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Productivity Commission
Gambling Inquiry
L3 Nature Conservation House
Cnr Emu Bank and Benjamin Way
Belconnen ACT 2617
Australia

Sept. 13, 1999

By Federal Express

Re: "Australia's Gambling Industries." Draft Report, July 1999 – Submission

Gentlemen:

I have read the Draft Report with great interest. In my capacity as an academic economist I have done extensive research on the gaming industry during the past five years (see encl. Bio Sketch and List of publications).

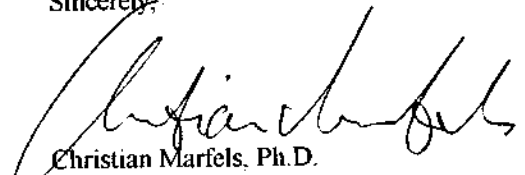
Please find enclosed my written submission to the Gambling Inquiry which refers to

--- the worldwide distribution of electronic gaming machines in Table 2.1
on p. 2.10 of Volume 1: Report (see Enclosure 1)

--- the relationship between problem gambling and suicide on pp. 7.13-7.17
of Volume 1: Report (see Enclosures 2 and 3).

Your kind consideration of this submission is greatly appreciated.

Sincerely,



Christian Marfels, Ph.D.
Professor of Economics

Enclosures

Bio-Sketch

Christian Marfels, Ph.D., is Professor of Economics at Dalhousie University in Halifax, Nova Scotia, Canada. He received his doctorate from the Free University of Berlin, Germany, and specializes in Industrial Economics and Antitrust Economics. In recent years, Professor Marfels has done extensive research on the gaming industry. He has published widely on the topic and has attended international conferences as an invited speaker. He can be reached at: cmarfels@is.dal.ca.

The Casino Gaming Industry -- Research Experience

Publications

- "Gaming in Downtown Las Vegas: Gaming in the Traditional Style," to appear in *InterGaming*, October 1999.
- "Gaming Figures Around the World," *Proceedings of the Third Workshop on Gaming Legislation*, CELEJ -- Spanish Centre for Legal Studies on Gaming, Madrid/Spain, forthcoming (in Spanish).
- "Slot Machine Play in America," *Homo Ludens*, Vol. IX, 1999 (forthcoming).
- "Casino Gaming in Nova Scotia," *InterGaming*, September 1999, pp. 18-24.
- "Spielbank Berlin -- A New Casino Concept for Germany," *InterGaming*, July 1999, pp. 12-14.
- "Nova Scotia," *International Casino Law*, 3 e., A.N. Cabot *et al.* (eds.), Reno: Institute for the Study of Gambling and Commercial Gaming, 1999, pp. 186-191.
- "Germany," *International Casino Law*, 3 e., A.N. Cabot *et al.* (eds.), Reno: Institute for the Study of Gambling and Commercial Gaming, 1999, pp.371-380 (with J.M. Kelly).
- "Concentration, Competition, and Competitiveness in the Casino Gaming Industry," *The Business of Gaming: Economic and Management Issues*, ed. by W.R. Eadington and J.A. Cornelius, Reno: U. of Nevada Press, 1999, pp. 29-44.
- "Taking Vegas into a New Dimension," *InterGaming*, February 1999, pp. 33-43.
- "Indian Gaming in Style," *InterGaming*, December 1998, pp. 16-20.
- "Atlantic City: A Mature Market in Transition," *Gaming Law Review*, Vol. 2, No. 6, 1998, pp. 615-625.
- "Visitor Suicides and Gambling in the Las Vegas Market: A Phenomenon in Search of Evidence," *Gaming Law Review*, Vol. 2, No. 5, October 1998, pp. 465-472.
- "The Las Vegas Strip: The Showcase of the Gaming Industry," *InterGaming*, September 1998, pp. 19-33.
- Bally Gaming - Game Maker to the World*, Las Vegas: Bally Gaming, Inc., 1998, 157 pp.
- "Development or Dreamfield Delusions?: Assessing Casino Gambling's Costs and Benefits - A Comment on an Article by Professors Grinols and Omorov," *Gaming Law Review*, Vol. 2, No. 4, , 1998, pp. 415-418.
- "Canada's Casino Explosion," *InterGaming*, June 1998, pp. 27-37.

- "Government Ownership and Monopoly in the Canadian Casino Gaming Industry," *Gaming Law Review*, Vol. 2, No. 1, 1998, pp. 49-56.
- "Casino Gaming and VLT Gaming: Substitution Effect or Supplementation Effect?," *Gaming Law Review*, Vol. 1, No. 3, 1997, pp. 333-340.
- "Economic Impact of Casino Gaming in the Nova Scotia and Ontario Markets," *Gaming Law Review*, Vol. 1, No. 1, 1997, pp. 91-96.
- "Casino Gaming in Germany," *InterGaming*, Vol. 3, No. 2, Feb. 1997, pp. 35-45.
- "Public Relations in the Gaming Industry," *Automaten Markt*, Jan. 1997 (IMA 1997 ed.), pp. 200-203 (in German).
- "The Case for Casino Gaming," *Gaming Research and Review Journal*, Vol. 3, No. 1, 1996, pp. 5-11.
- "Casino Gaming as a Great Form of Entertainment," *Proceedings of the Second Annual Gaming Educators Conference*, Las Vegas: UNLV International Gaming Institute, 1996.
- "Crunched Numbers -- Why is it so difficult to Measure the Cost of Casino Gaming?," *Casino Executive*, June 1996, p. 66.
- "The Impact of Slot Machines on the Growth of Casino Gaming," *Automaten Markt*, May 1996, pp. 140-145 (in German).
- "Overview of the U.S. Casino Gaming Industry," *Automaten Markt*, April 1996, pp. 142-148 (in German).
- "Is Bigness Better in Casino Gaming? Evidence from the Atlantic City Market," *Gaming Research and Review Journal*, Vol. 2, No. 2, 1995, pp. 1-16.
- "Casino Gaming," Chapter 9 of *The Structure of American Industry*, 9 e., W. Adams and J.W. Brock (eds.), Englewood Cliffs: Prentice Hall, 1995, pp. 223-245.

Conference Papers

- "Problem Gambling and Suicide: Evidence from the Las Vegas Market," 38th International Congress on Alcohol, Drugs and other Dependencies, Vienna, Austria, August 16-20, 1999.
- "Las Vegas, Gaming and Visitor Suicides: A Phenomenon in Search of Evidence," Death Investigation Conference, Las Vegas, NV, June 13-17, 1999.
- "Casino Gaming at the Threshold of the New Millennium," Conference "Winners or Losers?," University of Nebraska at Omaha, April 29-May 1, 1999.

Encl. 1

Professor Christian Marfels
Dalhousie University

September 13, 1999

The Worldwide Distribution
of Gaming Machines

- Table 1
- Table 2
- Remarks to Tables 1 and 2

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Table 1: The World Gaming Machine Industry, by Number of Machines (incl. Pachinko), 1997/98

Continent/Country	Number	% of Total
Asia	4,746 ^a	72.6
-- Japan ^b	4,734	72.4
Europe	950 ^a	14.5
-- Great Britain	260 ^c	4.0
-- Germany	227 ^c	3.5
-- Spain	220 ^c	3.4
North America	554	8.5
-- United States	496	7.6
-- Canada	58	0.9
Australia & New Zealand	193	3.0
-- Australia	180	2.8
-- New Zealand	13	0.2
South America	86 ^a	1.3
Africa	12 ^a	0.2
Total	6,541 ^a	100

a. Estimate.

b. Pachinko and Pachisuro machines.

c. AWP's only.

Sources: Bear, Stearns, Inc., *Global Gaming Almanac*, New York, 1997 & 1998 editions;
Marfels, C., *Gaming Figures Around the World*, CELEJ - Spanish Centre for
Legal Studies on Gaming, Madrid, April 14, 1999;
Australian Productivity Commission;
Aristocrat Leisure Ltd.;
Powerhouse Technologies, Inc.;
Professor Ishiro Tanioka.

Professor Christian Marfels
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Table 2: Gaming Machine Density - An International Comparison, 1997/98

One pachinko/pachisuro machine for every 27 Japanese residents

One pokie machine for every 123 Australian residents

One AWP gaming machine (Spielautomat) for every 362 German residents

One gaming machine for every 541 U.S. residents

One *non-casino* gaming machine for every 2,541 U.S. residents

Source: Marfels, C., *Gaming Figures Around the World*, CELEJ-Spanish Centre for Legal Studies on Gaming, Madrid, April 14, 1999.

Professor Christian Marfels
Dalhousie University

Remarks to Tables 1 and 2:

Table 2.1 (Volume 1: Report, p.2.10) does not reflect the real world: the numbers for Australia and New Zealand include all electronic gaming machines, casinos and non-casino (clubs, hotels) whereas the numbers for all other continents include only casino machines.

In contrast, the numbers in my Table 1 include both casino and non-casino machines everywhere. Non-casino machines include

- Pachinko and pachisuro (or “pachislo” for Pachinko Slot) machines in Japan
- Video Lottery Terminals (VLTs) in Canada and the United States
- Amusement-with-Prize machines (AWPs) in Europe.

According to Table 1, Australia has 2.8% of the world’s electronic gaming machines, and it ranks in sixth place after Japan, the United States, Great Britain, Germany and Spain.

I read in a story in the *Australian Financial Review*, Sept.9, 1999 (“Gone, 18.6pc of our pokies”) that the research group Taylor, Nelson, Sofres had Italy ahead of Australia. This could not be confirmed: information from a reliable European source puts the number of gaming machines in Italy at about 120, 000 units. They are not AWPs, and they are subject to confiscation when redemption of winnings is made in cash on premises.

Further on rankings, the numbers in Table 2 may be of interest since they put Australia in second place (after Japan) in terms of the gaming - machine density.

Encl. 2

Professor Christian Marfels
Dalhousie University

Sept 13, 1999

Problem Gambling and
Visitor **Suicides in the**
Las Vegas Market

--Remarks

-- Executive Summary of updated 1999 Paper

-- Copy of 1999 Paper (Update and Revision of 1998 Published Article)

-- Copy of Published 1998 Article

Professor Christian Marfels
Dalhousie University

Remarks on Problem Gambling and *Visitor* Suicides:

On the issue of estimating gambling - related suicides (Vol.1: Report, pp.7.13 - 7.17) my 1998 study on visitor suicides in the Las Vegas Market, which was published in *Gaming Law Review*, sheds light on the causes for suicides in the World's premier gaming market. I believe that this study was the first of its kind to use actual suicide files to determine primary causes of visitor suicides in a gaming destination; a similar study on resident suicides in the same location is in progress. (See Encl. 3). The only other study to use actual suicide files was the one by Blaszczymski and Farrell for the State of Victoria.

For further details of the findings of my study, please see the Executive Summary of my revised 1999 paper on the topic which is enclosed.

Mention should be made of the extremely low probability of committing suicide while on a visit to Las Vegas which stood at 1.1 in one million in 1998.

Professor Christian Marfels

Problem Gambling and Suicide: Evidence
from the Las Vegas Market

Executive Summary

The primary objective of this study was to find empirical evidence on whether problem gambling was a determinant factor for adult visitor suicides in the Las Vegas market during the 1990-1998 period. In order to determine the incidence of adult visitor suicides and their primary causes, three databases were established, *viz.*

- (i) the number of adult visitors,
- (ii) the number of adult visitor suicides,
- (iii) a frequency distribution of adult visitor suicide by primary cause for the suicide.

Data on the number of visitors to the Las Vegas market were obtained from the Las Vegas Convention and Visitors Authority, and data and background information on visitor suicides were established from an examination of non-resident suicide files in the Office of the Coroner of Clark County.

The main findings of the study can be summarized as follows:

- There were 236 adult visitor suicides in the Las Vegas market from 1990 to 1998. The average age of the suicide victims was 39.7 years, and the gender distribution was 95% males and 5% females.
- The adult visitor suicide rate for the Las Vegas market in 1998 had declined by 16% from 1990.
- Causes for adult visitor suicides could be determined from an examination of suicide files in 189 of the 236 suicide cases:
 - The leading causes for the 189 suicides were (in descending order): Depression/Mental Problems (25% of the suicides), Breakup of Relationship (20%), Alcohol/Drug Abuse (16%), and Physical Health Problems (13%).
 - Problem gambling was identified as the primary cause for the suicide in ten cases (5% of the suicides).

**Problem Gambling and Suicide:
Evidence from the Las Vegas Market**

by

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**38th International Congress on Alcohol, Drugs and other Dependencies, Vienna, Austria,
August 16-20, 1999**

Acknowledgements

I am indebted to Ron Flud, Coroner of Clark County, and to Donna Kuhns and Sheri Renaud, Senior Staff Members at the Coroner's Office, for the valuable logistic assistance which made this study possible. I would also like to thank Kevin Bagger, Senior Research Analyst at the Las Vegas Convention and Visitor Authority, for the communication of data on visitor demographics.

Note: This paper is an updated and revised version of an article published in the *Gaming Law Review*, October 1998, pp. 465-472.

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Introduction

William Lee Bergstrom, a notorious high-roller, once asked Benny Binion, owner of the Horseshoe Casino in Las Vegas whether he could bet \$1 million if he could get the money together. Eventually he had the money, bet it on one game of craps, and lost. Three months later, he committed suicide at a Las Vegas motel room. When Benny Binion received the news, he was quoted as saying "I knew him pretty well by then, and his reasons were more romantic than financial."¹ And they may very well have been just that, romantic reasons. After all, it would be hard to comprehend why a man who had bet six-digit sums on earlier occasions would be so desperate to take his own life for reasons of financial distress.

Fast forward to more recent times. On May 4, 1998, the news about a murder/suicide at a Las Vegas casino hotel was eagerly reported by a sensationalist press. A murder/suicide committed in Las Vegas? Could it just be a link to gambling? It turned out that there was no such link; rather, the sole motive for the tragic course of events was the breakup of the relationship between the two persons involved in the murder/suicide.

To end a life in suicide is a tragic and irreversible event. Usually, there is a sad story behind each suicide, and a multitude of causes can lead to the fatal decision to commit suicide. But can legalized gambling be singled out as the primary, if not determinant force, for suicide in gaming

¹Hopkins, A.D., "Benny Binion: He Who Has the Gold Makes the Rules," *The Players*, ed. by J. Sheenan, Reno: U. of Nevada Press, 1997, pp. 57-58.

destinations?² 'It happened in Las Vegas [or, for that matter, in any other gaming market], so it must be gambling,' or so the innuendo goes. Really?

The primary objective of this study is to find empirical evidence on whether problem gambling is, in fact, a determinant factor for visitor suicides in the Las Vegas market, the world's premier gaming market. In order to find evidence about the alleged link between visitor suicides and gambling, it is necessary to step out of the ivory tower of academe and go to primary sources. The use of secondary and tertiary sources can be misleading and can lead to a multiplication of errors. In contrast, the use of primary sources avoids bias and misinterpretation. It also paves the way for an easy replication of the procedures and results, which is one of the prime conditions for good analytical work. We believe that the present study is the first of its kind to use actual suicide files in the search for the link to problem gambling.

The first step in the analysis is the determination of visitor suicide rates in order to get an idea about the incidence and relative frequency of visitor suicides. Next, a qualitative analysis of visitor suicides will be performed in terms of a categorization of the leading causes of the suicides. Emphasis will be put on the alleged relationship between gambling and suicides to see whether the allegation holds in view of empirical evidence. The time period from 1990 to 1998 was selected because of the gradual increase in the amount of detail in the suicide files after 1990.

²See Goodman, R., *The Luck Business*, New York, NY: The Free Press, 1995, p. 51; Grinols, E.L., and J.D. Omorov, "Development or Dreamfield Delusions?: Assessing Casino Gambling's Costs and Benefits," *The Journal of Law and Commerce*, Vol. 16, Issue 1, Fall 1996, pp. 54-55; Phillips, D.P. *et al.*, "Elevated Suicide Levels Associated with Legalized Gambling," *Suicide and Life-Threatening Behavior*, Vol. 27, No. 4, Winter 1997, pp. 373-378.

Database One: The Number of Adult Visitors

The suicide rate is usually expressed as the number of suicides in a location per 100,000 of the resident population. In the present context, the number of adult visitor suicides per 100,000 adult visitors had to be determined in order to exclude minors who are not permitted to gamble. Data for the number of visitors to Las Vegas were obtained from the Las Vegas Convention and Visitor Authority (LVCVA). LVCVA visitor statistics are based on surveys, and they include the area of the Las Vegas Valley with the exception of Laughlin and Mesquite, which have their own visitor counts. This area is referred to as 'Las Vegas Valley Area' in the present study. The visitor statistics also include estimates of underage persons in visitor parties, and this information was needed to determine the number of adult visitors.³

The visitor data in Table 1 are a documentation of the reputation of Las Vegas as the premier tourist destination. Not only did the number of visitors per year exceed the 30-million mark in 1997, but it also grew at a remarkable 5.5% annually in the 1990s, an exceptional performance for a mature market, and an even more remarkable performance in view of the rapid expansion of gaming in riverboat jurisdictions all across the Midwestern states. As a caveat, a closer inspection of the annual visitor data suggests that this growth was mainly fueled by the quantum leap in 1994 when the number of visitors increased by a phenomenal 20% from 1993 levels. Equally impressive is the 200% increase in the number of underage visitors coming to Las Vegas in the company of other family members. This trend appears to be proof of Las Vegas' successful attempt to become an entertainment destination rather than just a gaming destination.

³Prior to 1995, visitor surveys included the question "How many people in your *room* are under 21?" Thereafter, the question was changed to "How many people in your *party* are under 21?" [Communication from the LVCVA].

Table 1: Visitor Count for the Las Vegas Valley Area, Million Persons, 1990-1998^a

Year	Total	of which:	
		Adults (≥ 21 years) ^b	Minors (< 21 years) ^b
1990	21.0	19.5	1.5
1991	21.3	19.4	1.9
1992	21.9	19.7	2.2
1993	23.5	20.9	2.6
1994	28.2	25.1	3.1
1995	29.0	24.4	4.6
1996	29.6	24.6	5.0
1997	30.5	25.4	5.1
1998	30.6	26.4	4.2

a. All of the Las Vegas Valley except Laughlin and Mesquite.

b. Estimates.

Source: Las Vegas Convention and Visitors Authority, *Annual Visitor Profile Studies*.

Database Two: The Number of Adult Visitor Suicides and Suicide Rates

Data on visitor suicides were obtained from the Office of the Coroner of Clark County. Several methodical adjustments in the suicide data were necessary in order to make them comparable to the number of adult visitors to the Las Vegas Valley Area. First, the files of suicide victims under 21 years of age were excluded. Likewise, the files of suicides which happened in Laughlin and Mesquite were excluded as well. Finally, suicide cases where the victims had been flown in for treatment by Helicopters for Life from neighboring counties in Nevada, Arizona, and California were omitted since the suicide attempt itself did not happen in Las Vegas; rather, Las Vegas happens to have superior medical facilities where the unfortunate victims died.

There is one other methodological discrepancy between the visitor counts of the LVCVA and the suicide statistics of the Coroner's Office. The Coroner's Office classifies suicides by residence status of the victims. By definition, non-resident suicides include visitor suicides. However, they also include suicides of transients, *i.e.* persons with no fixed address, who are *not* included in the visitor statistics of the LVCVA. Should this group be omitted from the visitor suicides in order to achieve compatibility with the visitor statistics? It was decided not to do so, since their exclusion would be viewed as arbitrary as the exclusion of suicide victims whose residence status was unknown. The decision not to exclude transients was also facilitated by the fact that there were only four such suicides recorded for the entire 1990-98 period. Nevertheless, it must be borne in mind that the inclusion of suicides by transients leads to an overstatement of the visitor suicide rate albeit a marginal overstatement only. Under these qualifications, the adult visitor suicide rate (AVSR) for

the Las Vegas Valley Area can be defined as the ratio of the number of adult visitor suicides (NAVS) and the number of adult visitors (NAV) as follows:

$$AVSR = \frac{NAVS}{NAV} \times 10^5$$

This suicide rate would tell us that for every 100,000 adult visitors x adult persons were likely to commit suicide during their visit.⁴

The incidence of adult visitor suicides in Table 2 indicates a total of 283 cases during 1990-1998 of which 83% happened in the Las Vegas Valley Area. The incidence of suicides in the Las Vegas Valley Area indicates a fluctuating pattern from year to year without a clear trend. However, it is interesting to note that the number of suicides in 1998 rose only by 15% from 1990 levels *vis-à-vis* an increase in the number of visitors of 46% (see Table 1).

Turning to some characteristics of visitor suicides, Table 3 presents a frequency distribution of suicides by age of the victims. The average age of suicide victims was 39.7 years. This average age was considerably lower than the average age of the total visitor population to Las Vegas which stood at 47.8 years.⁵ More than 50% of all visitor suicide victims were in the 21-40 year range, and more than 75% in the 21-50 year range.

The distribution of visitor suicides by gender in Table 4 reveals a very lopsided distribution with 95% of the visitor suicide victims being males and 5% females. To put it another way, 19 of every 20 visitor suicides were committed by men. This unusually high proportion compares to a

⁴This is known as an *a posteriori* probability since it is based on empirical evidence.

⁵Las Vegas Convention and Visitors Authority, *Las Vegas Marketing Bulletin*, Quarterly.

Table 2: The Geographic Distribution of Adult Visitor Suicides in Clark County, Nevada, 1990-1998*

Year/Area	Total Visitor Suicides	Adult Visitor Suicides	of which:				
			Greater Las Vegas ^b	Laughlin	Mesquite	Out of County ^c	
1990	31	29	26	2	0	1	
1991	29	29	24	3	1	1	
1992	21	18	16	0	0	2	
1993	39	37	34	1	0	2	
1994	43	39	31	4	1	3	
1995	31	31	24	3	1	3	
1996	34	31	23	6	1	1	
1997	35	35	28	2	0	5	
1998	34	34	30	4	0	0	
Total	297	283	236	25	4	18	

a. Referred to as "non-resident" suicides in the statistics of the Coroner's Office (see text).

b. Clark County excl. Laughlin and Mesquite.

c. Suicide was committed outside Clark County and victims were flown to Las Vegas by Helicopters for Life.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

Table 3: Visitor Suicides in the Las Vegas Valley Area, by Age Group, 1990-1998^a

Year/Age Group	Minors <21	Adults							≥21
		21-30	31-40	41-50	51-60	61-70	>70		
1990	1	5	9	2	6	0	4	26	
1991 ^b	0	8	4	5	2	2	2	23	
1992	3	4	4	5	2	0	1	16	
1993	2	6	11	11	4	0	2	34	
1994	4	12	6	9	3	1	0	31	
1995	0	6	9	3	4	1	1	24	
1996	3	6	6	7	3	1	0	23	
1997	0	8	6	6	3	3	2	28	
1998	0	8	8	8	6	0	0	30	
Total	13	63	63	56	33	8	12	235	

a. All of the Las Vegas Valley except Laughlin and Mesquite.

b. Excluding one suicide case where the age of the victim was unknown.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

Table 4: Visitor Suicides in the Las Vegas Valley Area, by Gender, 1990-1998^a

Year/Gender	Male	Female	Total
1990	24	3	27
1991	24	0	24
1992	17	2	19
1993	34	2	36
1994	31	4	35
1995	24	0	24
1996	25	1	26
1997	28	0	28
1998	30	0	30
Total	237	12	249

a. All of the Las Vegas Valley except Laughlin and Mesquite.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

much lower proportion of 4 to 1 for the male/female composition in the resident suicide segment during the same time period.⁶ The lopsided gender distribution of visitor suicides gains also momentum in view of the almost even gender distribution of the total visitor population to Las Vegas during 1990-98, viz. 54% males and 46% females.⁷

Suicide rates for all visitors and for adult visitors in Table 5 show only marginal differences because of the low incidence of suicide among minors in the period under consideration. The suicide rate for adult visitors declined by 40% from 1990 to 1992; it made a quantum leap of 100% in 1993 only to decline again by 45% between 1993 and 1996. Despite this rather erratic course it is worth noting that there was an overall decline of the adult visitor suicide rate: the probability of a visitor suicide stood at 13 in 10 million in 1990 from where it fell to 11 in 10 million, or 1.1 in one million, in 1998, i.e. a decline of 15%. To put the extremely low probability of 1.1 in one million into perspective, the odds of being injured by lightning in the U.S. are one in 685,000.⁸ This means that it is approximately 1½ times more likely to be injured by lightning than to die by committing suicide on a visit to Las Vegas.

⁶Office of the Coroner/Medical Examiner of Clark County, *Summary of Statistical Data, Annual*, Las Vegas.

⁷Las Vegas Convention and Visitors Authority, *Las Vegas Marketing Bulletin*, Quarterly.

⁸Krantz, L., *What the odds are*, New York, NY: Harper Perennial, 1992.

Table 5: Visitor Suicide Rates for the Las Vegas Valley Area, 1990-1998^{a,b}

Year	All Visitors	Adult Visitors
1990	0.129	0.133
1991	0.108	0.118
1992	0.087	0.081
1993	0.153	0.163
1994	0.124	0.123
1995	0.083	0.098
1996	0.088	0.093
1997	0.092	0.110
1998	0.098	0.113

a. All of the Las Vegas Valley except Laughlin and Mesquite.

b. Number of suicides per 100,000 visitors and adult visitors, respectively.

Sources: Tables 1 & 3.

Database Three: Classification of Adult Visitor Suicides by Causes for the Suicide

The establishment of the two aforementioned databases referred to the quantitative assessment of visitor suicides as a basis for intertemporal and interregional comparisons. The next step is to find the primary cause for a suicide and to classify suicides accordingly. This is a very important step, and a difficult one, since it involves a qualitative assessment of a suicide case. What led the victim to commit suicide as a matter of last resort? In the case of Las Vegas in its capacity as the world's premier gaming market this will include problem gambling as a potential cause for suicide. However, as in any other location there is a multitude of other causes which might lead a person to commit suicide in Las Vegas. Consequently, a central question emerges: to what extent can problem gambling be identified as a determinant factor in visitor suicides?

Only empirical evidence can tell the story. This empirical evidence was found in the suicide files in the Office of the Coroner of Clark County. Several important limitations and disclaimers have to be noted. First of all, all verbal communication about the background and potential causes of a suicide in the files came from next of kin and/or friends and acquaintances who were hundreds of miles away from the scene and who, at times, had not had contact with the victim in recent months or years prior to the suicide. Although very helpful in the establishment of a profile of the suicide, this information has to be treated with some caution nevertheless, especially when it comes from former spouses or partners after a breakup of relationships.⁹

⁹According to discussions with Mr. Flud, the first contact of the investigator of the Coroner's Office with next of kin or friends is absolutely critical in the fact-finding mission. It would appear that these parties become increasingly reluctant, if not unwilling, to contribute information in subsequent contacts. This may very well be related to the stigma associated with suicide and which still prevails in the 1990s according to a communication from Ms. Dorothy Bryant, Executive Director of the Suicide Prevention Center of Clark County.

A particularly frustrating segment of suicide cases in the present context were the ones where no cause could be established. This segment included mainly cases where all evidence was destroyed or missing and cases where no communication with next of kin or other parties could be established. There were a total of 47 such cases or 20% of the 236 adult visitor suicides from 1990 to 1998. This is the bad news. The good news is that the proportion of those cases with unknown causes was clearly declining from 1990 to 1998, viz. from 38% in 1990 to 13% in 1998.

In a surprisingly large number of suicide cases, victims left either letters or handnotes prior to ending their lives. This handwritten evidence is definitely the most powerful instrument in the establishment of causes for suicides.¹⁰ More often than not, suicide victims were quite explicit as to the reasons for their fatal decision. Building on this valuable information, which was corroborated and further extended in the investigators reports on the individual suicide cases, the following causes for visitor suicides to the Las Vegas Valley Area were established in descending order of the frequency of occurrence: Depression/Mental Problems, Breakup of Relationships, Alcohol/Drug Abuse, Physical Health Problems, Criminal Background, Gambling Problem, and Other Causes.

The results of the examination and subsequent categorization of 236 adult visitor suicide cases have been tabulated in Table 6. If there was evidence in a file that more than one cause could have triggered the decision to commit suicide, the case was nevertheless allocated only once to the category of its most likely primary cause. The leading role of the Depression/Mental Problems category may not be surprising but the margin of its lead may. It must also be noted that the depression factor played some role in many of the other 141 suicides with known causes. This was

¹⁰This evidence is part of a suicide file. In order to protect the confidentiality of the files it was agreed that no information would be taken from the files which could lead to the identification of suicide victims.

Table 6: Number of Adult Visitor Suicides in the Las Vegas Valley Area by Primary Cause for the Suicide, 1990-1998*

Year/ Causes	Depression/ Mental Problems	Breakup of Relationships	Alcohol/Drug Abuse	Phys. Health Problems	Criminal Background	Gambling Problem	Other Causes ^b	Cause Known	Cause Unknown	Total Number of Suicides
1990	4	2	2	7	1	-	-	16	10	26
1991	5	3	2	4	1	-	2	17	7	24
1992	5	3	-	1	2	2	1	14	2	16
1993	6	5	4	3	3	2	6	29	5	34
1994	4	5	7	1	6	1	2	26	5	31
1995	4	1	3	1	4	1	2	16	8	24
1996	3	7	3	2	-	3	1	19	4	23
1997	10	6	4	5	-	-	1	26	2	28
1998	7	5	5	1	2	1	5	26	4	30
Total	48	37	30	25	19	10	20	189	47	236
% of all Suicides with Known Causes	25	20	16	13	10	5	11	100	-	-

a. In order to avoid double-counting a suicide was allocated only once to the category of the most likely primary cause.

b. Incl. loss of job, stress in the workplace, poor performance in academic programs, financial problems.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

particularly true for the close interconnection between the first three categories in Table 6. In fact, it was sometimes a judgement call to decide a cause-and-effect relationship in the chain of events. Altogether, the three leading causes for visitor suicides in Las Vegas, viz. Depression/Mental Problems, Breakup of Relationships, and Alcohol/Drug Abuse made up 61% of the suicides with known causes.

The next two categories in the frequency distribution of causes for the suicides were perhaps the easiest ones to identify and to pinpoint as primary causes, albeit for totally different reasons. Evidence from suicide notes suggests that deteriorating health conditions in the form of terminal cancer or other serious illnesses motivated suicide victims to make plans for the suicide well in advance. In contrast, evidence about the criminal background of a suicide became obvious through the sequence of events leading to the suicide (firing at police officers through the motel door after an armed hold-up, shooting at police during a routine road control) or by contact with law enforcement officers in the home-state of the victim, who supplied the information about a person on the run from justice.

Up to this point, the causes for visitor suicides in Las Vegas are no different from the ones in other metropolitan areas. Enter the gaming dimension. The suicide files in the Coroner's Office reveal that only ten adult visitor suicides could be linked to problem gambling during the eight-year period from 1990 to 1998; this makes a scant 5% of the total of 189 adult visitor suicides with known causes for the suicide. Is gambling taking a back seat when it comes to visitor suicides? This may come as a surprise. It certainly does *not* come as a surprise to the insiders. Ron Flud, the Coroner of Clark County, confirmed in an extensive interview on the topic that gambling does not

rank prominently on the list of entries for suicides.¹¹ And specifically with reference to visitor suicides, “We have seen less than a handful in recent years.” How right he is, and he knows. He knows it from his daily work as Coroner of Clark County for the past 14 years. Likewise, Ron Lawrence in his capacity as Executive Director of the Community Counseling Center, emphasized in an interview that gambling is just one of the many factors that cause suicide.¹² In fact, he had seen no case on suicide and gambling in his 11 years of practice; specifically, he remembered two suicide cases: one was caused by terminal illness, and the other one by a breakup of a relationship. As if to further strengthen this line of thought, Dorothy Bryant, the Executive Director of the Suicide Prevention Center of Clark County, remembered approximately 10 calls with problems directly related to gambling in her long career of 28 years as a counsellor on suicide prevention. She also made reference to “very few calls re. gambling in recent years, about 4%.”¹³

To elaborate further on the suicide-gambling connection, it must be noted that the establishment of problem gambling as a primary cause for suicides was not an easy task. First of all, it is a well-known fact that the majority of visitors to Las Vegas come for gambling. The most recent visitor survey puts this number at 89%.¹⁴ By inference, it can also be reasonably assumed that the majority of visitor suicide victims did engage in gambling activity. But when was the line crossed that gambling had become an obsession, an inescapable trap which led to the fatal decision

¹¹Interview with Mr. Ron Flud, Coroner of Clark County, Las Vegas, May 5, 1998.

¹²Interview with Mr. Ron Lawrence, Executive Director, Community Counseling Center, Las Vegas, July 7, 1998.

¹³Interview with Ms. Dorothy Bryant, Executive Director of the Suicide Prevention Center of Clark County, Las Vegas, July 8, 1998.

¹⁴Metropolitan Research Association, *1998 Las Vegas Perspective*, Las Vegas, 1998, p. 73.

to commit suicide? It would appear that there were six suicide cases where exactly this scenario most likely became tragic reality. In another four cases it was a judgement call to single out gambling as the primary cause. Despite some doubts to this effect, these three causes were nevertheless allocated to the gambling column, which brought the total to ten cases (see Table 6).

An Evaluation of the Findings

The present study used actual suicide files from the Coroner's Office of Clark County as a basis for the analysis of the causes of suicides of adult visitors to the Las Vegas Valley Area. The analysis covered an eight-year period, and all files were examined, not just a sample. The use of this primary source of information makes for the predictive power of the results of this study. In 163 of the total of 206 adult visitor suicides during the period under review a cause for the suicide could be established. Whenever there was an indication of a gambling problem or the potential for a gambling problem in the files, this indication was given special attention. Yet, the suicide files indicate that in 95% of the cases gambling was *not* the determinant factor for the suicide. Rather, the leading causes were Depression/Mental Problems and Breakup of Relationships. This is what we know. We do not know what initially caused the depression or the breakup of a relationship except when there is further substantiation to this effect in a suicide file. Any attempts to interpret a cause-and-effect relationship would infer an element of speculation lacking supporting evidence. We also do not know the causes of the 47 remaining suicide cases. It would be mere speculation to apply the proportional distribution from the "cause-known group" to the "cause-unknown group." Likewise, the results apply to the Las Vegas market, and *only* to the Las Vegas market. Again, it would be mere speculation to conclude from these results that a similar pattern would likely prevail in other gaming markets as well. Nevertheless, it must be recognized that the results of this study gain momentum in view of the sheer dimension of the Las Vegas market with all its distinct sub-markets as the nation's largest one by miles, and for that matter, the largest one in the world.¹⁵

¹⁵Casino gaming revenues of the entire Las Vegas market in 1997 stood at \$5.6 billion or more than 30% of nationwide casino gaming revenues (excl. Indian gaming) [Bear Sterns, *1998 Global Gaming Almanac*, New York, 1998, p. 20].

Based on the evidence in the suicide files, it would appear that the frequent allegations of a connection between visitor suicides and gambling are not substantiated by fact in the Las Vegas market.

Visitor Suicides and Problem Gambling in the Las Vegas Market: A Phenomenon in Search of Evidence

CHRISTIAN MARFELS, Ph.D.*

INTRODUCTION

WILLIAM LEE BERGSTROM, a notorious high-roller, once asked Benny Binion, owner of the Horseshoe Casino in Las Vegas, whether he could place a bet of \$1 million—assuming that he could get the money together. Eventually he had the money, bet it on one game of craps, and lost. Three months later, he committed suicide at a Las Vegas motel room. When Benny Binion received the news, he was quoted as saying, "I knew him pretty well by then, and his reasons were more romantic than financial."¹ They may very well have been just that—romantic reasons. After all, it would be hard to comprehend why a man who had bet six-digit sums on earlier occasions would be so desperate to take his own life for reasons of financial distress.

On May 4, 1998, the news about a murder/suicide at a Las Vegas casino hotel was eagerly reported by a sensationalist press. A murder/suicide committed in Las Vegas? Could it be linked to gambling? It turned out that there was no such link; rather, the sole motive for the tragic course of events was the breakup of the relationship between the two persons involved in the murder/suicide.

To end a life in suicide is a tragic and irreversible event. Usually, there is a sad story behind each suicide, and a multitude of causes can lead to the fatal decision to commit suicide. But can legalized gambling be singled out as the primary causal factor for suicide in gaming destinations?² It happened in Las Vegas [or, for that matter, in any other gaming market], so it must be gambling," or so the innuendo goes. Really?

The only systematic study on the link between gambling and suicide was done by David Phillips et al.³ The study concludes that gamblers visiting gaming destinations, or residing there, experience elevated risks of suicide. This is true for not only the visiting gamblers but for their relatives and for non-gambling residents working in the industry as well. The sole basis for these conclusions is empirical evidence on "elevated suicide levels" in three gaming destinations, Las Vegas, Reno, Atlantic City, vis-à-vis all other counties/Standard Metropolitan Statistical Areas (SMSAs) in the United States. Since the study uses mortality rates rather than suicide rates, and no evidence on the causes of suicides has been as-

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*I am indebted to Ron Flud, Coroner of Clark County, and to Donna Kuhns and Sheri Renaud, Senior Staff Members at the Coroner's Office, for the valuable logistic assistance which made this study possible. I would also like to thank Kevin Bagger, Senior Research Analyst at the Las Vegas Convention and Visitors Authority for the communication of data on visitor demographics.

¹A.D. Hopkins, *Benny Binion: He Who Has the Gold Makes the Rules*, in *THE PLAYERS* 57-58 (J. Sheenan ed., 1997).

²See R. GOODMAN, *THE LUCK BUSINESS* 51(1995); E.L. Grinols and J.D. Omorov, *Development or Dreamfield Delusions?: Assessing Casino Gambling's Costs and Benefits*, *THE JOURNAL OF LAW AND COMMERCE* 54-55 (Fall 1996); Phillips, D.P. et al., *Elevated Suicide Levels Associated with Legalized Gambling*, *SUICIDE AND LIFE-THREATENING BEHAVIOR*, 373-378 (Winter 1997).

³Phillips, D.P. et al., *Elevated Suicide Levels Associated with Legalized Gambling*, *SUICIDE AND LIFE-THREATENING BEHAVIOR* 373-378 (Winter 1997).

sembled, the conclusions appear to be questionable, if not completely without foundation.

The primary objective of this study is to find empirical evidence on whether problem gambling is, in fact, a determinant factor in visitor suicides in Las Vegas—the world's premier gaming market. In order to find evidence about the alleged link between visitor suicides and problem gambling, it is necessary to step out of the ivory tower of academia and go to primary sources. The use of secondary and tertiary sources can be misleading and can lead to a multiplication of errors. In contrast, the use of primary sources avoids bias and misinterpretation. It also paves the way for an easy replication of the procedures and results, which is one of the prime conditions for good analytical work. I believe that the present study is the first of its kind to use actual suicide files in the search for the link to gambling.

The first step in the analysis is the determination of visitor suicide rates in order to get an idea of the incidence and relative frequency of visitor suicides. Next, a qualitative analysis of visitor suicides will be performed in terms of a categorization of the leading causes of the suicides. Emphasis will be placed on the alleged relationship between problem gambling and suicides to see whether the allegation holds in view of the empirical evidence. The time period from 1990 to 1997 was selected because of the gradual increase in the amount of detail in the suicide files after 1990.

DATABASE ONE: THE NUMBER OF ADULT VISITORS

The suicide rate is usually expressed as the number of suicides in a location per 100,000 of the resident population. In the present context, this procedure was slightly altered inasmuch as visitor suicide rates are expressed per 10 million visitors because of the wide discrepancy between the magnitudes in the numerator and the denominator. Data for the number of visitors to Las Vegas were obtained from the Las Vegas Convention and Visitor Authority (LVCVA). LVCVA visitor statistics are based on surveys, and they include the area of the Las Vegas Valley with the exception of Laughlin

and Mesquite, which have their own visitor counts. This area is referred to as 'Las Vegas Valley Area' in the present study. The visitor statistics also include estimates of underage persons in visitor parties, and this information was needed to determine the number of adult visitors.⁴

The visitor data in Table 1 are a documentation of the reputation of Las Vegas as a premier tourist destination.⁵ Not only did the number of visitors per year exceed the 30-million mark in 1997, but it also grew at a remarkable 5.5% annually through the 1990s, an exceptional performance for a mature market, and an even more remarkable performance in view of the rapid expansion of gaming in riverboat jurisdictions in the Midwestern states. A closer inspection of the annual visitor data suggests that this growth was mainly fueled by a quantum leap in 1994 when the number of visitors increased by a phenomenal 20% from 1993 levels. Equally impressive is the 200% increase in the number of underage visitors coming to Las Vegas in the company of other family members. This trend appears to be proof of Las Ve-

⁴Prior to 1995, visitor surveys included the question "How many people in your room are under 21?" Thereafter, the question was changed to "How many people in your party are under 21?" [Communication from the LVCVA].

⁵Las Vegas has consistently ranked first or second along with Orlando as the most-visited city for leisure travel in the United States (BEAR STEARNS, 1998 GLOBAL GAMING ALMANAC 57-58 (1998)).

TABLE 1. VISITOR COUNT FOR THE LAS VEGAS VALLEY AREA, MILLION PERSONS, 1990-1997^a

Year	Total	Of which:	
		Adults (≥ 21 years)	Minors (< 21 years)
1990	21.0	20.0	1.0
1991	21.3	20.0	1.3
1992	21.9	20.4	1.5
1993	23.5	21.6	1.9
1994	28.2	25.9	2.3
1995	29.0	25.8	3.2
1996	29.6	26.3	3.3
1997	30.5	27.4	3.1

^aAll of the Las Vegas Valley except Laughlin and Mesquite.

Source: Las Vegas Convention and Visitors Authority, ANNUAL VISITOR PROFILE STUDIES.

gas' successful attempt to become an entertainment destination rather than just a gaming destination.

DATABASE TWO: THE NUMBER OF ADULT VISITOR SUICIDES AND SUICIDE RATES

Data on visitor suicides were obtained from the Office of the Coroner of Clark County. Several methodical adjustments in the suicide data were necessary in order to make them comparable to the number of adult visitors to the Las Vegas Valley Area. First, the files of suicide victims under 21 years of age were excluded. The files of suicides which happened in Laughlin and Mesquite were excluded as well. Finally, suicide cases where the victims had been flown in for treatment by Helicopters for Life from neighboring counties in Nevada, Arizona, and California were omitted since the suicide attempt itself did not happen in Las Vegas; as it happens, Las Vegas has superior medical facilities than the neighboring counties and Las Vegas was not connected with the suicide beyond being the place where the unfortunate victims died.

There is one other discrepancy between the visitor counts of the LVCVA and the suicide statistics of the Coroner's Office. The Coroner's

Office classifies suicides by residence status of the victims. By definition, non-resident suicides include visitor suicides. However, they also include suicides of transients, i.e. persons with no fixed address, who are not included in the visitor statistics of the LVCVA. Should this group be omitted from the visitor suicides in order to achieve compatibility with the visitor statistics? It was decided not to do so, since their exclusion could be viewed as arbitrary. The decision not to exclude transients was also facilitated by the fact that there were only four such suicides recorded for the entire 1990-97 period. Nevertheless, it must be borne in mind that the inclusion of suicides by transients leads to an overstatement of the visitor suicide rate, albeit relatively insignificant.

With these qualifications, the adult visitor suicide rate for the Las Vegas Valley Area can be defined as the ratio of the number of adult visitor suicides to the number of adult visitors, multiplied by 10 million (see above). This suicide rate would tell us that for every 10 million adult visitors, x adult persons were likely to commit suicide during their visit.⁶

The geographic distribution of adult visitor suicides in Table 2 indicates a total of 249 cases

⁶This is known as an *a posteriori* probability since it is based on empirical evidence.

TABLE 2. THE GEOGRAPHIC DISTRIBUTION OF ADULT VISITOR SUICIDES IN CLARK COUNTY, NEVADA, 1990-1997^a

Year	Total Visitor Suicides	Adult Visitor Suicides	Of which:			
			Greater Las Vegas ^b	Laughlin	Mesquite	Out of County ^c
1990	31	29	26	2	0	1
1991	29	29	24	3	1	1
1992	21	18	16	0	0	2
1993	39	37	34	1	0	2
1994	43	39	31	4	1	3
1995	31	31	24	3	1	3
1996	34	31	23	6	1	1
1997	35	35	28	2	0	5
Total	263	249	206	21	4	18

^aReferred to as "non-resident" suicides in the statistics of the Coroner's Office (see text).

^bClark County excl. Laughlin and Mesquite.

^cSuicide was committed outside Clark County and victims were flown to Las Vegas by Helicopters for Life.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

during 1990–1997 of which 82% happened in the Las Vegas Valley Area. The incidence of suicides in the Las Vegas Valley Area indicates a fluctuating pattern from year to year without a clear trend. However, it is interesting to note that the number of suicides in 1997 was only marginally up by 7% from 1990 levels vis-à-vis an increase in the number of visitors of 37% (see Table 1).

Turning to some characteristics of visitor suicides, Table 3 presents a frequency distribution of suicides compiled by the age of the victims. The average age of adult suicide victims was 39.7 years.⁷ This average was considerably lower than the average age of the total visitor population to Las Vegas, which stood at 47.8 years.⁸ More than 50% of all adult visitor suicide victims were in the 21–40 year range, and more than 75% were in the 21–50 year range.

The distribution of visitor suicides by gender in Table 4 reveals a very lopsided distribution with 95% of the visitor suicide victims being males and 5% being females. To put it another way, 19 of every 20 visitor suicides were committed by men. This extremely high proportion compares to a much lower proportion of 4 to 1 for the male/female composition in the resident suicide segment during the same time period.⁹ The lopsided gender distribution of visitor suicides is even more remarkable in view of the almost even gender distribution of the

total visitor population to Las Vegas during 1990–97, viz. 54% males and 46% females.¹⁰

Suicide rates for all visitors and for adult visitors in Table 5 show only marginal differences because of the low incidence of suicide among minors in the period under consideration. The suicide rate for adult visitors declined by 40% from 1990 to 1992; it made a quantum leap of 100% in 1993 only to decline again by 45% between 1993 and 1996. Despite this rather erratic course, it is worth noting that there was an overall decline of the adult visitor suicide rate: the probability of a visitor suicide stood at 13 in 10 million in 1990 from where it fell to 10 in 10 million, or one in one million, in 1997, i.e. a decline of 23%. To put the low probability of 10 in 10 million into perspective, the odds of being injured by lightning in the U.S. are one in 685,000.¹¹ This means that it is approximately 1½ times more likely that an individual will be injured by lightning than it is for an individual visitor to die by committing suicide while on a visit to Las Vegas.

⁷Calculated from the Suicide Files in the Office of the Coroner/Medical Examiner of Clark County.

⁸LAS VEGAS CONVENTION AND VISITORS AUTHORITY, LAS VEGAS MARKETING BULLETIN, Quarterly.

⁹OFFICE OF THE CORONER/MEDICAL EXAMINER OF CLARK COUNTY, SUMMARY OF STATISTICAL DATA, Annual.

¹⁰LAS VEGAS CONVENTION AND VISITORS AUTHORITY, LAS VEGAS MARKETING BULLETIN, Quarterly.

¹¹KRANTZ, L., WHAT THE ODDS ARE (1992).

TABLE 3. VISITOR SUICIDES IN THE LAS VEGAS VALLEY AREA, BY AGE GROUP, 1990–1997^a

Year/Age Group	Minors		Adults					
	<21	21–30	31–40	41–50	51–60	61–70	>70	≥21
1990	1	5	9	2	6	0	4	26
1991 ^b	0	8	4	5	2	2	2	23
1992	3	4	4	5	2	0	1	16
1993	2	6	11	11	4	0	2	34
1994	4	12	6	9	3	1	0	31
1995	0	6	9	3	4	1	1	24
1996	3	6	6	7	3	1	0	23
1997	0	8	6	6	3	3	2	28
Total	13	55	55	48	27	8	12	205

^aAll of the Las Vegas Valley except Laughlin and Mesquite.

^bExcluding one suicide case where the age of the victim was unknown.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

TABLE 4. VISITOR SUICIDES IN THE LAS VEGAS VALLEY AREA, BY GENDER, 1990-1997^a

Year/Gender	Male	Female	Total
1990	24	3	27
1991	24	0	24
1992	17	2	19
1993	34	2	36
1994	31	4	35
1995	24	0	24
1996	25	1	26
1997	28	0	28
Total	207	12	219

^aAll of the Las Vegas Valley except Laughlin and Mesquite.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

DATABASE THREE: CLASSIFICATION OF ADULT VISITOR SUICIDES BY CAUSES FOR THE SUICIDE

The establishment of the two aforementioned databases referred to the quantitative assessment of visitor suicides as a basis for intertemporal and interregional comparisons. The next step is to find the primary cause for each suicide and to classify suicides accordingly. This is a very important step, and a difficult one, since it involves a qualitative assessment of the suicide case. What led the victim to commit suicide as a matter of last resort? In the case of Las Vegas in its capacity as the world's premier gaming market, this must include problem gambling as a potential cause for suicide. However, as in any other location,

TABLE 5. VISITOR SUICIDE RATES FOR THE LAS VEGAS VALLEY AREA, 1990-1997^{a,b}

Year	All Visitors	Adult Visitors
1990	12.9	13.0
1991	10.8	11.5
1992	8.7	7.8
1993	15.3	15.7
1994	12.4	12.0
1995	8.3	9.3
1996	8.8	8.7
1997	9.2	10.2

^aAll of the Las Vegas Valley except Laughlin and Mesquite.

^bNumber of suicides per 10 million visitors and adult visitors, respectively.

Source: Tables 1 & 3.

there is a multitude of other causes which might lead a person to commit suicide in Las Vegas. Consequently, a central question emerges: to what extent can problem gambling or a gambling problem, be identified as the causal factor in visitor suicides?

Only empirical evidence can tell the story. This empirical evidence was found in the suicide files in the Office of the Coroner of Clark County. Several important limitations and disclaimers must be noted. First, all communication about the background history of suicide victims and potential causes of a suicide in the suicide files came from next of kin and/or friends and acquaintances, who may have been hundreds of miles away from the scene and who, at times, had no contact with the victim in the recent months or years prior to the suicide. Although very helpful in establishing a profile of the suicide, this information has to be treated with some caution nevertheless, especially when it comes from former spouses or partners after a breakup of relationships.¹²

A particularly frustrating group of suicide cases in the present context were those for which no cause could be established. This segment included primarily cases in which evidence was destroyed or missing, and cases in which no communication with next of kin or other parties could be established. There were a total of 43 such cases, or 21% of the 206 adult visitor suicides from 1990 to 1997. This is the bad news. The good news is that the proportion of those cases with unknown causes was clearly declining from 1990 to 1997, viz. from 38% in 1990 to 7% in 1997.

In a surprisingly large number of suicide cases, victims left either letters or handnotes prior to ending their lives. This handwritten evidence is definitely the most powerful instru-

¹²According to discussions with Mr. Flud, the first contact of the investigator of the Coroner's Office with next of kin or friends is absolutely critical in the fact-finding mission. It would appear that these parties become increasingly reluctant, if not unwilling, to contribute information in subsequent contacts. This may very well be related to the stigma associated with suicide; this stigma still prevails in the 1990s according to a communication from Ms. Dorothy Bryant, Executive Director of the Suicide Prevention Center of Clark County.

ment in establishing the cause of a suicide.¹³ More often than not, suicide victims were quite explicit as to the reasons for their fatal decision. Building on this valuable information, which was corroborated and further extended in the investigator's reports on the individual suicide cases, the following causes for visitor suicides to the Las Vegas Valley Area were established in descending order of the frequency of occurrence: depression/mental problems, breakup of relationships, alcohol/drug abuse, physical health problems, criminal background, gambling problem, and other causes.

The results of the examination and subsequent categorization of 206 visitor suicide cases are tabulated in Table 6. If there was evidence in a file that more than one cause could have triggered the decision to commit suicide, the case was nevertheless allocated only once, to the category of its most likely primary cause. The leading role of the Depression/Mental Problems category may not be surprising, but the margin of its lead may be. It must also be noted that the depression factor played at least some role in many of the other 122 suicides with known causes. This was particularly true for the close interconnection between the first three categories in Table 6. In fact, it was sometimes simply a judgement call to decide a cause-and-effect relationship in the chain of

events. Altogether, the three leading causes for visitor suicides in Las Vegas, viz. Depression/Mental Problems, Breakup of Relationships, and Alcohol/Drug Abuse accounted for 60% of the suicides with known causes.

The next two categories in the frequency distribution of causes for the suicides were perhaps the easiest ones to identify and to pinpoint as primary causes, albeit for totally different reasons. Evidence from suicide notes suggests that deteriorating health conditions in the form of terminal cancer or other serious illnesses motivated suicide victims to make plans for the suicide well in advance. In contrast, evidence about the criminal background of a suicide became obvious through the sequence of events leading to the suicide (firing at police officers through the motel door after an armed hold-up, shooting at police during a routine traffic stop) or by contact with law enforcement officers in the home state of the victim, who supplied the information about a person on the run from justice.

Through the first five categories, the causes for visitor suicides in Las Vegas are no differ-

¹³This evidence is part of a suicide file. In order to protect the confidentiality of the files it was agreed that no information would be taken from the files which could lead to the identification of suicide victims.

TABLE 6. NUMBER OF ADULT VISITOR SUICIDES IN THE LAS VEGAS VALLEY AREA BY PRIMARY CAUSE FOR THE SUICIDE, 1990-1997^{a,b}

Year	Depression/ Mental Problems	Breakup of Relationships	Alcohol/ Drug Abuse	Health Problems	Criminal Background	Gambling Problems	Other Causes ^b	Cause Known	Cause Unknown	Total Number of Suicides
1990	4	2	2	7	1	-	-	16	10	26
1991	5	3	2	4	1	-	2	17	7	24
1992	5	3	-	1	2	2	1	14	2	16
1993	6	5	4	3	3	2	6	29	5	34
1994	4	5	7	1	6	1	2	26	5	31
1995	4	1	3	1	4	1	2	16	8	24
1996	3	7	3	2	-	3	1	19	4	23
1997	10	6	4	5	-	-	1	25	2	28
Total	41	32	25	24	17	9	15	163	43	206
% of all suicides with known causes	25	20	15	15	10	6	9	100	-	-

^aIn order to avoid double-counting a suicide was allocated only once to the category of the most likely primary cause.

^bIncludes loss of job, stress in the workplace, poor performance in academic programs, financial problems.

Source: Office of the Coroner/Medical Examiner of Clark County, Las Vegas, NV.

ent from the ones in other metropolitan areas. The suicide files in the Coroner's Office reveal that only nine adult visitor suicides could be linked to problem gambling during the eight-year period from 1990 to 1997; this comprises a scant 6% of the total of 163 visitor suicides with known causes. Is gambling taking a back seat when it comes to visitor suicides in Las Vegas? This may come as a surprise. It certainly does not come as a surprise to the insiders. Ron Flud, the Coroner of Clark County, confirmed, in an extensive interview on the topic, that gambling does not rank prominently on the list of entries for suicides.¹⁴ And specifically with reference to visitor suicides, "We have seen less than a handful in recent years."¹⁵ How right he is, and he knows. He knows it from his daily work as Coroner of Clark County for the past 14 years. Likewise, Ron Lawrence—in his capacity as Executive Director of the Community Counseling Center—emphasized in an interview that gambling is just one of the many factors that lead to suicide.¹⁶ In fact, he had not seen one suicide case attributable to gambling in his 11 years of practice; specifically, he remembered two suicide cases: one was caused by terminal illness, and the other one by the breakup of a relationship. As if to further strengthen this line of thought, Dorothy Bryant, the Executive Director of the Suicide Prevention Center of Clark County, remembered approximately 10 calls with problems directly related to gambling in her long career of 28 years as a counselor on suicide prevention. She also made reference to "very few calls [concerning] gambling in recent years, about 4%."¹⁷

To elaborate further on the suicide-gambling connection, it must be noted that the establishment of gambling as a primary cause for suicides was not an easy task. First of all, it is a well-known fact that the majority of visitors to Las Vegas come for gambling. The most recent visitor survey puts this number at 89%.¹⁸ By inference, it can also be reasonably assumed that the majority of visitor suicide victims did engage in some gambling activity. But when was the line crossed that gambling had become an obsession, an inescapable trap which led to the fatal decision to commit suicide? There were six suicide cases where it was clear that this sce-

nario most likely became tragic reality. In another three cases, it was a judgement call to single out gambling as the primary cause. Despite some doubts to this effect, these cases were nevertheless allocated to the gambling column, which brought the total to nine cases (see Table 6).

CONCLUSIONS

The present study used actual suicide files from the Coroner's Office of Clark County as a basis for the analysis of the causes of suicides of adult visitors to the Las Vegas Valley Area. The analysis covered an eight-year period, and all suicide files were examined. The use of this primary source of information makes for the predictive power of the results of this study. In 163 of the total 206 adult visitor suicides during the period under review, a cause for the suicide could be established. Whenever there was an indication of a gambling problem or the potential for a gambling problem in the files, this indication was given special attention.

The suicide files indicate that in 94% of the cases gambling was not the determinant factor for the suicide. Rather, the leading causes were Depression/Mental Problems and Breakup of Relationships. This is what we know. We do not know what initially caused the depression or the breakup of a relationship except when there is further substantiation to this effect in a suicide file. Any attempts to interpret and re-interpret a cause-and-effect relationship would infer an element of speculation lacking supporting evidence. We also do not know the causes of the 43 remaining suicide cases. It would be mere speculation to apply the pro-

¹⁴Interview with Mr. Ron Flud, Coroner of Clark County, Las Vegas (May 5, 1998).

¹⁵*Id.*

¹⁶Interview with Mr. Ron Lawrence, Executive Director, Community Counseling Center, Las Vegas (July 7, 1998).

¹⁷Interview with Ms. Dorothy Bryant, Executive Director of the Suicide Prevention Center of Clark County, Las Vegas (July 8, 1998).

¹⁸METROPOLITAN RESEARCH ASSOCIATION, 1998 LAS VEGAS PERSPECTIVE 73 (1998).

portional distribution from the "cause-known group" to the "cause-unknown group."

The results apply to the Las Vegas market, and only to the Las Vegas market. Again, it would be mere speculation to conclude from these results that a similar pattern would likely prevail in other gaming markets as well. Nevertheless, it must be recognized that the results of this study gain importance in view of the sheer dimension of the Las Vegas market, with all its distinct sub-markets, as the nation's largest one by far.¹⁹ For that matter, Las Vegas

is the largest gaming market in the world. Based on the evidence in the Clark County suicide files, it appears that the frequent allegations of a connection between Las Vegas visitor suicides and gambling are not substantiated by fact.

¹⁹Casino gaming revenues of the entire Las Vegas market in 1997 stood at \$5.6 billion or more than 30% of nationwide casino gaming revenues (excl. Indian gaming) [BEAR STERNS, 1998 GLOBAL GAMING ALMANAC (1998)].

Encl. 3

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*Resident Suicides and Problem Gambling in the
Las Vegas Market*

(Research in Progress)

Based on an examination of a random sample of 10% of the total of 1,885 resident suicides in Clark County during 1990-1998, it was found that a gambling problem was most likely the determinant factor in 7 suicides or 4% of the sample of 189 suicides.

Mention should be made that I found an overproportionate share of unemployed persons among the 189 suicides victims, viz, 47 cases or 24.9%; this compares to a "typical" unemployment rate of less than 4% among Las Vegas residents.

