

Groundbreaking study finds home treatment of pneumonia better than hospital care

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In a breakthrough study published online today in *The Lancet*, researchers from Boston University, Save the Children and the WHO found that young children treated at home for severe pneumonia by Pakistan's network of "lady health workers" were more likely to get well than children referred to health facilities.

The finding could save thousands of children's lives every year. [Pneumonia](#) is the leading cause of death of young [children](#) around the world, killing some 1.4 million children under age 5 annually, 99 per cent of them in developing countries.

In the study, based in the Haripur district of northern Pakistan, researchers found that home-based treatment of severe pneumonia by a corps of trained "lady health workers" armed with five days' worth of oral [amoxicillin](#) reduces treatment delays and failures compared to standard practice: administering one dose of antibiotics and referring a child to a hospital or clinic for intravenous drugs.

Because of the lack of [health care facilities](#) -- many families have to make long, expensive trips to get to a facility that may provide substandard care -- Pakistan and other developing countries have turned increasingly to [community health](#) workers, known as CHWs.

"This really is the capstone in a 10-year portfolio of research by which we were trying to provide a scientific rationale for community case-management of pneumonia," said study co-author Dr. Donald Thea, a

researcher with Boston University's Center for [Global Health](#) & Development and professor of international health at the BU School of Public Health.

He said the study findings are "proof of principal that trained community health workers can identify and manage this very complex disease."

While the research team, led by Dr. Salim Sadruddin of Save the Children, had set out to show that home-based treatment was equivalent to the current standard-of-care, they instead found that it produced better outcomes.

"If the children are getting the drugs in the community, they're getting them quicker," said Thea, an infectious diseases specialist. He said he was hopeful that the study would sway the World Health Organization (WHO) to revise its standard of care for treatment of severe pneumonia to allow for community case-management of the disease in areas where there are "structured, trained and well-organized community health workers," as there are in Pakistan.

A prior study by Thea and colleagues, also in Pakistan, showed that administering oral amoxicillin to children with severe pneumonia worked as well as the injected drugs given in hospitals. But that study was hospital-based and had physicians, rather than the community health workers, overseeing care.

"Changing the standard of care will be hugely beneficial, especially for the many children who are referred to hospitals but never reach them," Thea said.

With far greater attention given to diseases such as HIV/AIDS and malaria, UNICEF has dubbed pneumonia "the forgotten killer of

children." The study comes on the eve of the third World Pneumonia Day, which is intended to focus attention on the disease.

A *Lancet* editorial accompanying the study notes that referrals "do not always go according to plan. They entail transport costs, upkeep away from home and possible loss of daily income to the family."

The researchers "have given a fine example of how effective CHWs can be. . . It has been suggested that a reduction in childhood mortality of 25-30 percent could be achieved by well-trained and motivated CHWs," the editorial says.

The study authors noted that outpatient management of pneumonia offers significant cost-savings for families and health systems, while also reducing the risk that children with pneumonia will develop complications from infections in crowded hospital wards.

The study compared outcomes between 1,857 young children treated at home with oral amoxicillin for five days, and 1,354 children in a control group who were given one dose of cotrimoxazole and referred to the nearest health center for treatment. Researchers looked at treatment failure at six days, as well as relapse within 14 days.

With failure defined as the continued presence of fever or lower chest indrawing on Day 6, the results were clearly in favor of home-based therapy -- a 9 percent failure rate, versus 18 percent.

The overall mortality for severe pneumonia cases was very low: two children in the control group and one in the intervention group died.

The authors of the study credited the lady health workers -- community members with basic training who are employed by the government --with accurately diagnosing severe pneumonia in 94 percent of the

cases, which were validated by an independent assessor. The workers were given intensive training in how to recognize signs of severe pneumonia and track treatment progress.

Pakistan's network of 90,000 lady health workers was established in 1994 by then-prime minister Benazir Bhutto in an effort to improve maternal and child health and provide jobs for women, particularly in rural areas where three-quarters of the country's population lives. The health workers, who are required to have at least an eighth grade education, are each responsible for 150 families.

"It's a wonderful network – one of the best community-based health systems in the world," Thea said.

Similar programs for community health workers are in place in other countries, including Nepal and Malawi.

"For community case management of pneumonia to be successful and sustainable, community health workers will need to be adequately compensated and supervised," the study recommends.

Thea said one of the most heartening aspects of the study was seeing Pakistani parents embrace the health workers as competent caregivers. At the start of the study, the lady health workers were called upon by families to provide care for fewer than 1 percent of suspected cases of pneumonia; by the end of the study, that care-seeking had climbed to 52 percent.

"Moms started flocking to the lady health workers with their children," Thea said. "There was a complete virtuous cycle in the community. It was incredibly empowering for the health workers -- to be able to actually cure children improved their status."

Fathers were also won over. One of Thea's co-authors, Dr. Shamim A. Qazi, of the WHO, told the story of one local politician who doubted the ability of the lady health workers to treat severe pneumonia.

Then, while the man was away, his own young son developed severe pneumonia. His wife telephoned him to ask for his permission to get help from the lady health worker, who had made herself immediately available.

"Husbands have a lot of say in these matters," Qazi said. "He said, 'Okay, the lady health worker can try.'" But if their son was not better in a couple days, he told his wife, she should make the trip to the health facility.

The lady health worker provided the medicine -- "and the next day the child improved," Qazi said. "The father became an advocate for the lady [health workers](#) program."

More information: The study is available at [www.thelancet.com/journals/lan ... \(11\)61140-9/abstract](http://www.thelancet.com/journals/lan... (11)61140-9/abstract)

Provided by Boston University

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