



NATIONAL CENTER FOR RESPONSIBLE GAMING





Our Mission

The mission of the National Center for Responsible Gaming is to help individuals and families affected by gambling disorders through the following activities:

- Supporting the finest peer reviewed basic and applied research on disordered gambling behavior and youth gambling.
- Encouraging the application of new research findings to improve prevention, intervention and treatment strategies.
- Enhancing public awareness of disordered and youth gambling.

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Message from the Chairman

THE SUCCESS OF THE NCRG IN 1999

In the four years since its founding, the National Center for Responsible Gaming (NCRG) has made enormous strides in providing help to individuals facing gambling disorders through its commitment to the funding of high-quality research and to raising public awareness of the issue. With these goals in mind, I believe 1999 was the center's most successful year to date.

In 1999, the NCRG hosted its first annual conference at The George Washington University in Washington, D.C. "New Directions in Gambling Addiction Research" was a groundbreaking event, featuring 15 of the most noted research scientists in the area of gambling disorders. Topics discussed included addiction as a brain disease, youth gambling, prevention issues and the latest technology in genetics and neuroimaging as a way to understand disordered gambling behavior.

The NCRG awarded more than \$1.8 million in grants last year to leading institutions around the United States and Canada, money that will support cutting-edge scientific research into disordered and youth gambling. These grants brought the center's total grant awards since 1996 to more than \$3 million.

The NCRG worked hard in 1999 to ensure that its research did not go unnoticed. In addition to the conference in Washington, D.C., the work of NCRG researchers appeared in numerous prestigious scientific journals, and representatives of the center presented research findings at public hearings and meetings around the nation, including those of the American



*Maj. Gen. Paul A. Harvey (Ret.)
Chairman
Gaming Entertainment Research and
Education Foundation*

Psychological Association and a subcommittee of the U.S. Senate. NCRG research also was used by the National Research Council in a report that the council prepared for the National Gambling Impact Study Commission.

As the NCRG enters its fifth year, I want to take the opportunity to thank all of the center's donors for their generous contributions. Without you, the important work of the NCRG would not be possible. I also want to add a special note of gratitude to all the center's founding donors, who renewed their faith in the NCRG last year by committing their continued support for the

years 2000-2002. It is our hope that all segments of the gaming industry will recognize the importance of studying gambling disorders and contribute to research efforts in the future.

As we begin the new century, the National Center for Responsible Gaming is dedicated to continuing its pivotal role in the creation of a field of research on disordered gambling. We stand ready to build on our successes of the past four years and look forward to working together to find answers to this important issue in 2000 and beyond.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul A. Harvey".

Maj. Gen. Paul A. Harvey (Ret.)
Chairman
Gaming Entertainment Research and
Education Foundation

State of the Field of Pathological Gambling

THE WHO, WHAT, WHERE, WHY AND HOW OF AN EMERGING RESEARCH AREA

For the vast majority of Americans, gambling represents a fun, leisure-time activity with little or no negative consequences. A small portion of the population, however, suffers from “pathological gambling,” a disorder that, to date, has been difficult to explain or understand due to conflicting facts and scientific terminology.

Today, pathological gambling is an emerging field of research. Over the past four years, the National Center for Responsible Gaming (NCRG) has taken the lead in this area and awarded more than \$3 million in grants to researchers. The work of these individuals has helped to better define the problem of pathological gambling, as well as identify areas for future study.

Gambling Disorders: What We Know

According to a 1997 Harvard Medical School study, an estimated 1.14 percent to 1.60 percent of the adult population in the United States and Canada meet diagnostic criteria for pathological gambling as defined by the American Psychiatric Association. Two recent studies commissioned by the federal government have estimated the number to be in this range or lower.

Research into pathological gambling has revealed that young people, individuals undergoing treatment for alcohol and drug abuse, and prison populations have a higher rate of the disorder than the general adult population. In addition, pathological gamblers frequently suffer from other psychiatric problems such as depression, bi-polar disorder, anti-social personality disorder or attention deficit hyperactivity disorder. Evidence of a strong familial component also has been identified, suggesting that both genetics and social environment play a role in the development of the disorder.

Major questions, however, remain as to the nature, scope and severity of gambling-related disorders – questions that define the challenges currently facing researchers in the field.

“Conceptual and methodological chaos is common among emerging scientific fields.”

— From “Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis,” by Howard J. Shaffer, Matthew N. Hall and Joni Vander Bilt, published in 1999 in the *American Journal of Public Health*.

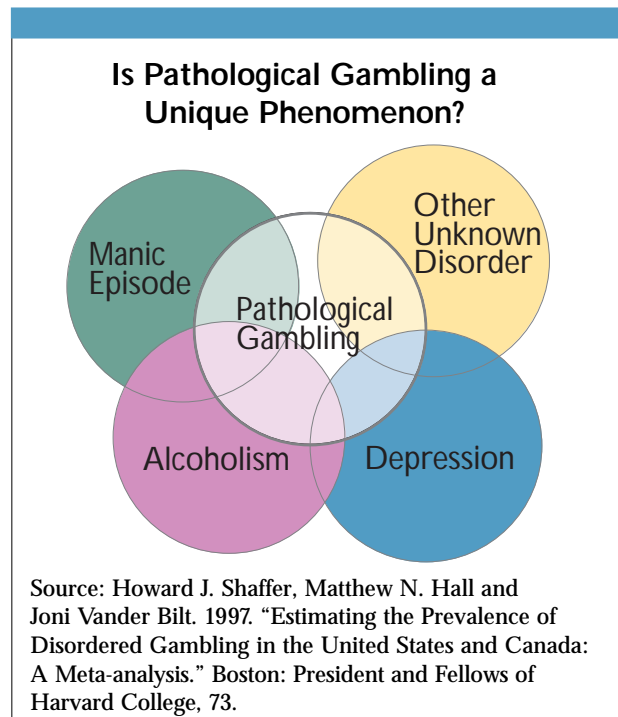
Gambling Disorders: The Challenges

One factor that has contributed greatly to the lack of understanding, or “conceptual chaos,” surrounding the study of pathological gambling is the lack of standard scientific terminology. The widespread use of various terms such as “problem,” “compulsive,” “pathological” and “probable pathological” has only served to confuse the public and frustrate scientists.

The lack of standard terminology also presents a challenge to scientists attempting to measure the prevalence of the disorder in the general population. Although a number of screening and diagnostic instruments have been developed over the years, controversy continues as to whether criteria used to define a gambling disorder should be based on the dollar amount gambled, frequency of gambling or the individual’s level of preoccupation with gambling. Further complicating the issue is the fact that no independent “gold standard” exists against which scientists can judge the validity of these instruments.

A related challenge facing researchers of pathological gambling is the fact that it has yet to be established as a unique disorder. The question of whether pathological gambling is a primary disorder or the consequence of other mental health problems remains unanswered. In addition, there is a lack of detail regarding the duration of the disorder, the causes of recovery and relapse, and the varying levels of its severity – all factors that have made it difficult to develop intervention and prevention strategies. Moreover, we do not know how many disordered gamblers recover on their own, without formal treatment. Evidence of “natural recovery” would have profound implications for both the study of the disorder and the calculation of its social and economic costs.

Researchers also have much to learn about the risk factors for developing a gambling disorder. Do pathological gamblers have a deficient reward system in their brains? If pathological gamblers are “hard-wired” to



have a problem, which genes can be implicated? Moreover, how does the neurobiological predisposition interact with environmental factors such as family, peers and community? Although limited research and anecdotal evidence suggest that pathological gambling is a treatable disorder, the dearth of rigorous clinical studies leaves treatment providers without a clear guide.

The NCRG Role

These are just a few of the many challenges confronting investigators. With its founding in 1996, the NCRG became the first organization in the nation to match its recognition of the need for rigorous research with the proportionate financial support for such research. Thanks to its many partners in the scientific community, the center’s goal of “creating a field” of research is now being realized.

NCRG Contributors

THE LIFEBLOOD OF THE NCRG

In 1999, the National Center for Responsible Gaming's (NCRG) original contributors renewed their financial commitment to independent research on gambling disorders by pledging an additional three years of support. Combined with the 10-year pledges by founding donors Boyd Gaming Corporation and Station Casinos, Inc., these pledges and donations total \$7 million for the period of 1997 through 2006.

Founding Contributors

Boyd Gaming Corporation and **Station Casinos, Inc.**, provided the start-up costs for the NCRG in 1996 and pledged a combined \$1.8 million between 1997 and 2006.

Contributors 1997-2002

\$600,000

International Game Technology
The Lincy Foundation
Mandalay Resort Group
Mirage Resorts, Inc.

\$450,000

Harrah's Entertainment, Inc.
Park Place Entertainment Corporation

\$300,000

Aztar Corporation
Caesars World, Inc.
Grand Casinos, Inc.
Hilton Hotels Corporation

\$100,000-\$299,000

Coast Resorts, Inc.
Hollywood Casino Corporation
Hollywood Park
Hotel Employees & Restaurant Employees International Union

\$50,000-\$99,000

Casino Data Systems
Empress Riverboat Casinos, Inc.
Horseshoe Gaming, Inc.
Rio Suite Hotel & Casino
Showboat, Inc.
Shuffle Master Gaming, Inc.

\$10,000-\$49,000

Foxwoods Resort Casino
Harveys Casino Resorts
JCM American Corporation
Mission Industries
Mohegan Sun
Sandia Casino
Southern Wine and Spirits of Nevada

"Today we continue our commitment to funding on-going national research efforts targeted toward the assessment and treatment of gambling disorders through support and participation with the National Center for Responsible Gaming.

"In fact, I am privileged to serve as a board member of the foundation which funds the center, and I am actively involved in fund-raising efforts, efforts which in 1997 resulted in more than 4.5 million dollars being committed by members of our industry to enable quality, unbiased research. The experts told us to fund research, and we have."

— Testimony of Thomas Brosig, president, Mid-South Region, Park Place Entertainment Corporation, at a public hearing of the National Gambling Impact Study Commission.



During Responsible Gaming Education Week, Aug. 2-6, 1999, members of the Missouri Riverboat Gaming Association raised \$1,000 for the NCRG through the commemorative chip program sponsored by the American Gaming Association (AGA). The non-negotiable chip was donated by the AGA to its member companies.

1999 GAMING HALL OF FAME CHARITY DINNER AND INDUCTION CEREMONY

The American Gaming Association and *International Gaming & Wagering Business* annually sponsor a dinner to honor that year's inductees into the Gaming Hall of Fame. The dinner benefits the NCRG and Safe Nest, a Las Vegas-based organization that provides temporary assistance and shelter to abused women and their children. The following companies and individuals sponsored tables and provided in-kind contributions for the event in 1999:

\$8,000

International Game Technology

\$7,000

Mirage Resorts, Inc.

\$6,000

GEM Communications

\$5,000

Boyd Gaming Corporation

Caesars World, Inc.

Foxwoods Resort Casino

Mandalay Resort Group

Marnell Corrao Associates

Silver Legacy and Eldorado Hotel Casinos

Bob and Lovee Arum

Irwin and Susan Molasky

Claudine Williams

\$4,000

MGM Grand, Inc.

Spintek Gaming Technologies, Inc.

\$3,000

Bank of America

CIBC World Markets

Gaming Systems International

The Greenspun Family Foundation

Harrah's Entertainment, Inc.

Harveys Casino Resorts

Hotel Employees & Restaurant

Employees International Union

House of Blues Las Vegas

Hyatt Regency Lake Las Vegas

Las Vegas Convention and Visitors Authority

Mission Industries

Nevada Power Company

Paul-Son Gaming Supplies

Prairie Meadows Racetrack and Casino

Shuffle Master Gaming, Inc.

Southwest Gas Corporation

Sprint

Station Casinos, Inc.

Wells Fargo Bank

Willis

YESCO

Frank A. Modica

Sandy and Roger Peltyn

\$1,000+

Aztar Corporation

Casino Data Systems

Cohn & Wolfe

The Friedmutter Group

Houssels Family Foundation Corporation

Sun International

John Angus

In-kind Sponsors

American Gaming Association

Continental Services Incorporated

The French Bouquet Shoppe

GEM Communications

Goetz Printing

Nevada Color Litho

Southern Wine and Spirits of Nevada



Akiyoshi Isoi, president of JCM American Corporation, entertainer Wayne Newton and Frank J. Fahrenkopf, Jr., president of the American Gaming Association and member of the Gaming Entertainment Research and Education Foundation, at the 1999 golf tournament.

1999 JCM/AGA GAMING GOLF CLASSIC

JCM American Corporation and the American Gaming Association sponsored a charity golf tournament March 31, 1999, at the Tournament Players Club at The Canyons in Las Vegas to benefit the NCRG. The following companies supported the tournament:

Aristocrat

Atronic

Boyd Gaming Corporation

Casinovations

Chase Products Company

Harmony Healthcare

IC/BCA

Mikohn Gaming Corporation

Paradigm Gaming Systems, Inc.

Performance Contracting, Inc.

Southern Wine and Spirits of Nevada

The Resort at Summerlin

Viejas Casino & Turf Club

VLC of Nevada

WMS Gaming, Inc.



GEREF board member Phil Satre (right), chairman and CEO of Harrah's Entertainment Inc., attends the 1999 Gaming Hall of Fame Charity Dinner and Induction Ceremony with (pictured from left) Charles Mathewson, chairman of International Game Technology; Jennifer Satre; Claudine Williams, chairman of the board of Harrah's Las Vegas and a member of the Hall of Fame Host Committee; and Thalia Dondero, former Clark County (Nev.) commissioner.

Creating a Field of Research

NCRG EFFORTS IN STUDYING GAMBLING DISORDERS

Since 1996, the National Center for Responsible Gaming (NCRG) has awarded \$3.2 million in support of 20 scientific investigations of gambling disorders – an unprecedented level of funding for this area of research. As the only independent, nonprofit organization in the United States dedicated exclusively to peer-reviewed research on gambling, the NCRG has provided the financial support necessary for conducting meaningful investigations. Moreover, the center has raised the bar for research by following the high standards of the National Institutes of Health.

Prevalence of the Disorder

The NCRG's first research project tackled the basic question of how many people have a gambling problem. With a grant from the center, **Harvard Medical School's Division on Addictions** conducted a meta-analysis of 120 prevalence studies and produced the first reliable national estimates of the problem. According to the study, titled "Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Meta-analysis," between 1.14 percent and 1.60 percent of the adult population could be classified as having pathological problems incident to gambling. The Harvard team also developed a classification system to describe the varying degrees of disordered gambling behavior and to solve the chaotic terminology problem in gambling research:

- Level 1 prevalence rates represent people who do not have gambling problems.
- Level 2 represents those who do not have a "clinical" disorder but do exhibit a pattern of gambling that is associated with a range of adverse reactions or consequences.
- Level 3 gambling refers to disordered gambling that satisfies "diagnostic" criteria and, therefore, is clinically meaningful.

The methodological rigor of the Harvard study was confirmed by the National Research Council of the National Academy of Sciences, which praised the meta-analysis for providing "the best current estimates of pathological and problem gambling among the general adult U.S. population and selected subpopulations" in *Pathological Gambling: A Critical Review* (1999). The study, which was published in the September 1999 issue of the *American Journal of Public Health*, also argued for more exacting standards in the conduct of future prevalence studies. With continuing



David Comings, M.D., director of the Department of Medical Genetics at the City of Hope Medical Center, recently completed the NCRG-funded research on "The Molecular Genetics of Pathological Gambling."



Suck Won Kim, M.D., of the University of Minnesota Medical School, is directing a drug trial with support from the NCRG.

support from the NCRG, the Harvard study's lead author, **Howard Shaffer, Ph.D.**, and his colleagues have continued to accept new studies and now offer the most comprehensive and up-to-date database of prevalence studies available to researchers.

Youth Gambling

The Harvard study identified a higher rate of gambling disorders among adolescent and college-age populations than among the general adult population. Many researchers suspect that early involvement in gambling may be a risk factor for developing a problem later in life. In addition, gambling has been connected with other risky behaviors often characteristic of this age group. Not enough is known, however, about the dynamics of youth gambling to develop effective prevention and intervention strategies. For this reason, the NCRG has made the study of youth gambling a top priority, funding seven investigations on this population since 1996. Researchers are looking at the demographic, psychosocial and behavioral variables of this phenomenon. **Ken Winters, Ph.D.**, at the **University of Minnesota**, for example, is studying how young gamblers make the transition to young adulthood and if the developmental model used for substance abuse is helpful for understanding youth gambling. A **University of South Alabama** project is studying high school students in three different southeastern U.S. communities to explore individual risk factors, including depression, substance abuse and involvement in risk-taking activities. The study's principal investigator, **Jennifer Langhinrichsen-Rohling, Ph.D.**, is looking at these individual factors in relationship to the adolescents' perceptions of their peers, families and communities.

Many researchers also suspect that "cognitive distortions," or faulty notions of probability, in the mind of a disordered gambler are the root of the problem. **Centre for Addiction and Mental Health** researcher **Nigel Turner, Ph.D.**, has developed an interactive curriculum – "Really, What Are Your Chances of Winning?" – to enhance middle- and high-school students' understanding of the role of randomness, probability and emotion in gambling. A grant from the NCRG is supporting a controlled trial of this prevention strategy in the Toronto public school system.

Casino Employees

The NCRG has supported groundbreaking research on another group of individuals that may be vulnerable to gambling disorders – gaming industry employees. The NCRG-funded "Harvard Project on Gambling and Health" has produced the first broad-based prevalence study focused on this group.

"As with most addictions, the common perception is that people should be able to control their involvement and those who overindulge have only themselves to blame. While it is important for individuals to take responsibility for their own behavior, it is equally clear that biological and genetic factors can play a role in increasing the risk of becoming a pathological gambler."

— David E. Comings, M.D., "The Molecular Genetics of Pathological Gambling," *CNS Spectrums* (1998).



Robert Sutherland, Ph.D., is principal investigator of a brain imaging study at the University of New Mexico.

Published in the *American Journal of Industrial Medicine* in 1999, the study found that casino employees have a higher prevalence rate of pathological gambling behavior than the general adult population (2.1 percent versus 1.14 percent to 1.60 percent). The investigators also observed a close connection between gambling problems and alcoholism and depression. They also found that casino employees have a lower prevalence rate of level 2 gambling disorder (i.e., problems that do not meet diagnostic requirements for the disorder) than the general population. They concluded that, although more research is warranted, this observation may have important implications for understanding how people cope with increased availability to gambling; in other words, casino employees may learn from their direct observations of the “downside” of gambling, which then serves as a protective factor against developing sub-clinical levels of gambling problems.

Measuring Problem Gambling

In response to the need for a more comprehensive diagnostic gambling module, **Renee M. Cunningham-Williams, Ph.D.**, at the **Washington University School of Medicine** is using NCRG support to develop, refine and test an assessment tool. The Gambling Assessment Module IV will provide a more detailed portrait of disordered gamblers than other instruments by collecting information about amounts gambled, frequency of gambling, types of gambling activity, duration of symptoms, associations with drug and alcohol use, illicit and underage gambling, efforts at help-seeking, family history, information on social networks and various venues for gambling.

Giving Clinicians the Right Tools

Clinicians face a daunting task when confronted by a problem gambler. Although there is a wide repertoire of treatment therapies for addictive behaviors and mood disorders, the absence of rigorous research on what works for problem gamblers leaves providers without a clear map. The high rate of comorbidity, i.e., the co-existence of gambling problems with other psychiatric disorders, makes it difficult to determine whether the gambling behavior is a primary or secondary disorder. Consequently, the NCRG is supporting several investigations that eventually will point the way to the most effective forms of treatment. **Suck Won Kim, M.D.**, at the **University of Minnesota Medical School** is conducting a double-blind trial of the drug Naltrexone. Used effectively in treating psychiatric disorders characterized by excessive urges and loss of behavioral control, such as alcoholism and bulimia nervosa, Kim hypothesized that Naltrexone could reduce uncontrollable urges to gamble. The NCRG also is supporting trials testing the efficacy of other forms of treatment, including cognitive therapy, which attempts to modify distorted thoughts that underlie a pathological symptom.



Nigel Turner, Ph.D., is the principal investigator of an NCRG-funded project on prevention in Toronto.

Neuroscience

Neuroscientists supported by the NCRG are exploring the possibility that disordered gambling behavior may be influenced, in part, by a deficient brain reward system. In other words, a neurochemical imbalance may alter an individual's ability to derive satisfaction or pleasure from the usual activities and, therefore, drive him or her to activities that stimulate the level of dopamine in the brain. Researchers believe that this would explain the fierce cravings and self-destructive patterns commonly seen in pathological gamblers. **Charles Warren, Ph.D.**, of the **University of Illinois-Chicago** is using his NCRG grant to test the reward deficiency syndrome by measuring brain activity through an EEG. **Massachusetts General Hospital** researcher **Hans Breiter, M.D.**, is using another imaging technique – functional magnetic-resonance imaging (fMRI) – to localize patterns of brain activation in both pathological gamblers and normal subjects with particular attention to brain reward circuitry and the build-up of craving.

Genetics of Pathological Gambling

Identifying the genes that play a role in a deficient reward system ultimately will help researchers to understand who is at greatest risk for pathological gambling and how to prevent and treat the problem. The NCRG-funded research of **David Comings, M.D.**, at the **City of Hope Medical Center** has bolstered the theory that defects in dopamine receptor genes play a role in the development of a gambling problem, as well as other addictive disorders. **Michael Miller, Ph.D.**, at the **University of Missouri-Columbia** is

conducting a molecular genetic investigation of the “impulsive nonconformity” personality trait that is strongly associated with sensation seeking, substance dependence and other behaviors associated with gambling. The investigators will collect both DNA and questionnaires about gambling behavior from former college students who scored either high or low on the Impulsive Nonconformity Scale while they were students. Although testing for genetic associations with gambling behaviors has just begun, it is an area of research that will have a profound impact on how to understand, measure and treat gambling disorders. For example, by providing biological markers for the disorder, genetics research will provide a truly independent, objective standard against which the validity of screening and diagnostic instruments can be measured.

The research work of the NCRG is garnering the respect of the scientific community. As researchers **Linda B. Cottler, Ph.D.**, and **Renee M. Cunningham-Williams, Ph.D.**, of **Washington University School of Medicine**, noted in a March 2000 guest editorial in the *St. Louis Post-Dispatch*: “One research organization funded by the gaming industry – the National Center for Responsible Gaming – actually funds more gambling research than the National Institutes of Health. And it has mechanisms in place, including peer review, that attempt to safeguard research against any influence or bias from the industry. In this case, the gaming industry deserves credit for its efforts to maintain a ‘hands-off’ approach in its financial support of rigorous, methodologically sound research.”

NCRG Outreach

BUILDING BRIDGES THROUGH RESEARCH AND DIALOGUE

NCRG Hosts Groundbreaking Conference

Disseminating the findings of research on pathological and youth gambling is a top priority for the National Center for Responsible Gaming (NCRG). In 1999, the NCRG held its first annual conference, "New Directions in Gambling Addiction Research," which was cosponsored and hosted by The George Washington University in Washington, D.C. Fifteen of the most noted research scientists in the United States and Canada joined together with 150 people from across the nation to discuss research trends in gambling studies and the impact of NCRG support.

Clockwise from top:

- Alan I. Leshner, Ph.D., director of the National Institute on Drug Abuse, delivered the keynote address, "Addiction is a Brain Disease – and It Matters" at the NCRG conference.
- Stephen Joel Trachtenberg, Ph.D., president of The George Washington University, welcomed the NCRG conference participants to GW's campus.
- Workshop at NCRG conference at GW.



NCRG Representatives Present Research to Public in 1999

Representatives from the NCRG presented research findings and testified at the following public meetings and hearings in 1999:

- American Psychological Association
- Casino Ops
- International Association of Gaming Attorneys
- Missouri Alliance to Curb Compulsive Gambling
- Missouri Gaming Commission
- National Council of Legislators from Gaming States
- National Council on Problem Gambling
- National Gambling Impact Study Commission
- Nevada Gaming Attorneys
- Northern Gaming Summit
- Public Sector Gaming Study Commission
- Southern Gaming Summit
- U.S. Senate Subcommittee on Labor, Health and Human Services and Education and Related Agencies



*Left: NCRG investigator Ken Winters, Ph.D., University of Minnesota, testified before the U.S. Senate Subcommittee on Labor, Health and Human Services and Education and Related Agencies on June 30, 1999.
Below: Howard Shaffer, Ph.D., presented the findings of his research at a conference of the Nevada Gaming Attorneys in 1999.*

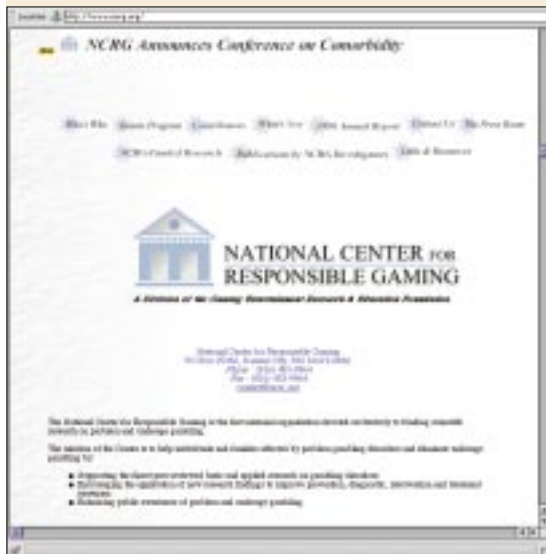


Photo courtesy of Las Vegas Sun.

“Perhaps surprising to some, the largest source of funding for research on problem and pathological gambling is the commercial casino industry.

“The American Gaming Association (AGA)—which represents a wide range of casinos—has initiated several efforts to address problem and pathological gambling and is the largest source of funding for research on problem and pathological gambling. Members of the AGA have committed \$7 million to researching several aspects of problem and pathological gambling.”

— Final Report, The National Gambling Impact Study Commission, 1999.



The NCRG Online

To enhance its efforts to increase public awareness of disordered gambling and to facilitate the finest research on the subject, the National Center for Responsible Gaming (NCRG) has established a comprehensive and user-friendly Web site – www.ncrg.org – featuring the latest on the center and its work, as well as an archive of useful information.

At the NCRG's home page, visitors can point and click to a variety of categories, including:

- [Grants Program](#), where interested scientists can go for a posting of current requests for applications for research into disordered gambling. This section also contains criteria for funding, research areas eligible for support, deadlines, instructions for preparing a letter of intent, details on the review process and the criteria used to determine the scientific merit of all applications.
- [Who's Who](#), which contains a listing of current members of the NCRG advisory board and peer review panels and members of the board of the Gaming Entertainment Research and Education Foundation.
- [Contributors](#) lists the many companies and individuals who have given generously to the NCRG.
- [NCRG-Funded Research](#) itemizes research done by NCRG-funded investigators, divided into the categories of epidemiology, neuroscience, and social and behavioral sciences.
- [Publications by NCRG Investigators](#) lets interested individuals know where to find the work of NCRG researchers in print.
- [The Press Room](#) features current press releases and statements, as well as an archive of past releases.
- [Links & Resources](#) lists resources available to help researchers, treatment providers and others interested in problem and youth gambling.

In addition, the Web site posts information on current outreach efforts of the center, including a calendar of upcoming NCRG-sponsored events.

Looking to the Future

THE NCRG CONFERENCE 2000

In keeping with its commitment to open dialogue on the issue of gambling disorders, the National Center for Responsible Gaming (NCRG) will hold its second annual conference, "The Comorbidity of Pathological Gambling," on Dec. 3-5, 2000, in Las Vegas.

The comorbidity of pathological gambling – the concurrence of other mental health problems such as depression and substance abuse in pathological gamblers – presents researchers with a great challenge in that the coexistence of other disorders clouds the picture of pathological gambling, making it difficult to define, measure, prevent and treat.

The NCRG selected the topic in order to stimulate a fresh approach to the problem and advance the field. Knowledge of comorbidity is vital to understanding the etiology of pathological gambling, the course of the illness, affected populations, treatment plans, interventions and, ultimately, social policy.

The conference will feature leaders in comorbidity research in dialogue with gambling researchers, new investigators and others interested in gambling disorders. The program will focus on epidemiology, neurobiology, prevention, treatment and social policy.

"Unlike the tobacco industry, which attempted to debunk accepted research about the dangers of smoking, the gaming industry seems genuinely interested in learning just what effect gambling has on gamblers and communities."

— Guest editorial by Linda B. Cottler, professor of psychiatric epidemiology at Washington University School of Medicine, *St. Louis Post-Dispatch*, May 6, 1999.

Members of the Conference 2000 Planning Committee

Executive Subcommittee:

**Linda B. Cottler, Ph.D.,
Chair**

Professor of Epidemiology in
Psychiatry
Washington University School of
Medicine

Mark Appelbaum, Ph.D.

Professor of Psychology
University of California, San Diego

**Renee M. Cunningham-
Williams, Ph.D.**

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University of Iowa

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**Francisco Napolitano,
Esquire**

Attorney at Law
Board Member,
American Academy of
Health Care Providers
in the Addictive
Disorders

David Self, Ph.D.

Assistant Professor of
Psychiatry
Yale University School of
Medicine



Peter Goyer, M.D., has an NCRG grant to investigate the "Relation of Cognitive Status to Brain Blood Flow and Dopamine Receptors in Pathological Gamblers."

Grant Awards

NCRG FUNDS NEW RESEARCH IN 1999

The National Center for Responsible Gaming (NCRG) was created to encourage and support new research on pathological and youth gambling. To achieve this goal, the center has established a highly competitive and widely respected grants program that has, since 1996, awarded \$3.2 million to leading research institutions across the United States and in Canada.

In 1999, the NCRG awarded more than \$1.8 million in grants to the following research projects:

"Adolescent Gambling Behavior as a Function of Individual Differences in Risk-taking, Gender, Peer and Family Context, and Community Norms for Legalized Gambling"

Principal Investigator: Jennifer Langhinrichsen-Rohling, Ph.D., Associate Professor of Psychology, University of South Alabama, Mobile, Ala.

Grant amount: \$125,800

Completion date: March 2001

"Adolescent Understanding of the Emotional and Cognitive Aspects of Gambling: The Development of a Prevention Strategy"

Principal Investigator: Nigel Turner, Ph.D., Scientist, Centre for Addiction and Mental Health, Toronto.

Grant amount: \$88,296

Completion date: May 2000

"The Association of Gambling Problems with Impulsivity as a College Student and the Genotype-phenotype Relation"

Principal Investigator: Michael Miller, Ph.D., Assistant Research Professor of Psychology, University of Missouri, Columbia, Mo.

Grant amount: \$171,124

Completion date: May 2001

"Functional MRI of Neural Responses to Monetary Gains, Losses and Prospects in Pathological Gamblers and Normal Subjects"

Principal Investigator: Hans Breiter, M.D., Clinical Assistant in Psychiatry, Massachusetts General Hospital, Charlestown, Mass.

Grant amount: \$172,500

Completion date: March 2001

"Reward Deficiency ERPs: Effects of D2A1, Gambling Pathology and ADHD"

Principal Investigator: Charles Warren, Ph.D., Research Assistant Professor, University of Illinois-Chicago, Chicago.

Grant amount: \$172,492

Completion date: March 2001

"Pharmacological Priming of Gambling-related Cognitions by Amphetamine"

Principal Investigator: Martin Zack, Ph.D., Scientist, Centre for Addiction and Mental Health, Toronto.

Grant amount: \$75,042

Completion date: October 2000

"The Development of a Diagnostic Gambling Assessment—the GAM-IV"

Principal Investigator: Renee M. Cunningham-Williams, Ph.D., Research Assistant Professor of Social Work, Washington University School of Medicine, St. Louis.

Grant amount: \$86,321

Completion date: August 2000

"Affective, Cognitive and Perceptual Processes in Gambling"

Principal Investigator: Lawrence Jones, Ph.D., Professor of Psychology, University of Illinois at Urbana-Champaign, Champaign, Ill.

Grant amount: \$172,155

Completion date: March 2001

"The Harvard Project on Gambling and Health, II"

Principal Investigator: Howard J. Shaffer, Ph.D., Director, Division on Addictions, Harvard Medical School, Boston.

Grant amount: \$751,268

Completion date: December 2001

Publications

NCRG INVESTIGATORS IN PRINT

The National Center for Responsible Gaming (NCRG) employs the rigorous, peer review procedures and standards used by the National Institutes of Health to evaluate the scientific merit of proposals submitted for funding. The peer review process, however, does not end there.

The NCRG strongly encourages investigators to publish their research findings in the most prestigious academic journals, which employ an arduous review process. The center is proud that, although only two NCRG projects have been completed since 1996, the investigators of these projects have already been published in some of the leading journals in the nation.

The published NCRG researchers are listed below, with citations:

- Comings, D.E. (1999). Molecular heterosis as the explanation for the controversy about the effect of the DRD2 gene on dopamine D2 receptor density. *Molecular Psychiatry*, 4, 213-215.
- Comings, D.E. (1999). SNPs and polygenic disorders: A less gloomy view. *Molecular Psychiatry* (in press).
- Comings, D.E. The role of the DRD2 and other dopamine genes in personality traits. In Epstein et al (Eds.), *The Molecular Genetics of Personality*.
- Comings, D.E. (2000). The molecular genetics of ADHD and conduct disorder: Relevance to the treatment of recidivistic antisocial behavior. In D. Fishbein (Ed.), *Prevention of Antisocial Behavior*. New York: Civic Research.
- Comings, D.E. (1998). The molecular genetics of pathological gambling. *CNS Spectrums*, 3, 20-37.
- Comings, D.E. & Blum, K. (2000). Reward deficiency syndrome: Genetic aspects of behavioral disorders. In Uylings et. al. (Eds.), *Cognition, Emotion and Autonomic Responses*. Elsevier, Amsterdam.
- Comings et al. (1999). Studies of the 48 bp repeat polymorphism of the DRD4 gene in impulsive, compulsive, addictive behaviors: Tourette Syndrome, ADHD, pathological gambling, and substance abuse. *American Journal of Medical Genetics* (Neuropsychiatric Genetics), 88, 358-368.
- Comings et al. (in press). Potential role of the estrogen receptor gene (ESR1) in anxiety. *Molecular Psychiatry*.
- Comings, D.E. et al. (1999). Motivation, emotion, feeding, drinking: Association of enkephalinase gene with low amplitude P300 waves. *NeuroReport*, 10, 2283-2285.
- Comings, D.E. et al. (1999). Association of the androgen receptor gene (AR) with ADHD, and conduct disorder. *NeuroReport*, 10, 1589-1592.
- Eber, G. (1999). When gambling becomes a losing battle. *American Journal of Nursing*, 99 (5), 22.
- Korn, D.A., & Shaffer, H.J. (In press) Gambling and the health of the public: Adopting a public health perspective. *Journal of Gambling Studies*.
- Shaffer, H.J. (1999). Addiction and gambling disorders: On matters of measurement and validity. *The Behavioral Measurement Letter*, 6, 2-6.
- Shaffer, H.J. (1999). Strange bedfellows: A critical view of pathological gambling and addiction. *Addiction*, 94, 1445-1448.
- Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (2000). Computer addiction: A critical consideration. *American Journal of Orthopsychiatry*, 70.
- Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1999). Gambling, drinking, smoking and other health risk activities among casino employees. *American Journal of Industrial Medicine*, 36, 365-378.
- Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1999). Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health*, 89, 1369-1376.
- Shaffer, H.J. (1999) On the nature and meaning of addiction. *National Forum: The Phi Kappa Phi Journal*, 79 (4), 9-14.
- Shaffer, H.J., Eber, G.B., Hall, M.N. & Vander Bilt, J. (in press). Smoking behavior among casino employees: Self-report validation using plasma cotinine. *Addictive Behaviors*.
- Sylvain, C., Ladouceur, R. & Boisvert, J.M. (in press). Cognitive and behavioral treatment of pathological gambling: A controlled study. *Journal of Consulting and Clinical Psychology*.
- Wu, S. & Comings, D.E. (1999). A common C-1018G polymorphism in the human 5-HT1A receptor gene. *Psychiatric Genetics*, 9, 105-106.

NCRG-funded investigators also contributed to *Pathological Gambling: A Critical Review* (1999) published by National Academy Press. This study, commissioned by the National Gambling Impact Study Commission, was conducted by the Committee on the Social and Economic Impact of Pathological Gambling at the National Research Council of the National Academy of Sciences. The committee based its prevalence estimates on the NCRG-funded Harvard study.

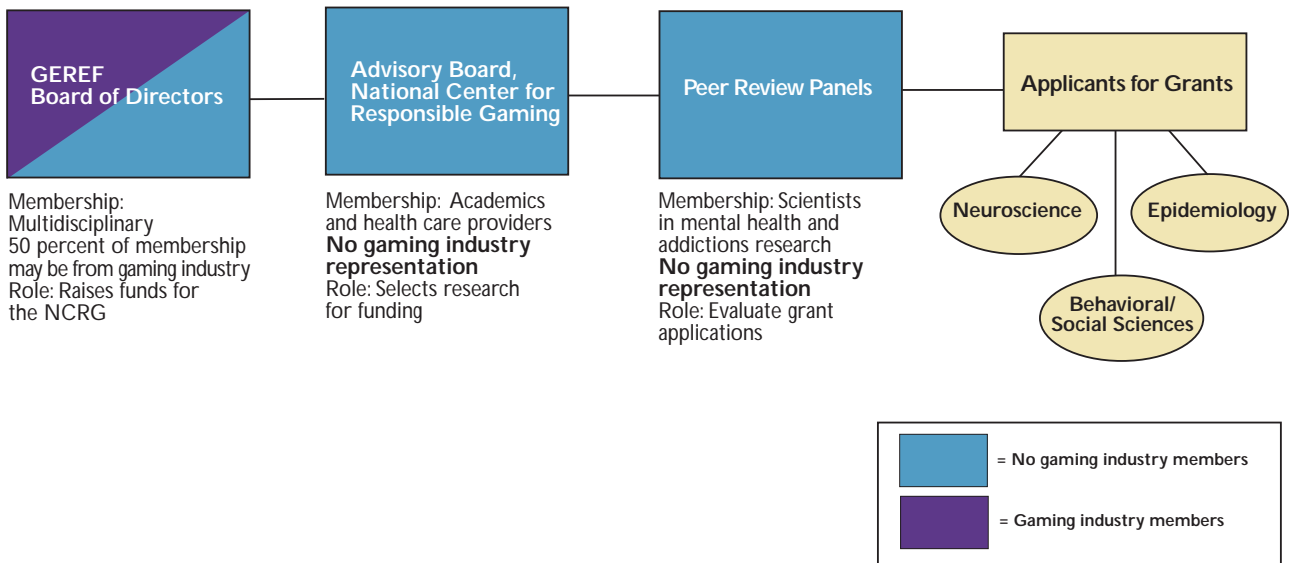
The NCRG Organization

INDEPENDENT AND RESPECTED

NATIONAL CENTER FOR RESPONSIBLE GAMING

A division of the Gaming Entertainment Research and Education Foundation

Organizational structure parallel with National Institutes of Health



The NCRG has modeled its organizational structure and decision-making procedures on the National Institutes of Health (NIH), ensuring that the highest standards are employed in evaluating research grant proposals submitted to the NCRG.

Board of Directors

GAMING ENTERTAINMENT RESEARCH AND EDUCATION FOUNDATION

The National Center for Responsible Gaming is an unincorporated division of the Gaming Entertainment Research and Education Foundation, a tax-exempt, nonprofit organization. The foundation was established in 1996 to address problem and youth gambling through research and public education. According to the foundation's bylaws, at least 50 percent of the governing board must represent sectors other than the gaming industry.

The following individuals from outside the gaming industry served on the foundation's board in 1999:

**Maj. Gen. Paul A. Harvey (Ret.),
Chairman**

President and CEO
Signature Works

Robert Boswell

Executive Vice President
Pioneer Behavioral Health

Roland W. Burris

Of Counsel
Buford, Peters, Ware & Zansitis

Sue Cox

Executive Director
Texas Council on Problem and
Compulsive Gambling

Joyce Dugan

Eastern Band of Cherokee Indians

David A. Korn, M.D.

Assistant Professor
University of Toronto

Alfred C. Lomax

Airport Police Chief
Kansas City International Airport

Carol O'Hare

Executive Director
Nevada Council on Problem Gambling

Howard J. Shaffer, Ph.D.

Director, Division on Addictions
Harvard Medical School

Pauline Yoshihashi

Senior Vice President
Abernathy, MacGregor & Frank

The following individuals from the gaming industry served on the foundation's board in 1999:

**William Boyd, President
Chairman and CEO**

Boyd Gaming Corporation

**Judy L. Patterson, Secretary
and Treasurer**

Senior Vice President and
Executive Director
American Gaming Association

Thomas Brosig

President, Mid-South Region
Park Place Entertainment
Corporation

F.M. "Bud" Celey

President and CEO
Foxwoods Resort Casino

Frank J. Fahrenkopf, Jr.

President and CEO
American Gaming Association

Frank Fertitta III

President and CEO
Station Casinos, Inc.

Brian McKay

Of Counsel
Lionel, Sawyer and Collins

Phillip Martin

Tribal Chief
Mississippi Band of Choctaw Indians

Philip G. Satre

Chairman and CEO
Harrah's Entertainment, Inc.

Glenn Schaeffer

President and CEO
Mandalay Resort Group

The following individuals served as staff members for the foundation's board in 1999:

Christine Reilly

Executive Director
National Center for
Responsible Gaming

Aleasha Herdina

Administrative Associate
National Center for
Responsible Gaming

NCRG Advisory Board

1999-2000 MEMBERS

The advisory board of the National Center for Responsible Gaming (NCRG) is an independent body of academic researchers and other mental health experts that has responsibility for establishing NCRG's research priorities, selecting proposals for funding and conference planning.

Robert Boswell, Chairman

Executive Vice President
Pioneer Behavioral Health

Mark Appelbaum, Ph.D.

Professor of Psychology
University of California, San Diego

Hans Breiter, M.D.

Clinical Assistant in Psychiatry
Dept. of Psychiatry & Radiology
Massachusetts General Hospital

Linda B. Cottler, Ph.D.

Professor of Epidemiology in
Psychiatry
Washington University School of
Medicine

William Eadington, Ph.D.

Director
Institute for the Study of Gambling
and Commercial Gaming
University of Nevada, Reno

Richard Evans, Ph.D.

Distinguished University Professor
of Psychology
University of Houston

Elizabeth George

Executive Director
North American Training Institute

Sue Giles

Director
Addiction Technology Transfer
Center
University of Missouri-Kansas City

Suck Won Kim, M.D.

Associate Professor of Psychiatry
University of Minnesota Medical
School

George Koob, Ph.D.

Professor and Director
Division of Psychopharmacology
The Scripps Research Institute

Barry Kosofsky, M.D., Ph.D.

Associate Neurologist
Massachusetts General Hospital
Associate Professor of Neurology
Harvard Medical School

Eileen Luna, J.D., M.P.A.

Assistant Professor of American
Indian Studies
University of Arizona

Lisa Najavits, Ph.D.

Assistant Professor of Psychology
Harvard Medical School
McLean Hospital

Francisco Napolitano, Esquire

Attorney at Law
Board Member, American Academy
of Health Care Providers in the
Addictive Disorders

Peter E. Nathan, Ph.D.

University of Iowa Foundation
Professor of Psychology
University of Iowa

David Self, Ph.D.

Assistant Professor of Psychiatry
Yale University School of Medicine

"Ken Winters, an expert on youth gambling at the University of Minnesota, received a \$56,410 grant from the center to see whether adolescents outgrow their gambling problems. He credits the center's advisory board and 'peer review panels' with keeping the process honest and the science true."

— *St. Louis Post-Dispatch*, Feb. 10, 2000.

Peer Review Panels

DISTINGUISHED SCIENTISTS SERVE ON 1999 PANELS

The peer review panels evaluate the scientific merit of research proposals submitted to the National Center for Responsible Gaming. Panel members are recruited from a national pool of leading scientists who are active researchers recognized by their peers and by major funding sources as experts in mental health and addiction research.

Behavioral And Social Science Peer Review Panel

**Richard I. Evans, Ph.D.,
Chairman**

Distinguished University
Professor of Psychology
University of Houston

Mark Appelbaum, Ph.D.

Professor of Psychology
University of California, San
Diego

Mitchell Berman, Ph.D.

Assistant Professor of Psychology
University of Southern Mississippi

Robert Booth, Ph.D.

Associate Professor
Addiction Research and
Treatment
University of Colorado Health
Sciences

G. Ron Frisch, Ph.D.

Associate Professor of Clinical
Psychology
University of Windsor

Barbara Mellers, Ph.D.

Professor of Psychology
Ohio State University

Peter Nathan, Ph.D.

University of Iowa Foundation
Professor of Psychology
University of Iowa

Kenneth J. Sher, Ph.D.

Frederick A. Middlebush
Professor of Psychology
University of Missouri-Columbia

Neuroscience Peer Review Panel

**Barry Kosofsky, M.D., Ph.D.,
Chairman**

Associate Neurologist
Massachusetts General Hospital
Associate Professor of Neurology
Harvard Medical School

Vincent Chiappinelli, Ph.D.

Professor and Chair of
Pharmacology
Director, Neuroscience Program
The George Washington
University

Seth Eisen, M.D.

Associate Professor of Medicine
St. Louis VA Medical Center

Suck Won Kim, M.D.

Associate Professor of Psychiatry
University of Minnesota Medical
School

Richard LaBrie, Ph.D.

Director
National Technical Center for
Substance Abuse Needs
Assessment

Elizabeth Matthew, M.D.

Assistant Professor of Radiology
Beth Israel Deaconess Medical
Center-West

David Self, Ph.D.

Assistant Professor of Psychiatry
Yale School of Medicine

Robert Sutherland, Ph.D.

Professor of Psychology and
Psychiatry
University of New Mexico



Richard Evans, Ph.D. (left), and Barry Kosofsky, M.D., Ph.D. (right), chaired the NCRG 1999 peer review panels.

Financial Statements (unaudited)

JANUARY 1, 1999 – DECEMBER 31, 1999

National Center for Responsible Gaming and Gaming Entertainment Research and Education Foundation

BALANCE SHEET

ASSETS

Current Assets

Checking/Savings Account	
Nations Bank — GERE	\$1,163,744.51
Nations Bank — NCRG	305,082.50
Total Checking Account	<u>1,468,827.01</u>
Total Checking/Savings	1,468,827.01
Accounts Receivable	
Accounts Receivable	2,143.89
Total Accounts Receivable	<u>2,143.89</u>

Total Current Assets 1,470,970.90

Other Assets

Grants Receivable*	
1999	210,000.00
2000	1,093,000.00
2001	1,015,000.00
2002	955,000.00
Beyond 2002	650,000.00
Unamortized Discount	-229,040.37
Uncollectible Estimate	-600,000.00
Total Grants Receivable	<u>3,093,959.63</u>

Total Other Assets 3,093,959.63

TOTAL ASSETS 4,564,930.53

LIABILITIES & EQUITY

Liabilities

Current Liabilities	
Other Current Liabilities	
Accrued Vacation	4,193.56
Research Grants Payable**	935,871.17
Total Other Current Liabilities	940,064.73
Total Current Liabilities	<u>940,064.73</u>
Total Liabilities	940,064.73

Equity

Retained Earnings	2,599,428.14
Net Income	1,025,437.66
Total Equity	<u>3,624,865.80</u>

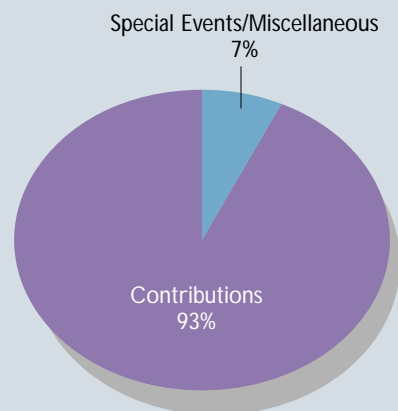
TOTAL LIABILITIES & EQUITY \$4,564,930.53

*Grants pledged to GERE. Receivables are to be collected over the next seven years.

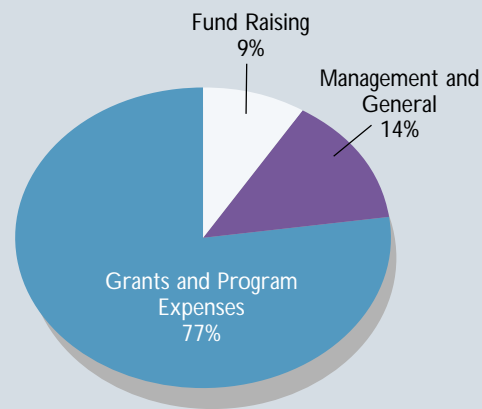
**Research grants are payable over multiple years based upon the research program term.

National Center for Responsible Gaming and Gaming Entertainment Research and Education Foundation

REVENUES



EXPENSES



All financial information as of Dec. 31, 1999,
compiled by Mayer Hoffman McCann L.C.



**NATIONAL CENTER FOR
RESPONSIBLE GAMING**

*A division of the Gaming Entertainment
Research and Education Foundation*

Christine Reilly, Executive Director
Aleasha Herdina, Administrative Associate

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