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Can insecticide-treated curtains prevent transmission of dengue?

Submission date	Recruitment status	[_] Prospectively registered
14/04/2011	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
18/04/2011	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
07/03/2022	Infections and Infestations	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
N/A

Study information

Scientific Title
A cluster randomised controlled trial of household-based insecticide-treated indoor curtains for control of the dengue vector Aedes aegypti and prevention of transmission of dengue in the community

Study objectives
We investigated whether window curtains made from long-lasting insecticide-treated netting and deployed inside houses, could reduce dengue virus transmission, as measured by seroconversion rates in humans, following reductions in dengue vector populations, as measured by a series of standard indices for Aedes aegypti intra-domiciliary and peri-domestic abundance, in intervention groups compared to control groups.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Research Ethics Committee of the Liverpool School of Tropical Medicine approved on 8th June 2009 (ref: 09/59)
2. Loreto Regional Health (Direccion Regional de Salud de Loreto), Peru approved on 3rd July 2009 (ref 586-2009-GRL-DRS/30.09.01)
3. US Naval Medical Research Center Detachment (NAMRID) Lima approved on 8th September 2009 (project no. 6000 RAD1.S.B0302; Approval ref. NAVMEDRSCHCENDETACHMENTINST 3900.6H)

Study design
Cluster randomised controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Other

Study type(s)
Prevention

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Dengue (including Dengue Haemorrhagic Fever [DHF] and Dengue Shock Syndrome [DSS])

Interventions
Insecticide-treated curtains deployed inside human habitations. The curtains are made from PermaNet® deltamethrin-coated polyester netting, a long-lasting impregnated material

(Vestergaard-Frandsen, Lausanne, Switzerland), that has been approved for indoor use (World Health Organisation Pesticide Evaluation Scheme [WHOPES]), with proven efficacy against dengue vectors.

Householders in treated clusters are permitted to dictate the quantity and location of their insecticide-treated materials (ITMs), with a minimum of one ITM required for the household to be classified as receiving treatment.

Control households received no treatment, but will be offered ITMs at the end of the study.

Efficacy of the intervention (Insecticide-treated curtains as described in E51) fell to an unacceptably low level (as determined by standard WHO recommended bioassays and other methods), when monitored over a period of months during 2010. Consequently, in October and November 2010, the existing curtains were treated again with a different product ("K-O Tab 1 2 3"; Bayer Environmental Science, Germany) designed to deliver a long-lasting formulation of the same insecticide.

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
Effect of ITMs on dengue transmission - measured by detection of dengue specific antibodies in human blood, taken from householders within the study area, using the Plaque Reduction Neutralizing Antibody test (PRNT). PRNT is specific to dengue virus serotype, and is the gold standard against which all other dengue virus (DV) serological assays are validated.

Blood samples will be collected from the study population at baseline and at three 9-month intervals thereafter (9, 18, 24 months post intervention) in householders that were not positive for all four circulating serotypes during the immediate preceding survey.

Secondary outcome measures
1. The effect of ITMs on household vector infestation and breeding primarily measured by:
1.1 The adult index (proportion of houses positive for adult Ae. aegypti)
1.2. The Breteau index (number of containers with immature vector stages/100 houses)
Secondarily by the other Stegomyia indices:
1.3. Pupae per person index (number of pupae per number of people)
1.4. House index (percentage of houses found with immature stages of Ae. aegypti)
1.5. Container index (percentage of water-holding containers found with immature stages of Ae. aegypti).
Six surveys will be conducted: Baseline and 1, 6, 12, 18 and 24 months post intervention.
2. Quantification of spill-over effects from treated clusters on nearby control clusters, a potential confounding effect on analyses as well as an indicator of potential community-level impact
3. Determining factors associated with adoption and continued use of ITMs, including the most effective diffusion mechanism (channel of communication) for ITM promotion, by household questionnaires and focus group discussions. Surveys will coincide with the serological surveys.

Overall study start date

01/11/2009

Completion date
31/12/2011

Eligibility

Key inclusion criteria
1. All occupied households
1.1. Persons aged 3 years or older with parental permission
1.2. Adults consenting to participate in the study living in the study area
1.3. Assent to participation for 8-17 year old persons

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
Estimated 9,200 participants from 1,400 households (based on 20 clusters of 70 houses/460 individual participants per cluster, 10 clusters per treatment arm)

Key exclusion criteria
1. Persons younger than 3 years old
2. Temporary visitors to the study areas
3. Adults who do not consent to participate
4. 8-17 year old persons who do not assent or who do not have parental permission to participate in the study

Date of first enrolment
01/11/2009

Date of final enrolment
31/12/2011

Locations

Countries of recruitment
England

Peru

United Kingdom

Study participating centre
Pembroke Place
Liverpool
United Kingdom
L3 5QA

Sponsor information

Organisation
Liverpool School of Tropical Medicine (UK)

Sponsor details
Pembroke Place
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England
United Kingdom
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Sponsor type
University/education

Website
http://www.lstmliverpool.ac.uk/

ROR
https://ror.org/03svjbs84

Funder(s)

Funder type
Charity

Funder Name
The Wellcome Trust (UK) (grant ref: 085714)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

Not provided at time of registration

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		07/03/2022	07/03/2022	Yes	No