To assess whether a combination of two insecticides on mosquito nets provides better protection against clinical malaria than pyrethroid-treated nets

Submission date 13/03/2013 Registration date 03/04/2013	Recruitment status No longer recruiting Overall study status Completed	[X] Prospectively registered	
		[X] Protocol [] Statistical analysis plan	
		[X] Results	
Last Edited 21/01/2019	Condition category Infections and Infestations	Individual participant data	

Plain English summary of protocol

Background and study aims

Malaria is a serious tropical disease spread by mosquitoes. Recent reductions in malaria in sub-Saharan Africa have been associated with the increased use of pyrethroid-treated long-lasting insecticidal nets (LLINs). Pyrethroids are currently the only class of insecticide used for treating nets, and the rapid increase in resistance to pyrethroids in mosquitoes may jeopardise future mosquito control. Nets containing a new combination of permethrin and pyriproxyfen (PPF-LLIN) may enhance malaria control and reduce the spread of pyrethroid-resistant mosquitoes. This study will determine whether PPF-LLINs provide better protection against malaria than LLINs in an area with pyrethroid-resistant mosquitoes.

Who can participate?

Children resident in Burkina Faso, aged 6 months to 5 years old.

What does the study involve?

Participants will be provided with LLINs at the start of the study, and their previous nets will be removed. The LLINs will be gradually exchanged for PPF-LLINs so that at three months before the end of the two-year study all participants will have a PPF-LLIN.

What are the possible benefits and risks of participating?

Study children will benefit from a health check at the surveys and all participants will benefit from the health facility clinical services which will be supported by training and the presence of study nurses in addition to government staff. There are no apparent risks to the safety of individuals or communities in the use of the conventional nets. Permethrin-treated long-lasting nets have been fully evaluated by the WHO Pesticide Evaluation Scheme (WHOPES) and approved for mosquito control. However, PPF-LLINs have not previously been evaluated in the field before, apart from small-scale studies. Whilst we do not anticipate any serious impacts of the combination of permethrin and PPF, since the safety profile of both these active compounds is deemed acceptable by WHOPES, we cannot exclude the possibility that there might be side effects when using the combination. For this reason it is important to assess adverse events and especially any serious adverse events in study subjects during the course of the study to determine whether there is an excess of side effects associated with the PPF-LLINs.

Where is the study run from? Durham University (UK)

When is the study starting and how long is it expected to run for? May 2014 to May 2015

Who is funding the study? EC Seventh Framework Programme

Who is the main contact? Prof Steve Lindsay S.W.Lindsay@durham.ac.uk

Contact information

Type(s) Scientific

Contact name Prof Steve Lindsay

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers 2013-02-011

Study information

Scientific Title

To assess whether addition of a second insecticide to long-lasting insecticidal mosquito nets provides additional protection against clinical malaria over current best practice. Protocol for a two-armed cluster randomized wedge-shaped trial in Burkina Faso

Study objectives

Our hypothesis is that mosquito nets treated with two insecticides will provide significant incremental protection against malaria than pyrethroid-treated nets in an area with moderate levels of pyrethroid resistance.

Ethics approval required

Old ethics approval format

Ethics approval(s)

1. Comite d'ethique pour la recherché en sante, Ministere de la recherché scientifique et de l' innovation, Burkina Faso, 13/05/2014, ref: 2014-3-24 2. School of Biological and Biomedical Ethics Committee, Durham University, UK, 17/01/2014

Study design Two-armed cluster randomized wedge-shaped trial

Primary study design Interventional

Secondary study design Cluster randomised trial

Study setting(s) Home

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

Malaria

Interventions

Long-lasting insecticidal mosquito nets (LLINs) and new net.

Long-lasting insecticidal mosquito nets (LLINs)

The LLINs distributed will be manufactured by Sumitomo Chemical Company. These LLINs are WHO recommended and meets WHO specifications (http://www.who.int/whopes /Long_lasting_insecticidal_nets_Aug09.pdf) with 2% w/w permethrin incorporated into polyethylene fibres giving adequate release of permethrin for about five years. These nets will be distributed in May 2013, at the beginning of the main transmission season, at no cost to the recipients. We will use white 'extra family' size rectangular nets (180cm wide x 190cm l x 150 cm h) throughout. Government Roll Back Malaria information, education and communication

procedures will be followed to encourage correct net use and maintenance. This will include supplying the nets in individual pre-opened bags labelled by the manufacturers.

A new net with two insecticides will be provided by Sumitomo Chemicals and are currently undergoing evaluation by the WHO Pesticide Evaluation Scheme (WHOPES). The nets contain 2% w/w permethrin and another insecticide incorporated into polyethylene fibres giving adequate release of both insecticides for an estimated three years. We will provide white 'extra family' size rectangular nets (180cm wide x 190cm l x 150 cm h) throughout. The new nets will be supplied in individual bags labelled by the manufacturers and they will be distributed to recipients in pre-opened individual sachets in August 2013 in five village clusters and rolled out in a wedge-shaped design at monthly intervals thereafter during the main transmission seasons in 2013 and 2014.

New net distribution will be carried out by the study team in a similar manner to the LLINs.

Intervention Type

Device

Primary outcome measure

To assess whether a pyrethroid insecticide combined with another class of insecticide incorporated into a LLIN provides added protection against clinical malaria in children compared with pyrethroid-only LLINs (LLIN) over two malaria transmission seasons of follow up.

Secondary outcome measures

Efficacy

1. To assess whether two insecticides on LLINs provide added protection compared to LLINs against anaemia and/or parasite prevalence in children.

2. To assess and compare the prevalence of microscopy confirmed gametocyte carriers (GC) in LLINs group versus doublke insecticide-LLIN group.

Safety

To assess whether the double-insecticide LLINs have a safety profile comparable with LLINs in the trial population

Overall study start date 01/05/2013

Completion date 31/12/2014

Eligibility

Key inclusion criteria

Resident children, aged 6 months to 5 years old will be enumerated and an average of 50 per cluster (range 30-100, depending on village size) will be selected randomly, stratified by age and invited to participate in the clinical surveys and passive case detection (PCD). No distinctions will be made regarding gender, ethnic group, medical condition or physical health.

As is customary in Burkina Faso, sensitisation will start by discussions with community elders and then representatives of the whole study community in order to explain the nature of the study and what will be required during the interventions and investigations. Informed consent will be sought at the village level after sensitization meetings attended by village community leaders and health staff. The key attendees names and roles will be documented for each village. Witnessed written consent will be sought from each net recipient, before net donation and exchange. We will seek written consent from room owners before positioning of mosquito traps, and written informed consent from the parents or caregivers of all enrolled study children. During these procedures it will be made clear that people will be able to leave the study at any time but their original net will not be returned.

Participant type(s) Patient

Age group Child

Lower age limit 6 Months

Upper age limit 5 Years

Sex Both

Target number of participants 2000

Key exclusion criteria Those who have not provided their consent for inclusion in the study

Date of first enrolment 01/05/2014

Date of final enrolment 01/05/2015

Locations

Countries of recruitment Burkina Faso

England

United Kingdom

Study participating centre

Durham University School of Biological and Biomedical Sciences Science Laboratories South Road Durham United Kingdom DH13LE

Sponsor information

Organisation Durham University (UK)

Sponsor details c/o Professor Andrew Deeks Pro-Vice Chancellor of Science School of Engineering and Computing Sciences South Road Durham England United Kingdom DH13LE +44 (0)191 334 1017 pvc.science@durham.ac.uk

Sponsor type University/education

ROR https://ror.org/01v29qb04

Funder(s)

Funder type Government

Funder Name Seventh Framework Programme

Alternative Name(s)

EC Seventh Framework Programme, European Commission Seventh Framework Programme, EU Seventh Framework Programme, European Union Seventh Framework Programme, FP7

Funding Body Type Government organisation

Funding Body Subtype National government Location

Results and Publications

Publication and dissemination plan To be confirmed at a later date

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<u>Protocol article</u>	protocol	25/03/2015		Yes	No
Results article	results	18/08/2018	21/01/2019	Yes	No