

# Researchers call for a re-examination of transplant waitlist prioritization

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Patients with end-stage liver disease complicated by the most common type of liver cancer – hepatocellular carcinoma (HCC) – are less likely to die or become too sick for a transplant while waiting for a new liver than those with other complications of end-stage liver disease, according to new research from the Perelman School of Medicine at the University of Pennsylvania. The investigators say their findings should prompt a re-examination of the criteria used to prioritize liver transplant candidates. Only three percent of patients with this common form of cancer who had been on the wait list for six to nine months were removed within 90 days because of death or advanced illness, compared to 24 percent of non-HCC candidates who were considered to be at the same level of need for transplant. The results of the study are published in the April issue of *Liver Transplantation*.

"With the scarcity of available livers for transplantation, it is imperative that the prioritization criteria ensure that the candidates who are at the greatest risk of dying from the disease be the first ones to receive a life-saving organ," said lead author David Goldberg, MD, an instructor in the department of Gastroenterology. "Our study compared the morality risk for [patients](#) with HCC to those with similar scores, but without [liver cancer](#). What we found is that ultimately, the process used to determine transplant priority is making it so that these HCC patients are receiving healthy livers first, when in actuality, they are less likely to die while waiting for a new organ. This is an issue of utmost importance, because nearly 2,000 patients die each year waiting for a new [liver](#) on the transplant waitlist, while 25 to 30 percent of transplants are performed in

patients with HCC."

Currently, transplant candidates are placed on the waitlist in an order determined by the results of a scoring system which determines how urgently they will need a liver transplant within the next three months. Patients with a higher score are placed higher on the waitlist. Because candidates with HCC have an increased risk of dropping off of the wait list due to progression of their tumor, they are given additional points when initially wait-listed, and receive more points the longer they remain on the waitlist. As their scores climb, it becomes more likely that these patients will receive transplants before other patients who may, according to the new study, actually be at greater risk of dying.

The Penn research team analyzed data from the Organ Procurement and Transplantation Network (OPTN) UNOS database, including candidates eighteen years of age and older who were on the wait list for liver transplantation between January 2005 and May 2009. Data for more than 10,000 patient cases was reviewed. Patients were categorized and compared according to their priority score. HCC and non-HCC patients were compared at three different stages of priority on the waitlist – those who had been on the waitlist for less than 90 days, patients who had been waiting for three to six months, and those who had been waiting for six to nine months. Across all three priority stages, a higher percentage of non-HCC patients were removed from the waitlist because they either died or became too ill to receive a transplant. Of the HCC candidates at the highest priority level – those who were determined to be sickest – only three percent were removed because of death or advanced illness, compared to 24 percent of non-HCC candidates with the same priority level.

The researchers determined that over time the risk of dying while on the waitlist or declining to the point where they are unable to accept a transplant was unchanged for HCC candidates – perhaps because of

therapies that can be used to slow tumor growth such as chemo-embolization (where interventional radiologists treat the cancers with local chemotherapy) – but increased significantly for non-HCC candidates. "Our data clearly shows that HCC candidates have substantially lower chances of dying while waiting for a new organ than non-HCC candidates," said Goldberg. "While future research is planned to determine the best ways to prioritize HCC candidates and non-HCC candidates, our data strongly indicates that the current allotment of the additional points for HCC patients should be lowered."

Provided by University of Pennsylvania School of Medicine

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