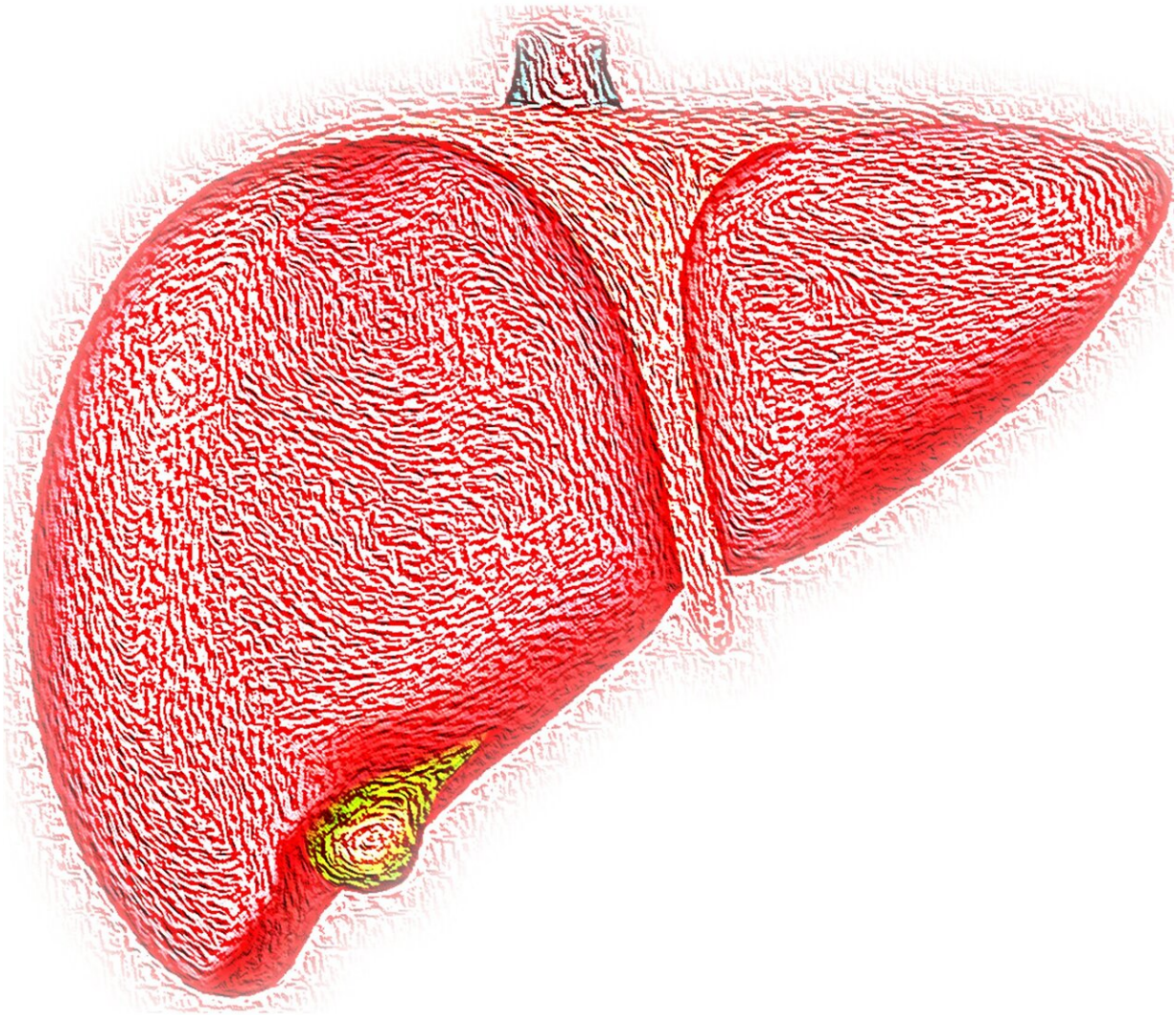


The ethics of split liver transplantation: Analyzing case studies to make the right decision

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Split liver transplantation (SLT) provides an opportunity to divide a donor liver and offer transplants to two small patients, one or both of whom could be a child. SLT, which is underused in the United States, could be used more widely to decrease the number of deaths of people on transplant waiting lists. In a new article, researchers address some of the ethical decisions that go into decisions to split a liver and provide a model to help hospitals make SLT decisions.

The article, by researchers at Carnegie Mellon University (CMU), appears in *The BMJ*, which is published by the Institute of Medical Ethics.

"Should a large [liver](#) always be split if it is medically safe to do so?" asks Sridhar Tayur, Professor of Operations Management at CMU's Tepper School of Business, who coauthored the article. "We say not always, and clarify under what circumstances SLT is ethically desirable."

Both the Organ Procurement and Transplant Network and the United Network for Organ Sharing have identified SLT as an important ethical issue. To flesh out the issues at play, the authors—including UCSF Transplant Surgeon, John Roberts who previously served as UNOS President—present several case studies regarding what to do with a large liver available for transplantation when recipients are different sizes and ages and have different levels of need.

Using philosophical theory, the authors—that include Alan Strudler, an ethicist from University of Pennsylvania—address considerations that

limit transplantation of portions of the liver. SLT requires that the relative size of the donor and the recipient match because if the portion of the liver is too small for the recipient, it will fail. The most common split results in one part of the liver that is about 75 percent of the original mass (typically transplanted to an adult) and one part that is 25 percent (typically transplanted to a child). However, the larger part may be inadequate for a large adult, and splitting raises logistical issues, such as preparing two recipients in the same operating room, the time and expertise needed to split the liver, and the transportation of the parts of the liver.

The authors suggest that hospitals use a flexible [decision](#) support model to allow for analyses that ask 'what if' questions about the patients who need transplants and how their needs are changing. The model should consider various metrics of fairness and efficiency. For example, the medical community should reach reasonable consensus about what items constitute fairness, including patients' scores on measures of the severity of liver cirrhosis, which prioritize decisions about transplantation; waiting time until [transplant](#); and likelihood of death.

"Much of the ethics involved in SLT suggest a dynamic problem whose answer requires a dynamic solution," explains Tae Wan Kim, Associate Professor of Business Ethics at CMU's Tepper School of Business, who coauthored the study. "The problem of [liver transplantation](#) is dynamic, so the solution must be dynamic and oscillate qualitatively between different demographics."

As an example of a dynamic allocation policy, decisions about SLT would oscillate between splitting a large liver if the health of the small patients involved were worse than that of the large patient and not splitting the liver if the opposite were true.

More information: Tae-Wan Kim et al, Ethics of Split Liver

Transplantation: Should a Large Liver Always Be Split if Medically Safe? *The BMJ* (2021). [DOI: 10.1136/medethics-2021-107400](https://doi.org/10.1136/medethics-2021-107400)

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