



In Search of Better Health

PRESS RELEASE

TO: News Editors & Reporters

SUBJECT: Breathe well live well – new study shows link between air quality and children’s lung health

DATE: Wednesday, June 7, 2023

NAIROBI-KENYA: A new paper has been published which shines a light on the threat posed by pollution to children’s lung health, the authors of which hope will persuade policymakers to improve children’s healthcare and reduce air pollution.

A new study has for the first time established that children living in informal settlements (slums) are at a greater risk of developing asthma compared to their counterparts living in formal settings.

The study, christened, *Tupumue*, in addition, concludes that such children face a double misfortune becoming sick of asthma and lack of access to appropriate healthcare for diagnosis and or treatment.

Tupumue is a Kiswahili word meaning ‘let us breathe’ and it is a three-year collaboration between Kenya Medical Research Institute (KEMRI) and universities in the UK, led by Liverpool School of Tropical Medicine (LSTM).

Prof. Graham Devereux, who led the study on behalf of LSTM said: **“This is the first study to show that the 350-500 million children living in informal (slum) settlements around the world are at increased risk of developing asthma, that this is more severe and is associated with sources of indoor and outdoor air pollution. Also, those children are less likely to be diagnosed with, and treated for, asthma.”**

The study team recruited more than 2,400 children aged 5-18 from schools in two closes but very different communities in Nairobi, Kenya – one an informal settlement and the other a formal gated community. The team used scientific measures including questionnaires, lung function and air pollution tests to quantify the children’s health, wellbeing and local air quality.

Dr. Hellen Meme who led the study from KEMRI said: **“The success of the *Tupumue* study even through the COVID-19 pandemic was as result of the study acceptability and ownership by all stakeholders, the multidisciplinary approach and a highly tenacious field team.”**

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Director General, KEMRI, Prof. Elijah Songok said, **"KEMRI is proud to have participated in this collaborative landmark study which shows link between air quality and children's lung health in informal settlement. These results are highly encouraging and we hope it will further persuade policymakers to improve children's healthcare and reduce air pollution in order to scale down cases of asthma"**.

Community involvement

Very early on, the team realised that community buy-in would be vital to the success of the study – both in recruiting children and in revealing their stories – so staff from the University of Portsmouth devised activities to sensitise local people to the presence and purpose of the study. Academics, community members and artists came together to produce a music video, theatre, visual arts, and a puppet show – Billy's Day Out – which dramatised the Tupumue data collection process. Dr. Cressida Bowyer, from the university, said:

"Seeing the children engage and connect with the sensitisation outputs was fantastic. Using a process of co-creation with community champions, artists and musicians played a huge part in making the campaign such a success".

Creative methods were also employed to help uncover young people's perceptions of air quality, lung health and environmental pollution. The team used pupils' drawn stories and videoed walking interviews to tease out stories, and even initiated participatory theatre to help explore community knowledge about what damages lungs. Sarah West of the University of York said:

"I particularly enjoyed developing the method for participatory analysis of the children's drawings... it was great to get the pupils to come up with their own themes and codes for the drawings. This gave us really rich data which provides a great complement to the quantitative data about lung health and air quality".

International recognition

As well as in a published paper, the findings of the Tupumue study have been presented at the Pan African Thoracic Society/Respiratory Society of Kenya Congress in Mombasa, Kenya on today, 7th June. Team members joined by local community members describe the study and its findings to an international audience of respiratory clinicians and researchers into respiratory disease.

The next step

With more than one billion people living in slums and 500 million children at increased risk of non-communicable lung diseases is of great concern, the team hopes that its findings provide impetus for real change. Graham Devereux said:

"We hope that Tupumue will provide informal settlements with the information they need to persuade policymakers to improve the care of children with lung disease and to reduce air pollution exposures." Dr. Meme said: "Even as enactment and enforcement of laws to reduce outdoor and indoor air pollution that our study showed have an association with symptoms of asthma in children is ongoing, in the short term, residents of informal settlements could be assisted to address some of the contributors to indoor air pollution that were found to be associated with symptoms of asthma such as burning of mosquito coils through provision and use of affordable alternatives such as insecticide treated mosquito nets".

It is also hoped that the data contributes to identifying further areas of research and helps to target interventions which can greatly improve the lives of those in the local community.

Further information

The Tupumue YouTube channel is here <https://www.youtube.com/@tupumue5458>, while a 30-minute film depicting the environments of the two communities and the Tupumue study background, methods, and results is available at , https://www.youtube.com/watch?v=u_HnliIEhFI

Tupumue was funded by the National Research Foundation (NRF) of Kenya and the Medical Research Council (MRC) of the UK. The sensitisation aspects were funded through a Wellcome Trust Public Engagement Fund grant.

For more information, please contact **Wodera James** on **Email:** jwodera@kemri.go.ke, **0722767682** or Patronilla Goren on Email: pgoren@kemri.go.ke **0728641515**

About KEMRI

The Kenya Medical Research Institute (KEMRI) is a State Corporation established in Kenya in 1979 through the Science and Technology (Repealed) Act, Cap 250 of the Laws of Kenya operated under the Science Technology and Innovation Act, 2013 as the national body responsible for carrying out research in human health in Kenya. Currently, KEMRI operates under Legal Notice No. 35 of March 2021 KEMRI has grown from its humble beginning over 40 years ago to become a regional leader in human health research. The Institute currently ranks as one of the leading Centers of excellence in health research both in Africa as well as globally.