

Seeking lung donors after at-home death

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In this Oct. 25, 2013 photo, Lisa Bowman sits at her home in Union Grove, N.C. Bowman, who suffers from a lung disease, has been on the transplant waiting list for two years. It's a little-known twist of nature: Your lungs can live on for a while after you die. The air left inside keeps them from deteriorating right away like other organs. Now an innovative experiment aims to use that hour or more window of time to boost lung transplants by allowing donations from people who suddenly collapse and die at home instead of in a hospital. Bowman hopes the research will speed her wait for new lungs. (AP Photo/Chuck Burton)

The pair of lungs sits inside a clear dome, gently inflating as doctors measure how well they'll breathe if implanted into a patient who

desperately needs them.

It's a little-known twist of nature—your lungs can live on for a while after you die. The air left inside keeps them from deteriorating right away as other organs do.

An innovative experiment aims to use that hour-or-more window of time to increase [lung](#) transplants by allowing donations from people who suddenly collapse and die at home instead of in a hospital.

"There aren't enough lungs. We're burying them," said Dr. Thomas Egan of the University of North Carolina, Chapel Hill, who is leading the project. "It turns out your lungs don't die when you do."

This is a new frontier for transplants.

Today, registered organ donors don't get to fulfill that last wish if they die outside of a hospital. The U.S. doesn't have a system to recover their organs quickly enough

"The general public does not understand how hard it is to become an organ donor. They assume if they sign their card, when they die, then it will happen," said bioethicist Arthur Caplan of New York University's Langone Medical Center. "Only 2 to 3 percent of people die in circumstances that let them be organ donors."

The new study is trying to change that, focusing on lungs because Egan's research suggests they last the longest.

Here's how it works.

Someone collapses with cardiac arrest. Emergency workers exhaust attempts at CPR. If the driver's license lists the person as a registered

donor, the local organ recovery agency tracks down next-of-kin for permission to participate in the research.



In this recent photo, research associate Lolita Forrest assists Dr. Thomas Egan in testing a set of lungs donated as part of research at the University of North Carolina in Chapel Hill. It's a little-known twist of nature: Your lungs can live on for a while after you die. The air left inside keeps them from deteriorating right away like other organs. Now an innovative experiment aims to use that hour or more window of time to boost lung transplants by allowing donations from people who suddenly collapse and die at home instead of in a hospital. (AP Photo/Allen G. Breed)

If that happens within about an hour of death, then workers pump a little air into the lungs to preserve them while the body is transported to an

operating room for organ recovery.

Inside the domed machine, a ventilator slowly filled the lungs. Egan infused them with a special fluid that flows like blood normally would. This preserves the lungs even longer. Egan peeked inside with a bronchoscope, looking for abnormalities.

These lungs didn't pass the test because Egan found some early disease.

Lungs that do pass will be transplanted into patients willing to take a chance on these nontraditional organs, as part of the study funded by the National Institutes of Health.

Transplant specialists are watching this newest experiment closely, saying that if it works, it eventually could open the way to many more donations—not just lungs but maybe other organs, too.

Dr. Jeffrey Punch, transplant surgery chief at the University of Michigan, plans with his team to try recovering kidneys from [cardiac arrest](#) victims who are rushed to the emergency room but can't be saved and turn out to be registered donors.

Today, the vast majority of donated organs come from people who suffer a severe injury and are hooked to a ventilator for days, even weeks, until doctors determine they are brain-dead. Machinery keeps blood and oxygen flowing until surgeons can collect organs deemed healthy enough.

In the United States, more than 6,000 people died last year while awaiting one of those organs.



In this Oct. 25, 2013 photo, an oxygen line leads to Lisa Bowman as she sits on a sofa at her home in Union Grove, N.C. Bowman, who suffers from a lung disease, is currently on the transplant waiting list. It's a little-known twist of nature: Your lungs can live on for a while after you die. The air left inside keeps them from deteriorating right away like other organs. Now an innovative experiment aims to use that hour or more window of time to boost lung transplants by allowing donations from people who suddenly collapse and die at home instead of in a hospital. "That would be the greatest thing, to be able to breathe normal," says Bowman. She has been on the waiting list for new lungs for two years after a rare genetic disease gradually damaged her own. She hopes Egan's research will help her find a match more quickly. (AP Photo/Chuck Burton)

Lungs are in particularly short supply. Only 15 percent to 20 percent of donated lungs are usable, often because complications during the donor's hospitalization damaged them. Just 1,700 lungs transplants are

performed each year, compared with nearly 11,000 kidney transplants from deceased donors.

In a series of experiments with animals, Egan showed lungs stay viable for an hour, or four hours if they are ventilated, before they're cooled to await transplant.

That ventilation is one key to the \$4 million, three-year study, because when [emergency workers](#) exhaust attempts at CPR and declare someone dead, they typically leave behind the breathing tube inserted in the person's throat. That makes it simple to restart ventilation to preserve the lungs, Egan said.

"If we can get the lungs ventilated within an hour, and then removed within an hour or two and cooled, we think they'll work just fine," he said.

Kidneys don't have as long a survival window. But in Michigan, Punch has a similar preservation plan: Insert a few tubes near the kidneys to filter blood to them until they're recovered.

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