

Trying last-ditch lung bypass for worst swine flu

23 November 2009, By LAURAN NEERGAARD , AP Medical Writer

(AP) -- A technology originally developed for premature babies may be helping to save some of the sickest swine flu patients by rerouting their blood so their lungs can rest.

It's a risky approach using equipment that only certain specialized hospitals have. But faced with children and young adults struggling to breathe despite ventilators has [intensive-care](#) doctors dusting off these machines, named ECMO, that they often consider last-ditch and almost never use for [influenza](#).

"It was pretty scary knowing that was his blood flowing through those tubes in and out of his body," says Susie Damm of Omaha, Neb., whose 19-year-old son Ryan survived a life-threatening bout after 10 days on ECMO.

"I was one of the people sick and tired of hearing about the swine flu, thinking people were making a big deal of it," she adds. "Now I've had a different look, and I'm very, very thankful" he survived.

No one knows which patients are most likely to benefit - not everyone does. But ECMO is gaining attention after Australian researchers reported that the machines helped during that country's outbreak of what scientists call the 2009 H1N1 [flu strain](#). A voluntary U.S.-based registry counts 107 critically ill swine flu patients recently treated with ECMO, most from this country.

In Omaha, Dr. Jeff DeMare credits the technique with saving Ryan Damm and 7-year-old Tania Romero-Oropeza after both patients' lungs went from clogged to nearly useless in a stunning matter of hours. Tania's care was complicated by a drug-resistant staph infection.

"You wonder, 'OK, we've got a lot of folks who get this disease and why is it so bad in some cases?' We don't have a real good handle on that," says DeMare, a critical care specialist at Children's

Hospital & Medical Center.

Whatever the reason, "your body needs time to fight the infection," he adds, and he gambled that the pricey equipment could buy that time.

Estimates from the federal Centers for Disease Control and Prevention suggest that swine flu has hospitalized 98,000 Americans in the past six months, and killed nearly 4,000. For most, standard treatment works.

But the sickest often need ventilators to pump their lungs, and ventilators damage lung tissue, especially as they're turned up to higher pressures as patients worsen.

Hospitals are "exhausting all measures" on those patients, says Dr. Pauline Park, a University of Michigan ICU co-director who's helping to analyze the ECMO registry in hopes of determining best candidates. "Physicians don't want to give false hope to families, but also don't want to stand by if a life can be saved."

Enter ECMO, decades-old technology that essentially offers a temporary lung bypass. Tubes carry blood out of the body so a filter can remove carbon dioxide and reinfuse oxygen, and then dump the blood back.

It's a twist on the heart-lung machine used for open-heart surgery, modified so that patients can stay on the machine for weeks instead of just hours and, key here, so that blood doesn't have to bypass the heart if only the lungs need a rest.

There are many cautions. It's risky, requiring blood thinners to avoid clots and posing the potential for additional infection. It can double the cost of ICU care. Only about 120 hospitals in the U.S. offer it, most just a few times a year for newborns with respiratory failure, its primary use.

ECMO in adults is hugely controversial because past research couldn't prove that it significantly increased survival.

Here's what's new:

-Australian researchers reported last month that they used ECMO in 68 critically ill swine flu patients who failed standard care, and about 71 percent survived. That research predicted some 800 people might be ECMO candidates if the U.S. experienced similar rates of swine flu.

-Coincidentally, a British study also published last month found that nearly two-thirds of adults randomly assigned to ECMO survived other types of respiratory failure - before [swine flu](#) hit - while just 47 percent survived with regular ICU care. It's the most rigorous study of ECMO performed in adults and one that has lung specialists debating wider use.

-Preliminary data from the Michigan-run ECMO registry suggests survival can reach 72 percent if recipients get it within six days of using a ventilator. With longer ventilator use, the survival rate plummets.

Back in Omaha, DeMare agrees ECMO shouldn't be last-ditch, noting his own patients were on ventilators for just hours before getting it. Still, Tania had a monthlong hospital stay, including her eight days on ECMO.

"Thank God the doctor took that decision to use this machine," said Tania's mother, Antonieta Oropeza, speaking in Spanish through an interpreter.

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APA citation: Trying last-ditch lung bypass for worst swine flu (2009, November 23) retrieved 14 October 2022 from <https://medicalxpress.com/news/2009-11-last-ditch-lung-bypass-worst-swine.html>

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