

Ultrasound can identify pregnant women at risk for respiratory failure, study says

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This is a lung ultrasound. Credit: J.P. Rathmell

An ultrasound of the lungs could help doctors quickly determine if a pregnant woman with preeclampsia is at risk for respiratory failure, suggests preliminary research published in the April issue of *Anesthesiology*.

About 60,000 [women](#) worldwide die as a result of preeclampsia, which causes severely high blood pressure. Potential complications include stroke, bleeding and excess fluid in the lungs – called pulmonary edema – which can lead to [respiratory failure](#). The study suggests a lung ultrasound can help doctors easily learn whether a woman with preeclampsia is suffering from pulmonary edema and ensure she receives the correct treatment.

"Lung Ultrasound is fast, safe, noninvasive and easy to use," said Marc Leone, M.D., Ph.D., lead author of the study and vice chair of the department of anesthesiology and [critical care medicine](#), Hopital Nord, Marseille, France. "We found it allowed us to quickly assess whether a woman with preeclampsia had pulmonary edema and confirm the severity of the condition."

Doctors often measure urine output to determine if a woman needs fluid administration, but the results are wrong about half of the time. "Lung ultrasound enables the medical team to identify which women really need the fluid treatment," noted Dr. Zieleskiewicz, the study's first author.

Pulmonary edema is typically caused by heart failure, but also can be caused by [lung inflammation](#). Researchers analyzed the use of lung ultrasounds, which can assess lung edema, are easier to use than cardiac ultrasound and can be performed with devices commonly found in maternity wards. Lung ultrasound highlights white lines mimicking comet tails, irradiating from the border of the lungs. These lines are the reflection of water in the lungs. The detection of three or more lines

strongly suggests the diagnosis of pulmonary edema.

Researchers performed both cardiac and lung ultrasounds before and after delivery in 20 women with severe [preeclampsia](#). Five of the 20 women (25 percent) had pulmonary edema prior to delivery according to lung ultrasound, while four (20 percent) had the condition according to the cardiac ultrasound. The lung ultrasound identified a patient with non-cardiac pulmonary edema, which the cardiac ultrasound did not detect.

The test results could help ensure that pregnant women with pulmonary edema not be given intravenous or excess fluids, which worsens the condition and can lead to respiratory failure. Typically, women with pulmonary edema are treated with oxygen and medication to lower the [blood pressure](#) or rid the body of excess fluid. In real time, lung ultrasound also serves to observe improvement or worsening of [pulmonary edema](#).

Provided by American Society of Anesthesiologists

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