

# Community health workers can effectively manage children with malaria and pneumonia

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Anti-malarial drugs are being used inappropriately for sick children in Zambia with fevers and difficulty breathing - a problem that can be addressed by arming community health workers with a simple rapid-diagnostic test and a supply of antibiotics, a study led by a team of Boston University School of Public Health [BUSPH] researchers has found.

In the study, published online Sept. 21 in *PLoS Medicine*, the research team from the Center for Global Health and Development at BUSPH addressed the widespread practice of treating children with fevers with anti-malarial drugs, rather than screening them first for malaria or pneumonia -- the two leading causes of death among children under age 5 in sub-Saharan Africa.

The researchers found that allowing community health workers to use a diagnostic test for malaria, before prescribing treatment, "resulted in a significant increase in the proportion of appropriately timed antibiotic treatments for non-severe pneumonia, and in a significant decrease in inappropriate use of anti-malarials."

The health workers were trained to give amoxicillin to children with suspected pneumonia.

Traditionally in Zambia, as in other parts of sub-Sahara Africa, most

children who are brought to health personnel with fevers are treated with anti-malarials, and those with suspected pneumonia are referred to health facilities. That practice leads to the overuse of artemisinin-based anti-malarial drugs, while also delaying care for children suffering from pneumonia, some who live far from the nearest health facility. In addition, public health experts worry that overprescribing of artemisinin-based drugs could lead to widespread resistance to the medications.

"Pneumonia and malaria, two of the leading causes of morbidity and mortality among children under five in Zambia, often have overlapping clinical manifestations," the authors said. "This study has demonstrated the feasibility and effectiveness of using [community health workers] to provide integrated management of pneumonia and malaria at the community level."

The research team, led by Kojo Yeboah-Antwi, assistant professor of international health at BUSPH, studied treatment outcomes for more than 3,000 children, ages 6 months to 5 years, who presented with fevers, and in some cases fast respiratory rates, at community health posts. The children were randomized into two groups -- an intervention group, in which health workers used the rapid diagnostic tests and doses of amoxicillin; and a control group, in which the workers gave children anti-malarial drugs or referred those with suspected pneumonia to health facilities, in accordance with Zambian Ministry of Health policy.

The study found no significant difference in the overall treatment failure rates for children in the two groups. But it did find that the proportion of children who were given anti-malarial drugs was much higher in the control group than in the intervention group -- 99.1 percent, vs. 27.5 percent - suggesting that many of the children in the control group who were given such drugs did not need them.

Similarly, 68 percent of children in the intervention group who were

classified as having pneumonia received early and appropriate treatment with antibiotics, compared to just 13 percent in the control group. That five-fold increase in the timely treatment of pneumonia was easily achieved by the trained community workers, the researchers said.

The study noted that more than 20 percent of children in the control group who were referred to health centers for suspected pneumonia did not comply with the referral.

"Providing [community health workers] with the means to treat malaria, but not pneumonia, increases the risk of treatment delay and progression to more severe disease for children with pneumonia," the researchers said.

They said the study's findings bolster the idea that community health workers in rural, remote areas can and should be trained to diagnose and treat common childhood illnesses.

"The integrated management of common childhood illnesses by community health workers is an important component of strengthening health systems in countries in sub-Saharan Africa that will help these countries attain an important Millenium Development goal - a reduction of child mortality by two-thirds by 2015," relative to 1990 levels, said Dr. David Hamer, a co-author of the study and professor of international health at the Center for Global Health and Development.

**More information:** Yeboah-Antwi K, Pilingana P, Macleod WB, Semrau K, Siazeele K, et al. (2010) Community Case Management of Fever Due to Malaria and Pneumonia in Children Under Five in Zambia: A Cluster Randomized Controlled Trial. PLoS Med 7(9): e1000340. [doi:10.1371/journal.pmed.1000340](https://doi.org/10.1371/journal.pmed.1000340)

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