4th Housing & Malaria Work Stream meeting

Co-leaders: Steve Lindsay & Lucy Tusting

Wednesday 8 February 2017
Room Dassault/Morane
10:30 – 13:30

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Agenda		
Time	**Title**	**Speaker**
10.30 – 10.35	Welcome	Steve Lindsay & Lucy Tusting
10.35 – 10.50	Review of Work Plan 2016-2017 Work in progress	Lucy Tusting
10.50 – 11.10	Policy update Work in progress on housing & malaria proposal	Steve Lindsay
11.10 – 11.20	Housing improvements in Namibia	Tara Seethaler (CHAI)
11.20 – 12.30	Discussion: How do we engage with the housing sector?	All (led by Steve Lindsay)
12.30 – 13.30	Discussion: Work Plan 2017-2018 Advocacy, GVCR & AOB	All (led by Lucy Tusting)
13:30	**End of meeting**	

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Review of Work Plan 2016-2017

Lucy Tusting

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2016-2017 Work Plan

1. **Advocacy** for inclusion of housing in strategic plans, curricula, CSR
2. **What housing interventions do we recommend** – update 2015 consensus statement
3. **Visit key funders** to present ideas on malaria and housing
4. **6 monthly updates** on what's happening in housing and malaria
5. **Stakeholder visits** to study sites in Tanzania and The Gambia
6. **Explore links with UNEP &** other organisations

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2016-2017 Work Plan

1. **Advocacy** for inclusion of housing in strategic plans, curricula, CSR
   - ***Global Vector Control Response 2017-2030*** emphasizes role of housing for vector control – Due for presentation to the WHA May 2017
   - **Proposal to UK BBSRC** to establish a network on housing & VBDs – Round 1 successful; full application due 16th Feb
   - **Habitat 3 presentation & blog** on housing & VBDs; VBD included in **New Urban Agenda**
   - **Networking & informal discussions** – ongoing, e.g. discussion of future research held at ASTMH 2016

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2016-2017 Work Plan

2. **What housing interventions do we recommend** – update 2015 consensus statement
   - Not done – Discuss at VCWG 2017

3. **Visit key funders** to present ideas on malaria and housing
   - **DfID** – advocated for future funding for research on housing & VBDs in online consultation, Oct 2016
   - **IVL, a Bill Gates Company** – Visit to Seattle in December 2016 to discuss development of house screening products

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2016-2017 Work Plan

4. **Six monthly updates** on what's happening in housing and malaria
   - June 2016, not done. Newsletter circulated Dec 2016.

5. **Stakeholder visits** to study sites in Tanzania and The Gambia
   - Roo*Pf*s study, The Gambia – June 2016 meeting attended by officials from NMCP and housing sectors
   - Magoda project, Tanzania – 2017?

6. **Explore links with UNEP &** other organisations
   - 2016 New Urban Agenda included VBD (Graham Alabaster)

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Work in Progress

Lucy Tusting & Steve Lindsay

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Work in Progress

1. Multi-country analysis of housing & malaria
2. Roo*Pf*s study in The Gambia
3. Eave-tube study in Côte d'Ivoire
4. Importance of cross-ventilation
5. Relevant policy issues

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Work in Progress

1. **Multi-country analysis of housing & malaria**
2. Roo*Pf*s study in The Gambia
3. Eave-tube study in Côte d'Ivoire
4. Importance of cross-ventilation
5. Relevant policy issues

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Multi-country analysis of housing & malaria

PLOS | MEDICINE

RESEARCH ARTICLE

Housing Improvements and Malaria Risk in Sub-Saharan Africa: A Multi-Country Analysis of Survey Data

Lucy S. Tusting[1]*, Christian Bottomley[2], Harry Gibson[1], Immo Kleinschimdt[3,4], Andrew Tatem[5,6], Steve W. Lindsay[7], Peter W. Gething[1]

Out on Feb 21st

Background

- House improvements show promise for malaria control, but for most of Africa no studies have linked housing quality and malaria

- No systematic comparison between housing and established malaria interventions

➢ Is modern, improved housing associated with a lower risk of malaria infection in children, than unimproved housing, across a range of transmission settings in Africa?

Methods

- Cross-sectional analysis of 29 Demographic and Health Surveys from 21 African countries dating from 2008-2015 (139,318 total children aged 0-5 years)

- We determined the association between:
  i. House type (improved vs unimproved) and malaria infection
  ii. ITN use and malaria infection

- Used conditional logistic regression, adjusting for age, gender, IRS, household wealth and geographic cluster

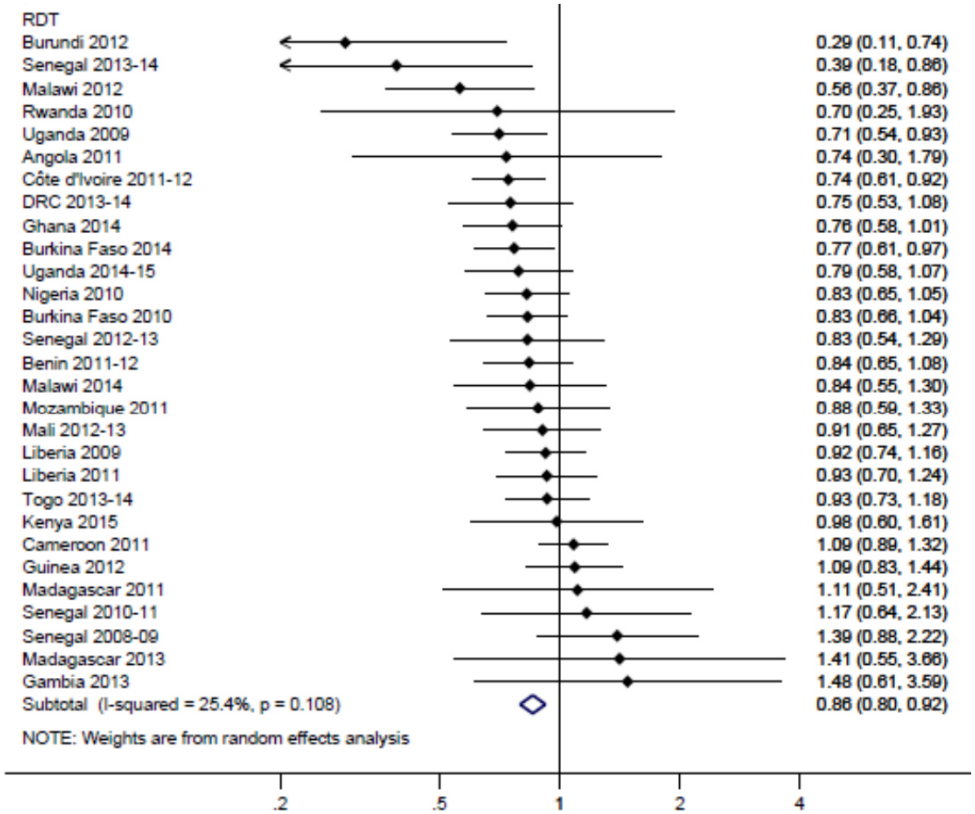
Improved *vs* unimproved housing

Improved: metal roof, concrete walls

Unimproved: thatch roof, mud walls

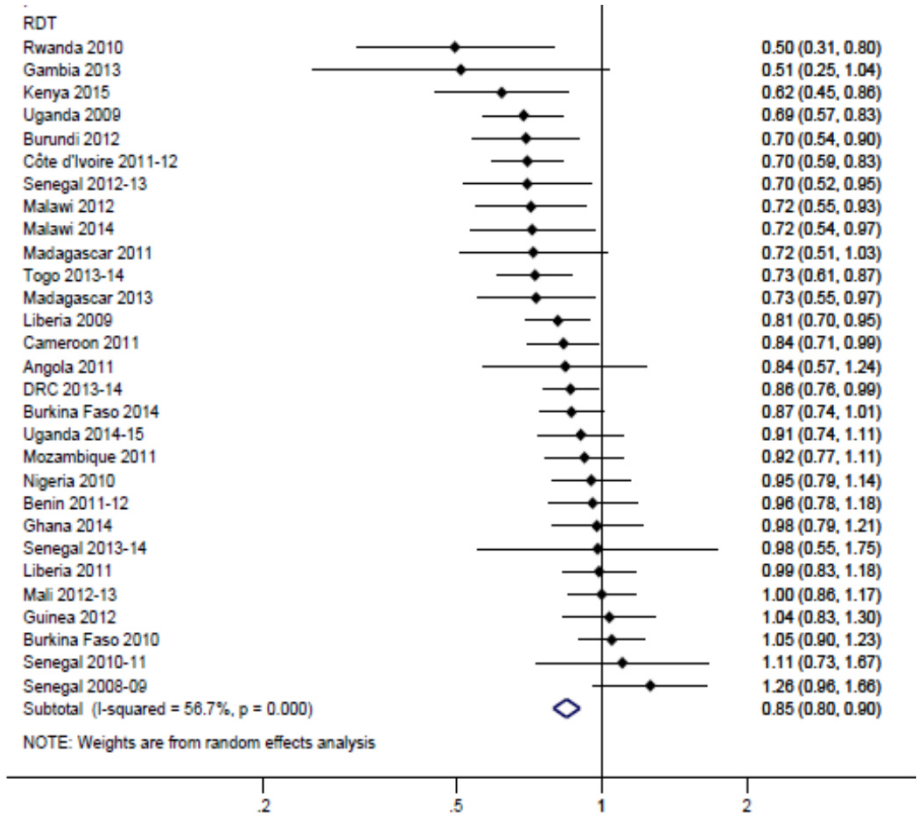
Odds of malaria infection are lower in improved houses and ITN users (RDTs)

a. Improved housing:



Favours improved Favours unimproved

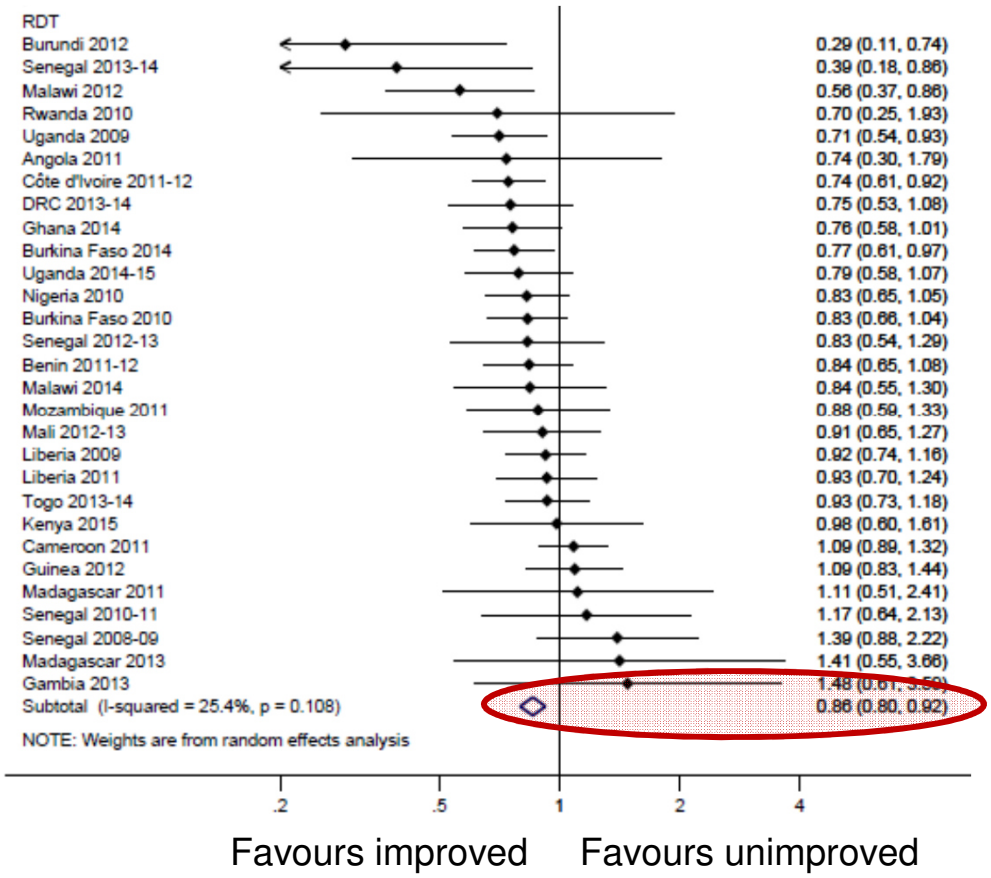
b. ITNs:



Favours ITNs Favours no ITNs

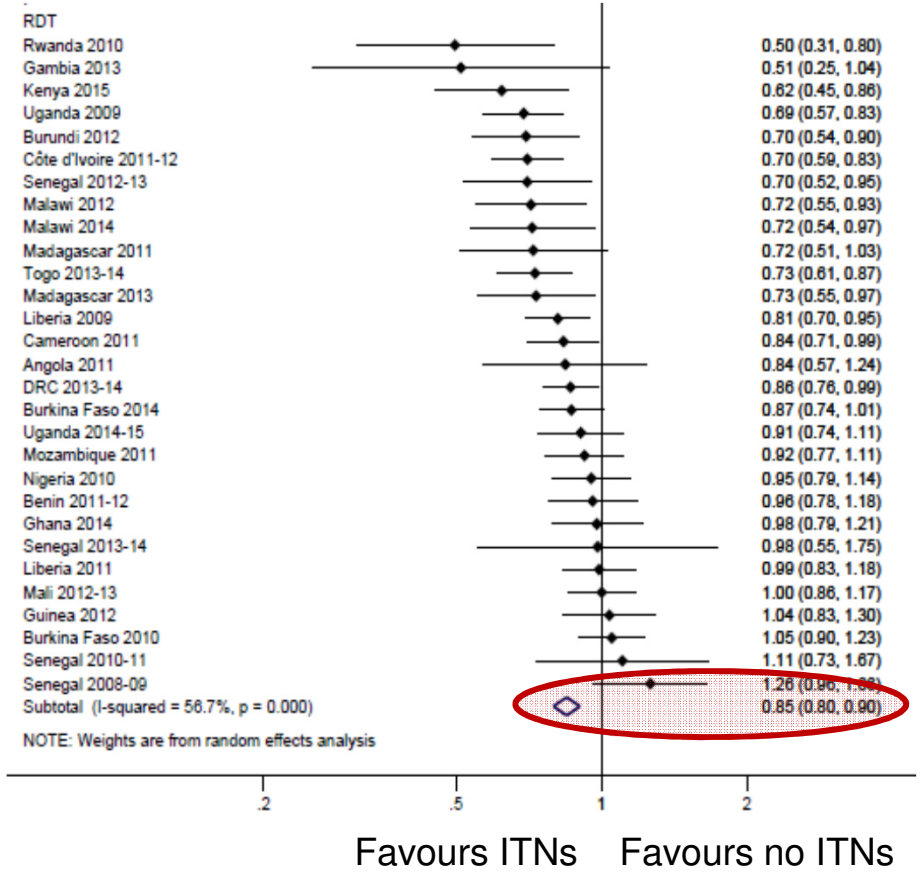
Odds of malaria infection are lower in improved houses and ITN users (RDTs)

a. Improved housing: 14% reduction



Favours improved Favours unimproved

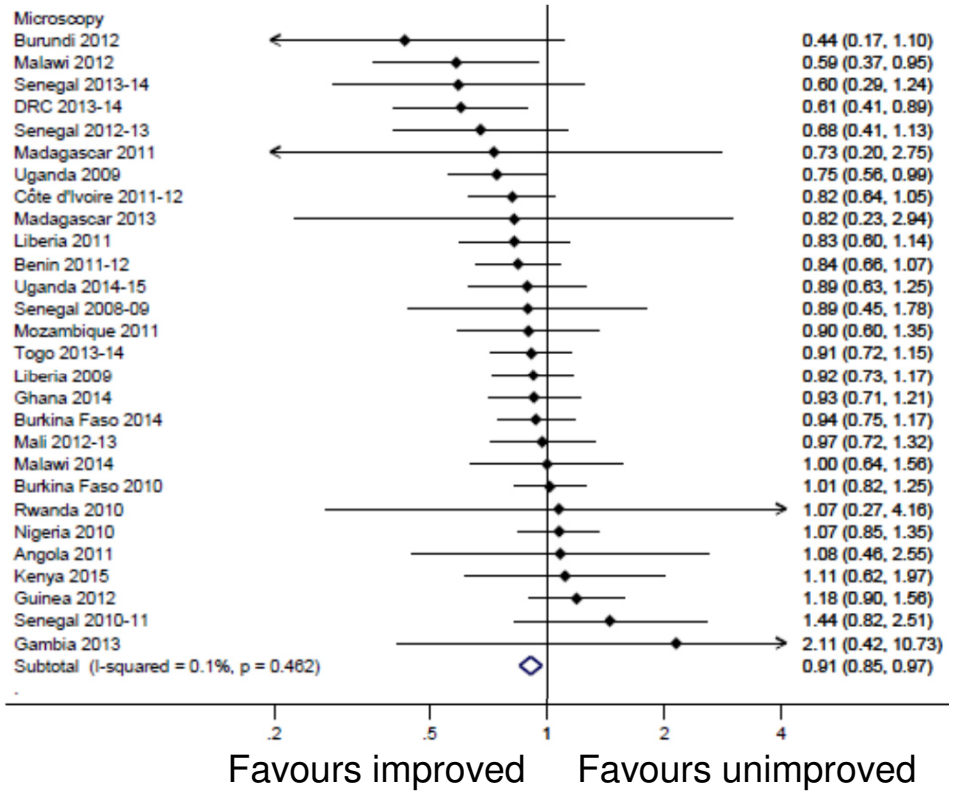
b. ITNs: 15% reduction



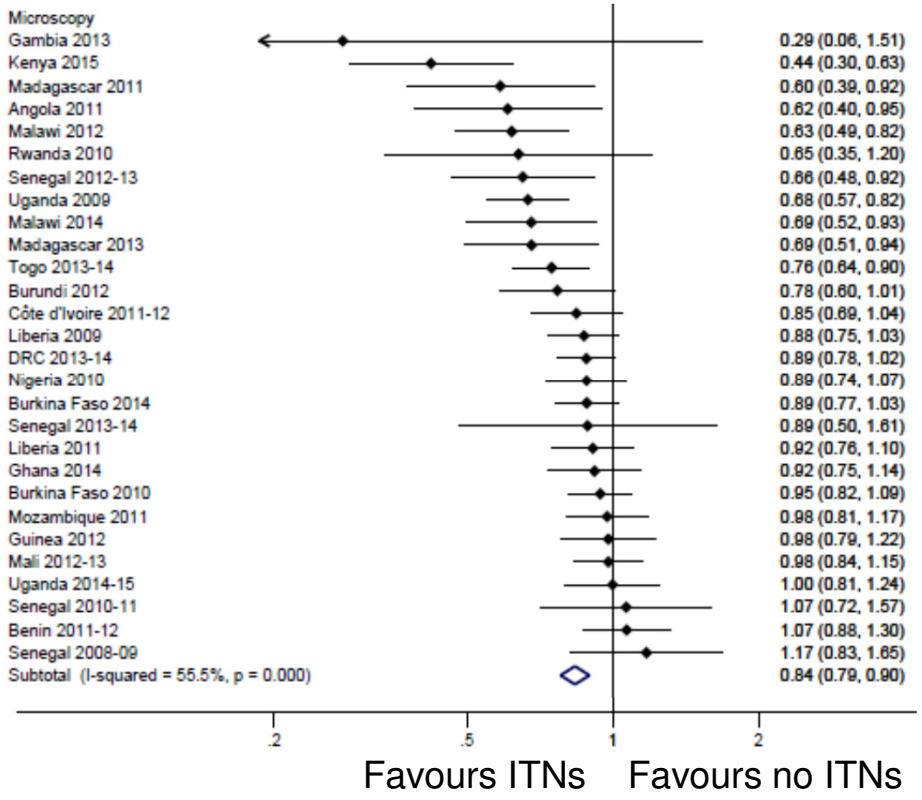
Favours ITNs Favours no ITNs

Odds of malaria infection are lower in improved houses and ITN users (microscopy)

a. Improved housing:

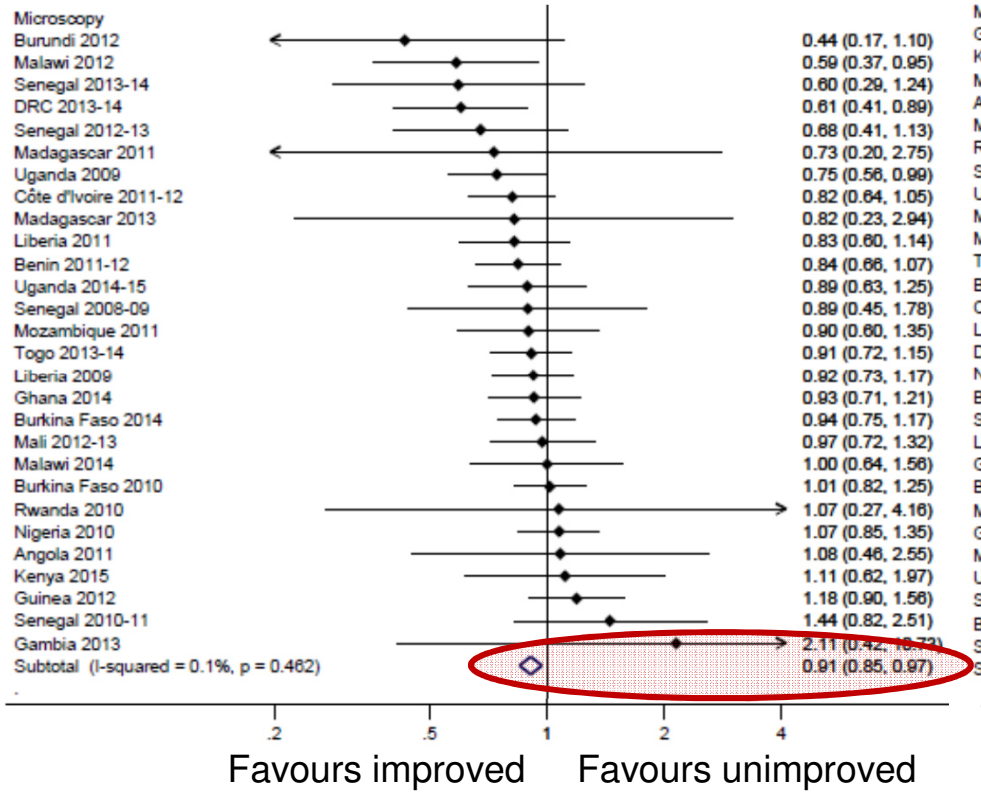


b. ITNs:

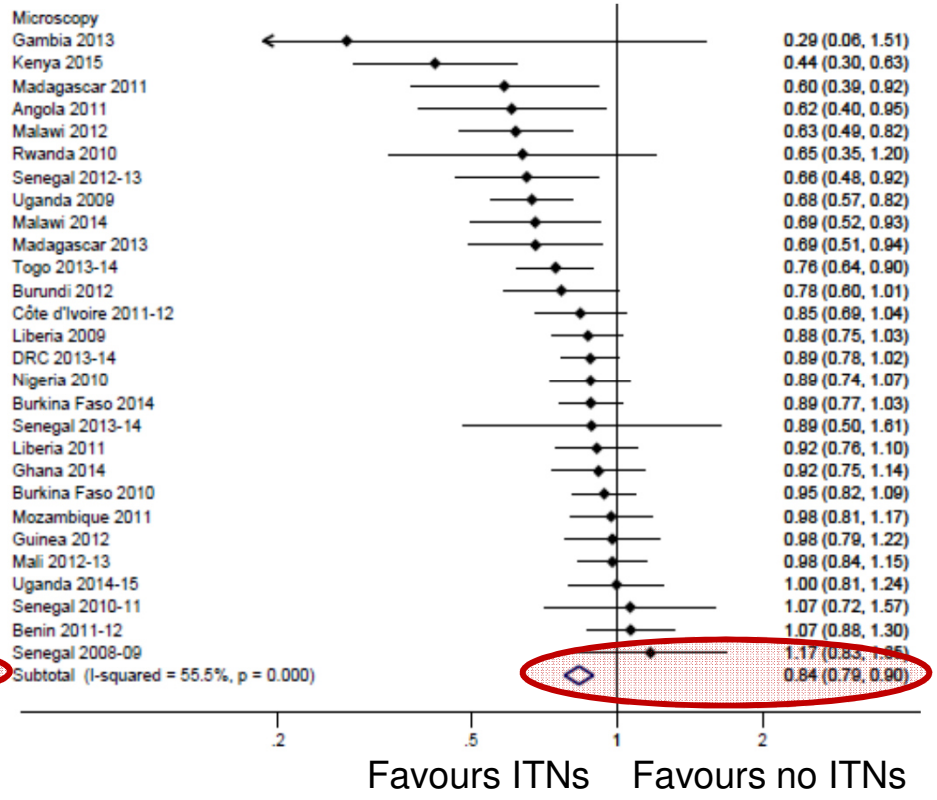


Odds of malaria infection are lower in improved houses and ITN users (microscopy)

a. Improved housing: 9% reduction



b. ITNs: 16% reduction



Summary & conclusions

- Children living in modern, improved housing had **9-14% lower odds of malaria infection** than children living in traditional, unimproved housing

- Children sleeping under ITNs had **15-16% lower odds of malaria infection** than children not sleeping under ITNs.

- Improving house quality in Africa may help to reduce malaria transmission and may have a similar effect on malaria to ITNs.

MRC Medical Research Council

map

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Work in Progress

1. Multi-country analysis of housing & malaria
2. Roo*Pf*s study in The Gambia
3. Eave-tube study in Côte d'Ivoire
4. Importance of cross-ventilation
5. Relevant policy issues

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Roo*Pf*s study design

800 houses traditional
mud-walled thatched houses recruited

400 traditional
mud-walled thatched houses

400 ventilated
metal-roofed houses

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Roo*Pf*s house: Ventilated roof

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Roo*Pf*s house: Ventilated front door

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Eave tubes study update

cross reference to the talk of Matt Thomas in the New Challenges, New Tools in Vector Control work stream where he gave an update on the Eave tube trial.

Effects of cross-ventilation on mosquito behaviour

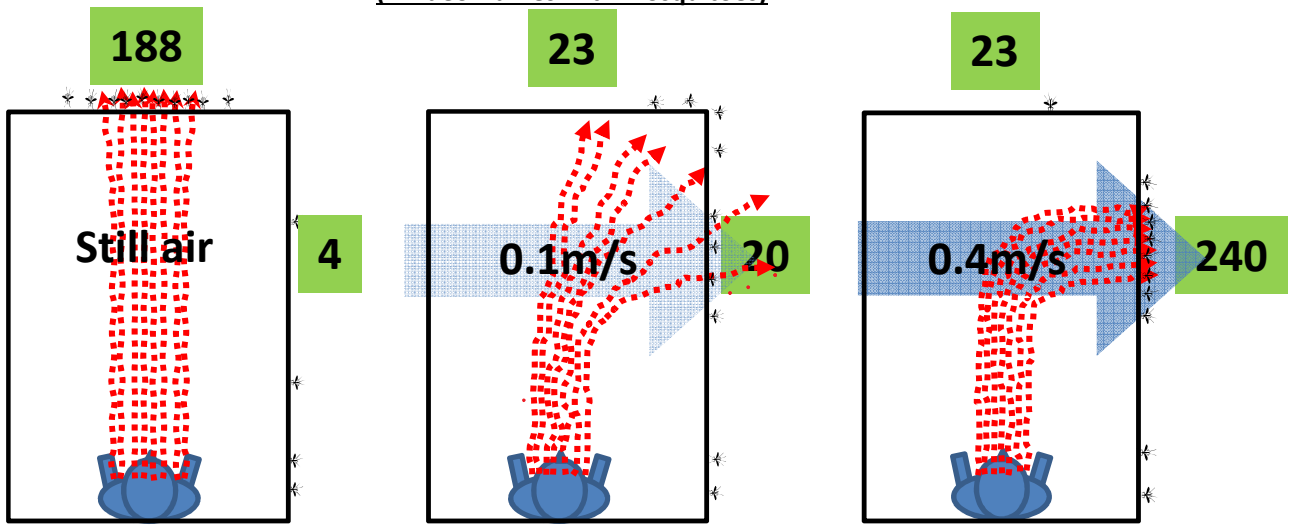
Jim Sutcliffe, Trent University, CDC Entomology Branch

Cross-ventilation makes bed nets more comfortable to use but...

...how does it affect mosquito behaviour and does it matter?

Used video to see where mosquitoes attack an occupied net in still air and with 0.1 and 0.4m/s cross-drafts from a small fan

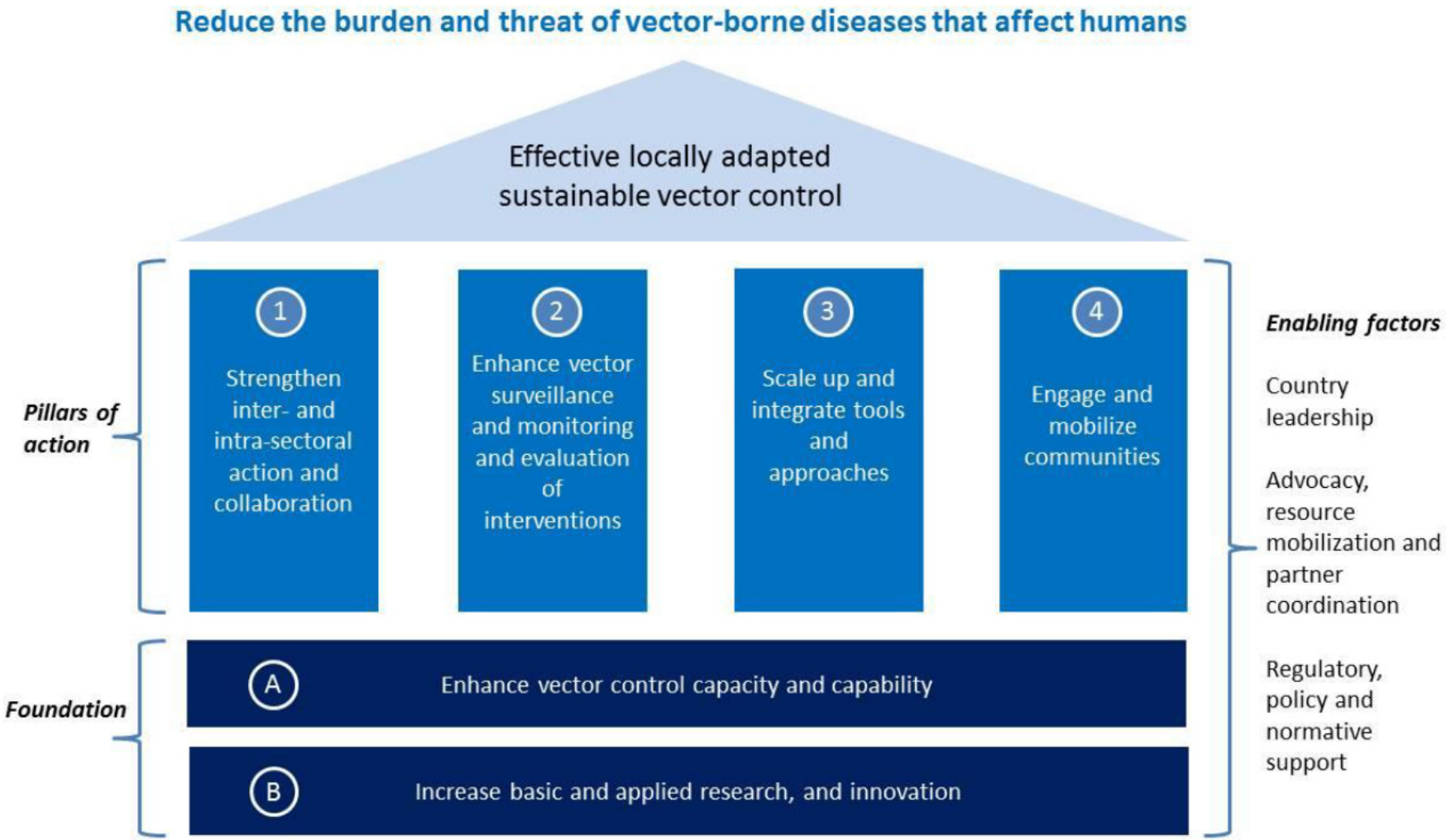
Av. appearances/min
(# video frames with mosquitoes)



Cross-draft partly or completely re-orients mosquitoes by dis-rupting and redirecting host odour plume

- Cross-ventilation may cause mosqs to attack sides where most holes occur, to move away from areas with special treatments or it may work against other measures such as eave tubes
- Such unintended and unforeseen consequences illustrate the need to build investigations of mosquito behaviour into all intervention planning

Global Vector Control Response



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SDG11 & the New Urban Agenda

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Housing improvements in Namibia - Tara Seethaler

Discussion Part 1:

How do we engage with the housing sector?

Steve Lindsay

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Discussion Part 2:
Next steps 2017-2018

Lucy Tusting

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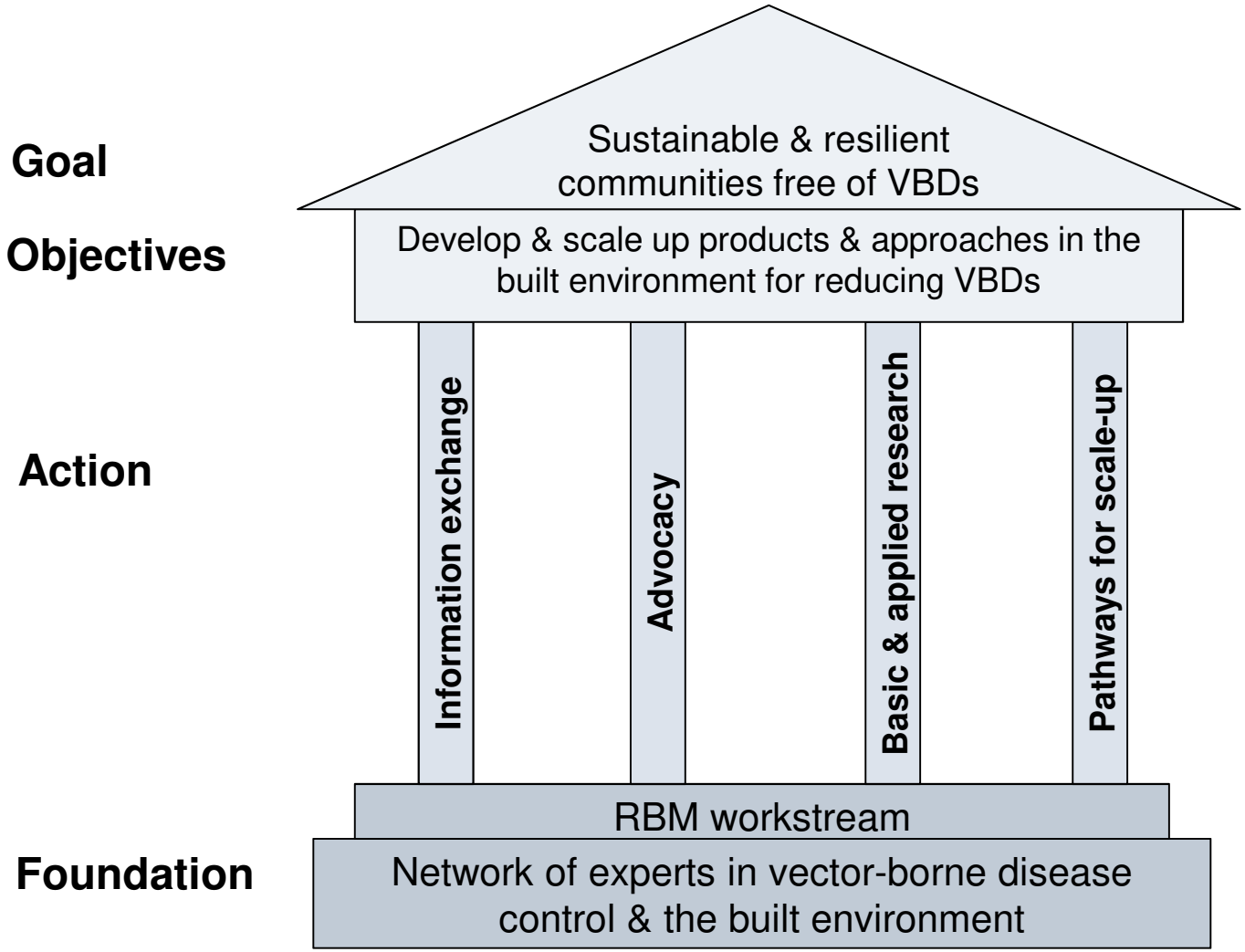
Long-term vision



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Overarching question for discussion

Change from:

- Malaria and housing

To….

- Vector-borne diseases & the built environment

- With the primary focus on malaria and housing

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Next steps for 2017-2018?

- Strengthen links with the housing sector
- Update housing and malaria recommendations
  - Link with Global Vector Control Response
- Encourage basic and applied research on vector-borne diseases & the built environment
- Information exchange (including news updates)

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Strengthen links with the housing sector

Update housing recommendations

Encourage research & innovation on VBDs and the built environment

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Information exchange

AOB