

Research at a Glance

Training kids' developing immune systems to prevent wheezing

What's known:

Some 6.3 million U.S. children younger than 18—or 8.6 percent of the nation's kids—have asthma. The disease is characterized by an inflammation of the airways, and symptoms may be triggered by breathing in such allergens as animal dander, pollen, dust, or mold.

Once children experience early wheezing, changes begin in the architecture of their lungs, causing a thicker basement membrane, a thickening of the lining of the lungs, which can result in a heightened tendency for the airways in the lungs to become inflamed.

What's new:

Asthma and allergic diseases are thought to result from disordered development of the immune system, a process that begins in the womb. A paradigm-shifting multicenter clinical trial will enroll patients at eight locations, including Children's National Health System, to provide the type of "immune system training" that infants would experience if they grew up in rural settings—where most children's immune systems develop more normally. The five-year study funded by the National Heart, Lung, and Blood Institute will identify 1,000 babies aged 6 months to 18 months who are at risk for asthma to receive safe doses of an inactivated bacteria to help them develop more properly functioning immune systems. The University of Arizona Health Sciences in Tucson will lead the national research effort. Researchers will gauge whether infants randomly assigned to receive treatment suffer fewer respiratory symptoms than infants randomly assigned to receive placebo.

Questions for future research:

- Q:** What will be the longer-term effects of preventing early wheezing? Will the children develop asthma less frequently?
- Q:** If intervention with young children occurs early enough to interrupt the disease cycle—preventing asthma, wheezing, and allergies—will they miss fewer days of school when they are older?
- Q:** Will families be willing to consistently follow the complex regimen necessary to administer the inactivated bacterial products on a long-term basis?