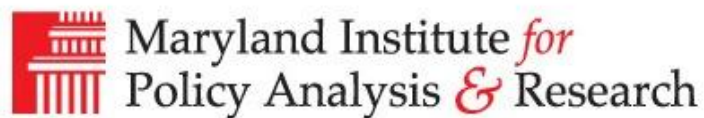# Gambling Prevalence in Maryland:
A Baseline Analysis

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GAMBLING PREVALENCE IN MARYLAND: A BASELINE ANALYSIS

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EXECUTIVE SUMMARY

A survey of Maryland households in 2010 found that almost 90 percent of the Maryland population has ever gambled in their lifetime, with 21.9 percent gambling monthly in the past 12 months and 15.3 percent gambling weekly in the past 12 months.

Casino gambling (67.5 percent) and lottery (67.5 percent) are the most popular forms of gambling in Maryland, followed by sporting events (32.9 percent), private games (30.2 percent), horse racing (29.5 percent), and other forms, such as charity gambling (27.5 percent). Almost one-quarter (24.8 percent) of respondents said they gambled at bingo. Over one-fifth (21.3 percent) of Marylanders gambled on slot machines outside of casinos. Relatively few Marylanders gamble on dog races (5.8 percent) or on the Internet (3.6 percent).

Marylanders who do gamble spend an average of $188.92 on gambling in a typical month. As the frequency of gambling increases, the average amount spent increases. Those who have gambled in the past year spent a mean of $45.79 in a typical month, monthly gamblers spent an average of $148.00 and weekly gamblers spent an average of $548.97. Most Marylanders travel more than 60 miles for their favorite type of gambling.

The most frequent reason given for gambling in Maryland was to win money (51.7 percent) followed by fun and entertainment (32.6 percent). However, a minority of gamblers face significant, debilitating problems that harm not only themselves, but their families and the wider community. The survey found 1.5 percent of adults over the age of 18 are pathological gamblers and 1.9 percent are problem gamblers. When combined, the prevalence of problem/pathological gambling in Maryland is 3.4 percent.

People in the 18 to 29 age group appear most at risk of developing gambling problems. Being male, single, African-American or other races (primarily Hispanic) are associated with an increase in the odds of being at risk for problem/pathological gambling. Most problem/pathological gamblers travel 6 to 15 miles to gamble, typically spend over 6 hours gambling during a single session, and generally gamble with others not related to them.

Only 4.5 percent of Marylanders had someone close to them who gambled so much in the past 12 months that it troubled them. One fifth (20.7 percent) of survey participants knew that there was a toll-free helpline that provides crisis help or referral to problem gamblers or others. In addition, only 23.2 percent knew that Gamblers Anonymous exists.

The purpose of the telephone survey was to obtain baseline information on the extent of problem gambling in Maryland prior to the expansion of gambling in the State through the introduction of slot machine gambling in 2010. The results will inform the State's actions in developing prevention and treatment services for problem gamblers and their families in Maryland.

GAMBLING PREVALENCE IN MARYLAND: A BASELINE ANALYSIS

CHAPTER ONE
INTRODUCTION

The adoption of Senate Bill 3, *Maryland Educational Trust Fund – Video Lottery Terminals* (VLT) (2007 Special Session), and the passage of the subsequent referendum in the fall of 2008 authorized video lottery terminals in the State and created a new and expanded environment for gambling in Maryland. As part of the law, the Department of Health and Mental Hygiene (DHMH) was tasked with conducting a gambling prevalence study to provide baseline information on the extent of problem gambling in Maryland. The Maryland Institute for Policy Analysis and Research (MIPAR) of the University of Maryland, Baltimore County (UMBC), submitted a proposal in response to the DHMH Alcohol and Drug Abuse Administration (ADAA) Solicitation For Compulsive Gambling Prevalence Study of May 2009. After the initial solicitation, communications with ADAA in June and July of 2010 resulted in a revised proposal. This report on a population prevalence study in Maryland is the product of that proposal.

Population prevalence studies of gambling serve several important purposes. They establish the current prevalence of gambling, the prevalence of each form of gambling, personal expenditures on each form of gambling, and the prevalence of problem gambling. This information is useful in understanding the overall value of gambling to society, the negative social impacts of providing legalized gambling, the estimated number of problem gamblers in need of treatment, the proportion of gambling revenues derived from problem gamblers, and the types of gambling most strongly associated with problem gambling. Changes in the prevalence of problem gambling from one time period to the next, and/or differences between the prevalence in one jurisdiction relative to another, provide important information about the incidence of problem gambling and the potential effectiveness of policies implemented to mitigate gambling's harm (Volberg, 2007).

Overview of Project and Methods

This report includes background information on gambling, a review of epidemiological research on gambling, a presentation of the results of a survey of Maryland residents about their gambling habits, a discussion of potential measures that can be used to track the impacts of gambling in Maryland, and a summary and directions for the future. Taken together, this study provides baseline information to examine the impact of Maryland's new gambling expansion.

The survey of Maryland residents examines the prevalence of problem and pathological gambling in relation to socio-demographic factors, including income, education level, place of residence, age, sex,

and race in Maryland. The survey also explores problem and pathological gambling in relation to gambling frequency, preferred gambling venues, amounts of money gambled, debt accumulated, and comorbid health conditions, as well as employment, financial and interpersonal problems.

This study was conducted by the Maryland Institute of Policy Analysis and Research (MIPAR) of the University of Maryland, Baltimore County, with Dr. Judith Shinogle as lead investigator along with Dr. Rachel Volberg of Gemini Research. The UMBC research team included Dr. Donald F. Norris and Stephanie Layne. Dr. DoHwan Park (UMBC) provided statistical expertise regarding weighting and analysis. The Schaefer Center for Public Policy of the University of Baltimore carried out data collection for the survey under the direction of Dr. Donald Haynes and Eric Stokan.

Defining Key Terms

Gambling is a broad concept that includes diverse activities, undertaken in a wide variety of settings, appealing to different types of people, and perceived in various ways by participants and observers. Failure to appreciate this diversity can limit scientific understanding and investigation of gambling and gambling problems. Another reason to note the differences between various forms of gambling arises from accumulating evidence that some types of gambling are more strongly associated with gambling-related problems than others. For most people, gambling is generally a positive experience. However, for a minority, gambling is associated with difficulties of varying severity and duration. Some regular gamblers develop significant, debilitating problems that also typically result in harm to people close to them and to the wider community (Abbott & Volberg, 1999).

Pathological gambling was first recognized as a mental disorder in 1980 (American Psychiatric Association, 1980). While the diagnostic criteria have changed in subsequent editions of the manual, the essential features of pathological gambling still encompass continuous or periodic loss of control over gambling, progression in gambling involvement, and a continuation of involvement despite adverse consequences (American Psychiatric Association, 1994; Rosenthal & Lesieur, 1992).

Problem gambling is the term most widely used to refer to individuals who experience difficulties with their gambling, although the term has been used in a variety of ways. In some situations, its use is limited to those whose gambling-related difficulties are substantial but less severe than those of pathological gamblers. In other situations, it is used to indicate all of the patterns of gambling behavior that compromise, disrupt, or damage personal, family, or vocational pursuits (Cox, Lesieur, Rosenthal, & Volberg, 1997; Lesieur, 1998). From all of these perspectives, however, pathological gambling can be regarded as one end of a broad continuum of gambling-related problems.

From a public health perspective, problem gamblers, as well as those who score even lower on problem gambling screens (sometimes referred to as "at-risk gamblers"), are of as much concern as

pathological gamblers. This is because they represent a much larger proportion of the population than pathological gamblers alone. Problem gamblers and at-risk gamblers are also of interest because of the possibility that their gambling-related difficulties may become more severe over time. Problem and at-risk gamblers are of further interest because of the likelihood that their gambling can be more easily influenced by changes in social attitudes and public awareness (Castellani, 2000; Korn, Gibbins, & Azmier, 2003). Depending on the societal measures taken, these individuals can potentially move toward pathological gambling or toward less risky gambling.

Survey Measures of Problem Gambling

With the rapid expansion of legal gambling in the United States in the1980s, state governments began to establish services for individuals with gambling problems (Cox et al., 1997; Volberg, Dickerson, Ladouceur, & Abbott, 1996). In establishing these services, governments sought information about the number and characteristics of people who might seek out help for their gambling problems. Responding to these questions, researchers adopted methods from the field of psychiatric epidemiology to investigate the prevalence and distribution of gambling problems in the general population.

In 1994, the fourth edition of the Diagnostic and Statistical Manual (DSM-IV) adopted a new set of criteria for the diagnosis of pathological gambling (American Psychiatric Association, 1994). The new criteria incorporated empirical research that more firmly linked pathological gambling conceptually to other addictive disorders like alcohol and drug dependence (Lesieur & Rosenthal, 1998). One response to these changes in the conceptualization of pathological gambling was the development of a large number of new screens for the disorder (Abbott & Volberg, 2006; Stinchfield, Govoni, & Frisch, 2007). Despite this proliferation, the psychometric properties of most of these new tools remain unexamined.

In 1998, the National Gambling Impact Study Commission contracted with the National Opinion Research Center (NORC) and partner organizations to undertake a national survey of problem and pathological gambling in the U.S. (Gerstein, Volberg, Harwood, & Christiansen, 1999). After reviewing the available screens, the research team elected to develop a new measure designed specifically for administration in large population surveys.

The National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS) has 17 lifetime and 17 current (past 12 month) items. Several items are only administered if a preliminary screening question is endorsed and current items are only administered if the corresponding lifetime item is endorsed. Each criterion item is scored zero or one, to produce maximum scores of ten for each of the "lifetime" and "current" timeframes. In the original survey, the NODS was administered only to respondents who had spent $100 or more on gambling in any past 12-month period. In subsequent surveys, the NODS has been administered to respondents who have ever gambled five or more times.

Scores of zero on the NODS are interpreted as indicating low risk gambling, one or two as at-risk gambling, three or four as problem gambling and five or more as pathological gambling.

A validation study carried out prior to the national survey found that the lifetime NODS demonstrated excellent internal consistency and test-retest reliability as well as good validity (Gerstein et al., 1999). Studies conducted by other investigators have since found that the NODS demonstrates high internal consistency as well as good concurrent and discriminant validity (Hodgins, 2002; Wickwire, Burke, Brown, Parker, & May, 2008). In addition to the U.S. national survey, the NODS has been used in eight U.S. state prevalence surveys, a Norwegian national survey and two provincial surveys in Spain (Abbott & Volberg, 2006; Becoña, 2004; González Ibáñez & Volberg, 2009; Lund & Nordlund, 2003). The NODS is increasingly being used in North American clinical settings as both an assessment and outcome measure (Hodgins, 2002, 2004; Murray, Ladouceur, & Jacques, 2005; Petry, Weinstock, Ledgerwood, & Morasco, 2008; Wulfert et al., 2005). We used the lifetime NODS to measure problem and pathological gambling in Maryland to provide comparability with other U.S. jurisdictions.

Review of the Development of the Legal Gambling Industry in Maryland

Over the past 40 years, many U.S. state governments have legalized different types of gambling. Approximately 43 states and the District of Columbia have legal lotteries, and 20 states have legalized commercial casinos. The basic policy challenge posed by gambling is that these governments benefit financially from the legalization of gambling while at the same time face several negative externalities resulting from problem and pathological gambling. On the positive side is the standard, but difficult-to-quantify, benefit that consumers derive from gambling—that is, the fun people have playing bingo or blackjack or betting on the horses and winning money. In addition, the potential exists for job creation and economic stimulus from the gambling industry that may have important regional effects. On the other hand, legalized gambling may increase the prevalence and incidence of problem and pathological gambling. Problem and pathological gambling affects a small but significant proportion of the general population, and results in a long list of individual and social dysfunctions (National Research Council, 1999; Volberg, 2001c).

The citizens of Maryland have longstanding access to a range of legal gambling opportunities throughout the state. The major forms of commercial gambling in Maryland include pari-mutuel wagering on horse races, the Maryland Lottery and the new electronic gaming machines authorized in 2008. As in many other states, pari-mutuel wagering on horse races is the oldest form of legal gambling in Maryland. However, attendance and wagering on horse races has been in decline in Maryland as in other parts of the country. There are four thoroughbred racetracks and two harness tracks in Maryland where both live racing and simulcast racing takes place. There are also four off-track betting parlors in

Maryland. In 2009, the Maryland Racing Commission reported a total of 1,029 days and nights of licensed horse racing in the state with $303 million wagered (Maryland Racing Commission, 2009). This represents a 50 percent decline in the amount wagered on horseracing in Maryland since 1995. The state received just over $1 million in tax revenues from horse racing activities in Maryland in 2009.

The Maryland Lottery began operating in 1973, just four years after New Hampshire ushered in the new wave of lotteries in America (Clotfelter, Cook, Edell, & Moore, 1999). The Maryland Lottery now offers a multitude of games including the multi-state Mega Millions and Powerball games as well as instant scratch-off games. At $299, Maryland now ranks fifth in the country in per capita sales of lottery tickets. The Maryland Lottery had $1.7 billion in sales in FY 2010 through nearly 4,600 lottery retail outlets throughout the state, with 60 percent returned in prizes and 30 percent going to state-funded programs for education, public health, public safety, human resources and the environment. Payments to the State of Maryland in 2010 were $510 million, an increase of $17 million over 2009 payments (Maryland State Lottery Agency, 2010).

The Video Lottery Terminal (VLT) program outlined in Senate Bill 3and passed by referendum authorizes up to 15,000 video lottery terminals at five locations: Anne Arundel County (4,750 VLTs); Baltimore City (3,750 VLTs); Worcester County (2,500 VLTs); Cecil County (2,500 VLTs); and Allegany County (1,500). The bill legalizing Video Lottery Terminals in Maryland placed regulatory and monitoring responsibility for the program with the Maryland Lottery (Maryland Lottery, 2011).

The actual uptake of these VLTs has been slower than anticipated. Four of the five sites received bids and three have been accepted in Cecil, Anne Arundel, and Worcester Counties. The first casino opened in Perryville in Cecil County on September 30th, 2010 with 1,500 machines. The Casino at Ocean Downs opened in Worcester County on January 4, 2011 with 750 VLTs. Construction of a 4,750 machine facility in Anne Arundel County is underway.

CHAPTER TWO
REVIEW OF EPIDEMIOLOGICAL RESEARCH ON GAMBLING

In this section, we summarize the dynamic and evolving field of gambling studies with a particular focus on epidemiological research. Epidemiology is the study of the distribution of physical and mental disorders within populations and the factors determining that distribution. Epidemiological research has played a vital role in identifying factors that influence the development of disease and other health-related events. In this capacity, epidemiological research is a critical tool in public health and is central in the design of effective prevention programs and in the planning of treatment services.

Upon the announcement of new problem gambling prevalence studies, policymakers and the media generally focus on a single number—the overall rate of problem and pathological gambling in the general population. Comparisons are made with prevalence rates in other jurisdictions and questions are asked about the number of people that this overall rate represents and how many of them may seek treatment if specialized services are made available. While these are important reasons for conducting prevalence research, there is much more to be learned by looking beyond the overall prevalence rate, such as factors associated with problem gambling.

Gambling Availability and Prevalence Rates: Is There a Link?

Some forms of gambling have a particularly strong association with problem gambling, most notably those that are continuous in nature and involve an element of skill or perceived skill (e.g., electronic gaming machines and casino table games). General population prevalence surveys in a number of countries have found that people with preferences for, frequent involvement in, and substantial expenditures on, these forms of gambling have a high probability of being problem gamblers. For example, while it is generally estimated that between two percent and five percent of the adult population are problem or pathological gamblers in jurisdictions with mature gambling markets, prevalence rates among regular machine players and track bettors can be as high as 25 percent (Abbott & Volberg, 2000; Gerstein et al., 1999; Productivity Commission, 2010; Schrans, Schellinck, & Walsh, 2000). This increased prevalence among regular machine players and track bettors has been documented across whole populations as well as within subpopulations that previously had low levels of gambling participation (Abbott, Volberg, Bellringer, & Reith, 2004).

One hotly debated issue in the gambling studies field, as well as in legislative circles and the gambling industry, is the question of whether, and how closely, increases in opportunities to gamble are linked to increases in the prevalence of problem gambling. Hundreds of articles in the gambling literature assert the existence of a link between gambling availability and problems. Major reviews (e.g., Abbott & Volberg, 1999; Shaffer, Hall, & Vander Bilt, 1997) have, with varying degrees of qualification, concluded

that research findings are generally consistent with the view that increased availability leads to more gambling and problem gambling. National official review bodies in Australia, Great Britain and the United States have reached the same conclusion (Gambling Review Body, 2001; National Research Council, 1999; Productivity Commission, 2010).

Results from a range of epidemiological studies support the existence of a link between the availability of legal opportunities to gamble and higher rates of problem and pathological gambling. In North America, a systematic review of problem gambling prevalence surveys carried out between 1975 and 1996 concluded that the prevalence of pathological gambling had increased significantly over time among adults in the general population (Shaffer, Hall, & Vander Bilt, 1999). Past-year prevalence rates of pathological gambling among surveys conducted prior to 1993 averaged 0.8 percent; rates for post-1993 surveys averaged 1.3 percent. No changes were evident for youth, college students, and institutional populations—groups in the population with already high rates of problem gambling.

Two U.S. national surveys also found a relationship between the availability of casino gambling and problem gambling prevalence. In 1998, analysis of the national Gambling Impact and Behavior Study (GIBS) data found that location of a casino within 50 miles (versus 50 to 250 miles) was associated with approximately double the rate of pathological gambling (Gerstein et al., 1999). In a separate national-level study, Welte et al. (2004) used census tract data and geographic information to determine that the location of a casino within 10 miles of an individual's home is independently associated with a 90 percent increase in the odds of being a problem or pathological gambler.

More recently, a statewide survey in Nevada found that the prevalence of pathological gambling in that state was substantially higher than in the United States as a whole (Volberg, 2002). Shaffer, LaBrie and LaPlante (2004) examined county-level prevalence estimates from the survey in Nevada in relation to casino availability and found that the four counties with the greatest access to casinos had the highest problem gambling rates, and the four with the least availability had the lowest rates. While this demonstrates an association, the study did not control for reverse causation and thus does not demonstrate causation. Casinos or any business will locate where demand for their product is high.

Finally, a relationship between casino proximity and gambling problems was found in the most recent New Zealand national survey (Abbott & Volberg, 2000). In that study, although the overall prevalence of problem and pathological gambling declined from 1991, residence in the cities of Auckland and Christchurch, where large urban casinos opened in the interval between the two studies, emerged as a strong predictor of gambling problems even when controlling for other factors associated with such problems.

While many studies have corroborated this "availability" or "exposure" theory of problem gambling, others have failed to demonstrate the predicted relationship and the validity of the theory is

becoming a focus of international debate (as illustrated by a commentary series in the September 2005 edition of the journal *Addiction*). Application of the alternative "adaptation" theory to gambling is relatively new. This alternative theory proposes that "after the novelty of initial exposure, people gradually adapt to the risks and hazards associated with potential objects of addiction" (Shaffer, 2005). While relevant research is in its infancy, findings from a number of studies are consistent with the view that adaptation to increases in the availability of gambling takes place at individual and societal levels.

Stated tentatively, it appears that the introduction and expansion of new forms of gambling, most especially electronic gaming machines, initially results in substantially increased levels of problem gambling with particular population sectors, including males and youth, most affected. Over time and in some jurisdictions, problems extend to groups that previously had low levels of participation and gambling problems, such as women and older adults. Over time in some jurisdictions that have experienced prolonged increased availability, prevalence rates have remained constant or declined. The reasons for such reductions have yet to be clearly delineated and the extent to which these changes are related to inherent properties of different forms of gambling rather than factors associated with the individuals and groups who develop problems remains to be determined (Abbott, 2006; Abbott, Volberg, Bellringer et al., 2004).

The Changing Face of Problem Gambling

Early adult general population surveys conducted in the United States, Canada, Australia, Spain and New Zealand found that male, age under 30 years, low income and single marital status were, almost universally, risk factors for problem gambling. Low occupational status, less formal education, and non-Caucasian ethnicity were additional risk factors in a number of studies, as was residence in large cities. In most studies where they were asked, problem gamblers reported starting gambling at a younger age than non-problem gamblers. Youth surveys in North America found people in their mid-to-late teenage years had higher prevalence rates than adults.

Both of the recent U.S. national surveys found higher rates of problem gambling among men, non-Caucasians, and people on low incomes. Gerstein et al. (1999) found young people continued to have a higher rate of problem gambling. Welte et al. (2001), however, did not find significant age differences and, although males had a higher rate of problem gambling, they did not differ with respect to more severe pathological gambling. Some statewide studies (e.g., Oregon and Montana) have also found that male and female rates no longer differ significantly (Volberg, 2003b). Both states have widespread access to electronic gaming machines, which appear to be particularly attractive to women. Similar findings come from Australia and New Zealand.

In some jurisdictions there has been a marked increase in the proportion of women problem gamblers while in others (e.g., Washington State and North Dakota) the male proportion has expanded. Washington State experienced a substantial increase in the availability of commercial card room gambling, which is favored by men. In these two states, as well as in Montana, proportions of non-Caucasian problem gamblers have also increased significantly. These are jurisdictions that have had substantial growth in the number of tribal casinos and "casino-style" charitable gambling operations. From these studies, it appears that change in the availability of particular types of gambling is instrumental in altering the sociodemographic characteristics of problem gamblers (Volberg, 2004).

While research generally supports the notion that problem gambling prevalence is associated with greater exposure to high risk gambling activities, there are some groups in the population with interesting "bimodal" gambling patterns. Compared with other groups, they contain large proportions of people who do not gamble or gamble infrequently, as well as moderate to large proportions of frequent, high spending gamblers. In other words, overall people in these groups are less likely to gamble, but those who do gamble more heavily. Groups in this category include some ethnic minorities and recent immigrant groups (e.g., African Americans in the U.S., Pacific Islanders in New Zealand and Eastern European immigrants in Sweden). These appear to be sectors of the population in the early stages of introduction to high risk forms of gambling. Some of these groups have exceedingly high levels of problem gambling (Abbott, 2001; Abbott, Volberg, & Rönnberg, 2004).

Although there are significant gaps in knowledge about problem gambling, what is known has some relevance to gambling policy and the development of interventions to prevent problems and assist gamblers with problems. For example, legislation and policies that significantly enhance access to electronic gaming machines, casino table games and other continuous gambling forms can be expected to generate increases in problem and pathological gambling. Risk profiles are also likely to change, with disproportionate increases among women and some other population sectors including ethnic and new immigrant minorities. Problem gambling may also move "up market," becoming somewhat more evenly distributed throughout socioeconomic strata and age groups.

While problem gambling prevalence is likely to rise in the wake of gambling expansion, research suggests it will eventually level out, even when accessibility continues to increase. However, rates may rise three- or four-fold before this occurs and even then, active measures may be required to achieve stabilization. Raising public awareness of the risks of excessive gambling, expanding services for problem gamblers, and strengthening regulatory, industry and public health harm reduction measures can counteract some adverse effects from increased availability. What is not known is how quickly such efforts can have a significant impact and whether or not they can prevent increases in the prevalence of problem gambling entirely.

Prevalence Research in Maryland

The only study of the prevalence of problem and pathological gambling in Maryland was carried out as part of a larger study funded by the National Institute of Mental Health in 1989 (Volberg, 1994; Volberg & Steadman, 1989). This survey assessed respondents' experience with different types of gambling,[1] gambling-related problems, and demographic characteristics. Problem and pathological gambling was assessed using the South Oaks Gambling Screen (SOGS), a 20-item scale derived from the DSM-III criteria for pathological gambling (Lesieur & Blume, 1987). The survey included 750 completed interviews with randomly selected adults and the sampling design was stratified to ensure that inferences could be drawn between the sample and the population in Maryland aged 18 and over.

Results of the survey showed that 89 percent of Maryland respondents had ever gambled and that the average number of lifetime gambling activities was 3.7. Per capita spending on the lottery in 1987 among Maryland respondents was $168. Lifetime gambling participation and mean number of lifetime gambling activities in Maryland were similar to New York, Massachusetts, and New Jersey, the other East Coast states surveyed in the same study, and distinct from Iowa and California. This is likely due to the more heterogeneous and urban nature of the population in these states compared with the West and Midwest, as well as differential access to lotteries, racetracks and casinos.

The survey also showed that 1.5 percent of the respondents, representing approximately 44,000 Maryland adults, could be classified as "probable pathological gamblers." An additional 2.4 percent of the respondents, representing approximately 70,000 individuals, were classified as subclinical "problem gamblers." The prevalence of problem and pathological gambling in Maryland in 1989 was similar to rates on the East Coast and in California and significantly higher than rates in Iowa. Problem and pathological gamblers in Maryland in 1989 were significantly more likely than the general population to be male and non-White, and significantly less likely to have graduated from high school.

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[1] These activities included lotteries, casino table games, gaming machines, bingo, card games, dice games, pari-mutuel wagering, stock market, games of skill, and sports.

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CHAPTER THREE
METHODS

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In this chapter we discuss the methods used to collect and analyze the data for this report including ethical review, questionnaire development, survey procedure, pre-testing, data collection, sample disposition, response rate, weighting the data and analysis.

Ethical Review

The research protocol for the 2010 Maryland Problem Gambling Prevalence Survey was reviewed by UMBC's internal Institutional Review Board. This review ensured that the selection of subjects was equitable, subjects' privacy was protected, informed consent was obtained, and that appropriate safeguards were in place to protect the data.

Questionnaire Development

The questionnaire was based on previous instruments developed by Dr. Volberg but edited by Drs. Norris and Shinogle, along with input from ADAA. The survey included basic demographics and information on gambling involvement, gambling participation and spending, pathological and problem gambling, and basic substance abuse issues.

Gambling Involvement: To provide information about gambling frequency, all respondents were screened to obtain information about their lifetime, past year and frequency of gambling involvement. The gambling activities included in the questionnaire were: casino, lottery, horse and dog race wagering, gambling on slot machines outside casinos, bingo, sports, private games of skill, and Internet gambling. For each activity, respondents were asked whether they had ever participated in this activity and whether they had done so in the past year. For each activity in the past year, respondents were asked whether they had participated daily, one to two times a week, one or two times a month, a few days all year or only one day in the past year.

Gambling Participation, Career and Spending: For each activity in which they participated during the past year, respondents were asked for further details and expenditures. In a separate section, respondents were also asked for details about the people with whom they usually gamble, the amount of time they usually spend gambling, and the distance they usually travel to gamble. Respondents were asked about their reasons for gambling and their preferred gambling activities. Finally, respondents were asked about the age when they first gambled and the type of gambling they did when they started.

Problem/Pathological Gambling: Several researchers in the field of gambling studies have recommended using more than one dependent measure of problem and pathological gambling in surveys of the general population (Abbott & Volberg, 1999; Gambino, 1999). Indeed, Shaffer, Hall and Vander

Bilt (1997) argue that the use of multiple problem gambling screens should be one measure of the quality of problem gambling prevalence studies. As noted above, several problem gambling screens based on the most recent psychiatric criteria for pathological gambling have recently been developed. However, only the NODS, developed for the 1998 U.S. national survey, has been tested for its performance in both clinical and survey populations (Gerstein et al., 1999). The questionnaire used in this project included the 17 items required to score the lifetime NODS.

Survey Procedures

The Schaefer Center for Public Policy of the University of Baltimore (UB), conducted the survey. The survey unit contacted 56,807 Maryland households during the study period using a Random Digit Dial (RDD) sample acquired from Survey Sampling Incorporated. As with all RDD samples, some numbers needed to be filtered out of the working sample, which included places of business, nonworking numbers, numbers that were disconnected and numbers that were associated with a fax or modem.

Survey Sampling Incorporated (SSI) developed the sample of households to be contacted. They start with a database of all directory-listed households in the United States. SSI cleans and validates a file of directory-listed telephone numbers that they obtain from Telcordia (which identifies landline numbers). Once the list has been obtained, samples are generated through a set of 100 contiguous numbers (also known as a 100-bank) identified by the first two digits of the last four digits of a telephone number.

Pretest

The pretest was conducted to ensure that the demographic distribution of respondents matched, relatively well, the demographic distribution of Maryland residents. Furthermore, it allowed for an assessment of survey administration time. Pretesting took place over the course of one week, with nearly 50 surveys completed. Interviewers were instructed to note any issues with the survey instrument and response categories as well as problems with skips. No significant problems were detected.

Data Collection

Roughly 45 interviewers administered the survey. All interviewers received a training session which included power point slides developed by Dr. Volberg on the nature and scope of the study.

Survey interviewers receive rigorous training before being allowed to collect information from respondents. All potential interviewers are evaluated on their ability to read a script, where voice quality, inflection, pausing, pace, etc., are considered before extending an offer of employment. A two hour course covering the importance of data quality and integrity along with proper survey administration techniques follows the hiring process. In this training, the interviewer is exposed to various scenarios that

might arise during a live interview along with the proper method for handling these scenarios. The scenarios range from how to manage a respondent not answering a question to how to handle an irate respondent. Following the training, the interviewers are administered a test on what they should have learned from the training. Only those interviewers, receiving a score of 80 percent or higher, are allowed to continue their training. After successfully completing the test, the interviewer is instructed on the use of the Computer Aided Telephone Interviewing (CATI) software.

A second test was then administered by the survey research manager who serves as a respondent in a mock interview. The survey research manager tests the interviewer on a range of scenarios to ensure that they are being handled properly. After interviewers successfully complete this portion of their training, they are ready for project specific training. These trainings vary by subject matter. The interviewer will review the survey instrument several times to understand skip patterns, filters, question types, and response categories before administering an actual interview.

Quality control measures were in place to ensure that all interviewers had been briefed on the nature of the survey. Supervisors ensured proper calling techniques and data collection procedures. Roughly half way through interviewing it became clear that more women were responding to the survey; therefore, a soft screening modification was created by programming the survey to ask for men every four out of five times that we called. This procedure resulted in a distribution between men and women that reflected the distribution in the population more accurately. Data were reported on a weekly basis to the principal investigator. The team also held weekly telephone meetings to ensure survey administration was progressing successfully.

Data collection for the study began on September 7, 2010 and concluded October 31, 2010. While less than one-tenth of one percent of our sample was Spanish-speaking, a Spanish translator was used to complete interviews with respondents who indicated a preference.

Final Sample Disposition

The final sample disposition and response rates are provided in Table 3.1. A total of 5,975 surveys were completed in their entirety.

Table 3.1. Gambling Disposition and Response Rate

Disposition	Final Frequency	%
Answering Machine	7,881	13.9
Business Number	2,727	4.8
Busy	1,757	3.1
Disconnected #	8,089	14.2
Communication Difficulties	303	0.5
Complete	5,975	10.5
Fax or Modem	1,115	2
Refusal	10,912	19.2
Language - SPANISH	109	0.2
No Answer	11,336	20
Partial	172	0.3
Respondent Not Avail	2,015	3.6
Schedule Callback	232	0.4
Screened out - GENDER	2,568	4.5
TERM- NOT 18/NO REF	262	0.5
Wrong Number/Changed Number	1,339	2.4
Deceased/Jail/Hospital	15	>1
Grand Total	**56,807**	**100**

Sample Disposition and Response Rate and Weighting Procedures

The survey data were weighted to account for differential probabilities of selection, response rates, and population coverage rates. The latter included an allowance for noncoverage of the eligible population in households without telephones and underreporting of the eligible population in telephone households. Weights were developed based on American Community Survey 2006-2008 estimates of the demographic characteristics of the Maryland population. Table 3.2 compares key demographic characteristics of the achieved sample and the weighted sample.

Table 3.2. Demographics of Achieved and Weighted Samples

		Achieved Sample %	Weighted Sample %
Gender	Male	41.8	48.4
	Female	58.2	51.6
Age	18 – 29	7.2	21.2
	30 – 34	5.0	8.7
	35 – 44	15.4	19.6
	45 – 54	22.1	20.3
	55 – 64	24.3	14.7
	65 – 74	15.2	8.3
	75 and over	10.7	7.1
Ethnicity	Non-Hispanic White	69.9	59.6
	African-American	22.4	27.2
	Hispanic	2.8	5.7
	Asian	2.1	5.0
	Other	2.9	2.5

The table shows that the achieved sample included substantially fewer men, adults under the age of 34, and Hispanics and Asians than are found in the general population in Maryland. It is known that these groups are particularly difficult to engage in surveys. Therefore, we weighted the data with post-stratification method to adjust for lower representation of these groups to be close to the population. In both instances, weighting the data cannot correct for differences in gambling participation, and can it correct for differences between survey participants and nonparticipants.

We followed a weighting method similar to that reported for the 2006 California Problem Gambling Prevalence Survey (Volberg, Nysse-Carris, & Gerstein, 2006a, 2006b). Starting with a base weight, we adjusted for nonresolution of telephone numbers, and then made an adjustment for the screener nonresponse rate. Next we considered an adjustment for the interview nonresponse rate and finally applied post-stratification weights based on gender, age and ethnicity from ACS 2006-2008. Table 3.3 contains the summary of sample disposition used for the weight calculation. The following paragraph describes the sample weighting steps.

Table 3.3. Response Rates and Categories of Final Dispositions for Telephone Numbers

Label	Category	Count	%
**Final Sample Disposition**

Label	Category	Count	%
C	Interview Complete	5,975	10.5
ER	Interview Eligible, Incomplete	13,331	23.5
D	Non-Working	8,089	14.2
I	Answering Machine	7,881	13.9
J	Ineligible Households	4,184	7.4
NC	Non-Contact	14,208	25.0
NR	Non-Residential	2,727	4.8
U1	Known Households, Unscreened	412	0.7
	Total	56,807	100
Resolution Rate: (C+ER+D+J+NR+U1)/(total)		61.1%	
Screener Rate: (C+ER+J)/(C+ER+J+U1)		98.3%	
Interview Rate: C/(C+ER)		30.9%	
CASRO Response Rate: Resolution Rate x Screener Rate x Interview Rate		18.6%	

Sample Weighting Steps

1. Base weight
   k-th telephone number in the released sample A is defined by

   $W_{1k} = 1/\pi$

   Where π = probability of selecting the k-th telephone number, which is equal to n/N where n= sample size (released replicates) and N = total telephone numbers on the sampling frame in Maryland.

2. Adjust for non-resolution of telephone numbers
   We determined the resolved telephone numbers which are working residential numbers (WRN). 39.9 percent of the selected telephone numbers remained unresolved. An adjustment to the weight of resolved cases was necessary to account for cases for which the final disposition codes signified that WRN-status is unknown. In essence, the adjustment we made assumes that the rate of WRNs among unresolved numbers is the same as the rate of WRNs among resolved numbers, after controlling for known covariates. The adjusted weight is defined by:
   $W_{2k} = W_{1k}/R_2$ where R_2 = resolution rate

3. Adjustment for the screener non-response rate
   Some of the released telephone numbers were resolved WRNs, with the final disposition code indicating that the screening interview was incomplete. For such cases, it is not known how many, if any, age-eligible population live in the household. To compensate for such individuals, we adjusted the weights of the telephone numbers with completed screeners. The adjusted weight for the k-th number is

   $W_{3k} = W_{2k}/R_3$ where R_3 = screener rate

4. Adjustment for the interview non-response rate
   We were unable to obtain completed interviews from all the selected individuals as expected. To compensate for non-responding individuals, we adjusted the weights of respondents with completed interviews. The procedure to adjusted weight for the k-th individual is

   $W_{4k} = W_{3k}/R_4$ where R_4 = response rate

5. Post-stratification based on gender, age and ethnicity
   As shown in Table 3.2, the current survey is subject to differential coverage of the population by race/ethnicity and other factors. This pattern appears in almost any census or survey, so some categories of individuals will be underreported at a higher rate than other categories. We used a simple post-stratification scheme to reduce bias due to differential coverage. The post-stratified weights are calculated as follows:

   $$W_{5k} = W_{4k} \times \sum_{m=1}^{M} \delta_{km} \frac{T_m}{\sum_{j \in A} \delta_{jm} W_{4j}}$$

   Where $\delta_{km} = 1$ if the j-th person is in the m-th post-stratum and m=1, …, 70

   In order to develop these weights, respondent age is necessary; 523 respondents refused to provide their year of birth. Thus, for the analysis of the data the unweighted sample size is 5,484. Survey respondents are allowed to refuse to answer questions. When a respondent refuses or does not know the response, they were coded as a missing response. If the respondent was coded as missing for a question, they were dropped from the analysis, thus varying the sample size for each table. The unweighted sample sizes (n) are presented for each table.

Limitations of Telephone Survey

As the proportion of cell phone only homes increases, along with the ability of potential respondents to screen out unknown calls, lower response rates are a concern. The 2009 National Health Interview Survey examined the issue of wireless substitution for homes with only wireless phones (Blumberg & and Luke , 2010). In 2009, more than one in five American homes had only wireless and one in every seven American homes received all or almost all calls on their wireless whether or not they

had a landline. Men (20 percent) are more likely than women (17 percent) to live in wireless only homes. Adults in poverty (30.9 percent) and near poverty (23.8 percent) are more likely than higher income adults to have wireless only homes. Race and ethnic differences occur as well with households that are wireless only. These households are more likely to be Hispanic (25.0 percent) followed by Non-Hispanic black (21.4 percent) and then Non-Hispanic white (16.6 percent). Developing weights attempts to alleviate this bias but only corrects for the factors (age, sex and race) used to develop weights.

Impact of Opening Perryville Casino

The Perryville Casino in Cecil County opened during the fielding of the gambling survey, an event that could have biased the results. During data collection, the survey team flagged all respondents contacted after the opening. We used the post-Perryville flag to test for possible differences in the frequency and prevalence of gambling. The only measure of gambling that was statistically significant was ever gambling (measure of lifetime gambling). Lifetime gambling for those interviewed prior to Perryville Casino opening was 92.6 percent versus 89.1 percent for those interviewed after the casino opening (p-value <0.05). None of the other gambling measures were significantly different between the pre-Perryville opening respondents and those that responded after the opening of Perryville Casino.

Data Analysis Procedures

The first step of the data analysis examined the data distributions of all responses to assess their plausibility. After examining frequency distributions for all of the variables in the questionnaire, respondents' scores on the problem gambling screen and the various measures of comorbid behavior (e.g., smoking, drinking) were calculated. Expenditures on different types of gambling were aggregated to obtain total expenditures on gambling for each respondent as well as mean, median and selected measures of dispersion for expenditures on different types of gambling. Finally, the sample was weighted to reflect the known characteristics of the population of Maryland, including gender, age, and race and ethnicity as described above. Since weights are missing for respondents who refused to provide age, the sample size is 5,484. Respondents have the option to refuse or respond "don't know" to a question. Respondents who did not provide a response to a question are coded as missing for that question. Each table shows the unweighted sample size, as the sample size will vary according to the response rate to that question.

All analysis was conducted with STATA 11.0 using survey estimation methods to account for the sample weighting. Simple cross tabs were produced of gambling measures by key demographic and substance abuse measures. We collapsed measures to ensure at least a cell size of 10 for each table. Due to multiple measures being tested at once, we did not conduct significance tests for each table in order to avoid multiple testing biases. To measure association, we developed logistic models to examine associations. Chapter Four presents the descriptive tables that include percentages of the ever gambling

and the gambling frequency measures by demographic and substance abuse measures. Chapter Five presents the measures of pathological and problem gambling by key demographic and substance abuse measures. Chapter Six describes associations between pathological, problem and at risk gambling among key variables.

CHAPTER FOUR
GAMBLING IN MARYLAND

In this chapter, we describe the prevalence of gambling in Maryland prior to implementation of Video Lottery Terminal gambling. Definitions of key variables are discussed prior to the presentation of results. The first measures presented are if the respondent has ever gambled in their life. The second measure is gambling frequency by nongambler, infrequent (has gambled but not in past year), past year (a few days in past year), monthly and weekly gambling. We examine these two gambling measures by basic demographics and by smoking status, drinking status, drug use, and health status.

In Chapter Five, we present information about the prevalence and distribution of problem and pathological gambling in Maryland.

Definitions

There are several different definitions of gambling in this report. When we present gambling measures, we include any of the potential gambling activities and/or venues that were asked in the survey, including casinos, machines outside casinos, lottery, horse racing, dog racing, bingo, sports, Internet, private games, and other forms. Lifetime gambling is defined as a person who has ever participated in one or more of these activities in their life. Gambling frequency measures the frequency of gambling in the past 12 months. This frequency measure is divided into four separate categories: 1) No gambling in past 12 months; 2) Few days of gambling all year; 3) Monthly gambling in past 12 months; and 4) Weekly gambling in past 12 months.

Regions

The Request For Proposal sought estimates of gambling prevalence by regions. We follow the DHMH RFP's definition of regions. Thus, in this study we divide the state into four separate regions as specified by DHMH. Below are the counties included in each region:

Central Region—Baltimore City, and Baltimore, Harford and Howard Counties

Western Region—Garrett, Allegany, Washington, Frederick, Carroll and Montgomery Counties

Southern Region—Anne Arundel, Prince George's, Calvert, Charles and St. Mary's Counties

Eastern Shore Region—Cecil, Kent, Queen Anne's, Caroline, Talbot, Dorchester, Somerset, Wicomico and Worcester Counties

Ever Gambled

While most of the Maryland population has ever gambled (89.7 percent), the frequency of gambling varies according to different demographic factors. For instance, 19.0 percent of Marylanders have not gambled in the past 12 months and 33.4 percent have gambled only a few times in past 12 months. Yet there exists a population that does gamble frequently, with 21.9 percent gambling monthly in the past 12 months and 15.3 percent gambling weekly in the past 12 months.

Ever Gambled by Demographics

Tables 4.1 to 4.6 present the results to the question "have you ever gambled at…" (for any of the activities in the survey) by age, gender, race, income, education level and employment status.

In terms of age, we find that lifetime gambling rises with age (with adults aged 45-64 most likely to have ever gambled at approximately 92 percent), but declines for those over age 65. Males are more likely to have ever gambled than females (92.4 percent and 87.1 percent respectively). In terms of pattern by race, we observe that whites are more frequent gamblers (92.5 percent), followed by African Americans (87.5 percent) and Hispanics (86.6 percent).

Patterns by income indicate that lifetime gambling increases with income, although the percentage is high for each category. People with incomes above $50,000 report ever gambling with a frequency above 90 percent; whereas those with incomes below $50,000 report ever gambling with a frequency of upper 80 percent. Similarly, lifetime gambling increases with educational attainment. While the differences are small, our survey indicates that people with some college education are more likely to gamble (over 90 percent) than those with less or high school diploma (over 80 percent).

Table 4.1. Ever Gambled by Age

Age	Ever Gambled		Total%
	No%	Yes%	
18 to 29	15.6	84.4	100
30 to 44	9.0	91.0	100
45 to 54	7.7	92.3	100
55 to 64	7.9	92.1	100
65 +	11.4	88.6	100

(N=5,484)

Table 4.2. Ever Gambled by Gender

Gender	Ever Gambled		Total%
	No%	Yes%	
Male	7.6	92.4	100
Female	12.9	87.1	100

(N=5,484)

Table 4.3. Ever Gambled by Race

Race	No%	Yes%	Total%
White	7.5	92.5	100
African American	12.5	87.5	100
Hispanic	13.4	86.6	100
Asian/Other	22.7	77.3	100

(N=5,484)

Table 4.4. Ever Gambled by Income

Income	No%	Yes%	Total%
<= $15,000	11.3	88.7	100
$15,001 to 35,000	10.7	89.3	100
$35,001 to 50,000	11.2	88.9	100
$50,001 to 75,000	7.9	92.1	100
$75,001 to 100,000	6.5	93.5	100
>$100,000	6.2	93.8	100

(N=3,676)

Table 4.5. Ever Gambled by Education Level

Education Level	Ever Gambled		Total%
	No%	Yes%	
Some HS or less	13.7	86.3	100
HS degree or GED	11.0	89.0	100
<2 yr college	10.4	89.6	100
Associate/2 yr college	8.9	91.2	100
Bachelor's degree	9.8	90.2	100
Graduate degree	10.0	90.0	100

(N=5,450)

Table 4.6. Ever Gambled by Employment Status

Employment	Ever Gambled		Total%
	No%	Yes%	
Work FT or PT	8.9	91.2	100
Not-working last week	13.2	86.8	100

(N=5,466)

Ever Gambled by Region

Table 4.7 shows responses to the question "have you ever gambled..." (in any of the games discussed above) by region. Central and Eastern Shore regions have higher percentages of population who have ever gambled (91.9 percent and 90.7 percent respectively). Western and Southern regions also report high rates with 88.6 percent and 87.9 percent respectively.

Table 4.7. Ever Gambled by Region

Region	Ever Gambled		Total%
	No%	Yes%	
Central	8.1	91.9	100
Western	11.4	88.6	100
Southern	12.1	87.9	100
Eastern Shore	9.4	90.7	100

(N=5,484)

Ever Gambled by Substance Abuse and Health Status Measures

Tables 4.8 to 4.13 present the results of the population who report "ever gambled" by different measures of substance use such as cigarette, alcohol, drugs and general health status.

As a general pattern, we find that people who have ever gambled are more likely to be smokers, have higher alcohol intake, and use drugs with a higher frequency than non-gamblers. For instance, those who have ever gambled are more likely to smoke daily (95.0 percent), drink several times a month (96.2 percent), binge drink more than a few days a year (97.3 percent), and use drugs (93.6 percent). When we compared this behavior with those who report never gambling, we find that nongamblers report lower frequencies of smoking, drinking and drug use (less than 6 percent).

Table 4.8. Ever Gambled by Cigarette Use

Cigarette Use	Ever Gambled		Total%
	No%	Yes%	
Daily smoker	5.0	95.0	100
Less than daily	5.4	94.6	100
Never smoke	11.9	88.1	100

(N=5,468)

Table 4.9. Ever Gambled by Alcohol Consumption

Alcohol Consumption	Ever Gambled		Total%
	No%	Yes%	
Daily	5.4	94.6	100
Several times a week	4.4	95.6	100
Several times a month	3.9	96.2	100
Once a month or less	7.1	92.9	100
Only a few days all year	8.8	91.2	100
Never	21.3	78.8	100

(N=5,448)

Table 4.10. Ever Gambled by Binge Frequency

Binge Frequency	Ever Gambled		Total%
	No%	Yes%	
> few days a year	2.7	97.3	100
Only a few days a year	3.0	97.0	100
Never	12.6	87.4	100

(N=5,410)

Table 4.11. Ever Gambled by Number of Drinks

# Drinks	Ever Gambled		Total%
	No%	Yes%	
0	20.8	79.2	100
1	9.8	90.2	100
2	4.9	95.1	100
3	4.0	96.0	100
4	2.3	97.7	100

(N=5,192)

Table 4.12. Ever Gambled by Drug Use

Drug Use	Ever Gambled		Total%
	No%	Yes%	
No	10.5	89.5	100
Yes	6.5	93.6	100

(N=5,484)

Table 4.13. Ever Gambled by Health Status

Health Status	Ever Gambled		Total
	No%	Yes%	
Excellent	11.9	88.1	100
Good	9.5	90.6	100
Fair/poor	8.5	91.5	100

(N=5,461)

Types of Gambling in Maryland

Casino gambling (67.5 percent) and lottery (67.5 percent) are the most popular forms of gambling in Maryland. The next most popular form of gambling is wagering on sporting events (32.9 percent) and private games (30.2 percent). This is followed by horse racing (29.5 percent) and other forms of gambling (27.5 percent) such as charity gambling (50-50, etc). Bingo is a popular form of gambling, with 24.8 percent of Marylanders having played. Over one-fifth (21.3 percent) of Marylanders have gambled in slot machines outside of casinos. Fewer Marylanders gamble on dog races (5.8 percent) or on the Internet (3.6 percent).

Table 4.14. Types of Gambling in Maryland

Gambling Type	Yes %	No %	Total%	Total (N)
Casino	67.5	32.5	100	5,476
Machines outside of casino	21.3	78.7	100	5,454
Lottery	67.5	32.5	100	5,475
Horse races	29.5	70.5	100	5,474
Dog races	5.8	94.2	100	5,482
Bingo	24.8	75.3	100	5,468
Private games	30.2	69.8	100	5,467
Sports wagering	32.9	67.1	100	5,469
Internet	3.6	96.4	100	5,476
Other	27.5	72.5	100	5,461

Gambling Frequency

When we analyze the type of game patterns of gamblers by frequency (Table 4.15), we find that most monthly and weekly gamblers in Maryland are playing the lottery, followed by wagering on sports and private games. The most frequent other games played are various raffles. These totals will not add to 100 percent as people may gamble on more than one type of game.

Table 4.15. Gambling Frequency by Type of Gamblers

Type of Gambling	Lifetime Participation	Past Year Participation	Monthly Participation	Weekly Participation
Lottery	67.5	24.0	17.2	11.1
Casinos	67.5	21.6	3.9	1.8
Sports	32.9	13.9	5.2	2.3
Private	30.2	10.6	5.4	1.9
Horse racing	29.5	5.8	1.0	0.7
Other	27.5	14.8	21.5	9.0
Machines outside casinos	21.3	5.9	1.3	1.0
Bingo	24.8	7.1	1.8	0.9
Dog racing	5.8	5.6	1.9	0.3
Internet	3.6	0.6	0.4	1.2
Overall population (%)	89.7	70.6	21.9	15.3

Gambling Frequency by Demographics

Gambling frequency by demographics is presented in Tables 4.16- 4.21. In terms of patterns by demographics, we observe that the major proportion of weekly gamblers are 55-64 years old (20 percent), followed by 45-54 years old (18 percent). Males are more likely to gamble on a weekly basis than women (20 percent and 11 percent respectively). African Americans report the highest rate of weekly gambling (19 percent), followed by White and Hispanics (14 percent). Individuals with an income between $15,000 and $30,000 are more likely to gamble each week (39 percent), and weekly gambling decreases with educational attainment. This is in contrast to ever gambling, which increases with education.

Table 4.16. Gambling Frequency by Age

Age	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
18 to 29	15.6	13.1	37.5	20.2	13.7	100
30-44	9.3	17.2	35.7	27.5	10.3	100
35-44	8.5	15.8	37.3	22.9	15.4	100
45-54	7.8	20.2	31.8	22.7	17.5	100
55-64	8.1	20.5	30.6	20.9	19.9	100
65-74	7.8	25.7	29.6	22.2	14.7	100
75 +	16.2	33.5	22.5	16.9	10.9	100

(N=5,484)

Table 4.17. Gambling Frequency by Gender

Gender	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Male	7.6	16.5	31.6	24.7	19.9	100
Female	12.9	21.7	35.1	19.2	11.0	100

(N=5,484)

Table 4.18. Gambling Frequency by Race

Race	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
White	7.6	19.5	34.8	23.7	14.4	100
African American	12.6	18.1	31.5	18.8	19.1	100
Hispanic	12.3	15.9	34.6	22.8	14.4	100
Asian/Other	22.7	20.4	29.1	18.3	9.5	100

(N=5,484)

Table 4.19. Gambling Frequency by Income

Income	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
<=$15,000	11.3	19.6	30.5	15.7	22.9	100
$15,001 to 35,000	20.1	39.4	62.5	39.5	38.5	100
$35,001 to 50,000	11.2	16.7	30.5	24.1	17.6	100
$50,001 to 75,000	8.0	16.0	32.1	25.1	18.8	100
$75,001 to 100,00	6.6	18.5	34.2	28.5	12.2	100
$<100,000	6.4	18.3	39.1	20.7	15.5	100

(N=3,676)

Table 4.20. Gambling Frequency by Education Level

Education	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Some HS or less	12.6	17.8	26.9	16.8	25.9	100
HS degree or GED	11.0	16.4	28.6	24.4	19.6	100
<2 yr college	10.4	15.6	32.6	23.1	18.2	100
Associate/2 yr college	8.9	21.1	29.6	24.9	15.5	100
Bachelor's degree	10.0	18.7	37.4	21.5	12.4	100
Graduate degree	10.1	23.7	38.5	18.2	9.5	100

(N=5,450)

Table 4.21. Gambling Frequency by Employment Status

Employment	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Work FT or PT	8.8	16.7	34.4	23.4	16.6	100
Not working last week	13.3	23.6	31.4	18.9	12.8	100

(N=5,466)

Gambling Frequency by Region

When we analyze gambling frequency by region (Table 4.22), we find that most monthly and weekly gamblers are located in Central and Eastern Shore regions (40 percent and 34 percent respectively).

Table 4.22. Gambling Frequency by Region

Region	(Percent)					Total%	(N)
	Nongambler	Infrequent	Past Year	Monthly	Weekly		
Central	8.2	16.8	34.8	23.6	16.6	100	1,871
Western	11.5	21.0	33.8	19.8	13.8	100	1,564
Southern	12.0	19.0	31.4	22.1	15.5	100	1,568
Eastern Shore	9.6	22.1	33.9	20.6	13.8	100	481
(n)	500	1,164	1,767	1,197	856	100	5,484

Gambling Frequency by Substance Abuse and Health Measures

As shown previously, lifetime gamblers report higher rates of cigarette use and alcohol intake. Tables 4.23 through 4.26 illustrate an increased consumption of tobacco and alcohol with the frequency of gambling. The pattern in drug use is somewhat different, insofar as the higher proportion of those who report any illegal drug use gambled last year (Table 4.27). Lastly, there is not a clear association between gambling and general self rated health status (Table 4.28).

Table 4.23. Gambling Frequency by Cigarette Use

Cigarette Use	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Daily smoker	5.0	11.7	27.0	28.7	27.6	100
Less than daily	5.4	10.6	31.2	32.7	20.0	100
Never smoke	12.0	21.3	34.9	19.6	12.3	100

(N=5,468)

Table 4.24. Gambling Frequency by Alcohol Consumption

Alcohol Consumption	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Daily	5.8	15.8	27.9	20.3	30.2	100
Several times a week	4.5	14.5	31.7	31.1	18.2	100
Several times a month	3.9	16.1	34.4	28.7	16.9	100
Once a month or less	7.2	16.3	36.6	28.3	11.7	100
Only a few days all year	8.8	19.5	40.3	19.7	11.7	100
Never	21.2	24.3	27.9	12.5	14.1	100

(N=5,448)

Table 4.25. Gambling Frequency by Binge Frequency

Binge Frequency	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
>few days a year	2.7	7.8	25.2	32.0	32.3	100
Only few days a year	3.0	12.8	36.6	29.5	18.1	100
Never	12.6	21.4	33.8	19.5	12.6	100

(N=5,410)

Table 4.26. Gambling Frequency by Number of Drinks

# Drinks	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
0	20.9	25.0	28.0	12.1	13.9	100
1	9.9	21.5	38.3	20.3	10.0	100
2	5.0	16.0	34.2	27.7	17.1	100
3	4.0	11.0	36.7	29.7	18.6	100
4	2.5	9.8	26.7	33.5	27.6	100

(N=5,192)

Table 4.27. Gambling Frequency by Illegal Drug Use

Drug Use	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
No	10.6	19.6	34.0	21.3	14.5	100
Yes	6.5	7.2	22.3	32.9	31.2	100

(N=5,484)

Table 4.28. Gambling Frequency by Health Status

Health Status	(Percent)					Total%
	Nongambler	Infrequent	Past Year	Monthly	Weekly	
Excellent	12.0	19.3	34.0	19.5	15.2	100
Good	9.5	17.8	34.7	23.2	14.8	100
Fair/ Poor	8.0	22.3	27.8	24.5	17.4	100

(N=5,466)

Gambling Expenditures

Marylanders who do gamble spend approximately $188.92 in total in a typical month. As the frequency of gambling increases, the average amount spent in a typical month increases. Those who have gambled in the past year spent a mean of $45.79 in a typical month, monthly gamblers spent an average of $148.00 in a typical month and weekly gamblers spent an average of $548.97 in a typical month.

Distance Traveled for Gambling

Most Marylanders travel (Table 4.29) more than 60 miles (38.9 percent) for their favorite type of gambling, followed by those that do not travel at all (18.7 percent).

Table. 4.29. Distance Traveled to Favorite Type of Gambling (%)

Don't travel	18.7
5 miles or less	17.1
6 to 15 miles	7.9
16 to 30 miles	7.1
31 to 45 miles	4.4
46 to 60 miles	6.1
More than 60 miles	38.9

When gambling, most Marylanders spend three to five hours (34.5 percent) participating in their favorite type of gambling, followed by one to two hours (29.6 percent) and less than hour (24.2 percent). Only 3.1 percent of Marylanders spend more than 12 hours gambling and only 8.6 percent spend six to 12 hours gambling when participating in their favorite type of gambling.

Reasons for Gambling

People gamble for many reasons. Table 4.30 presents several reasons that people often give for participating in their favorite form of gambling. The most important reason given for gambling in Maryland was to win money (51.7 percent) followed by fun and entertainment (32.6 percent). The least important reason for gambling for Marylanders is to distract them from everyday problems (6.6 percent). Compared with other recreational and social activities, gambling is not at all important to most Marylanders (82 percent).

Table 4.30. Reasons for Gambling

Reasons for Gambling	Very Important (%)	Somewhat important (%)	Not at all important (%)	Total (n)
To win money	51.7	25.3	23.0	414
For entertainment or fun	32.6	37.1	30.3	415
Its exciting and challenging	17.4	34.8	47.8	416
Because it is inexpensive entertainment	21.3	35.0	43.8	410
To distract yourself from everyday problems	6.6	12.8	80.7	417

Most people (41.1 percent) gamble with their friends, co-workers, neighbors or club members, or with their spouse, partner or significant other (21.7 percent) or other family member (13.4 percent). In Maryland, 21.6 percent of the population gambles alone and 2.2 percent gamble with some other individual or group members.

Knowledge of Treatment Alternatives

We asked participants if they knew that there was a toll-free helpline that provides crisis help or referral to problem gamblers and others. Only 20.7 percent knew a helpline existed. In addition, only 23.2 percent knew that Gamblers Anonymous exists. Only 4.5 percent of Marylanders had someone close to them who gambled so much in the past 12 months that it troubled them.

Knowledge of Treatment Alternatives by Region

Examining the knowledge of treatment alternatives by region demonstrates that the lack of understanding of available gambling treatments services is consistently high (over 70 percent answer no or do not know that the specific treatment alternative exists) in any region. Tables 4.31 to 4.33 present these results.

Table 4.31. Knowledge of Toll Free Hotline

Region	Yes (%)	No (%)	Don't Know (%)	Total (%)
Central	22.4	14.1	63.4	100
Western	21.1	12.8	66.0	100
Southern	17.5	15.8	66.1	100
Eastern Shore	23.6	15.1	61.3	100

(N=5,484)

Table 4.32. Knowledge of Gamblers Anonymous

Region	Yes (%)	No (%)	Don't Know (%)	Total (%)
Central	26.8	12.1	61.1	100
Western	22.5	12.0	65.4	100
Southern	20.2	14.4	65.0	100
Eastern Shore	21.3	14.6	64.1	100

(N=5,484)

Table 4.33. Knowledge of Outpatient Treatment

Region	Yes (%)	No (%)	Don't Know (%)	Total (%)
Central	20.3	14.8	64.9	100
Western	21.6	12.5	65.8	100
Southern	16.5	17.2	65.9	100
Eastern Shore	18.8	17.7	64.1	100

(N=5,484)

CHAPTER FIVE
PROBLEM AND PATHOLOGICAL GAMBLING IN MARYLAND

In this chapter we use the lifetime NORC DSM-IV Screen for Gambling Problems (NODS) described in Chapter One to present information about the proportion of Marylanders who are at risk for problem and pathological gambling, or score as problem and pathological gamblers. We begin by presenting information about the number of Marylanders represented by the proportions of at-risk, problem and pathological gamblers in the population. Next we present these percentages by key demographics, regions in Maryland, and substance abuse and health measures. Finally we present the mean amount of expenditures on each type of gambling for those that did gamble, by the lifetime NODS and overall. Due to small sample size, we combined the pathological and problem gambling categories. In addition, Hispanic, Asian and other races were combined into one category, Other, in order to ensure adequate cell size.

In 2009, 10.4 percent of Marylanders had never gambled, 77.3 percent of Marylanders scored low risk in the NODS and 9 percent scored at risk of becoming a problem or pathological gambler. The prevalence of problem gambling in Maryland is 1.9 percent and prevalence of pathological gambling is 1.5 percent. When pathological and problem gamblers are combined, the prevalence of problem/pathological gambling is 3.4 percent.

Population Estimates

In epidemiological research, prevalence is a measure of the number of individuals in the population with a disorder at one point in time. Prevalence rates are based on samples rather than the entire population. One important source of uncertainty in generalizing from a sample to the population—sampling error—is generally presented as a measure of the uncertainty around the identified value. Calculations of the size of this variation—sometimes called the confidence interval and sometimes referred to as the margin of error—are based on the percentage of the sample with a particular characteristic and the size of the sample. It is important to emphasize that the numbers discussed below are based on the identified point prevalence estimates and could be substantially smaller or larger, depending on the size of the confidence interval around these estimates.

According to the most recent census, the population of Maryland aged 18 and over is presently 4,420,588 (Maryland State Data Center, 2010). Table 5.1 presents the point prevalence estimates for at-risk, problem and pathological gambling in Maryland along with the confidence intervals around these estimates. The table also presents the number of individuals aged 18 and over in the Maryland population represented by these point estimates along with the confidence interval numbers. Based on these figures, we estimate that approximately 66,000 Maryland adults can be classified as lifetime pathological

gamblers. Another 84,000 Maryland adults can be classified as lifetime problem gamblers. Taken together, approximately 150,000 Maryland adults have experienced moderate to severe difficulties related to their gambling. If we consider that each problem and pathological gambler is responsible for social and economic impacts that ripple out to their families, employers and communities, the proportion of the Maryland population affected by gambling-related problems is even higher.

Table 5.1. Estimated Numbers of Adult At-Risk, Problem and Pathological Gamblers

	Proportion of Sample	**95 % Confidence Interval**	**Number in Adult Population**	**95 % Confidence Interval**
Non-Gamblers	10.4	9.3-11.4	459,700	411,100-503,900
Low-Risk Gamblers	77.3	75.9-78.8	3,417,100	3,355,200-3,483,400
At-Risk Gamblers	9.0	8.0-9.9	397,900	353,600-437,600
Problem Gamblers	1.9	1.4-2.4	84,000	61,900-106,000
Pathological Gamblers	1.5	1.0-1.9	66,300	44,200-84,000

NODS by Demographics

Table 5.2 presents the NODS by age. Those less than 30 years of age had a higher percentage of pathological and problem gambling (6.8 percent) as well as being at risk for pathological/problem gambling (13.2 percent). People age 30 to 44 are at a high risk of pathological/problem gambling (9.0 percent) although the proportion of those classified as pathological/problem is similar to other, older groups. Males (Table 5.3) are more likely than females to be at risk for pathological or problem gambling (11.8 percent vs. 6.3 percent) as well as more likely to be problem or pathological gamblers (5.2 percent vs.1.5 percent). African Americans (Table 5.4) are more likely to be at risk (12.4 percent) and also have a high rate of pathological/problem gambling while Other racial groups are most likely to be pathological/problem gamblers (6.2 percent). Lower income people have a higher likelihood of being pathological/problem gamblers (Table 5.5). Those with incomes less than $15,000 are more likely to be pathological/problem gamblers, at nearly 15 percent. People with less than high school education (Table 5.6) are more likely to be pathological/problem gamblers, at 14.2 percent. Working status is not related to pathological/problem gambling (Table 5.7).

Table 5.2. NODS by Age

Age	Low Risk %	At-Risk %	Pathological/Problem %	Total%
18 to 29	80.0	13.2	6.8	100
30 to 44	88.2	9.0	2.7	100
45 to 54	89.0	7.3	2.8	100
55 to 64	89.3	7.9	2.8	100
65 +	92.7	6.3	1.0	100

(N=5,484)

Table 5.3. NODS by Gender

Gender	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Male	82.9	11.8	5.3	100
Female	92.2	6.3	1.5	100

(N=5,484)

Table 5.4. NODS by Race

Race	Low Risk %	At-Risk %	Pathological/Problem %	Total%
White	89.9	8.2	2	100
African American	82.6	12.5	4.9	100
Other	88.3	5.5	6.2	100

(N=5,484)

Table 5.5. NODS by Income

Income	Low Risk %	At-Risk %	Pathological/Problem %	Total%
<=$15,000	75.4	9.7	15.0	100
$15,001 to 35,000	83.9	11.4	4.8	100
$35,001 to 50,000	84.8	11.0	4.2	100
$50,001 to 75,000	84.6	11.0	4.4	100
$75,001 to 100,000	89.6	7.4	3.0	100
=>$100,00	89.4	8.5	2.1	100
TOTAL (n)	3,332	332	105	100

(N=3,676)

Table 5.6. NODS by Education Level

Education	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Some HS or less	71.5	14.2	14.3	100
HS degree or GED	83.1	11.6	5.3	100
<2 yr college	87.9	9.3	2.8	100
Associate/ 2yr college	87.8	9.3	3.0	100
Bachelor's degree	90.5	7.3	2.1	100
Graduate degree	92.7	6.4	<0.1	100

(N=5,450)

Table 5.7. NODS by Employment Status

Employment	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Work FT or PT	87.1	9.2	3.8	100
Not-working last week	88.9	8.6	2.5	100

(N=5,466)

NODS by Region

Table 5.8 presents the frequency of NODS by region. As shown in the table, the Eastern shore and Central regions have higher percentages of pathological and problem gamblers (4.2 percent and 3.9 percent respectively) than the other regions. Central and southern regions have higher percentage at of risk gamblers (above 9 percent in both cases).

Table 5.8. NODS by Region

MD Region	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Central	86.2	9.9	3.9	100
Western	88.8	8.7	2.5	100
Southern	87.8	9.1	3.2	100
Eastern Shore	90.8	5.0	4.3	100

(N=5,484)

NODS by Type of Gambling

Another approach to understanding the relationship between gambling involvement and gambling-related problems is to examine the prevalence of problem gambling among individuals who participate in specific types of gambling. Table 5.9 shows the prevalence of at-risk, problem and pathological gambling among respondents who have gambled in the past year and among those who gamble monthly or weekly. The table also shows the prevalence of at-risk, problem and pathological gambling among respondents who have ever participated in specific types of gambling.

While Internet gambling had the highest prevalence of problem/pathological gambling, this form represents a very small proportion of gamblers (3.6 percent, see Table 4.14). People who play machines outside casinos, along with those who wager on private games and sports, have the highest rates of problem/pathological gambling.

Table 5.9. NODS by Type of Gambling

	N	Low Risk (%)	At-Risk (%)	Problem/Pathological (%)	Total (%)
Past year gamblers	3872	92.6	6.3	1.1	100
Monthly gamblers	1200	82.3	14.1	3.6	100
Weekly gamblers	839	66.4	20	13.5	100
Ever Gambled in:					
Lottery	3696	83.9	11.7	4.4	100
Casinos	3696	85.0	10.9	4.1	100
Machines outside casinos	1162	78.6	13.1	8.3	100
Private	1651	76.6	16.5	6.8	100
Horse/Dog racing	1615	81.7	13.5	4.7	100
Bingo	1356	81.7	12.7	5.6	100
Sports	1799	79.1	14.2	6.8	100
Internet	197	50.6	25.8	23.7	100
Other	1501	86.7	9.2	4.0	100

It is important to emphasize that there is substantial overlap in membership in the groups of gamblers identified in this table. Most lottery and casino players tend to participate in only one or two other gambling activities and the prevalence of problem/pathological gambling in these groups is not much higher than the prevalence rate in the population as a whole. In contrast, the smaller groups of people who wager on bingo as well as those who wager on sports or private games tend to participate in many other gambling activities, with higher prevalence rates associated with the increasing concentration of problem/pathological gambling within groups of more multiply-engaged gamblers.

Comparing Maryland with Other States

It is informative to compare the prevalence of at-risk, problem and pathological gambling in Maryland with comparable estimates from other U.S. jurisdictions. Table 5.10 presents lifetime prevalence rates for U.S. states where prevalence surveys using the NODS have been conducted. Overall, this table shows that the lifetime prevalence of at-risk, problem and pathological gambling in Maryland is at the higher end of a range of estimates based on the same problem gambling screen. The only states with a higher prevalence of problem/pathological gambling than Maryland are California and Nevada. It is important to note that the year of the prevalence survey and changes in attitudes and accessibility to gambling over time may influence these differences.

Table 5.10. NODS by Jurisdiction

	Year	n	At-Risk (%)	Problem/Pathological (%)
North Dakota	2000	5,002	5.2	1.5
Florida	2001	1,504	7.8	1.6
Oregon	2000	1,500	7.7	2.1
Arizona	2002	2,750	11.0	2.1
New Mexico	2005	3,007	6.4	2.2
United States	1999	2,867	7.7	2.7
Connecticut	2008	3,099	7.2	3.3
Maryland	2010	5,484	9.0	3.4
California	2006	7,121	9.5	3.7
Nevada	2001	2,217	10.9	5.1

Sources: (Gerstein et al., 1999; Shapira, Ferguson, Frost-Pineda, & Gold, 2002; Spectrum Gaming Group, 2009; Volberg, 2001a, 2001b, 2002, 2003a; Volberg & Bernhard, 2006; Volberg et al., 2006b)

NODS by Substance Abuse and Health Status Measures

Tables 5.11 through 5.16 present NODS by smoking status, alcohol consumption, any illegal drug use and health status. Smoking daily is highly associated with pathological/problem gambling (9.7 percent). Likewise, higher alcohol consumption (11 percent) and more incidences of binge drinking (11 percent) are associated with pathological/problem gambling.

As the number of drinks per occasion increases, the prevalence of pathological/problem gambling increases. Any illegal drug use is also associated with higher likelihood of pathological/problem gambling (18 percent). We find that the poorer the self reported health status, the greater likelihood of pathological/problem gambling as well as at-risk gambling.

Table 5.11. NODS by Cigarette Use

Cigarette Use	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Daily	75.3	15.0	9.7	100
Less than daily	80.5	13.8	5.8	100
Never smoke	91.1	7.2	1.8	100

(N=5,468)

Table 5.12. NODS by Alcohol Consumption

Alcohol Consumption	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Daily	76.3	12.2	11.6	100
Several times a week	86.3	11.9	1.8	100
Several times a month	85.1	12.1	2.8	100
Once a month or less	86.8	9.8	3.4	100
Only a few days all year	91.5	6.3	2.2	100
Never	90.3	6.6	3.1	100

(N=5,448)

Table 5.13. NODS by Binge Frequency

Binge Frequency	Low Risk %	At-Risk %	Pathological/Problem %	Total%
>few days a year	69.7	19.0	11.4	100
Only a few days a year	79.8	15.0	5.2	100
Never	91.5	6.7	1.9	100

(N=5,410)

Table 5.14. NODS by Number of Drinks

# Drinks	Low Risk %	At-Risk %	Pathological/Problem %	Total%
0	91.3	5.9	2.8	100
1	92.3	5.6	2.1	100
2	86.9	10.5	2.5	100
3	78.7	15.4	5.9	100
4	74.7	17.8	7.5	100

(N=5,192)

Table 5.15. NODS by Any Illegal Drug Use

Drug Use	Low Risk %	At-Risk %	Pathological/Problem %	Total%
No	89.0	8.4	2.6	100
Yes	62.4	19.7	17.9	100

(N=5,484)

Table 5.16. NODS by Health Status

Health Status	Low Risk %	At-Risk %	Pathological/Problem %	Total%
Excellent	88.7	7.6	3.7	100
Good	87.8	9.6	2.6	100
Fair/Poor	84.4	10.7	4.9	100

(N=5,466)

Monthly Gambling Expenditures by Type of Gambling and NODS

As shown in Table 5.17, overall, Marylanders spend (in a typical month) the most gambling dollars on Internet ($553/month), followed by a lower amount in casinos ($214/month) and machines outside casinos ($151/month). When we analyze the pattern of typical monthly gambling expenditures amongst problem/pathological gamblers, we find that the overall Maryland trend holds.

Problem/pathological gamblers spend on average $329/month in private games, $227/month in bingo and $227month in horse races, more than the overall population.

Table 5.17. NODS Monthly Gambling Expenditures in Dollars per Typical Month

Type of gambling	Low Risk ($)	At Risk ($)	Problem/Pathological ($)	Overall Mean ($)	Total (N)
Casino	147.1	318.7	636.3	214.3	1374
Slot Machines outside of casino	69.9	166.2	505.6	151.0	348
Lottery	15.6	37.7	80.0	21.9	2778
Horse races	52.4	259.5	226.5	112.5	406
Dog races	72.5	68.7	47.9	60.0	42
Bingo	36.8	73.3	227.2	61.6	564
Private games	42.1	84.3	328.7	76.8	790
Sports wagering	32.1	59.4	205.8	52.5	997
Internet	274.6	643.5	835.8	553.2	79
Other	12.5	42.8	67.1	18.9	1025
Overall total mean ($)	100.8	388.5	1,253.4	188.6	3727

Knowledge of Treatment Alternatives by NODS

Tables 5.18 to 5.20 present respondents' knowledge of treatment alternatives for gambling problems by the NODS scores. Problem and pathological gamblers do have the most knowledge of the existence of toll free hotlines (42.9 percent), Gamblers Anonymous (44.0 percent), and outpatient services (33.4 percent). These results are surprisingly high, given the absence of certified problem gambling counselors in Maryland as well as the low level of funding for problem gambling services to date (Association of Problem Gambling Service Administrators, 2010).

Table 5.18. Knowledge of Toll Free Hotline

Gambler Type	Yes (%)	No (%)	Don't Know (%)	Total (%)
Low Risk	19.2	14.2	66.5	100
At Risk	27.5	13.3	59.2	100
Problem/Pathological	42.9	21.0	36.0	100

(N=5,484)

Table 5.19. Knowledge of Gamblers Anonymous

Gambler Type	Yes (%)	No (%)	Don't Know (%)	Total (%)
Low Risk	21.8	12.5	65.5	100
At Risk	29.5	15.1	55.3	100
Problem/Pathological	44.0	17.6	38.3	100

(N=5,484)

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Table 5.20. Knowledge of Outpatient Treatment

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Gambler Type	Yes (%)	No (%)	Don't Know (%)	Total (%)
Low Risk	18.6	14.9	66.4	100
At Risk	21.3	16.9	61.7	100
Problem/Pathological	33.4	16.4	50.1	100

(N=5,484)

Gambling Behavior

Most problem/pathological gamblers travel 6 to 15 miles to gamble (Table 5.21). Problem/pathological gamblers spend over 6 hours on their typical time gambling (Table 5.22) and generally gamble with others, not related to them (Table 5.23).

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Table 5.21. Distanced Traveled to Gamble

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Distance Traveled	Low Risk Gambler (%)	At Risk Gambler (%)	Problem/ Pathological Gambler (%)	Total (%)
Don't Travel	81.6	11.4	7.0	100
5 miles or less	78.7	16.4	4.9	100
6 to 15 miles	74.9	15.2	10.0	100
16 to 30 miles	78.8	15.1	6.0	100
31 to 45 miles	76.1	17.5	6.4	100
46 to 60 miles	71.1	21.9	7.0	100
More than 60 miles	77.9	17.4	4.7	100

(N=2,853)

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Table 5.22. Time Spent Gambling

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Time Spent	Low Risk Gambler (%)	At Risk Gambler (%)	Problem/ Pathological Gambler (%)	Total (%)
Less than 1 hour	87.2	9.2	3.6	100
1 to 2 hours	86.2	11.5	2.3	100
3 to 5 hours	73.4	19.3	7.3	100
6 to 12 hours	55.1	32.5	12.3	100
More than 12 hours	41.5	33.2	25.3	100

(N=2,864)

Table 5.23. With Whom Do You Gamble

	Low Risk Gambler (%)	At Risk Gambler (%)	Problem/ Pathological Gambler (%)	Total (%)
Alone	75.8	15.7	8.5	100
Spouse	86.0	9.9	4.1	100
Family member	75.5	21.7	3.7	100
Friend(s)	76.2	17.8	6.0	100
Other	73.7	12.9	13.4	100

(N=2,925)

CHAPTER SIX
COMPARING NON-PROBLEM, AT-RISK AND PROBLEM/PATHOLOGICAL GAMBLERS IN MARYLAND

The following set of logistic models follow the same developmental framework (Model 1 is demographics, Model 2 adds substance abuse measures, and Model 3 adds health status variables). However, the dependent variable changes from a person at risk to a person who currently is a problem/pathological gambler. The independent variables in all models are indicator variables, meaning they equal 1 if that category exists and 0 if not. For the models to be estimated, one category must be excluded. The excluded category is listed in the table by the category heading. For example, the Central Region was excluded for the region variables. All models are estimated using the weights developed for the data and the survey commands in STATA®. We present the odds ratios which indicate the odds of the outcome (At Risk for Problem/Pathological Gambling for Table 1, Pathological or Problem gambling for Table 2) occurrence relative to the reference category. For example, in Table 1 the odds of being at risk for problem/pathological gambling are 1.8 times greater for males than females. We discuss and identify the odds ratio only for those model variables significant at p-value <0.05 (p-value is the probability of obtaining a test statistics at least as extreme as the observed, assuming that the null hypothesis is true).

Odds of Being At-risk for Problem/Pathological Gambling

As shown in Table 6.1, Model 1 which only has demographic variables, being male (1.8), single (1.4) and African American (1.7) are all associated with increased odds of being at risk for problem/pathological gambling. Having a college education (0.4) or graduate degree (0.4) is associated with lower odds for being at risk for problem/pathological gambling. When substance abuse measures are added to the model, the education variables are no longer significant, although being male (1.6), and African American (1.9) still continue to depict a significant association of increased odds. Never smoking (0.6) and no binge drinking (0.5) are associated with lower odds of being at risk of problem/pathological gambling. In this second model, the Eastern Shore Region is associated with lower odds (0.5) of being at risk for problem/pathological gambling. Adding self-reported health status to the model does not dramatically change any of these effects noted above. People who self-report fair/poor health (1.9) have increased odds of being at risk of problem/pathological gambling.

Table 6.1. Logistic Model of At Risk Gambling

Independent Variable	Model 1		Model 2		Model 3	
	Odds Ratio	P Value	Odds Ratio	P Value	Odds Ratio	P Value
Regions (vs. Central):						
Western	.904	.594	.913	.629	.920	.658
Southern	.875	.428	.946	.753	.959	.806
Eastern Shore	.516	.054	.489	.037	.506	.047
Male	1.83	.000	1.57	.003	1.62	.002
Age (vs. 18-29):						
30 to 44	.727	.207	.822	.443	.789	.356
45 to 54	.597	.051	.744	.267	.691	.170
55 to 64	.668	.135	.884	.648	.810	.442
65+	.601	.096	.906	.746	.851	.599
Marital status (vs. married)						
Widowed	1.13	.639	1.07	.793	1.04	.896
Divorced/separated	.973	.905	.911	.687	.900	.645
Never married	1.44	.072	1.35	.150	1.31	.197
Race (vs. White)						
African American	1.67	.001	1.92	.000	1.95	.000
Other Race	.486	.054	.565	.142	.593	.177
Education (vs. < High School)						
High School/GED	.528	.078	.562	.173	.601	.219
<2 yr college	.563	.121	.613	.249	.673	.337
2 yr associated	.558	.114	.689	.382	.769	.528
Bachelors	.363	.005	.455	.061	.503	.093
Graduate	.348	.005	.462	.082	.525	.139
Income (vs. <$15,000)						
$15,000-35,000	1.08	.848	1.09	.826	1.11	.797
$35,001-50,000	1.07	.870	.956	.916	.959	.920
$50,001-75,000	1.23	.620	1.17	.700	1.21	.644
$75,000-100,000	.869	.738	.821	.642	.844	.689
>$100,000	1.05	.912	.986	.972	1.04	.924
Employment (vs. FT or PT employment)						
Not Working	.875	.440	.888	.487	.827	.284
Cigarette smoking (vs. daily smoker)						
< daily smoker			.792	.496	.777	.464
Never smoked			.591	.004	.598	.005
Binge drinking (vs. > few days a year)						
Binge drink a few days a year			1.11	.706	1.09	.756
Never binge drink			.530	.011	.532	.012
Any illegal drug use						.882
Self Reported health status (vs. excellent)			.989	.974	.948	
Health status good					1.31	.103
Health Status fair/poor					1.87	.004
n		3,556		3,519		3,518

Odds of Being a Problem/Pathological Gambler

As shown in Table 6.2, illustrating Model 1 which only has demographic variables, being male (3.1), African American (2.5), or other races (4.2) is associated with an increase in the odds of being a problem/pathological gambler. Being over 65 (0.3) and educated lowers the odds, (increasing effect with increasing education level) with having a graduate degree (0.1) having the largest effect size. Increasing income lowers the associated odds, especially incomes >$100,000 (0.4) as does being in the $15,000 to $35,000 range (0.4). When substance abuse measures are added to the model, the education variables are no longer significant, except for having a graduate degree (0.1). Being male (2.2), African American (2.8) or other races (3.8) remain significant and are associated with increased odds of being a problem/pathological gambler. Income level above $100,000 (0.4) remains negatively associated with odds of being a problem/pathological gambler. Any illegal drug use (2.3) is associated with increased odds of being a problem/pathological gambler. Adding self-reported health status to the model does not change any of these effects. People who self-report good health (0.6) have lower odds of being a problem/pathological gambler but is not significant at $p < 0.05$.

Table 6.2. Logistic Model of Problem/Pathological Gambling

Independent Variable	Model 1		Model 2		Model 3	
	Odds Ratio	P Value	Odds Ratio	P Value	Odds Ratio	P Value
Regions (vs. Central):						
Western	.650	.262	.722	.427	.801	.585
Southern	.857	.571	1.03	.922	1.04	.905
Eastern Shore	1.22	.671	1.05	.924	.998	.997
Male	3.08	.000	2.23	.010	2.17	.014
Age (vs. 18-29):						
30 to 44	.502	.067	.647	.304	.662	.327
45 to 54	.591	.163	.766	.538	.768	.538
55 to 64	.550	.122	.692	.405	.746	.494
65+	.330	.017	.669	.453	.749	.583
Marital status (vs. married)						
Widowed	1.06	.900	1.20	.729	1.17	.769
Divorced/separated	1.08	.819	1.07	.862	1.04	.925
Never married	1.30	.409	1.11	.740	1.07	.832
Race (vs. White)						
African American	2.47	.001	2.85	.000	2.95	.000
Other Race	4.16	.000	3.81	.001	3.94	.001
Education (vs. < High School)						
High School/GED	.411	.020	.567	.193	.611	.268
<2 yr college	.198	.001	.344	.044	.363	.063
2 yr associated	.295	.010	.596	.316	.611	.341
Bachelors	.135	.000	.347	.052	.368	.073
Graduate	.074	.000	.121	.000	.128	.001
Income (vs. <$15,000)						
$15,000-35,000	.379	.031	.380	.049	.403	.059
$35,001-50,000	.445	.080	.470	.123	.473	.120
$50,001-75,000	.463	.077	.471	.106	.474	.114
$75,000-100,000	.499	.122	.504	.156	.485	.151
>$100,000	.403	.049	.380	.047	.379	.047
Employment (vs. FT or PT employment)						
Not Working	.775	.435	.802	.534	.691	.316
Cigarette smoking (vs. daily smoker)						
< daily smoker			.607	.369	.634	.424
Never smoked			.372	.003	.358	.002
Binge drinking (vs. > few days a year)						
Binge drink a few days a year			.515	.107	.539	.141
Never binge drink			.445	.056	.444	.056
Any illegal drug use			2.27	.041	2.29	.048
Self Reported health status (vs. excellent)						
Health status good					.543	.051
Health Status fair/poor					1.34	.487
n		3,657		3,613		3,613

CHAPTER SEVEN
ECONOMIC INDICATORS OF PROBLEM/PATHOLOGICAL GAMBLING IN MARYLAND

In this chapter we discuss potential measures that can be utilized to track the impacts of gambling on Marylanders. First we discuss the data sources and some measures that can be used to examine gambling impacts at the county level. Next, the report presents current measures by counties that will have slot machines and the remaining counties in the state. Counties that will have slots are: Anne Arundel, Allegany, Baltimore City, Cecil and Worcester.

A component of the ADAA Request for Proposal was to develop baseline indicators of the impact of gambling. To examine the economic and social impact of gambling, ADAA should collect and combine indicators from public use and existing sources to the data collected from the prevalence survey. These indicators will assist in examining the impact of gambling on Marylanders as the full complement of legal casinos in Maryland become operational and as nearby states continue to expand their gambling offerings. The indicators examined in this report allow the state to monitor areas to assess the impact of the introduction of casino gambling on population health, the economy, and crime. The measures include unemployment rates, income, foreclosures, bankruptcy filings, crime rates, general health status, drinking status, substance abuse, and smoking. Below is a description of each data source.

Behavioral Risk Factor and Surveillance System

In 1984 the Centers for Disease Control and Prevention (CDC) established the Behavioral Risk Factor Surveillance System (BRFSS) to monitor public health, assess target demographics, and improve state legislation. BRFSS is a statewide health study presently used in all 50 states. According to CDC, the BRFSS can best be understood as, "…an ongoing telephone surveillance program designed to collect data on the behaviors and conditions that place Marylanders at risk for chronic diseases, injuries, and preventable infectious diseases." A typical state sample size for this study is roughly 8,900 households, encompassing residents mostly 18 and over. The questionnaires are annual and the data are processed monthly. In order to ensure accurate results, a weighting formula is systematically applied post data collection (Source: http://www.cdc.gov/brfss/stateinfo.htm).

Five states have added a problem gambling module to the BRFSS surveys in one or more years. These states include Iowa, Kansas, Massachusetts, Missouri and Vermont. While the BRFSS surveys tend to be of high quality, the problem gambling module used in the BRFSS surveys is not well-suited for the purpose of tracking problem gambling prevalence. One reason is that the module includes only one question assessing gambling participation, an approach that predictably yields under-reports of actual participation. The gambling module also includes two questions assessing adverse consequences, neither

of which is drawn from a validated problem gambling screen, and neither of which assesses loss of control, one of the two important underlying factors in the problem gambling construct (Maitland & Adams, 2007; Orford, Sproston, & Erens, 2003; Orford, Wardle, Griffiths, Sproston, & Erens, 2010; Volberg & Williams, 2011). Thus, BRFSS represents a valuable data set to measure health impacts of gambling at the county level over time because the data are collected annually and has county level measures publicly available.

Bureau of Labor Statistics

The Bureau of Labor Statistics (BLS) is an organization entwined with the federal and state government, Department of Labor, U.S. Congress, and the public. There are dozens of confidential surveys administered monthly, quarterly and annually, all of which vary by subject and region. Data can be viewed via specific survey, geographic area, year, and so on. Topics cover such areas as employment, consumer costs, and layoffs. Thus, BLS data represents a valuable data set to measure economic impacts of gambling at the county level over time.

Measures

Health

Using data from the 2010 BRFSS, people currently living in counties that do or will in the future have slot machines are generally in poorer health than the rest of the state. Future slots counties are more likely to have heavy drinkers (defined for men 2 or more drinks/day; women 1 or more drinks/day), with 5.4 percent in future slots counties vs. 4.0 percent in the rest of Maryland. Residents of future slots counties are more likely to be current daily smokers, with 15.3 percent in future slots counties vs. 8.9 percent in the rest of Maryland. For those with any days not in good physical health, the mean number for residents of in future slots counties is 10.0 days compared with the rest of Maryland at 8.1 days. For those with any days not in good mental health, the mean number for residents of in future slots counties is 10.8 days compared with the rest of Maryland at 9.5 days. Thus, residents of future slots counties appear to be of lower health than the rest of the state prior to gambling venues opening. Analysis of the impact of gambling on health should address these differences.

Income

Using the American Community Survey data, people in future slots counties tends to have lower incomes. Approximately 12.1 percent of the population in future slots counties has incomes of $15,000 or less compared with 8.7 percent of the rest of Maryland. In contrast, the counties that will not have slots in the future tend to have a higher income population, with nearly 50 percent of their population

having incomes of $75,000 or more compared with 33 percent of the population in future slots counties. Thus, residents of future slots counties appear to have lower incomes than the rest of the state prior to gambling venues opening. Analysis of the impact of gambling on incomes should address these differences.

Unemployment rate

In 2009, future slots counties have higher unemployment rates (9.0 percent) compared with the rest of the state of Maryland (6.8 percent). Again, this difference will need to be accounted for when measuring the impact of gambling on employment.

Bankruptcy

In 2009 the number of bankruptcy filings per 1000 residents (source USCourts.gov) was nearly the same between counties with that will have slots (4.05 filings) compared with 5.15 filings in the rest of Maryland. The counties appear similar on the measure of bankruptcy filings.

Foreclosure

In 2009 the foreclosure filings per housing units (source: http://www.mdhope.org/Library.aspx) were similar between future slots counties (1.4 percent) and rest of Maryland (2 percent).

Crime Rates

County level crime statistics for violent crime rate (murder, forcible rape, robbery, aggravated assault) and property crime rate (burglary, larceny-theft, motor vehicle theft, arson) from the FBI Uniform Crime Report System were examined. Counties that will have slots in the future have higher violent crime rates (8.2 vs. 4.5) and property crime rates (37.8 vs. 27) than the rest of Maryland (Source: http://www.fbi.gov/about-us/cjis/ucr/ucr). Again, this difference will need to be accounted for when measuring the impact of gambling on crime rates.

This chapter presents several impact measures that the state may follow to examine the effects of gambling on Marylanders. As some measures already present differences at baseline, future analysis must adjust for these baseline differences.

CHAPTER EIGHT
SUMMARY AND DIRECTIONS FOR THE FUTURE

The main purpose of this study was to obtain baseline information on the extent of problem gambling in Maryland prior to the start of slot machine gambling. The results will be useful in developing prevention and treatment services for problem gamblers and their families in Maryland.

Summary

In 2009, 77.3 percent of Marylanders scored low risk in The National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS) and nine percent scored at risk of becoming a problem or pathological gambler. The prevalence of problem gambling in Maryland is 1.9 percent and prevalence of pathological gambling is 1.5 percent. When problem and pathological gamblers are combined, the prevalence of problem/pathological gambling is 3.4 percent. In 2010, 10.3 percent of Marylanders had never gambled in their lifetime.

While most of the Maryland population has ever gambled (89.7 percent), the frequency of gambling varies according different demographic factors. For instance, 19.0 percent of Marylanders have not gambled in the past 12 months and 33.4 percent have gambled a few times in past 12 months. Yet there exists a population that does gamble frequently, with 21.9 percent gambling monthly in the past 12 months and 15.3 percent gambling weekly in the past 12 months. The population aged 18 to 29 appear most at risk of gambling issues as well as African Americans and Other races (primarily Hispanic).

Marylanders spend (in a typical month) the most gambling dollars on Internet ($553/month), followed by casinos ($214/month) and machines outside casinos ($151/month).

How Many Individuals should Maryland Plan to Treat for Gambling Problems?

One important purpose of prevalence surveys is to identify the number of individuals in a jurisdiction who may need treatment or other services for gambling-related difficulties at a given point in time. Experience in many jurisdictions suggests that not all of the individuals in need of treatment for a physical or psychological problem will seek out such treatment. From a policy perspective, the question is: How many individuals should Maryland plan to provide for treatment?

Research in the early 1990s suggested that approximately three percent of individuals with severe gambling-related problems would seek treatment in any one year (Dickerson, 1997; Volberg, 1997). This proportion was similar to the proportion of alcohol-dependent individuals in the general population who sought treatment on an annual basis (Smith, 1993). More recent research suggests that the proportion of individuals in the population with serious alcohol or substance abuse problems who seek specialized treatment in any one year is substantially higher—8 percent among alcohol abusers and 14 percent among

substance abusers (Substance Abuse and Mental Health Services Administration, 2003). Increases in treatment seeking appear to be related to advances in pharmaceutical treatments, greater likelihood of reimbursement from insurance companies, and the decreased stigma of some addictive disorders (Fong, 2010). Similarly, help seeking for gambling problems is on the rise in jurisdictions where specialized services are widely available and well-publicized. Recent data from New Zealand indicate that approximately 10 percent of individuals with severe gambling-related problems in jurisdictions where services are widely available will seek help in any one year (Bellringer, Pulford, Abbott, DeSouza, & Clarke, 2008).

In calculating the number of problem and pathological gamblers who might seek treatment in Maryland, the focus is on the group of individuals who score as pathological gamblers (i.e., the 66,300 individuals who scored as pathological gamblers in Maryland). Based on this approach, we estimate that the number of individuals who would initially seek treatment for a gambling problem on an annual basis in Maryland is approximately 2,000. If problem gambling treatment services become widely available and accessible in Maryland, it is possible that the number of individuals who would seek help for a gambling problem would eventually increase to approximately 6,500 on an annual basis.

Directions for the Future

The impacts of gambling-related problems can be high, not only for individuals but also for families and communities. Pathological gamblers experience physical and psychological stress and exhibit substantial rates of depression, alcohol and drug dependence and suicidal ideation. The families of pathological gamblers experience physical and psychological abuse as well as extreme pressure from bill collectors and creditors. Other significant impacts include costs to employers, creditors, insurance companies, social service agencies and the civil and criminal justice systems (Lesieur, 1998; National Research Council, 1999; Volberg, 2001c).

The impacts associated with gambling-related problems is not limited to those at the most severe end of the gambling problem continuum. Indeed, it is likely that problem and at-risk gamblers account for the largest proportion of the social costs of disordered gambling (Korn & Shaffer, 1999). It is also likely—if the addiction model applies—that problem and at-risk gamblers will be more responsive than pathological gamblers to prevention and intervention efforts (Hodgins & el-Guebaly, 2000; Shaffer & Korn, 2002).

As the National Gambling Impact Study Commission (1999) pointed out more than a decade ago, recent rapid growth in legal gambling in America has largely taken place in the absence of any deliberative process. While there are significant gaps in knowledge about problem gambling, what is

known has some relevance to gambling policy and the development of interventions to prevent harm and assist problem gamblers in Maryland.

We have identified a relatively high rate of problem gambling prevalence in Maryland in advance of the introduction of slot machines. Furthermore, although we now have information about the contemporary risk profile for problem gambling in Maryland, this may change as new gambling activities and technologies become available.

While the prevalence of problem gambling tends to rise when access to gambling increases, research suggests it will eventually level out, even when gambling accessibility continues to increase (Abbott, 2006; Storer, Abbott, & Stubbs, 2009). It is not known where Maryland currently exists on this trajectory as gambling venues in nearby jurisdictions has increased. However, rates may rise three- or four-fold before this occurs and even then, active measures may be required to achieve stabilization. Research suggests that a public health approach—one that includes raising public awareness of the risks of excessive gambling, expanding services for problem gamblers and strengthening regulatory, industry and public health harm reduction measures—can counteract some adverse effects from increased availability. What is not known is how quickly such endeavors can have a significant impact and whether or not they can prevent problem escalation entirely if introduced concurrently with increased access to gambling (Abbott, Volberg, Bellringer et al., 2004). In order to monitor the prevalence of problem gambling, studies regarding gambling behavior and prevalence should be repeated at specified intervals in the future.

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