More Innocent People on Death Row Than Estimated: Study
David Von Drehle, TIME.com

New research finds that almost four percent of U.S. capital punishment sentences are wrongful convictions, almost double the number of people set free, meaning around 120 of the roughly 3,000 inmates on death row in America are not guilty.

The United States may be putting more innocent people to death than previously thought. According to a sweeping new statistical analysis made public today, the rate of wrongful death sentences in the U.S. is probably much higher than experts have estimated.

Authors of the study say that their "conservative estimate of the proportion of erroneous convictions" is 4.1 percent, or approximately twice the number actually exonerated and set free from death row. This could mean that approximately 120 of the roughly 3,000 inmates on death row in America might not be guilty, while additional scores of wrongfully convicted inmates are serving life in prison after their death sentences were reduced over technical legal errors.

"False convictions … are extremely difficult to detect after the fact," law professors Samuel R. Gross of the University of Michigan and Barbara O'Brien of Michigan State write in the Proceedings of the National Academy of Sciences, a prestigious peer-reviewed journal. "As a result, the great majority of innocent defendants remain undetected. The rate of such errors is often described as a 'dark figure'."

But by applying statistical models derived from the study of medicine and mortality, the authors assert that "it is possible to use data on death row exonerations to estimate the overall rate of false conviction among death sentences." Two experts in biostatistics, Chen Hu of the American College of Radiology and Edward H. Kennedy of the University of Pennsylvania, crunched the data with that goal in mind.

"This study provides the first rigorous estimate of the rate of conviction of innocent criminal defendants in any context," said Bruce Levin, a Columbia University professor who is a leading authority on statistics and the law. It could add fuel to the slowly rising misgivings of Americans about the practice and flaws of capital punishment in the U.S. A recent Pew Research survey found that 37% of U.S. adults oppose the death penalty for convicted murderers — up from 31% in 2011 and 18% in 1996. Since 2007, six states have abolished the ultimate sanction, according to the Death Penalty Information Center, though a recent attempt to repeal it in New Hampshire failed after the state legislature deadlocked.

To calculate the rate of wrongful convictions, the new study applied an analytical framework from the world of medical statistics to a set of data comprising all prisoners sentenced to death between 1976 and 2004. Strap on your thinking caps, because this gets a bit topsy-turvy for us non-statisticians.

"Survival analysis" is the mechanism that Gross and his colleagues employed. In a medical context, this is a method for estimating the likelihood that patients who contract a certain disease or injury will survive. Variables like the treatment method or the amount of time lost before treatment can be fed into the analysis to squeeze more information from the data.

An analyst who wants to know how likely a man with Lyme disease is to die of the infection arranges the variables to isolate the number of fatal cases. Gross and company turned the analysis on its head: the fatal event they were looking for was not death, but exoneration.

Their overall population was the number of prisoners originally "infected," if you will, with death sentences, and the slice they were trying to find was the number of patients likely to pass away into freedom.

It gets trickier. The likelihood of an innocent prisoner being exonerated depends very much on whether the government is actively trying to kill him. As the authors of the study observed: "Death sentences represent less than one-tenth of 1% of prison sentences in the United States, but they accounted for about 12% of known exonerations of innocent defendants." This "extraordinary exoneration rate" for prisoners facing execution—more than 130-to-1 compared to the background population of prisoners—is evidence of the reality that "far more attention and resources are devoted to death penalty cases than to other criminal prosecutions, before and after conviction."

But a large proportion (more than one-third) of death row inmates have their sentences reduced at some point to life in prison. And when that happens, typically the "attention and resources" dry up as lawyers and investigators shift their focus to other prisoners on death row. Something similar happens in the cases of prisoners who die by suicide or natural cases while waiting on death row. The authors believe that the true rate of wrongful capital convictions must include those prisoners who leave the intense scrutiny of the capital appeals process before their potential innocence is revealed.

To model that, Gross and his associates dial up the so-called "Kaplan-Meier estimator," at which point the math gets chewier. I can say from my experience covering capital punishment in the U.S. that the authors bring a deep understanding of the labyrinthine system to their model. But I can also say that scholars have been using sophisticated statistical modeling to analyze this topic for at least half a century, and for every conclusion there are sure to be detractors with their own set of numbers.

Each quest for mathematical clarity only serves to underline the troubling paradox at the heart of the modern death penalty. We want the option of execution (every poll confirms this, even as the percentages in favor of capital punishment appear to be trending downward). But we also want certainty. Countless hours and mountains of money have been spent trying to perfect the process, and they have given us only the confusion and waste of the seemingly endless appeals process.

At some point, we will realize that, when it comes to capital punishment, the most important thing to know is how much we can never know for certain.

Von Drehle, editor-at-large for *TIME*, is the author of *Among the Lowest of the Dead: The Culture of Capital Punishment.*

Possible response topics:
- Do you believe in the death penalty? Why? Why Not?
- How does this article affect your view of the death penalty?
- Select a passage from this article and respond to it.