Technical Update

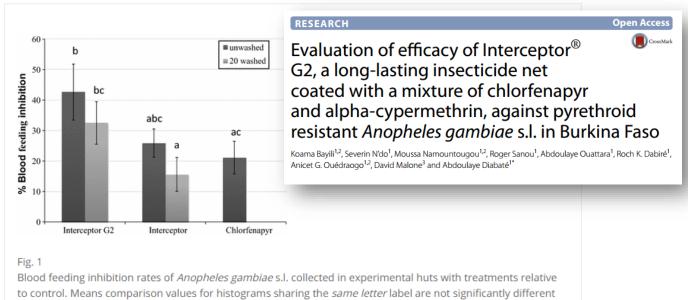


1 JUNE 2017

Selected Recent Publications

IVCC funded Phase II evaluation of BASF's Interceptor G2 LLIN. Well done Dave. In Malaria Journal (2017) 16:190 Published: 8 May 2017

Link to paper here.



(P > 0.05). Error bars represent 95% confidence intervals

Current and Future Prospects for Preventing Malaria Transmission via the Use

of Insecticides. Hillary Ranson just published this piece calling for: a reassessment of the way we monitor resistance; more robust evidence on the current and projected impact of resistance; an evaluation of the current options to tackle resistance; and a synthesis of lessons learned to develop guidelines for the effective stewardship of new insecticide products.

Attractive Toxic Sugar Bait (ATSB) For Control of Mosquitoes and Its Impact on Non-Target Organisms: A Review

Click here for

paper In: Parasites & Vectors (2017) 10:215. Highlight: Standing out in this study was hexanal, a reported insect attractant, which was the only VOC present in all samples from infected

RESEARCH

Volatile organic compounds associated with *Plasmodium falciparum* infection in vitro

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Ricardo Correa^{1,2}, Lorena M. Coronado^{1,2}, Anette C. Garrido³, Armando A. Durant-Archibold³ and Carmenza Spadafora^{1*}

erythrocytes and absent from uninfected ones, suggesting that it originates during parasite infection.

Conclusions: The hexanal compound, reportedly a low-level component found in healthy The hexanal compound, reportedly a low-level component found in healthy human samples such as breath and plasma, had not been found in previous analyses of *P. falciparum*-infected patients or cultures. This compound has been reported as an *Anopheles gambiae* attractant in plants. While the compound could be produced during infection by the malaria parasite in human erythrocytes, the *An. gambiae* attraction could be used by the parasite as a strategy for transmission.

This paper is relevant to the recent Science paper by Emami et al, *A key malaria metabolite modulates vector blood seeking, feeding, and susceptibility to infection.*

The Emami paper focuses on an isoprenoid precursor produced by *Plasmodium falciparum*, (E)-4hydroxy-3-methyl-but-2-enyl pyrophosphate (HMBPP) whereas Correa zeroed in on hexanal. Interestingly, neither group cites work by the other group. Here is a YouTube video summarizing the Emami work <u>https://www.youtube.com/watch?v=sDu7cfj13e8</u>

Commentary from Pedro Alonso and Dirk Engels: *Drug-based vector control: a potential new paradigm*

in Malaria Journal 2017 16:200; Published: 17 May 2017

"There is an emerging body of work supporting this potential novel use of ivermectin, to potentially impact malaria transmission if used in mass drug administration."

Ivermectin and malaria control

in Malaria Journal 2017 16:172; Published: 24 April 2017

"In view of long-standing MDA programmes, increasing attention is now being paid to the potential offered by re-formulating and re-purposing ivermectin to function as a feed-though mosquitocidal tool. This will provide a comprehensively beneficial weapon, for the anti-malarial armamentarium, as well as for probably improving the impact on existing target diseases. Prospects currently look highly promising, especially as the drug is already proven to be extremely safe for human use."

Housing Improvements and Malaria Risk in Sub-Saharan Africa

From the Oxford Big Data Institute. Published 21 Feb 2017 in PLOS Medicine Conclusions: Housing quality is an important risk factor for malaria infection across the spectrum of malaria endemnicity in SSA, with a strength of association between housing quality and malaria similar to that observed between ITN use and malaria. Improved housing should be considered a promising intervention for malaria control and elimination and long-term prevention of reintroduction. • Children living in modern, improved housing (e.g., with metal roofs and brick or concrete walls) were less likely (9%–14% lower odds) to be infected with malaria than children living in traditional, unimproved housing, after accounting for differences in levels of urbanisation, wealth, and use of malaria interventions.

• As a comparison, children sleeping under insecticide-treated bednets were less likely (15%–16% lower odds) to be infected with malaria compared to children not sleeping under bednets.

Insecticide-treated durable wall lining (ITWL) review by Messenger and Rowland

Malaria Journal (2017) 16:213

This is a useful review of ITWLs, including a nice historical summary of this tool, and discusses future prospects.

Vector control: time for a planetary health approach

An editorial published in Lancet Global Health online June 2017. A short advocacy piece which includes a bit on the Global Vector Control Response for 2017–2030 which was just presented at this year's World Health Assembly.

WHO Publications

Malaria vector control policy recommendations and their applicability to

product evaluation "This information note was developed to outline the key principles of the revised evaluation process for vector control products and to clarify which malaria vector control interventions currently have a WHO policy recommendation. It also defines the applicability of these policy recommendations to vector control products that: a) have previously been evaluated and received a recommendation under the WHO Pesticide Evaluation Scheme (WHOPES); b) are currently under evaluation by WHOPES; or c) will be submitted for evaluation by WHO through the revised process."

The 2017 update (from the 2007) WHO Framework for Malaria Elimination and the

summary set of <u>slides</u>. This document provides countries with a set of tools and strategies for achieving and maintaining elimination, regardless of where they lie across the continuum of transmission.

Framework for a National Plan for Monitoring and Management of

Insecticide Resistance in Malaria Vectors. This is a useful resource to help countries make progress toward the goals outlined in the GPIRM. It is intended to provide countries with "concrete guidance now, because new vector control tools will soon be available."

Useful websites and resources

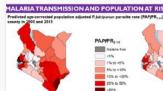
Sumitomo released a SumiShield 50WG video on 31 May. It is worth watching.

A new website launched 21 April 2017 showcases **LINK** a collaborative effort between the London School, KEMRI-Wellcome Trust, WHO-AFRO and multiple NMPCs. Their motto is "Strengthening the use of data for malaria decision making in Africa." Their site has some interesting documents worth looking over.

What we do







Making data available The LINK programme collates

Engagement with decisionmakers

Building operational and research capacity

Recent events of note

Formation of the new Africa CDC

It will be interesting to see how the nascent Africa CDC takes shape and what partnering opportunities there might be for IVCC and our partners. Here is their new website <u>https://www.au.int/web/en/africacdc</u> The US and Chinese CDCs collaborated to fund it. This also



relates to the growing Chinese investment in health in Africa and makes one wonder if the Chinese would invest in vector control. See: <u>How China Is On Course To Unseat U.S. As The Next Leader In Global Health</u>

Here is an article from Scientific American published last month with the title: <u>How to End Malaria</u> <u>in Africa The continent's own CDC, formed in 2015, can play a major role</u>

Quote

"Everything about malaria is so moulded by local conditions that it becomes a thousand epidemiological puzzles"

From: Hackett LW. Malaria in Europe. An ecological Study. London: Oxford University Press; 1937