

Kidney donors' risk of death is at an all-time low, study finds

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The risk of death for people who donate a kidney for transplantation—already small a decade ago—has dropped by more than half since then, a new study shows.

Each year, roughly 6,000 Americans volunteer to donate a kidney, according to the Organ Procurement and Transplantation Network. Before undergoing the procedure, donors are informed of the potential risks, including death. Based on data from 1995 through 2009, experts had originally predicted that about three of every 10,000 donors were likely to die within three months of the procedure. The authors of the new study argue that advances in [surgical techniques](#), donor selection, and postoperative care have since rendered that estimate out of date.

Analyzing three decades of medical records representing 164,593 [kidney donors](#) from across the country, a team led by researchers at NYU Langone Health found that by 2022, fewer than one [death](#) occurred for every 10,000 donations. That translates into 36 deaths in total over 30 years.

"While we had always understood that kidney donation is safe, our findings suggest that mortality among donors is extremely rare, and the procedure is safer than ever before," said study lead author Allan Massie, Ph.D. Massie is director of the Center for Surgical and Transplant Applied Research (C-STAR) Quantitative Core at NYU Grossman School of Medicine, where he is also a faculty member in the Departments of Surgery and Population Health.

The results further showed that while their overall risk remained small, donors who were male and those with a history of high blood pressure were more likely to die within 90 days of surgery than other donors. Meanwhile, age, race, and ethnicity had no bearing on mortality.

Massie notes that surgical methods have changed dramatically since the 1990s, with open donor nephrectomy, in which surgeons make a 6-inch to 8-inch incision to remove the kidney, being almost entirely replaced by laparoscopic nephrectomy. In this less-invasive option, the organ is removed through a much smaller incision, with the procedure aided by a

camera inserted through a thin tube.

The new report, published in the *Journal of the American Medical Association (JAMA)*, is the first since 2009 to examine trends in mortality risk among living kidney donors. As a result, it better reflects the reality of organ donation in a time when laparoscopic nephrectomy is standard practice, the authors say.

For the study, the team analyzed information from the Scientific Registry of Transplant Recipients, a database of transplantation centers that is overseen by the U.S. Department of Health and Human Services. Death records were sourced from the Organ Procurement and Transplantation Network, the [nonprofit organization](#) that administers the nation's only transplantation network authorized by the U.S. Congress.

The researchers calculated mortality rates within 90 days of donation, separated out into three time periods: 1993 through 2002, 2003 through 2012, and 2013 through 2022. Then, they compared deaths across the periods and considered different demographic and health factors, such as sex, body mass index (a measure of obesity), and whether the donors had undergone open or laparoscopic surgery.

Researchers found that about half of deaths occurred within the first week after donation, most commonly due to blood loss linked to surgery. In addition, mortality was similar from 1993 through 2012. Specifically, a total of 13 deaths occurred before 2003, with another 18 happening between 2003 and 2012. Meanwhile, there have been far fewer deaths since 2013, with five donors dying within 90 days of their procedure.

"These results demonstrate that the current guidelines used to inform potential kidney donors of their risks need to be updated to reflect nearly a decade of safety improvements," said study senior author Dorry Segev, MD, Ph.D. Segev is a professor and vice chair in the Department of

Surgery at NYU Grossman School of Medicine and director of C-STAR.

"As a kidney donor and research scientist in the field, it is reassuring to see the progress we have made," said study co-author Macey Levan, JD, Ph.D., an associate professor in the Departments of Surgery and Population Health at NYU Grossman School of Medicine. and director of the C-STAR Qualitative Core. Levan is also the vice president of patient and donor affairs for the Organ Procurement and Transplantation Network and had donated her kidney to her cousin in 2009.

In addition to Massie, Segev, and Levan, another NYU Langone researcher involved in the study is Jennifer Motter, MHS. Jon Snyder, Ph.D., at the Hennepin Healthcare Research Institute in Minneapolis, Minn., also served as a study co-investigator.

More information: Thirty-year trends in perioperative mortality risk for living kidney donors, *JAMA* (2024).

Provided by NYU Langone Health

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