

Researchers studying blood test that could reduce antibiotic use

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A new blood biomarker test that indicates whether bacteria is the cause of a patient's lung infection is now being studied at UPMC Presbyterian, launching a national multicenter trial. The information could help doctors decide when to prescribe antibiotics and possibly reduce overuse of the drugs, which can lead to antibiotic-resistant strains of bacteria.

Patients who go to hospital emergency departments (ED) with coughs and breathing difficulties could have pneumonia, bronchitis, asthma or chronic [obstructive pulmonary disease](#), or even [congestive heart failure](#), explained principal investigator David T. Huang, M.D., M.P.H., associate professor of [critical care medicine](#) and [emergency medicine](#), University of Pittsburgh School of Medicine. Aaron Brown, M.D., assistant professor of emergency medicine, and Franziska Jovin, M.D., associate professor of medicine, will lead the study in the ED and hospital.

"Doctors prescribe antibiotics more often than they would like to because it can be really hard to tell if a patient has a [lung infection](#) or a non-infectious disease," he said. "Also, viral infections look very much like bacterial infections, and X-rays typically cannot distinguish between the two. This study will examine whether a novel biomarker can help doctors make more informed decisions about using antibiotics."

More than 1,500 lung infection patients will be needed to complete the Procalcitonin Antibiotic Consensus Trial (ProACT), which will eventually be expanded to include approximately 10 other sites across

the country.

Patients diagnosed in the ED with a lung infection and who are not critically ill will be asked to join ProACT. If they agree, patients will be randomly assigned to either get usual care or to also have a blood test to measure the level of the protein procalcitonin, which previous Swiss studies have shown is high with [bacterial infection](#) and low with viral infection. The result and a recommendation about antibiotic use will be available within an hour to the treating ED physician. If the patient is admitted to the hospital, follow-up procalcitonin levels will be checked and made available to the treating hospital physician. The research team will call study patients twice within 30 days of the ED visit to check on their health status and the period of antibiotic use, if any.

"The final decision to use or not use [antibiotics](#) is up to the doctor, who also will be taking into account the patient's medical history and other factors," Dr. Huang said. "My hope is that we'll find that patient outcomes are as just as good, while antibiotic use declines."

Provided by University of Pittsburgh

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