The first piece of research funded by the Reckitt Global Hygiene Institute reveals crucial correlation between drought and diarrhoea among children under 5

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The first research to have been funded by new global health hygiene foundation, the Reckitt Global Hygiene Institute, has been published in Nature Communications.

RGHI is a not-for-profit foundation that was established by Reckitt plc in 2020 with a $25 million grant to generate high-quality scientific research-based evidence. This research will inform public health and policy recommendations and promote behaviours that improve global hygiene.

Angela Naef PhD, Reckitt's Chief Research and Development Officer, said "Reckitt's founding donation to RGHI was designed expressly to research critical areas of Hygiene Science. The primary aim is to strengthen the holistic understanding of hygiene as a foundation of health, and their research helps to address our fight to ensure that the highest quality health, hygiene and nourishment is a right, not a privilege."

Whilst currently funding a multitude of projects, the first body of completed research funded by RGHI was produced by scientists at the Yale Center on Climate Change and Health and the Yale School of Public Health. It focuses on the connection between long-term drought and diarrhoea among children under five in low- and middle-income countries.

As a result of climate change, droughts are becoming increasingly common, particularly in places such as Ethiopia, Sudan and Eritrea. An estimated 55 million people are impacted annually. Droughts force people to migrate in search of livelihoods and water whilst the risk of illness increases as communities go without access to basic services.

The paper, titled *'Associations between long-term drought and diarrhoea among children under five in LMICs,'*
highlights that by revealing:

- Exposure to long-term drought correlates to a higher number of cases of diarrhoea among children under age five years in LMICs;
- That association was modified by climate zone, round-trip time to collect water, and water or soap/detergent availability for handwashing;
- Water, sanitation, and hygiene practices mediated a low to moderate proportion of the association between long-term drought and risk of diarrhoea.

"Our current understanding of the impact of climate change on childhood diarrhoea is hampered by the scarcity of empirical epidemiological evidence on the relationship between droughts and diarrhoea, especially in low- and middle-income countries", said Kai Chen, Assistant Professor at the Yale School of Public Health and Director of Research at the Yale Center on Climate Change and Health. "With RGHI's funding, we are able to address this critical knowledge gap."

Concrete data is needed that points to a course of action that governments can take to better safeguard public health. This report, published in Nature, highlights drought as a root cause of childhood illness, and even death. It gives governments a point at which to start working from when thinking of potential solutions to avoid child death due to diarrhoea.

The World Health Organization lists diarrhoeal disease as the second leading cause of death for children under five years old. Over 525,000 children under that age die from diarrhoea each year despite it being considered "preventable and treatable."

Given the limited capacity many lower-income countries have to respond to extreme weather events – such as flooding, storms and droughts – and with droughts only expected to intensify in the coming years, the overarching message from the research is that intergovernmental collaborative actions are urgently needed to alleviate the health burden of droughts.

In line with WHO's recommendation of "safe drinking-water and adequate sanitation and hygiene" as the most effective way to prevent diarrhoea – and treatment of rehydration salts and fluids, zinc supplements, and nutrient-rich foods – the report authors suggest improving water, sanitation and

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hygiene infrastructure among socioeconomically disadvantaged populations as a key way to tackle drought-induced diarrhoea. Improving the frequency of hand washing with soap can reduce disease risk but water and soap must be available within drought-impacted communities whether that be in displacement gaps or resettlement areas.

So far, RGHI has issued a number of grants to educational and charitable institutions for original scientific research whilst providing three-year fellowships (which includes a salary, research costs, travel expenses and a training budget) to five researchers via the RGHI Fellowship Program.

The fellows' research focuses on improving the economic evaluation of handwashing interventions; measuring unmet menstrual health and hygiene needs and their impacts on health and education; assessing the effectiveness of community-led initiatives on hygiene practises and maintenance of handwashing facilities in low-income settings in Kenya; studying the changing hygiene social norms at key times in the life-course; and improving backyard poultry management to reduce exposure to poultry faeces.

"These are just examples of the variety of issues where we know health and hygiene intersect but where there is a substantial gap in knowledge. Having corporate support for such global issues allows for advances and progress at a quicker rate," said Simon Sinclair, Executive Director of RGHI.

Ahead of its next funding round, RGHI called on researchers and scientists to consider what questions they have about the intersection of health and hygiene and to ask how they might work with RGHI to find answers that would contribute to a body of ground-breaking research.

"Now – amid climate change and off the back of COVID-19 – is the time to find answers to crucial health and hygiene-related questions," Simon Sinclair concluded.

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Notes to Editors

- The researchers for *'Associations between long-term drought and diarrhoea among children under five in LMICs,'* include Pin Wang, Ernest Asare, Virginia E. Pitzer, Robert Dubrow and Kai Chen.
- The report is affiliated with the Department of Environmental Health Sciences and the Department of Epidemiology of Microbial Diseases and the Public Health Modeling Unit at Yale School of Public Health alongside the Yale Center on Climate Change and Health.
- *Nature Communications* is an open access, multidisciplinary journal dedicated to publishing high-quality research in all areas of the biological, health, physical, chemical and Earth sciences. Papers published by the journal aim to represent important advances of significance to specialists within each field. The first cohort of RGHI fellows includes: Giorgia Gon and Ian Ross with the London School of Hygiene & Tropical Medicine in the United Kingdom, Sheillah Simiyu from the Africa Population and Health Research Center in Kenya, Julie Hennegan from the Burnet Institute in Australia and Elizabeth Thomas from John Hopkins Bloomberg School of Public Health in the United States. Learn more about each of the fellows here.

About the Reckitt Global Hygiene Institute

The Reckitt Global Hygiene Institute (RGHI) is a public health research and innovation hub bridging epidemiology, public health, and behavioural insights to generate practical, high-quality scientific research that leads to enduring behaviour change.

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