

# The Price of Fame

## An Actuarial Assessment of the Triple Celebrity Death Phenomenon

**T**HE IDEA THAT CELEBRITIES DIE IN THREES gained popularity with the Feb. 3, 1959, plane crash that killed musicians Buddy Holly, Richie Valens, and the Big Bopper. Believers are quick to point out instances when three celebrities have died in close succession, while skeptics argue that if you wait long enough there will eventually be three such deaths. So where are we left with this theory, mathematically speaking, nearly 50 years after that tragic plane crash? Moreover, what is the probability that celebrities actually do die “together” in groups of three?

This question depends on two key assumptions: how to define “celebrity” and how to define “together.” As we will explain, even when these terms are defined differently, we reached the conclusion that the phenomenon is not at all uncommon.



### Defining “Celebrity”

First and foremost, it’s necessary to define the term “celebrity” as used above. Upon defining the term, it’s then possible to assess the number of living celebrities. According to Famous-Alumni.com, a famous person is “someone who is near or at the top of their profession whereby the profession is relevant to the public.” The website goes into further detail with regard to specific concentrations: entertainment, politics, sports, literature, business, and science. Within each of these categories, the surprise is that it doesn’t take *that* much to be famous. For instance, the realm of entertainment includes anyone who “has been associated with a popular musician, song, or event.” Furthermore, “scientists are included ... if they have made a contribution to the world in some way.” For the purpose of our study, this provided a vague definition of “famous.”

Since it’s difficult to pinpoint the exact number of famous people, we used a simple simulation model to illustrate how results can vary according to the number of famous individuals. A work sheet was used to generate a population distribution of famous people by five-year age group, based on the general U.S. population distribution, which we assumed, for the purpose of this generalized evaluation, is the same as the distribution of celebrities, as given in the 2000 census. The work sheet was programmed to take an input number (the assumed total number of famous people) and distribute that number proportionally to the national population of each five-year age group.

Next, a mortality table of death rates for healthy lives in

2006, taken from the Pension Benefit Guaranty Corp. because it was readily available, determined the expected death rate for each age. As with the population distribution, we assumed the distribution of deaths within the celebrity community is the same as in the rest of the population. Because of the small probability of death at the age of 15 and under, the mortality table was redistributed to the age range of 15 to 110 and assembled in age groups of five years to match the population distribution.

For the purpose of this study, we used basic assumptions when dealing with the mortality and age distribution tables that were readily available. The overall focus wasn’t to pinpoint the exact measure of celebrities and their death rates but rather to construct a general study and derive the simplified conclusion that it’s not rare for this event to take place. Had the parameters been differently developed, we don’t doubt that the results would have been different, but we believe the general conclusion would have been the same.

### Defining “Together”

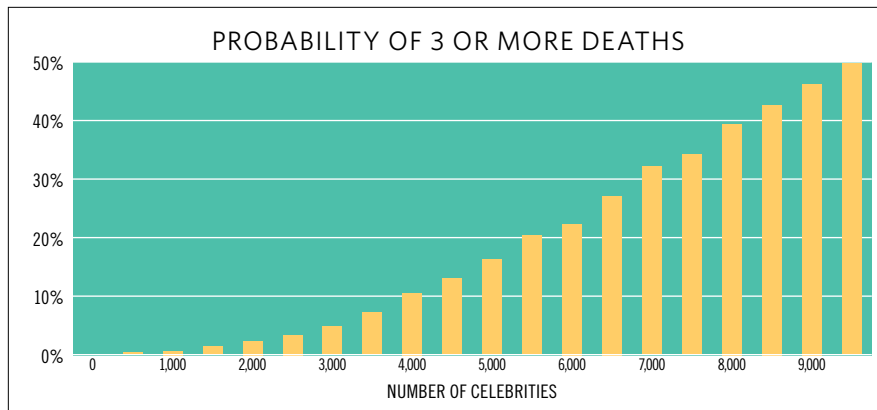
The data in the age distribution and mortality table gave a projected probability that a given person would die within each age group during a year’s. Again, assumptions must be made on what constitutes “together.” Since a month seems too long and a week too short, we selected two weeks as an average time. The annual probability is thus multiplied by 2/52 to give the probability of a death in a two-week span. If the period were to change, the probability would increase with a larger period and decrease with a smaller.

After the establishment of the number of people

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distributed by age and a mortality rate for each age group, it became time to use the computer simulation program to create a binomial distribution. This distribution was set up with the parameters (n, p) where n = number of famous people in an age group and p = the probability of a death for that age group in a two-week period. The simulation program works by taking the parameters (n, p) and calculating the number of total deaths across all age groups with a given number of trials. We arbitrarily chose to have the program run 10,000 independent trials, each of which results in a given number of total deaths and the number of times each “death count” occurs out of the 10,000. From these numbers, the probability of there being three or more deaths in a two-week period could be calculated.

The graph represented in Figure 1 can be constructed after deriving the given probabilities from the computer simulation program. This graph represents the



probability of three or more celebrities dying in a two-week period. It shows that if there were only 5,500 famous people, the chance of three or more deaths occurring within two weeks is already more than 20 percent, with the chances continuing to grow as the population increases.

As a result of this study, it’s evident that the probability of three celebrities dying in a given period is not that small and should not be viewed as a mere coincidence or superstition. Although the exact number of famous people is clearly up for debate, even if there were

only 9,500 celebrities currently alive, the chance of a triple-death event would already be at 50 percent.

Today’s definition of “celebrity” remains vague, but it could be argued that the current wave of reality TV programming and Internet videos is further altering our perception of what constitutes fame. If Andy Warhol’s prediction that “in the future, everyone will be famous for 15 minutes” actually comes to pass, the way we quantify fame might change dramatically, leading to an even higher probability of a celebrity-death hat trick.

## Does your lawyer understand:

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- IBNR estimates based on the BF method?
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# Celebrity Death Trios for 2007



**Teddy Kollek**  
mayor of Jerusalem (Jan. 2)  
**Art Buchwald**  
humorist and columnist (Jan. 17)  
**Molly Ivins**  
columnist and author (Jan. 31)

**Gian Carlo Menotti**  
opera composer (Feb. 1)  
**Anna Nicole Smith**  
playmate (Feb. 8)  
**Arthur Schlesinger Jr.**  
historian and author (Feb. 28)

**Tammy Faye Messner**  
TV evangelist (July 20)  
**Ingmar Bergman**  
film director (July 30)  
**Michelangelo Antonioni**  
film director (July 30)

**Merv Griffin**  
TV host (Aug. 12)  
**Phil Rizzuto**  
baseball player and sports  
broadcaster (Aug. 13)  
**Leona Helmsley**  
hotelier (Aug. 20)



**Luciano Pavarotti**  
opera singer (Sept. 6)  
**Jane Wyman**  
actress and ex-wife  
of Ronald Reagan  
(Sept. 10)  
**Marcel Marceau**  
pantomime (Sept. 22)

**Deborah Kerr**  
actress (Oct. 16)  
**Joey Bishop**  
comedian (Oct. 17)  
**Robert Goulet**  
singer and actor (Oct. 30)



**George Osmond**  
patriarch of singing Osmond  
family (Nov. 6)  
**Norman Mailer**  
author (Nov. 10)  
**Robert Craig**  
"Evel" Kniefel  
stunt daredevil (Nov. 30)

**Ike Turner**  
rock musician (Dec. 12)  
**Dan Fogelberg**  
folk-rock musician (Dec. 16)  
**Oscar Peterson**  
jazz pianist (Dec. 23)

## Thomas Eagleton

U.S. senator and vice presidential candidate (March 4)

## Ernest Gallo

co-founder of E&J Gallo Winery (March 6)

## Bowie Kuhn

major league baseball commissioner (March 15)

## Kurt Vonnegut

author (April 11)

## Don Ho

Hawaiian musician (April 14)

## Jack Valenti

president, Motion Picture  
Association of America (April 26)

## Walter Schirra

astronaut (May 3)

## Jerry Falwell

minister and TV evangelist  
(May 15)

## Yolanda King

minister and daughter of  
Martin Luther King Jr. (May 15)

## Kurt Waldheim

Austrian president and U.N.  
secretary general (June 14)

## Liz Claiborne

fashion designer (June 26)

## Joel Siegel

TV film critic (June 29)



AP PHOTO

Source: Wikipedia ([http://en.wikipedia.org/wiki/Deaths\\_in\\_2007](http://en.wikipedia.org/wiki/Deaths_in_2007))