alone (depending on study site) reported abstinence, and these rates rose to 56-67% at the 3-month follow-up.

Table 1 provides rates of gambling improvement/abstinence among respondents provided with a stand-alone self-help guide (workbook or toolkit) across all the studies we have identified as part of a recent DPH-funded research synthesis (LaPlante, Wiley, Gray, & Shaffer, 2018). Together, these findings provide evidence that stand-alone self-help resources can assist remediating gambling-related problems among gamblers who do not engage in formal treatment. In doing so, they confirm that using straightforward prevalence rates as a proxy for Gambling Disorder treatment need might overestimate treatment need.

Table 1: Percent of respondents who reported improvement in gambling problems or abstinence from gambling at follow-up

| Study | % improved / abstinent at 1-month follow-up | % improved/ abstinent at 3-month follow-up | % improved/ abstinent at 1-year follow-up | % improved/ abstinent at > 1-year follow-up |
|----------------------------|---------------------------------------------|--------------------------------------------|-------------------------------------------|---------------------------------------------|
| Hodgins et al. (2001/2004) | 61 | 75 | 79 | 63 |
| Hodgins et al. (2009) | 64 | 65 | 76 | |
| LaBrie et al. (2012) | 41 ¹ | 67 ¹ | | |
| | 49 ² | 56 ² | | |

Notes: ¹ Las Vegas, NV sample; ² Massachusetts sample. Campos et al. (2016) and Oei, Raylu, and Lai (2017) additionally studied workbook-only conditions; however, they did not report % improved/abstinent. In both of these studies, those assigned to workbook-only conditions reported, on average, problem gambling symptom improvement over time.

However, we encourage readers to consider three essential caveats. First, all respondents in these studies were concerned enough about their gambling to reach out to the study teams recruiting them. Their initial motivation to control their gambling was likely a key ingredient in their success, regardless of their condition assignment (Babor, 1994). This situation helps explain why researchers often observe improvement over time among respondents in a waitlist condition. Indeed, self-help strategies are most effective when paired with motivational enhancement strategies (Boudreault et al., 2017; Hodgins, Currie, el-Guebaly, & Peden, 2004; Hodgins et al., 2001). Self-help resources likely will be effective only for highly motivated community members experiencing gambling-related problems. Second, though some respondents in both studies did not receive formal intervention aside from a workbook or toolkit, they still had contact with research team members and completed repeated assessments. This context might have contributed to their improvement, as the process of assessment likely communicated that other people recognized the importance of their problems and prompted them to recognize of the extent of their disordered behavior. Third, respondents who were unsatisfied with, or felt overwhelmed by,

the self-help resources might have been more likely than others to drop out of these studies, resulting in systematic attrition. As a result of these three limitations, self-help strategies might not produce widespread or dramatic improvement in the general population.

There is comparatively less evidence about the effectiveness of mutual aid for gambling-related problems, including Gamblers Anonymous and SMART Recovery. Although many former gamblers anecdotally report that these programs were crucial in their recovery, a recent systematic review of the available literature revealed that the evidence is inconsistent (Schuler et al., 2016). A large-scale randomized controlled trial is necessary for determining effectiveness of mutual aid and the mechanisms through which mutual aid might work. Therefore, we restrict our discussion to empirically supported self-help resources, such as toolkits and workbooks.

Accounting for Self-help

We recommend a conservative adjustment for use of self-help and mutual help. Recall our three caveats regarding the existing literature in this area: (1) respondents were motivated enough to reach out for help, (2) respondents likely benefitted from contact with research team members that would be unavailable outside the context of a study, and (3) respondents who were unsatisfied with self-help resources might have dropped out of studies selectively. Such a conservative approach will help researchers avoid over-correcting for the potential benefits of self-help resources.

First, we recommend that researchers consider only respondents with sub-clinical Gambling Disorder—not diagnostic-threshold Gambling Disorder—to be potentially responsive to stand-alone self-help resources. We make this recommendation because the former group’s problems are likely more amenable to change outside the professional treatment context. Second, although some gambling self-help resources, like the *Your First Step to Change* toolkit, are designed to reduce resistance to change (Labrie et al., 2012; Shaffer & Simoneau, 2001), we recommend that researchers consider only respondents who are already contemplating changing their gambling to be responsive to stand-alone self-help resources. This nuanced approach to accounting for self-help resources requires assessing respondents’ stage of change (Prochaska & DiClemente, 1986).

One validated measure of stage of change is the Gambling Readiness to Change Scale (GRTC; Neighbors, Lostutter, Larimer, & Takushi, 2002), a nine-item questionnaire modeled after the alcohol Readiness to Change questionnaire (Rollnick, Heather, Gold, & Hall, 1992). The GRTC measures three stages: pre-contemplation (e.g., “It’s a waste of time thinking about my gambling”), contemplation (e.g., “Sometimes I think I should cut down on my gambling”), and action (e.g., “Anyone can talk about wanting to do something about gambling, but I am actually doing something about it”). Researchers using this instrument can generate an overall composite of readiness to change or use the scale to categorize individuals as pre-contemplators, contemplators, or in the action stage. A briefer option is a Readiness Ruler (LaBrie, Quinlan, Schiffman, & Earleywine, 2005) modified for Gambling Disorder, with anchors at the pre-contemplation stage (e.g., “I never think about my gambling”) and the maintenance stage (e.g., “I changed my gambling; I now do not gamble, or gamble less than before”).

In a recent large naturalistic study, Johansson et al. (2017) observed that respondents who scored higher on such a readiness inventory at baseline were more likely to report clinically significant changes to a lower level of alcohol use after using a Web-based drinking self-help program. Interestingly, respondents who had contact with a professional about their drinking or used pharmacological treatment since registering for the self-help program showed the opposite pattern; they were *less* likely to report a clinically significant change to a lower level of alcohol use. This finding suggests that making contact with a health professional is not a valid proxy of motivation to change one’s behavior.

Not all individuals in the contemplation stage or higher will respond to stand-alone self-help treatment; recall that in our review of the relevant literature (Table 1), we observed one rate of improvement/abstinence as low as 41%. One possible option for accounting for the use of self-help resources is to remove 41% of respondents with sub-clinical Gambling Disorder who are at the contemplation stage or higher, assuming that they will all benefit from stand-alone self-help resources. However, there is a potential overlap between this group and the group who already participate in professional help for a mental health/substance use concern, who we also recommend eliminating from a Fully Adjusted Algorithm. We must anticipate and account for such overlap to avoid

over-correcting for either factor. Therefore, regarding respondents with sub-clinical Gambling Disorder, we recommend removing no more than 10% of respondents who are at the contemplation stage or higher, after removing individuals who report participating in treatment for another mental health/substance use condition.

A Fully Adjusted Algorithm

Figure 2 illustrates one approach to a Fully Adjusted Algorithm. Other approaches are possible, and we need additional research to move this algorithm from concept to practice. As we mentioned earlier, the Fully Adjusted Algorithm approach builds upon the Partially Adjusted Algorithm approach; the first three steps are identical (i.e., Step 1: Estimate prevalence rates using a validated mental health assessment tool, such as the DSM-5; Step 2: Use responses to treatment-seeking questions to categorize respondents; Step 3: Eliminate respondents who indicate Met Demand). As we mentioned, Step 4 expands these adjustments by accounting for natural recovery, via elimination of those who do not report functional impairment. Next, at Step 5 of the Fully Adjusted Algorithm, researchers need to separate the remaining respondents by level of severity, yielding adjusted rates of Enduring, Unmet, and Absent Demand for Gambling Disorder and Enduring, Unmet, and Absent Demand for sub-clinical Gambling Disorder. We recommend making this separation at this step because the final two recommended adjustments apply only to respondents who report sub-clinical Gambling Disorder.

Finally, Step 6 of the Fully Adjusted Algorithm begins with eliminating from estimates those respondents with sub-clinical Gambling Disorder who report that they currently are participating in treatment for a co-occurring mental health/substance use concern. The second part of this step includes removal of individuals who might benefit from stand-alone self-help treatment. We operationalize this group as people with sub-clinical Gambling Disorder who are motivated to change (i.e., at the Contemplation stage or above). As indicated above, based on our review of the self-help literature, we conclude that up to 41% of these individuals might reduce or eliminate their gambling after completing stand-alone self-help guides. Consequently, one option is to remove 41% of these individuals at this stage. However, it is likely that many respondents with sub-clinical Gambling Disorder who already are participating in treatment for a co-occurring disorder are motivated to change their gambling. We must consider the overlap between these two groups, which is likely sizable. Therefore, we recommend that, at Step 6,

after eliminating respondents who already are participating in treatment for a co-occurring condition, researchers eliminate no more than 10% of respondents who are at the contemplation state or higher regarding their gambling. Implementation of all these steps yields what we refer to as the Fully Adjusted Algorithm for estimating treatment need.

Step 1. Estimate prevalence rates using a validated mental health assessment tool

Step 2. Use responses to treatment-seeking questions to categorize respondents

Step 3. Eliminate respondents who indicate Met Demand

Step 4. Eliminate respondents who report no functional impairment

Step 5. Separate remaining respondents by level of severity

Step 6. Remove those who are engaged in professional help for a co-occurring condition and 10% of those who are at the contemplation stage or higher

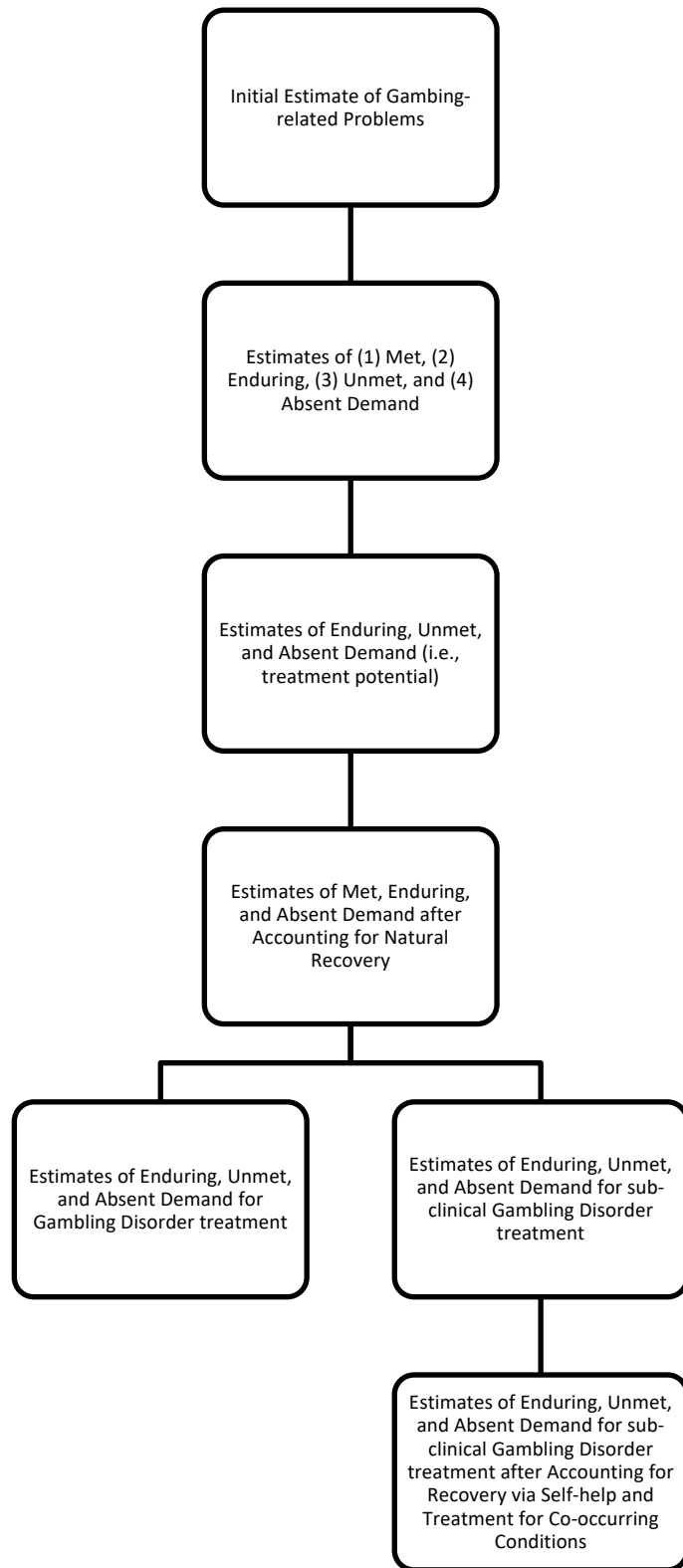


Figure 2: Fully Adjusted Algorithm

Assessing Available Massachusetts Data for Estimating Treatment Need

According to the most recent estimate, there are 6.86 million Massachusetts residents, 5.49 million of whom are adults 18 and older (U.S. Census Bureau, 2017). As described below, several researchers have attempted to estimate the extent of gambling-related problems within this population. Concerns about the incidence and prevalence of gambling-related problems have arisen largely in response to legalization of casinos in 2011. This expansion presents a unique opportunity to establish baseline estimates gambling behaviors and gambling-related problems and measure, over time, how such estimates change with the addition of new gambling venues. We have identified five relevant independent studies, all of which were published within the past five years:

1. An Internet panel survey conducted by the Division on Addiction at Cambridge Health Alliance (Nelson, Kleschinsky, LaPlante, Gray, & Shaffer, 2013)
2. The Massachusetts Statewide Gambling Behavior, Opinions, and Needs Assessment, conducted by the Massachusetts Council on Compulsive Gambling (Massachusetts Council on Compulsive Gambling, 2013);
3. Data derived from the 2013 Massachusetts Behavioral Risk Factor Surveillance System (Okunna, Rodriguez-Monguio, Smelson, Poudel, & Volberg, 2016) ;
4. The Social and Economic Impacts of Gambling in Massachusetts Baseline General Population Survey (Volberg et al., 2015); and
5. The Social and Economic Impacts of Gambling in Massachusetts Baseline Online Panel Survey (Williams et al., 2016).

The SEIGMA team established its Massachusetts Gambling Impact Cohort (MAGIC) Study from a stratified sample of respondents who completed the Baseline General Population Survey (Volberg et al., 2015). Therefore, it does not represent an independent sample, and we do not include it in our review.³

We review these five studies in chronological order with a focus on their ability to provide a nuanced estimate of the extent of need for gambling treatment services among Massachusetts residents. We do not provide a full summary of each study's methodological features (e.g., response rate, sample source, sample representativeness, weighting) because we consider such a summary outside the scope of this document; interested readers can find such a summary in Volberg et al. (2015). We note that four out of five of these studies collected data that investigators can use to complete Step 1 of the Partially/Fully Adjusted Algorithms; however, none of these five studies collected the data required to complete Steps 2 or 3. Consequently, because the algorithms in this project proceed in a sequence of steps, investigators cannot use any of the current studies to complete subsequent steps. Nonetheless, to provide a complete description of the currently available data, we describe data within these five studies that are relevant to later stages of the algorithm (i.e., functional impairment, motivation to change, treatment for co-occurring conditions). Doing so allows us to highlight adequacies that should be maintained and variable gaps that need to be filled if the Commonwealth wants to use a study's approach to estimate treatment need gap.

Nelson et al. (2013)

Nelson et al. studied gambling patterns among MA residents before gambling expansion occurred. During December 2012, they recruited from a standing GfK Knowledge Panel. This is an online survey panel of Massachusetts adults recruited through Random Digit Dial and Address-Based Sampling (ABS). ABS is intended to reduce sampling bias and yield a more representative sample; however, Nelson et al. (2013) note that the household recruitment rate to the Massachusetts arm of the Knowledge Panel was 16.7%. Of the 725 respondents in this

³ MAGIC included five new questions not originally included in BGPS and BOPS. These questions concerned the respondent's internet connection and use, gambling at "underground" casinos/slot parlors, and gambling at Plainridge Park Casino. None of the new questions address our recommendations, which are provided in detail below.

panel invited to participate in the December 2012 gambling study, 511 agreed and completed the study (i.e., a 70.5% participation rate). In addition to the comprehensive 2013 report that we reference here, a peer-reviewed publication (Nelson, LaPlante, Gray, Tom, Kleschinsky, & Shaffer, 2017) provided selected findings from this survey.

In accordance with Step 1 of the Partially and Fully Adjusted Algorithms, respondents reported past-year gambling-related problems on the Alcohol Use Disorder and Associated Disabilities Interview Schedule IV (AUDADIS; Grant et al., 2003). The AUDADIS-IV is a 16-item inventory assessing for Pathological Gambling criteria based on the 10 Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 2000). Nelson et al. (2013) observed that one respondent (0.2% of the entire sample) endorsed 5+ DSM-IV Pathological Gambling criteria within the past year, as Table 2 shows:

Table 2: Prevalence estimates in Nelson et al. (2013)

| AUDADIS-IV classification | Observed rate |
|----------------------------------|----------------------|
| Non-gambler | 46.4% |
| 0-2 DSM-IV criteria | 52.3% |
| 3-4 DSM-IV criteria | 1.2% |
| 5+ DSM-IV criteria | 0.2% |

Nelson et al. (2013) noted that the National Epidemiological Survey of Alcohol and Related Conditions (Grant et al., 2003), which also used the AUDADIS-IV, reported that 0.2% of the sample qualified for past-year Pathological Gambling. It is noteworthy that the rate of clinically disordered gambling among a Massachusetts online panel was identical to a national estimate.

Nelson et al. asked several treatment-seeking questions. They asked respondents who endorsed at least one Pathological Gambling criterion, “In your life, did you ever talk to a medical doctor or other professional about your problems with gambling? By other professional we mean psychologists, counselors, spiritual advisors, and other healing professionals.” Respondents who answered affirmatively also reported the first time they sought this kind of help and whether they had done so within the past 12 months.⁴ Researchers can use these answers

⁴ Respondents also reported their experience with Gamblers Anonymous and gambling helplines.

to classify respondents according to whether they received treatment for the current episode of gambling-related problems. However, because Nelson et al. did not ask about seeking treatment separately from participating in treatment, these data cannot be used to distinguish between Unmet Demand (i.e., respondents who sought but did not receive treatment) and Absent Demand (i.e., respondents who did not seek treatment) as recommended in Step 2 of the Partially or Fully Adjusted Algorithms. Additionally, Step 3 is not possible because there is no estimate of Met Demand. It should be noted, however, that Nelson and colleagues observed that none of the 36 respondents who endorsed at least one past-year Pathological Gambling criterion reported having ever spoken to a medical doctor or other professional about their problems,⁵ suggesting a possible high rate of Unmet Need among this sub-set of participants. This finding is consistent with Kessler et al.'s (2008) finding that none of the national sample who met diagnostic criteria for Pathological Gambling reported getting treatment for their gambling, though about half were in treatment for other conditions. Nelson and colleagues did not assess functional impairment, stage of change, or engagement in professional help for a co-occurring condition (necessary for Steps 4 and 6 of the Fully Adjusted Algorithm).

MCCG (2013)

The Massachusetts Council on Compulsive Gambling assessed gambling-related problems with the Massachusetts Statewide Gambling Behavior, Opinions and Needs Assessment. During January, 2013, the MCCG conducted a web-based survey of 1,054 Massachusetts adults aged 18+ recruited from an online survey panel. The researchers generated 12 demographics cells defined by age groups, gender, and race and used screening questions during the recruitment process in an attempt to achieve a representative sample. In accordance with Step 1 of the Partially and Fully Adjusted Algorithms, respondents who reported any past year gambling responded to the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), a 20-item questionnaire based on DSM-III criteria for Pathological Gambling. Respondents were categorized as Probable pathological gamblers (i.e., a SOGS score of 5+), Problem gambler (i.e., a SOGS score of 3-4), Social gambler (i.e., a SOGS score of 0-2), or Non-gambler (i.e.,

⁵ One respondent had attended a mutual-help meeting (e.g., Gamblers' Anonymous), but not during the past year. None of the 36 respondents had ever called a gambling helpline.

a respondent who was not assessed with SOGS because they did not report gambling behaviors in the past 12 months). The MCCG observed the following:

Table 3: Prevalence estimates in the Massachusetts Statewide Gambling Behavior, Opinions and Needs Assessment

| SOGS classification | Observed rate |
|-------------------------------|----------------------|
| Non-gambler | 15.3% |
| Social gambler | 74.8% |
| Problem gambler | 4.9% |
| Probable pathological gambler | 5.0% |

To our knowledge, the MCCG did not ask respondents about seeking help for gambling-related problems. Therefore, it is impossible to complete Steps 2 or 3 of the Partially/Fully Adjusted Algorithms. The MCCG did not assess functional impairment or stage of change, necessary for Steps 4 and 6 of the Fully Adjusted Algorithm. However, respondents did indicate whether they had sought treatment for substance use problems – if they acknowledged such problems. The MCCG observed that 65% of respondents who acknowledged an alcohol problem reported that they had ever sought treatment for that problem. Similarly, 64% of respondents who acknowledged a drug problem reported seeking treatment for that problem. Rates of seeking treatment for a behavioral addiction (i.e., sex addiction or stealing/shoplifting) were considerably lower.

Okunna et al. (2016)

Okunna and colleagues (2016) analyzed data from the Behavioral Risk Factor Surveillance System, a national telephone survey representative of state populations. To establish baseline (i.e., pre-gambling expansion) rates of gambling participation and gambling problems, in 2013 Massachusetts added a gambling module to the Behavioral Risk Factor Surveillance System (BRFSS). Investigators administered this module to one-third of the 2013 Massachusetts BRFSS sample, or 3,318 of 15,072 respondents.⁶ The gambling module included three gambling participation questions and the Brief Biosocial Gambling Screen (Gebauer, Labrie, & Shaffer, 2010), derived

⁶ Volberg et al. (2015) note an important caveat: only landline users were administered the gambling module. Based on their demographic characteristics, landline-only users are likely report lower levels of gambling participation and gambling-related problems compared to the general population.

from the DSM-IV criteria for Pathological Gambling. Among these 3,318 respondents, past-year gambling prevalence was 57% (95% confidence interval: 54.1%-60.7%). Gambling prevalence varied by state region, with the highest prevalence identified within Central Massachusetts (67%). As reported by Volberg et al. (2015), 1.2% of the 2013 Massachusetts BRFSS gambling module sub-sample endorsed the withdrawal criterion of the BBGS, 1.1% endorsed the lying criterion, and 0.1% endorsed the financial trouble/financial bailout criterion. Data about the percent of respondents who screened positive for gambling-related problems (i.e., by endorsing at least one BBGS criterion) are unavailable. More importantly, the BBGS is a screening instrument, not a complete evaluation of Gambling Disorder symptoms. When comprehensively evaluated, about two-thirds of individuals who screen positive on the BBGS will not meet full diagnostic criteria (i.e., the Positive Predictive Value is 0.36; Gebauer et al., 2010). As a result, it is impossible to complete Step 1 of the Partially/Fully Adjusted Algorithms.

To our knowledge, these researchers did not assess treatment seeking, functional impairment, motivation to change, or treatment for co-occurring conditions. Therefore, these data do not address any steps of the proposed algorithms.

The Social and Economic Impacts of Gambling in Massachusetts Baseline General Population Survey (Volberg et al., 2015)

SEIGMA BGPS assessed baseline gambling participation and knowledge and use of gambling services from September, 2013-May, 2014. These researchers used Address Based Sampling to generate probability sampling. The researchers over-sampled Western Massachusetts to increase the precision of their problem gambling prevalence estimates in this part of the Commonwealth. Respondents included 9,581 respondents age 18 and older. Respondents responded to questions on the Canadian Problem Gambling Index (CPGI; Ferris & Wynne, 2001) and the Problem and Pathological Gambling Measure (PPGM; Williams & Volberg, 2010; 2014). Because the PPGM is a relatively new instrument, we describe it in detail here. It includes three sections: (1) Problems (i.e., financial, mental health, health, relationship, work/school, legal), (2) Impaired Control (e.g., “In the past 12 months, have you made any attempts to either cut down, control or stop your gambling?”), and (3) Other Issues (i.e., questions

designed to assess preoccupation, withdrawal, and tolerance) within a past-year timeframe. It generates five categories of gambling activity:⁷

- Non-gambler (has not gambled within the past year)
- Recreational (has gambled within the past year but scores zero on the PPGM)
- At-Risk (endorsement of an item from the Problems *or* the Impaired Control section)
- Problem (endorsement of 1 or more items from the Problems section *and* 1 or more items from the Impaired Control section)⁸
- Pathological (endorsement of several items from the Problems section *and* several items from the Impaired Control section)

Volberg et al. (2015) elected to combine respondents in the PPGM “problem” and “pathological” groups and refer to this combined group as “problem gamblers.” Because combining these groups can reduce the acuity of any measure and limit the value of the results for estimating treatment need, particularly when severity is a proxy for need, we used estimates provided in an Appendix to Volberg et al. (2015) to generate separate prevalence estimates for the “problem” and “pathological” groups.⁹ We present these separate estimates in Table 4, along with other estimates provided by Volberg et al. (2015):

Table 4: Weighted prevalence estimates in the Baseline General Population Survey

| CPGI category | CPGI observed rate | PPGM category | PPGM observed rate |
|----------------------|---------------------------|----------------------|---------------------------|
| Non-gambler | 26.9% | Non-gambler | 26.6% |
| Non-problem gambler | 61.2% | Recreational gambler | 62.9% |
| At-risk gambler | 9.8% | At-risk gambler | 8.4% |
| Problem gambler | 2.2% | Problem gambler | 1.2% |
| | | Pathological gambler | 0.8% |

⁷ Responses to gambling frequency and expenditure questions, and total scores on the PPGM, additionally factor into these classifications, but for ease of presentation we have simplified the classification scheme.

⁸ Additionally, the PPGM uses gambling involvement questions to identify respondents who have not acknowledged they have a problem but whose “gambling expenditure and frequency are equal to those of unambiguously identified problem gamblers” (Volberg et al., 2015, p. 257)

⁹ Volberg et al. (2015) report that 2.0% of their sample (unweighted n = 129; weighted n = 5,211,381) met the criteria for their *combined* PPGM “problem gambler” category. In Table 73 of Appendix E, they specify that of these 129 individuals, 75 respondents met the criteria for their original “problem gambler” category and 54 met the criteria for their “pathological gambler” category. We used unweighted sample sizes (i.e., 75 and 54) to estimate separate prevalence rates for the “problem gambler” and “pathological gambler” categories, which Volberg et al. (2015) do not provide. Because we did not have access to weighted n’s for these categories, our estimates might differ slightly from Volberg et al.’s.

These estimates fulfill Step 1 of the Partially/Fully Adjusted Algorithms. With regard to Step 2, SEIGMA asked the following treatment-seeking questions among respondents who, according to the CPGI, were problem gamblers:

1. Have you wanted help for gambling problems in the past 12 months?
2. If yes:
 - a. Have you sought help for gambling problems in the past 12 months?
 - b. Where did you seek help from? (open-ended)
 - c. How helpful was this? (on a scale from “very helpful” to “not at all helpful”)

Volberg et al. (2015) did not include a question explicitly assessing treatment participation (e.g., “Have you participated in treatment for gambling problems in the past 12 months?”). Therefore, although it is possible to categorize respondents according to whether they sought treatment, it is not possible to categorize them further (i.e., Step 2) or eliminate respondents with Met Demand (i.e., Step 3).¹⁰ Moreover, because the subset of respondents classified as problem/pathological gamblers according to the PPGM included only 129 individuals, Volberg et al. (2015) did not include results from the treatment-seeking questions.

With regard to later steps of the Fully Adjusted Algorithm, Volberg et al. (2015) did include indicators of functional impairment within the CPGI/PPGM. For example, one question asks if someone besides the respondent would say that the respondent’s gambling has caused significant problems. The BGPS embedded these functional impairment questions within the symptom checklist rather than presenting them separately for respondents who endorse a minimum number of symptoms, as we recommend above; however, eliminating respondents who re-

¹⁰ Volberg et al. (2015) use published estimates of treatment-seeking trends in other U.S. jurisdictions to estimate that between 2,500 and 4,050 Massachusetts residents (i.e., 3% of the 83,152 - 135,122 residents who were estimated to experience problem/pathological gambling) might seek treatment for gambling-related problems annually. Volberg and colleagues speculate that this rate of treatment-seeking—3%, based on published estimates—might double as a result of increased availability and awareness of treatment resources.

ported no functional impairment is presumably possible with available data (i.e., Step 4 of the Fully Adjusted Algorithm). Finally, with regard to Step 6 of the Fully Adjusted Algorithm, the BPGS did not include a measure of respondents' motivation to change their gambling behavior. It did ask about respondents' history of substance use and other mental health conditions but not about treatment for such conditions. Consistent with the literature review we provided above, at-risk and problem gamblers were significantly more likely than recreational gamblers to report serious problems with depression, anxiety, or other mental health problems and were more likely to acknowledge tobacco use and binge drinking in the past 30 days. Therefore, accounting for other behavioral treatment appears to be warranted.

The SEIGMA Baseline Online Panel Survey (Williams et al., 2017)

The SEIGMA team designed the BOPS to supplement the BPGS. They sought to assemble a larger sample of individuals with gambling-related problems who would, presumably, yield more reliable estimates of treatment-seeking. Based on evidence indicating that online panel surveys report relatively high rates of mental health disorders broadly, the researchers contracted with Ipsos Public Affairs to survey Ipsos' standing Massachusetts panel, composed of approximately 17,000 individuals.

Respondents included 5,046 individuals who were contacted between October 2013 and March 2014, coincident with the BPGS. The researchers assessed gambling-related problems and treatment seeking, as well as mental health and substance use status, using the same instruments as the BPGS. As expected, BOPS respondents were different demographically; compared to the BPGS sample, they were "younger, more likely to be White, born in the US, never married, less educated, unemployed, have a lower household income, and to be from Greater Boston" (Williams et al., 2017, p. 8). Also, as expected, they were more likely to report poor health including higher levels of tobacco use, binge drinking, mental health problems, and gambling-related problems.

Williams et al. (2017) did not intend for the BOPS sample to be representative of the general MA population in terms of their gambling-related problems. More specifically, the prevalence of problem/pathological gambling was 6.4% (95% Confidence Interval = 5.7%-7.1%). Williams et al. (2017) achieved their goal of obtaining a

larger sample of people experiencing gambling-related problems (i.e., 317 in the BOPS vs. 129 in the BGPS). Williams and colleagues described the treatment-seeking behavior of these 317 individuals. They observed that 25.4% wanted help for problems and 16.1% sought help for these problems. The SEIGMA team plans a follow-up online panel (FOPS) in 2020 to examine changes from baseline.

The BOPS overlaps with the BGPS in terms of its utility for completing the steps described in the Partially and Fully Adjusted Algorithms. As with the BGPS, this study included two measures of problem gambling symptoms, including questions that tap functional impairment embedded within a symptom checklist. Researchers can use these data to achieve Step 1 of the Partially/Fully Adjusted Algorithms. As in the BGPS, Williams et al. asked about treatment seeking but not whether respondents had *received* treatment.¹¹ This makes it impossible to complete Steps 2 and 3. Finally, this study did not include a measure of respondents' motivation to change their gambling behavior or treatment for co-occurring substance use/other mental health conditions (necessary for Step 6).

Summary of the Sufficiency of Available Massachusetts Data

As we described in the preceding discussion, none of the existing studies assessed the DSM-5 diagnostic criteria for Gambling Disorder. However, four of them (i.e., all except Okunna et al., 2016) used an internationally recognized instrument for estimating the prevalence of gambling-related problems. Estimating prevalence is necessary to complete Step 1 of the Partially or Fully Adjusted Algorithms. Responses to these questions could be used to separate respondents according to their level of severity (i.e., Step 4 of the Partially Adjusted Algorithm and Step 5 of the Fully Adjusted Algorithm). None of the available studies assessed treatment seeking as would be required to complete Steps 2 and 3 of both algorithms. Hence, none of the studies can complete the Partially Adjusted Algorithm. The studies are mixed regarding their contributions to Steps 4 and 6 of the Fully Adjusted Algorithm. Table 5 summarizes the extent to which the five currently available studies provide data relevant to completing the recommended steps of the Fully Adjusted Algorithm.

¹¹ It is noteworthy that more than 16% of respondents with gambling-related problems reported that they had sought help for these problems, which is substantially higher than the 3% estimate derived from past research.

Table 5: Sufficiency of available data with regard to the Fully Adjusted Algorithm

| | Step 1: Estimate prevalence rates | Step 2: Categorize respondents according to treatment-seeking status | Step 3: Eliminate respondents who represent Met Demand | Step 4: Eliminate respondents who report no functional impairment | Step 5: Separate remaining respondents according to severity | Step 6: Eliminate respondents with sub-clinical Gambling Disorder who are engaged in professional help for a mental health/substance use concern and 10% of those who are at the contemplation stage or higher |
|-----------------------|------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nelson et al., 2013 | Yes | No ¹² | No ¹² | No | Yes | No |
| MCCG, 2013 | Yes | No | No | No | Yes | No |
| Okunna et al., 2016 | No | No | No | No | No | No |
| Volberg et al., 2015 | Yes | No ¹² | No ¹² | Yes | Yes | No |
| Williams et al., 2017 | Yes | No ¹² | No ¹² | Yes | Yes | No |

Recommendations

The Commonwealth of Massachusetts has embarked on an ambitious program of research designed to monitor potential societal and economic impacts of expanded gambling opportunities. This research agenda has yielded two independent estimates of gambling-related problems among MA residents (Volberg et al., 2015; Williams et al., 2017). Researchers working outside this research agenda have additionally provided estimates of gambling participation and gambling-related problems during the pre-expansion period (Nelson et al., 2013; MCCG, 2013; Okunna et al., 2016). These five studies comprise all of the independent estimates of Massachusetts' gambling participation and gambling-related problems within the past five years. We make the following recommendations for expanding this evidence base moving forward, so that the Commonwealth can make informed decisions about expanding gambling treatment services.

First, in the short term, we recommend applying the Partially Adjust Algorithm when appropriate data is available. In the long term, we recommend additional assessment and development of the Fully Adjusted Algorithm, and subsequently, application of that algorithm when appropriate data is available. Using such approaches

¹² The report provides some treatment-seeking information, but this information is not sufficiently detailed to complete the steps as recommended.

should avoid some of the mishaps that can occur with simplistic estimates that rely on prevalence estimates alone and increase the precision with which stakeholders can make treatment need decisions.

Next, the Massachusetts Gaming Commission has committed to funding the SEIGMA team to complete a follow-up General Population Survey and a follow-up Online Panel Survey, both expected to be in the field during 2020. Both follow-ups will examine changes from the baseline versions of these surveys. These planned studies represent an opportunity to collect additional data needed to complete the steps described above. More specifically, we encourage the SEIGMA team to consider supplementing their existing survey instruments with the following questions, to be administered at least to respondents in the “at-risk” or “problem gambler” categories:

1. A question formally designed to measure functional impairment caused by gambling (i.e., “In the past year, have you suffered significant vocational or social distress due to gambling?” (Przybylski, Weinstein, & Murayama, 2017)).
2. For those who indicate that they have sought treatment for their gambling, a question formally designed to measure treatment participation (e.g., “In the past year, have you participated professional help for your gambling? By “professional help,” we mean a psychiatrist or other medical doctor (e.g., primary care provider), psychologist, other mental health professional (e.g., counselor, therapist, social worker), or religious advisor.”).
3. For those who indicate that they have received treatment for their gambling, a question formally designed to assess their perceptions of continued treatment need (i.e., “Do you continue to need professional help for your gambling?”).
4. A question (or set of questions) designed to measure respondents’ motivation to change their gambling (e.g., the Gambling Readiness to Change Scale, the Readiness Ruler).

Studying treatment-seeking and treatment-participation behaviors in detail will be essential in the coming years because, ideally, the Commonwealth and other stakeholders will make efforts to make treatment options more appealing and available to MA residents. For instance, through dozens of partner agencies, the Division on Addiction promotes screening for Gambling Disorder every March. We are also building capacity among providers

through DPH-sponsored training webinars and through continuing medical education courses. These and other capacity building efforts could meaningfully expand the pool of providers who are trained to screen and provide brief interventions for gambling-related problems, including non-gambling specialist providers (e.g., primary care providers, BSAS providers). Making screening and brief intervention more accessible could reduce the need for professional (i.e., specialist) treatment, and the Commonwealth will need to continually monitor these kinds of trends over time.

Relatedly, we recommend supplementing the planned follow-up studies. First, the research team should consider asking specifically about respondents' awareness and use of mutual-help groups (e.g., GA, SMART Recovery), the MA or national gambling helpline, and self-help materials. These questions would supplement the BGPS and BOPS questions about awareness of media campaigns and programs offered at schools, workplaces, and elsewhere in the community. Respondents' responses will indicate whether, for MA residents in need, lack of awareness contributes to lack of use of these resources. For example, in our 2012 survey, we observed that only 31% of the sample had heard of the Massachusetts Council on Compulsive Gambling and only 37% had heard of their associated helpline (Nelson et al., 2013). These new questions, combined with the current open-ended question, "Where did you seek help?" will provide a detailed picture of residents' help-seeking preferences and behavior.

Importantly, accounting for the use of self-help strategies rests on the assumption that residents in need will find these strategies appealing and easily accessible. To that end, we recommend that the Department of Public Health take a multi-pronged approach to raising awareness of these resources, as needed, and making them freely accessible. Researchers have recommended making self-help guides available within primary care settings for use by individuals with relatively less severe gambling problems, high motivation and insight, and less comorbid issues (Oei et al., 2017; Petry, Rash, & Alessi, 2016). Further, such resources should be freely available online and within mental health/substance use disorder treatment settings for use by people experiencing these conditions.

Additionally, even if the SEIGMA team continues to use the CPGI and PPGM rather than a symptom checklist derived from the DSM-5, we recommend that they should consider using a labeling system that is not pejorative (Shaffer, Freed, & Healea, 2002; Shaffer & Hall, 1996) and does not inadvertently imply a worsening trajectory.¹³ We illustrated below how a non-pejorative labelling system could replace the existing CPGI labels:

Table 6: Suggested labelling system

| CPGI label | Suggested label |
|----------------------|------------------------|
| Non-gambler | Level 0 |
| Recreational gambler | Level 1 |
| At-risk gambler | Level 2 |
| Problem gambler | Level 3 |

Not all community residents are at equal risk for developing gambling-related problems. Recognizing this fact, authors of these five studies examined rates of gambling participation and gambling-related problems within specific demographic segments. Additionally, the SEIGMA team has studied how other respondent characteristics, such as physical and mental health, preferred gambling activity, and reasons for gambling relate to gambling participation and gambling-related problems. Presumably, they will continue to explore these correlates in their follow-up studies. The Massachusetts Gaming Commission has contracted with investigators for studies of gambling participation and problems among MA veterans, Boston-area Asian Americans, and Boston-area African Americans (Massachusetts Gaming Commission, 2017). In addition to these studies, we recommend that the Commonwealth study at-risk populations who are not typically represented, or not adequately represented, in general population surveys. These populations include adolescents (Shaffer et al., 1999; Welte, Barnes, Tidwell, & Hoffman, 2008), casino employees (Shaffer & Hall, 2002; Shaffer, Vander Bilt, & Hall, 1999), individuals experiencing homelessness (Nower, Eyrich-Garg, Pollio, & North, 2015; Howard J. Shaffer et al., 2002), individuals involved with domestic and/or partner violence (Dowling et al., 2016) and individuals who are incarcerated (Abbott,

¹³ The at-risk label can be construed to suggest that individuals are on the path toward worsened gambling-related problems, when, in fact, a meaningful number of these individuals might be improving their gambling-related problems or have a static experience.

McKenna, & Giles, 2005; Riley, Larsen, Battersby, & Harvey, 2017). Little is known about the treatment needs and preferences among these vulnerable and high-risk population segments.

Finally, prior to SEIGMA's 2020 follow-up studies, the Commonwealth should consider convening researchers who have experience studying gambling participation and problems among MA residents, either independently or within the Gaming Research and Advisory Committee framework. Individual research teams are likely uninformed about the full scope of each other's work. Collectively, we might have more evidence than we realize. Coming together to discuss existing research and recommendations for future research, including the recommendations provided in this document, can help the Commonwealth make more informed decisions about the Commonwealth's potential treatment gap and how to fill it.

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