

Dust Bunnies Workshop: Scoping global challenge research in understanding real world interactions (of dust-born infections) in the home environment in Ghana

By Dr Emmanuel Tsekleves

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Organised by: Lancaster University (*Dr. Emmanuel Tsekleves – imagination@Lancaster, Prof Roger Pick-up - Biomedical and Life Sciences*), Noguchi Memorial Institute for Medical Research (*Prof Daniel Boakye, Dr Dziedzom De Sousa*).

Executive Summary

Dust Bunnies is a pilot EPSRC project aimed at co-designing and scoping with key stakeholders in Ghana (i.e. local communities, health professionals, environmental scientists, etc.) the full application of further international research into the area of antimicrobial resistance (AMR) in the home environment, which meets local and national objectives in health in the UK and Ghana.

The co-design workshop run in Ghana in February 2017 helped in establishing the research context, local challenge, research methodology and dissemination strategy for a research bid targeting the AHRC Call on AMR in the Real World: The Indoor and Built Environment¹. The workshop also created a network of Ghanaian scientists and researchers interested in purposing further research in the AMR and health area.

The key outcomes from the workshop suggest that dust is a health and infection issue, as it is a carrier for bacteria but also it can be used as a medium to monitor bacteria. Given the scope of the indented research project and the resources available it was suggested to use vacuum cleaners as a medium of sampling dust in household which had one; and use other manual dust collection techniques in households with no access to a vacuum cleaner. A range of different cultural and common household hygiene practices exist. These are often affected and determined by the different houseful environments (urban versus rural) domestic dwellings (private versus communal) and different socio-economic scales (low, low-middle, middle, upper). A range of benefits was identified for households participating in the study, including adoption of better hygiene practices, hygiene and health education, better health and health economic gains. A number of pathways to impact and dissemination effective and relevant to Ghana have been also identified.

Introduction

The workshop was led by researchers at Imagination@Lancaster and Lancaster University and employed a co-design methodologyⁱⁱ. It was held in Accra in Ghana (Noguchi Memorial Institute for Medical Research premises) and workshop recruitment was done by the local hosts. A total of 15 participants from across different areas of antimicrobial resistance, public health, environmental studies and sanitation engaged in the workshop activities.

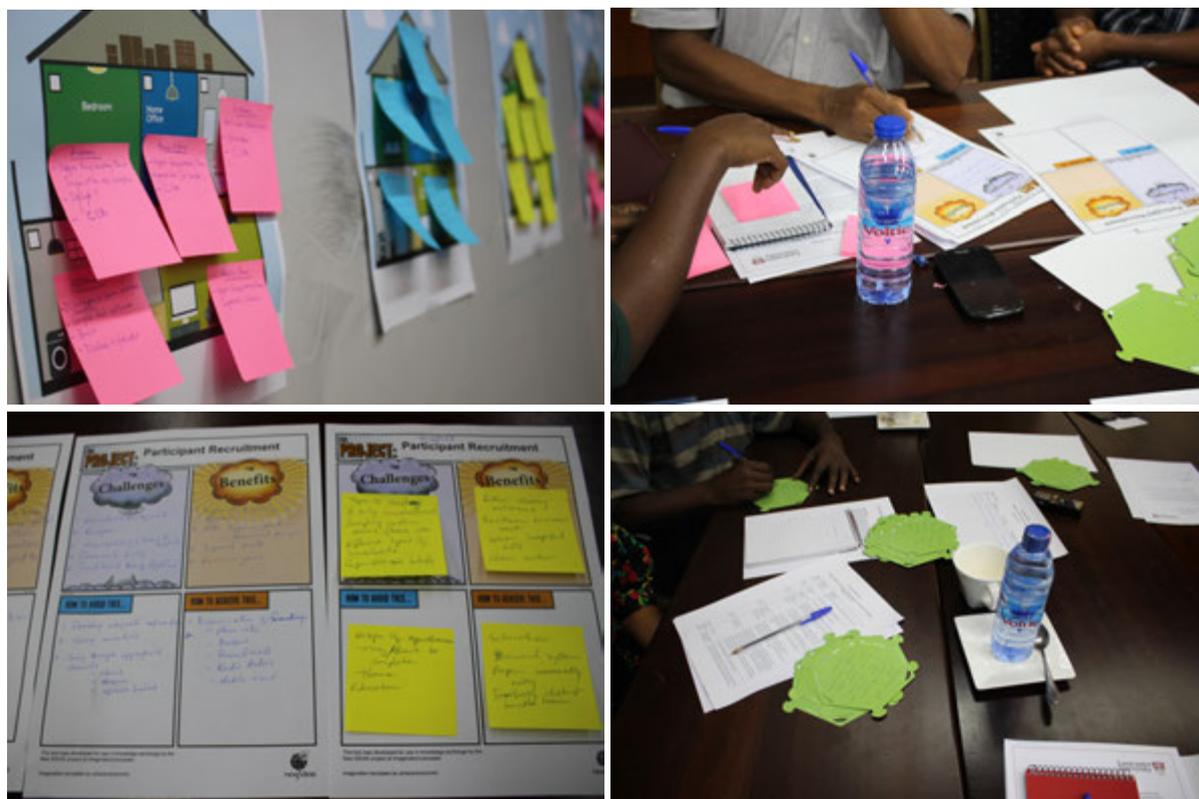


Figure 1: Example of workshop activities

The workshop included a range of creative co-design activities that engaged workshop participants to explore in small groups a number of elements essential for the scoping of the research bid. These included:

- The cultural and common hygiene practices across different household settings in rural and urban as well as a range of social scales in Ghana;
- The most common diseases influenced by the home environment in Ghana;
- The challenges of conducting research, accessing and recruiting household participants in Ghana and how to overcome them;
- The benefits for household participants taking part in the study and how to enhance them;
- The pathways to impact and best avenues for disseminating research findings in Ghana and West Africa.

Workshop Outcomes

The workshop outcomes can be categorised according to the workshop themes presented above.

i. Cultural and common household hygiene practices in Ghana

A range of different cultural and common household hygiene practices exist. These are often affected and determined by the different houseful environments (urban versus rural) domestic dwellings (private versus communal) and different socio-economic scales (low, low-middle, middle, upper). These were classified into a number of themes, with each theme contacting a number of relevant factors.



Figure 2: Different cultural and common household hygiene practices in Ghana



Figure 3: Identified hygiene practices clustered into themes

ii. Most common diseases influenced by the home environment

A diverse range of infections (including bacterial infections) influenced by the home environments in Ghana were identified. These are depicted in the word cloud diagram below.



Figure 4: Most common diseases influenced by the home environment in Ghana

iii. Research challenges of conducting research in Ghana

Several of the challenges were focused on the recruitment of households for a study as well as what and where to sample microbiology data in the household. The figure below illustrates the key challenges related to recruiting and involving households in a research study in the area of hygiene and AMR.

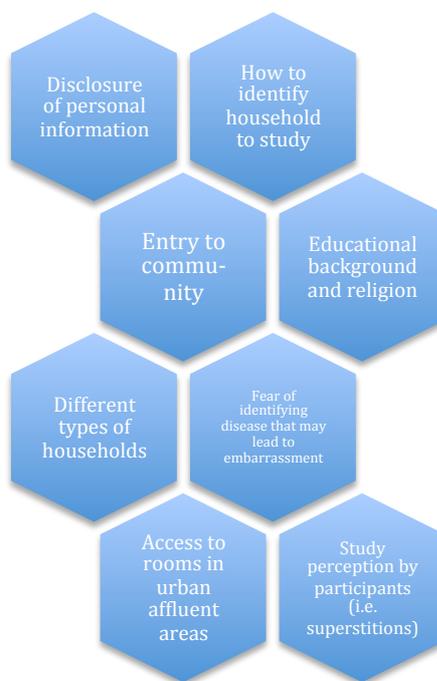


Figure 5: Challenges of conducting study in households in Ghana

The figure below depicts the main suggested methods of sampling of microbiology data in households in Ghana, organised in distinct themes. Given the scope of the indented research project and the resources available it was suggested to use vacuum cleaners as a medium of sampling dust in household which had one; and use other manual dust collection techniques in households with no access to a vacuum cleaner.

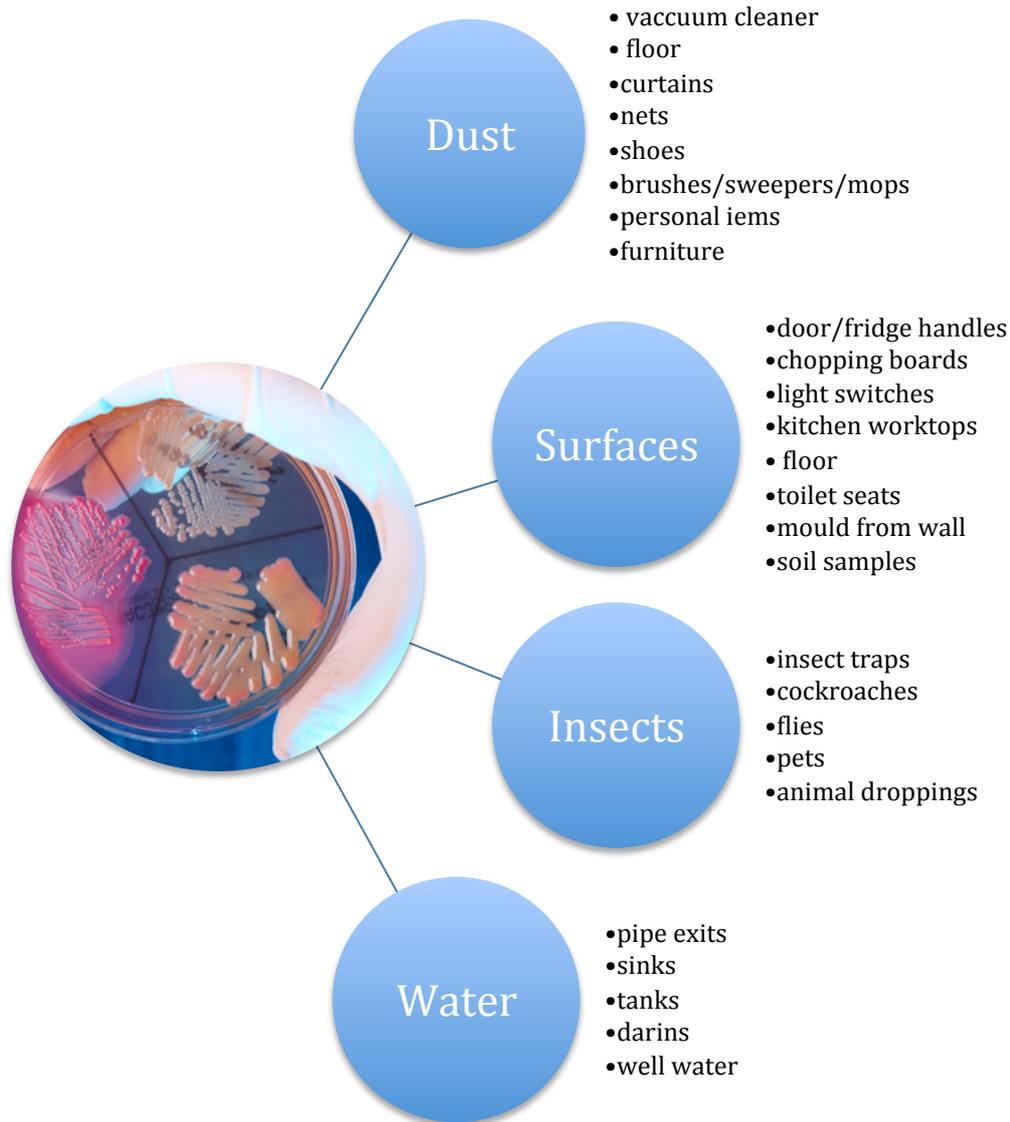


Figure 6: Microbiology data sampling methods for household studies in Ghana.

iv. Benefits for households participating in the study

An important consideration for the project is defining the actual benefits for households participating in the study and how to further enhance them. Workshop participants were asked to consider this and have thus indicated a number of benefits. These are presented in the figure below.

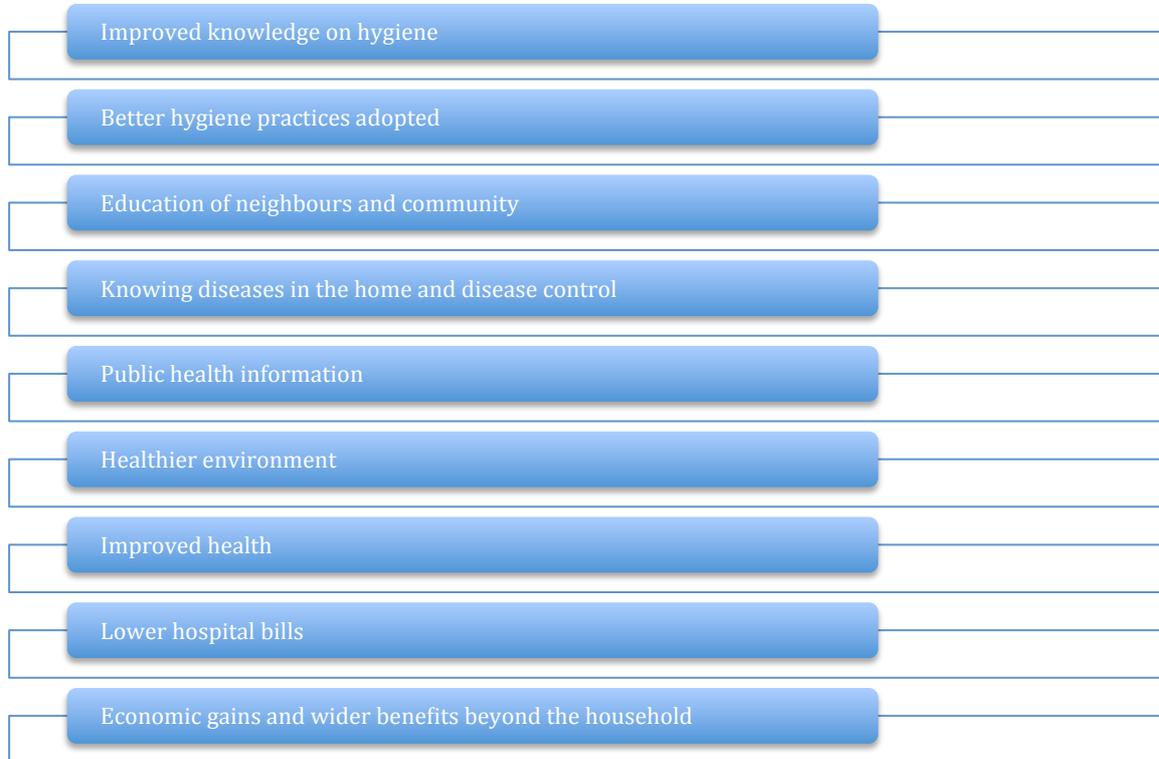


Figure 7: Identified benefits for households participating in the study.

v. Pathways to impact and dissemination routes

How to best disseminate the proposed research project findings and the pathways to achieving meaningful impact primarily within a Ghanaian and by extension a West African context was a key aim of the workshop. A number of different dissemination avenues and mediums that would be effective in Ghana were identified and are presented below.



Figure 8: Pathways to dissemination and impact relevant to Ghana.

Conclusions

The workshop outcomes have been invaluable in identifying and establishing the local challenges and needs for research looking at the relation between hygiene practices and AMR in dust-born bacteria in different home environments in Ghana. It has also contributed to developing a research methodology and dissemination strategy that is highly relevant and effective for research conducted in Ghana. The outcomes of the workshop are taken for the write-up of a research proposal AHRC Call on AMR in the Real World: The Indoor and Built Environment. It is also expected that the outcomes will also help define further research related to the Global Health Research Fund, such as the forthcoming MRC/AHRC cross-disciplinary call on GCRF Global Public Healthⁱⁱⁱ.

ⁱ <http://www.ahrc.ac.uk/funding/opportunities/current/amr-in-the-real-world/>

ⁱⁱ See Sanders, E.B.-N. & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18.

ⁱⁱⁱ <https://www.mrc.ac.uk/funding/browse/mrc-ahrc-gcrf/mrc-ahrc-gcrf-global-public-health-partnership-awards-pre-call-announcement/>