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New study finds closing gap in diarrhea care of African children could save 20,000 lives

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Young children suffering from diarrheal diseases are less likely to receive life-saving oral rehydration therapy (ORT) if they seek treatment at private, for-profit clinics, according to the first-ever, large-scale study of child diarrhea treatment practices in sub-Saharan Africa. The stark difference in treatment between public and private clinics may be unnecessarily costing tens of thousands of lives each year from diarrheal diseases that are effectively treatable with inexpensive oral rehydration salts, researchers conclude in the report, published online today in the *American Journal of Tropical Medicine and Hygiene*.

"We estimate that reducing the gap in care between public and private clinics could save the lives of 20,000 children under 5 years old in sub-Saharan Africa each year," said Neeraj Sood, PhD, the study's senior author and director of research at the Leonard D. Schaeffer Center for Health Policy and Economics, University of Southern California, Los Angeles. The authors arrived at this number by combining the estimates from their study with diarrheal mortality statistics in sub-Saharan Africa.

Researchers found continued limited access to oral rehydration therapies in almost all settings, but poor children and those living in rural areas were much less likely to receive ORT than wealthy children.

Worldwide, diarrheal diseases are the second leading cause of death in children under 5, killing 700,000 young children annually – with at least half of those deaths occurring in sub-Saharan Africa, according to the World Health Organization. Nearly all of these children's deaths are

caused by dehydration, which is preventable through the use of oral rehydration salts mixed with water, a simple treatment that can be given at home and has been proven to save lives. Since the worldwide introduction of this oral rehydration therapy in 1980, deaths from diarrheal diseases have been reduced by two-thirds. Today, oral rehydration, at the cost of less than 50 cents (USD) per treatment course, is the recommended treatment for all cases of childhood diarrhea regardless of cause or severity of illness.

Analysis of treatment received at each type of facility revealed that children under the age of 5 who sought care at private, for-profit health care providers were 22 percent less likely to receive oral rehydration, and 61 percent more likely to receive other treatments, some of which are not recommended for treating dehydration, and may actually be harmful. On average private providers were more likely to prescribe pills or syrups, antibiotics, herbal remedies or other medicines that often cost more and do not combat dehydration, and may even be harmful.

"Our findings are particularly significant because private health care providers are increasingly filling gaps in underserved areas of sub-Saharan Africa," said Zachary Wagner, study co-author and doctoral student in public health at the University of California-Berkeley. "While this doesn't apply to the entire private sector, we should be concerned that oral rehydration therapy is not being given, yet treatments that aren't protocol, and could be harmful, are."

The study covers nearly a decade, from 2003 to 2011, making it particularly timely. Until now, studies on provision of health care by private clinics in Africa dated back to the 1980s and 1990s, according to Sood. The study followed the treatment received by 19,000 children in 29 African nations. Overall, one-fourth of all patients visited private facilities, while 71 percent visited public facilities and 5 percent visited non-profit facilities run by non-governmental organizations. Out of the

29 nations studied, only in Chad did private providers do better than public providers when it came to dispensing oral rehydration salts.

More About Private Clinics

Private health care providers included private mobile clinics, "Mom-and-Pop" pharmacies, and small clinics being staffed by one physician or pharmacist that are often set up in small sub-standard facilities. The researchers found pharmacies in particular provided the least effective treatment for diarrhea; pharmacies were 23 percent less likely than all other private facilities to provide oral rehydration to patients seeking care.

"In most countries there are several regulations governing private clinics, but in practice few of them are enforced and there is very little government oversight of care provided in the private sector," said Sood. "What's more, governments are generally not involved in continuing medical education to improve the capacity of these private clinics to provide better care."

Rural and Poor, Less Likely to Receive Oral Rehydration Therapy for Different Reasons

Individuals in rural areas with less overall access to health care were 41 percent more likely to visit private pharmacies for their care. Here, the poorer children were at a serious disadvantage. They were less likely to receive oral rehydration therapy at both public and private clinics, but the effect was much more pronounced at private providers, where poor children were 14 percent less likely to receive the therapy than wealthier children, compared to 4 percent less likely at public clinics. "If you look at the public-private disparities in health care for children living in poor and rural areas, you also find more operations being run by providers

with less sophistication and less health care training," Sood said. "Both of these findings are important as poor children or those living in rural areas are likely to be more vulnerable to dehydration and death due to diarrhea."

When the investigators looked at who frequented each type of facility they found that families with more relative wealth and better education were also more likely to seek care at a private facility. These patients may have been more likely to request more expensive treatments, such as antibiotics, the researchers say.

"Better educated parents may be more likely to demand certain treatments that they may perceive as being more effective," said Wagner. "However, we can't determine why we find these public-private disparities, based on our data, and there are many factors involved that are beyond the scope of this study. What we can say is that if the private sector simply provided oral rehydration therapy at the level of the public sector, we would expect to see at least an 11 percent decrease in these easily preventable premature deaths among children that seek care."

Working Together, Moving Forward

In many areas of sub-Saharan Africa there are huge unmet needs for health care, and private health care providers have stepped in to meet some of that need. Moreover, said Wagner, the trend is likely to continue, making it urgent for governments and international aid organizations to start engaging with private providers to help reduce the disparities uncovered by the study.

"Given the important role that private health care providers are playing in Africa, this research shows that we need to be employing engagement strategies that we know have been successful in helping combat other diseases like HIV and malaria," said Alan Magill, president of the

American Society of Tropical Medicine and Hygiene. "It is an illustration of the hand-in-hand relationship that research plays with clinical care."

The authors believe this data and further studies could provide a roadmap for reaching long-term health care goals in the region. Most nations in sub-Saharan Africa are not on track to meet the United Nation's Millennium Development Goal of reducing child mortality by two thirds by 2015. "We need to find out why this is happening and then design interventions," said Sood. "The solution may be as simple as providing these facilities with oral rehydration salt packets or perhaps simply providing medical education to private providers with the message that oral rehydration therapy is the most effective treatment for diarrhea."