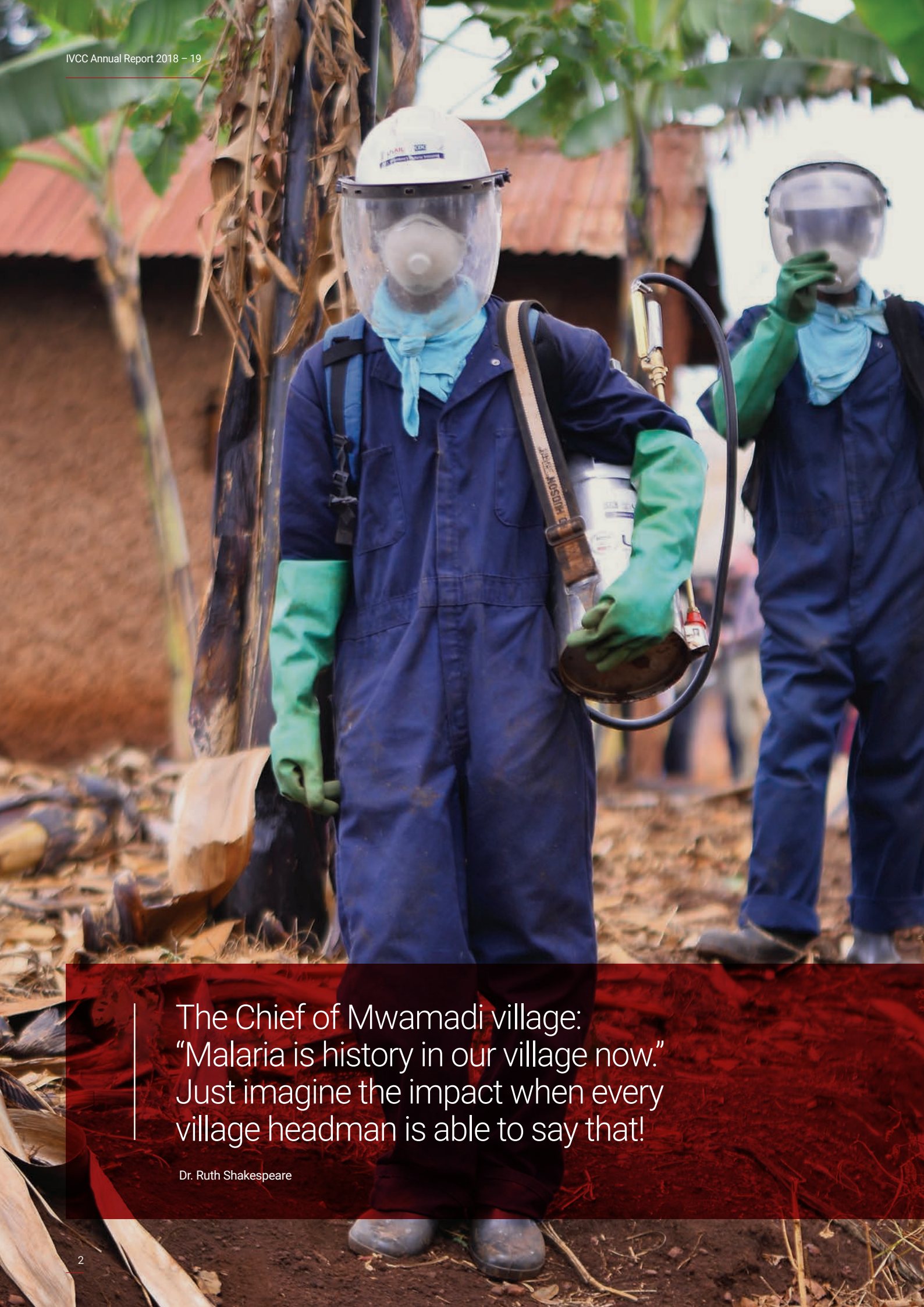
IVCC

Annual Report
2018 - 19



The Chief of Mwamadi village: "Malaria is history in our village now." Just imagine the impact when every village headman is able to say that!

Dr. Ruth Shakespeare

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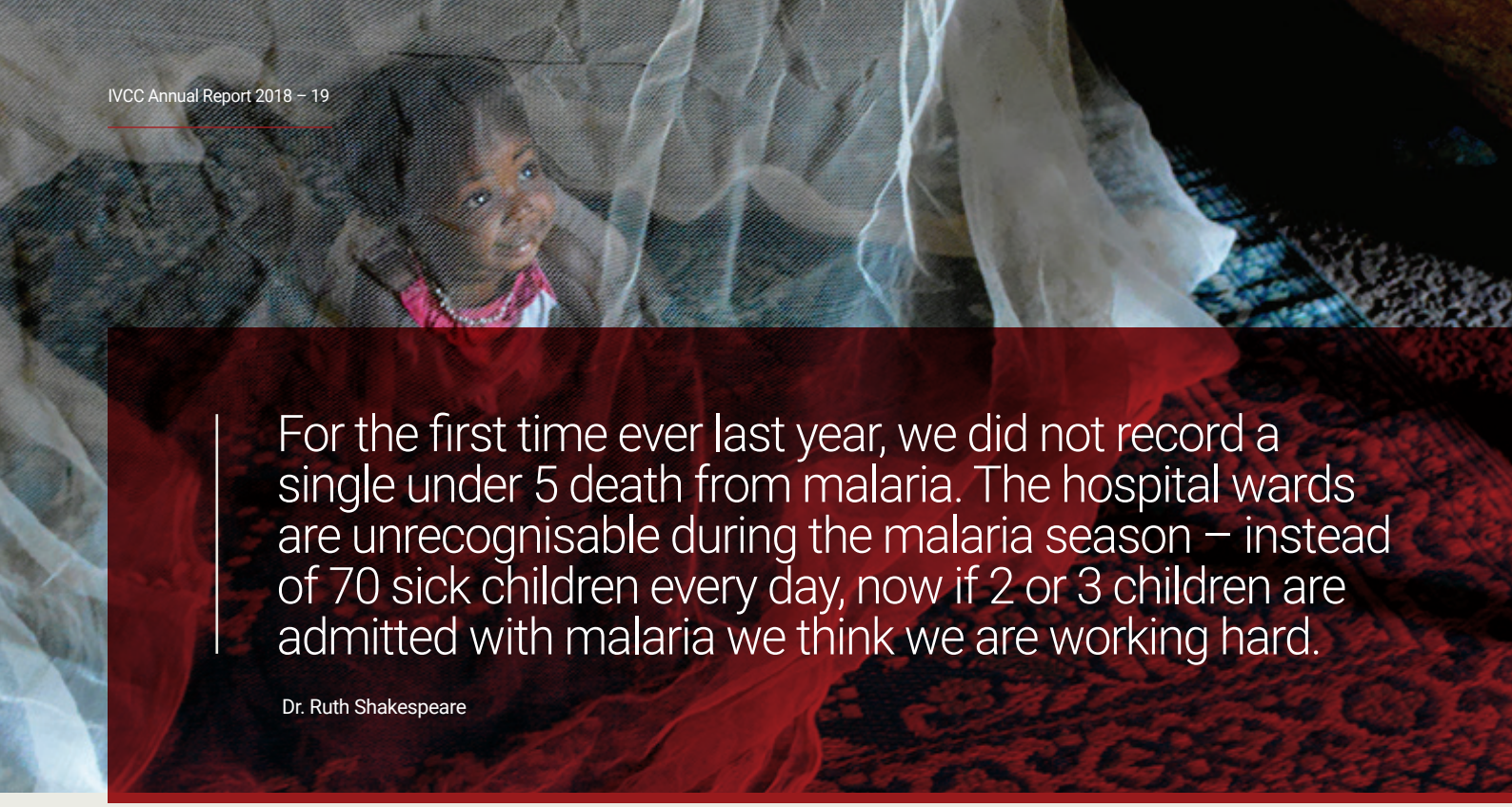


For the first time ever last year, we did not record a single under 5 death from malaria. The hospital wards are unrecognisable during the malaria season – instead of 70 sick children every day, now if 2 or 3 children are admitted with malaria we think we are working hard.

Dr. Ruth Shakespeare

" Eliminating malaria will have a dramatic effect on the productivity of smallholder farming families. "

" Fewer malaria cases mean more work days can be spent in productive activities, women spend fewer days care giving or taking children to hospital. "

" Local headmasters tell me that they have noticed the difference – children are in school throughout the malaria season. "

Perspective from the Field – Dr. Ruth Shakespeare

Dr. Ruth Shakespeare
Former Medical Director
Mulanje Mission
Hospital

We can argue that malaria control should be part of poverty reduction strategies, and therefore also part of nutrition programmes – it is not stretching a point to say that eliminating malaria contributes to global goals to reduce stunting, especially in households dependent on agriculture.

To put this another way, improving malaria control is not just about ensuring healthy lives and promoting well-being for all under Goal 3 of the Sustainable Development Goals, but it will also contribute to Goal 1 of ending poverty, Goal 4 of quality education, Goal 5 of quality education and Goal 8 of economic growth.

So our challenge now is to make these lifesaving interventions widely available, affordable, accessible and acceptable and to communicate high quality evidence clearly to guide implementers like Mulanje Mission Hospital (MMH) on which tools to use and how to use them to have the greatest impact.

Unitaid
Innovation in Global Health

Perspective from a Funding Partner – Unitaid

A job well done requires a full set of tools. Those working to end malaria understand this—and perhaps none more fully than the team at IVCC.

They have been a strategic, versatile collaborator in developing new tools, and adapting older ones, to target the mosquitoes which have caused the malaria epidemic.

Unitaid's four-year partnership with IVCC has been tremendously fruitful. The NgenIRS project culminates at the end of 2019 with a hefty reduction in the price of new-generation indoor insecticides, allowing this key mosquito-fighting tool to offer wider protection to African communities.

What IVCC, Unitaid and partners accomplished in this project was nothing less than reviving a key malaria tool that was on the verge of extinction. Indoor spraying had declined or disappeared because older insecticides weren't effective against resistant mosquitoes, and the one new insecticide that did exist was so expensive that most countries couldn't afford it.

The NgenIRS project ushered in three new insecticide products for countries to choose from, affordable prices and a stable market, and led more countries to welcome Indoor Residual Spraying (IRS) back into their toolboxes. Unitaid is now embarking on another mission with IVCC, the New Nets Project, co-financed by the Global Fund, to gauge the malaria-fighting power of nets treated with new insecticide combinations.

Like the NgenIRS project, the New Nets Project is going after the resistant mosquitoes that have threatened to erode the world's gains against malaria.

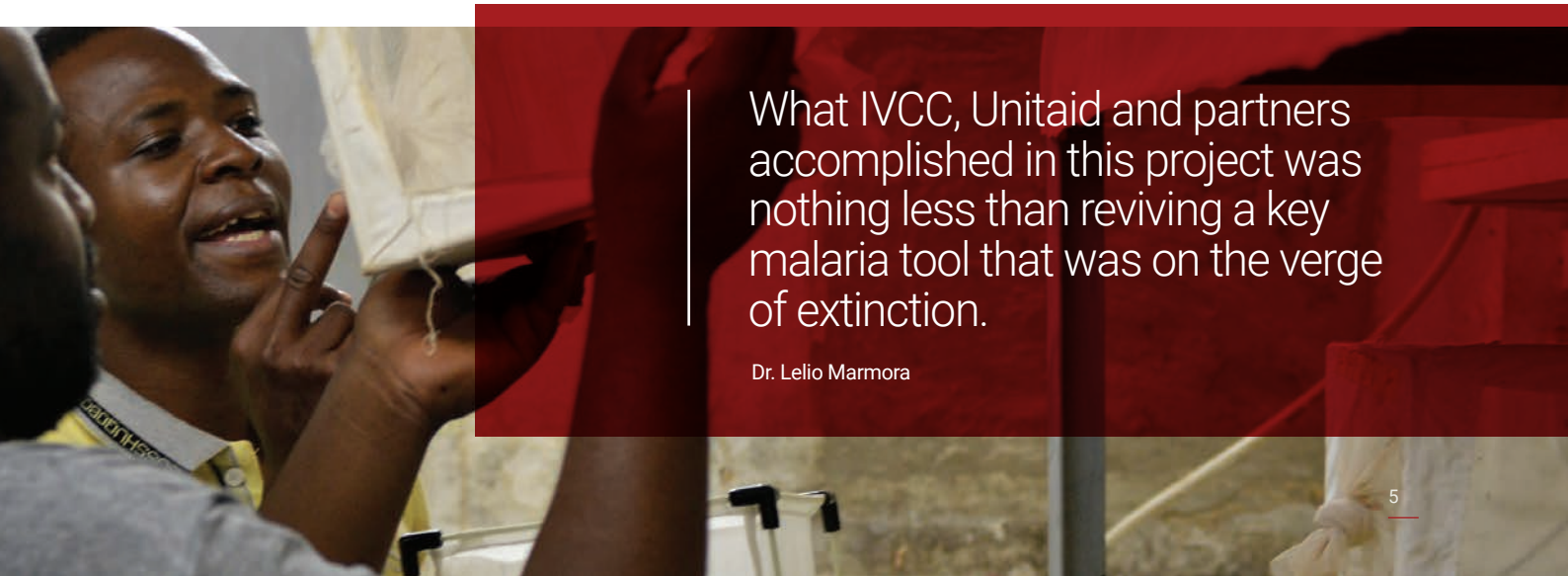
We hope to emerge from the project with evidence that these nets offer better protection and are cost-effective, which can lead to World Health Organization guidelines on their use.

When I think of IVCC, what stands out for me is its proficiency in dealing with the many complexities of introducing an innovation: complexity in terms of the variety of actors, the number of actors, the number of risks that must be managed.

IVCC's performance, in my view, can be attributed to a very strategic leadership team—people who see the big picture, know what's in the innovation pipeline, and can translate that into very concrete operational excellence on the ground.

Unitaid looks forward to continuing its collaboration with this exemplary partner.

Dr. Lelio Marmora
Executive Director
Unitaid



What IVCC, Unitaid and partners accomplished in this project was nothing less than reviving a key malaria tool that was on the verge of extinction.

Dr. Lelio Marmora

Chair's Foreword
Changing of the Chair

Since taking up the role as Chair of IVCC in December 2018, my respect for, and delight at, the skill and dedication of all those directly engaged in IVCC as well as all our stakeholders has reached new heights.

That, in itself, is testament to the remarkable legacy I and all at IVCC benefit from as a result of the outstanding leadership and inspiration of my predecessor, Sir Mark Moody-Stuart. Having led the Board of Trustees since its inception, the impact of Mark's commitment to IVCC is enduring and will live on through the communities who are affected by the scourge of malaria and other vector-borne diseases.

On behalf of IVCC and all our stakeholders, and especially on behalf of affected populations, I thank Mark for his outstanding contribution throughout his 12-year tenure as Chair. In recognition of his extraordinary record, IVCC's Board of Trustees is very pleased that Mark accepted our invitation to become Honorary Life President of IVCC. Building on that strong legacy by Mark, it is my clear determination that IVCC will maintain and enhance the confidence all our staff and stakeholders have in us through our continuing strong leadership, governance and performance.

Funding
IVCC has successfully diversified its funding base from a single funder in 2005 (the Bill & Melinda Gates Foundation) to seven important funding organisations today. IVCC values the partnerships it has with all its funders and the spread now ensures a mix of approaches and objectives that enhances the total endeavour.

Today the foundation accounts for 42% of IVCC funding, so that relationship and dynamic partnership remains core to IVCC. This will again be evident and re-validated as we enter the foundation's grant renewal process for the 2021 to 2025 period. We look forward to the challenge and opportunity that both our shared progress and prospects hold as we chart our way forward collectively towards malaria eradication.

ESAC
Central to the successful progression of IVCC's product portfolio is the role performed by our External Scientific Advisory Committee (ESAC) which ensures that expert scientific review is delivered optimally across the portfolio. IVCC has recently completed a comprehensive review of the ESAC process, making a number of enhancements.

IVCC will continue to organise ESAC reviews according to 1 of the 3 categories: 'Innovations', 'Research' or 'Development', but each project will now also be reviewed by an ESAC sub-group made up of between 3-6 ESAC members, comprising experts who are best suited to address the current issues of any given project. This will ensure that as a project progresses, new experts can be brought onto the sub-group who are best equipped to offer guidance and support to the project team.

Honours
I was delighted to accept on behalf of IVCC and other Product Development Partnerships (PDPs) the Partnership Innovation Honour from the Malaria No More UK Commonwealth Honours team. The award, made on the first anniversary of the Commonwealth Heads of Government Malaria Summit in London, recognised the outstanding contribution PDPs have made to innovation over many years and the progress made towards achieving the momentous Commonwealth Malaria commitment to halve malaria in five years.

Stakeholder Forum
For the first time in 3 years, IVCC hosted a highly successful Stakeholder Forum in its home town of Liverpool. Over 150 stakeholders from across the malaria community attended and participated in a range of activities including panel discussions, product innovation demonstrations and networking opportunities.

The event also welcomed a range of distinguished speakers who brought together the many strands of action and research which are being coordinated to achieve optimum results and impact in vector control. Under the theme 'Partnering for Impact' the event recognised the importance of diverse organisations working together to advance our common mission.

Looking ahead, it will be equally critical that a robust partnership approach is deployed to coordinate the spectrum of interventions beyond vector control including drugs and vaccines to ensure that maximum impact is successfully leveraged, especially in challenging and hard to access regions of the world where malaria transmission is particularly high.

Board of Trustees
During the year, we have been very pleased to welcome two new Trustees to the IVCC Board. Sherwin Charles is CEO and Co-Founder of Goodbye Malaria and holds numerous leadership positions within the global malaria community including Chair of the African Leaders Malaria Alliance (ALMA) awards committee, Co-Chair of the Private Sector Malaria Consortium and was previously a board member of Roll Back Malaria.

We have also welcomed Dr. Konji Sebati who is CEO of the Innovative Pharmaceutical Association of South Africa (IPASA). Konji brings with her over 25 years' experience in global health from across the public and private sector. She is also a member of the Board for Medicines for Malaria Venture (MMV).

Stepping down from the IVCC Board of Trustees during the year were Professor Fred Binka from the School of Public Health, University of Health and Allied Sciences, Ghana and Dr. Rick Steketee who earlier this year was appointed the new Deputy U.S. Global Malaria Coordinator for the U.S. President's Malaria Initiative (PMI). We are immensely grateful for the outstanding service, insights and commitment they both provided IVCC during their tenure.

As I look at the year ahead, I believe we are set fair under the strong leadership of Nick Hamon and his Executive Team to maintain IVCC's momentum towards accomplishing the stretching goals we have set ourselves and been set collectively with our partners.

The Right Honourable Sir Stephen O'Brien KBE
Chair - Board of Trustees
IVCC

CEO Overview

Dr. Nick Hamon
CEO
IVCC

IVCC's mission is to create and deliver a toolbox of disruptive vector control innovations for malaria eradication.

The toolbox includes established product classes such as Long Lasting Insecticidal Nets (LLIN) and Indoor Residual Sprays (IRS), as well as new product classes such as Attractive Targeted Sugar Baits (ATSB®s). Although primarily focused on malaria, IVCC is capitalising on its knowledge base and malaria innovations to address mosquito borne Neglected Tropical Diseases (NTDs) such as dengue.

To guarantee the timely delivery and impact of these interventions, IVCC has to address a wide range of risks and barriers to successful product development. These barriers include, amongst other things, ensuring appropriate Insecticide Resistance Management (IRM) and Integrated Vector Management (IVM) strategies are implemented to minimise resistance and optimize performance, building and supporting laboratory and field capabilities as well as keeping innovators engaged and motivated. It is also essential to address delivery, access and market shaping interventions to ensure procurement and impact of novel tools at scale.

2019 has been a key year for IVCC. Several major initiatives are coming to the end of their funding cycle and several new initiatives are just beginning. The Unitaid funded Next Generation IRS (NgenIRS) project, which is in its fourth and final year, has protected 119 million people since 2016 using 3rd generation IRS (3GIRS). Where 3GIRS has been used, a 20 – 47% drop in malaria incidence has been reported in countries where impact evidence has been collected, and it is estimated that between 4.6 and 9.2 million malaria cases will have been averted with between 14,000 and 28,000 lives saved through NgenIRS supported IRS campaigns.

High quality and reproducible data is essential to drive product development, policy development and registration. In 2014, IVCC and its funding partners started a programme to ensure Good Laboratory Practice (GLP) certification across seven field testing sites in Africa. Today, three sites are fully GLP certified and the four remaining sites are expected to be GLP certified by the middle of 2020.

The USAID-funded Zika Grand Challenge programme is also coming to a successful conclusion, with a selection of high potential projects moving forward with new funding and industry partners. IVCC, along with the External Scientific Advisory Committee (ESAC) members have provided regulatory advice, risk assessments, economic modelling, as well as field testing for nine key vector control projects. Several of these *Aedes* mosquito tools will be tested through the new IVCC Indo-Pacific Initiative (IPI) supported by the Australian government (DFAT), along with additional support from Department for International Development (DfID).

In September 2019, IVCC promoted a brand-new insecticide from Mitsui, into full development. The first product on the market will be an IRS with a novel mode of action, hopefully followed by a dual active ingredient LLIN.

With the support of Unitaid and the Global Fund, The New Nets Project is moving towards the end of its first year, culminating with the deployment of over three million Next Generation insecticidal treated nets in 2019 and up to thirty million more over the next four years.

In January, Bill Gates hosted the second IVCC ZERO by 40 meeting with the CEOs of the major crop protection companies active in public health innovation at the World Economic Forum at Davos. In 2018, these same companies signed a declaration for vector control that comprised of 11 key objectives, including a commitment to 'stay the course' on new vector control product development and to work collaboratively on selected potentially game changing intervention classes.

We have revisited our strategy to ensure our ZERO by 40 initiative is aligned with the Bill & Melinda Gates Foundation's six pivot malaria eradication strategy and the expectations of other funding partners. It is reassuring to see that the IVCC strategy is also closely aligned to the newly published Lancet Commission on Malaria Eradication which calls for substantial investment in new diagnostics, drugs, and vector control technologies and is supporting the drive for eradication by 2050 with smarter use of current tools, a broader roll-out of available tools and the development and deployment of new tools.

IVCC believes eradication by 2040/2050 is entirely feasible. There is a need for both 'transmission prevention' and 'parasite elimination' and eradication will require a combination of tools and methods (Integrated Tools Management); novel vector control tools and solutions will play a major role. However, eradication can only be achieved through broad stakeholder partnerships - working closely together across industries, sectors and disciplines to deliver this public health milestone.

Dr. Nick Hamon
CEO
IVCC

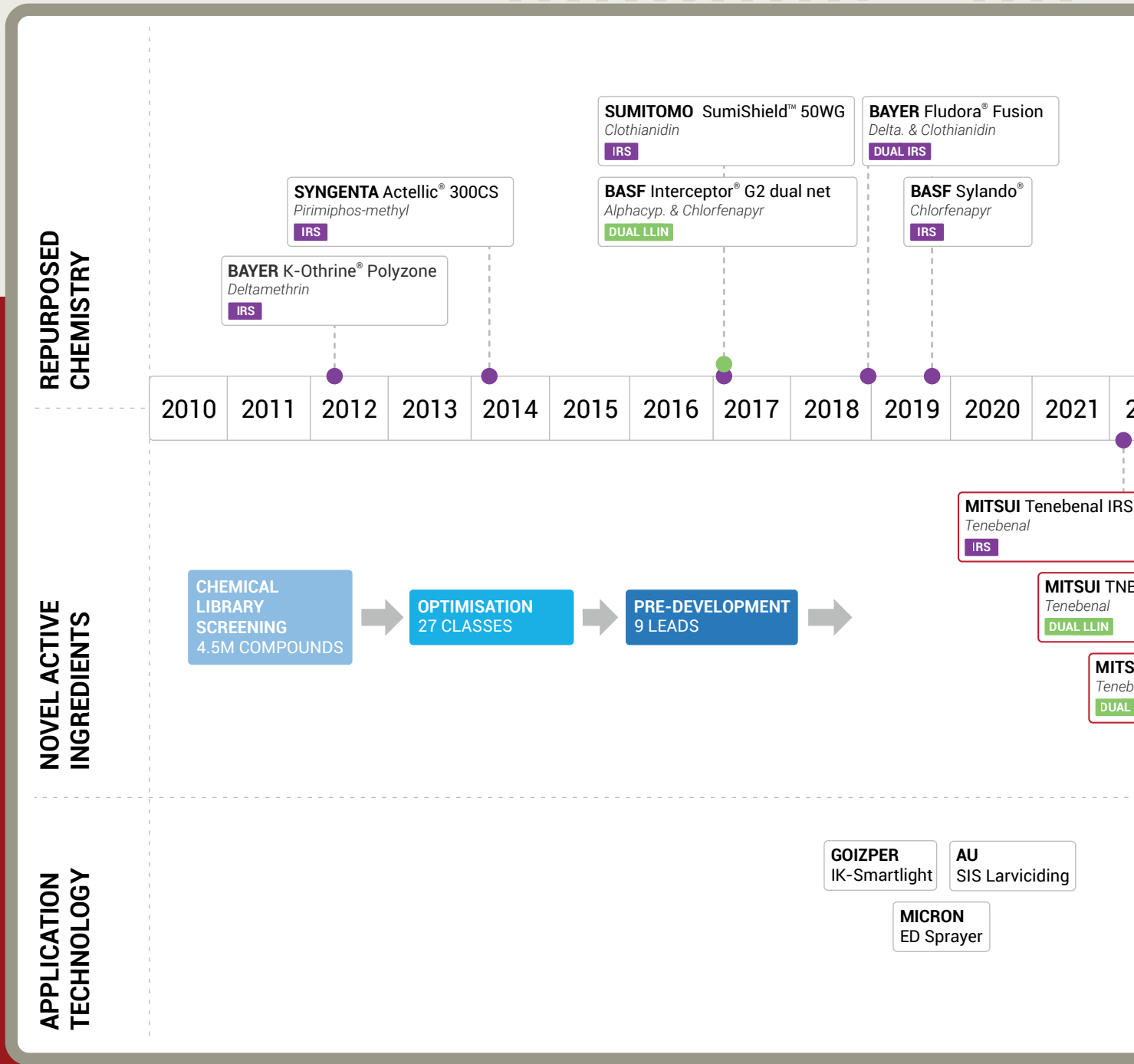
2019 has been a key year for IVCC. Several major initiatives are coming to the end of their funding cycle and several new initiatives are just beginning.

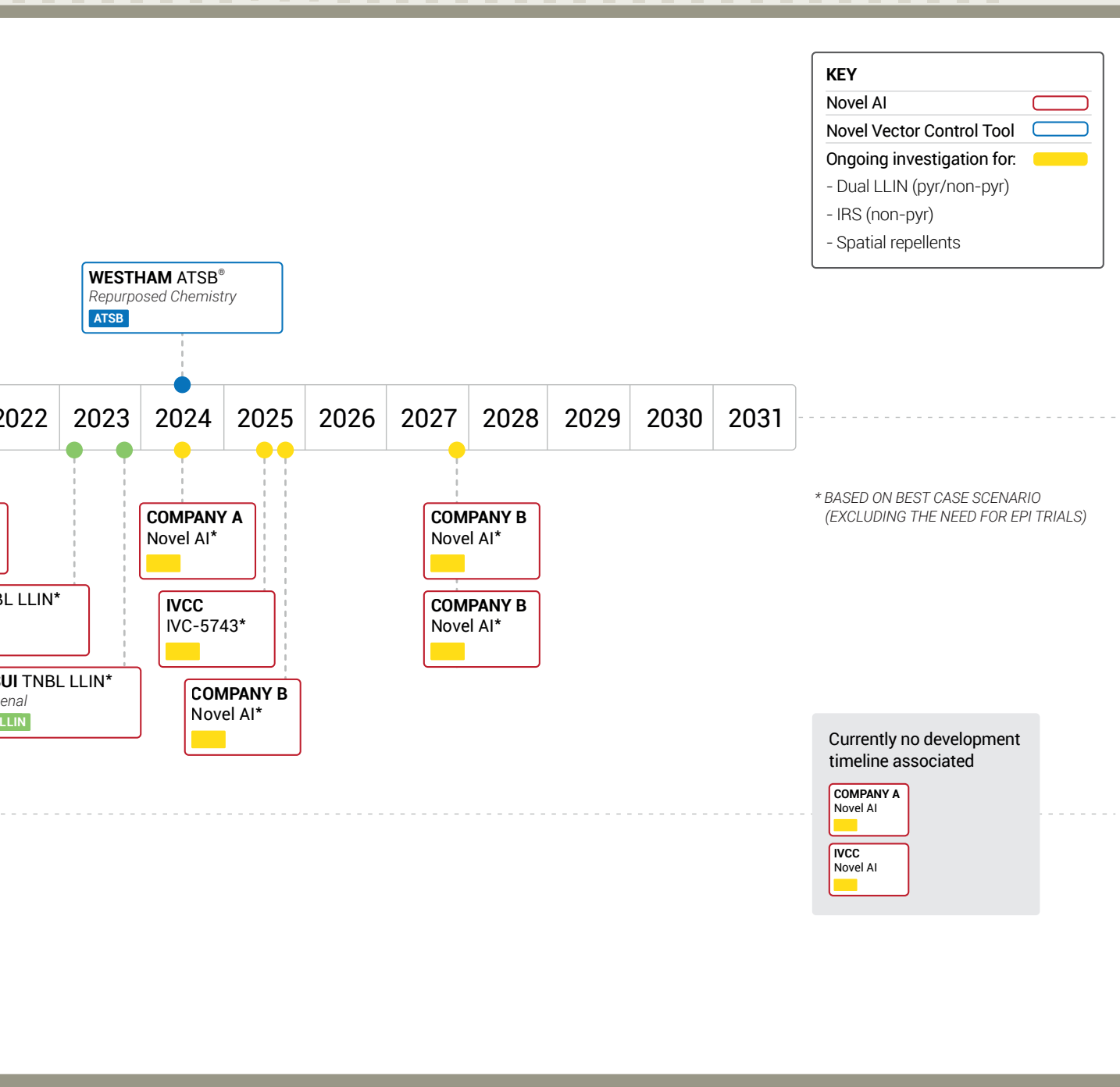
Dr. Nick Hamon

We are moving from a focus on examining insecticide candidates to designing the products by which the new insecticides will be delivered.

Dr. Sarah Rees

Product Development Portfolio




KEY
Novel AI
Novel Vector Control Tool
Ongoing investigation for:
- Dual LLIN (pyr/non-pyr)
- IRS (non-pyr)
- Spatial repellents
WESTHAM ATSB®
Repurposed Chemistry
ATSB
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
COMPANY A
Novel AI*
IVCC
IVC-5743*
COMPANY B
Novel AI*
COMPANY B
Novel AI*
BL LLIN*
UI TNBL LLIN*
enal
LLIN
COMPANY B
Novel AI*
* BASED ON BEST CASE SCENARIO
(EXCLUDING THE NEED FOR EPI TRIALS)
Currently no development timeline associated
COMPANY A
Novel AI
IVCC
Novel AI

Product Portfolio Review

Dr. Sarah Rees
Portfolio Manager
IVCC

IVCC's strategy to deliver effective control of malaria-transmitting mosquitoes is to discover chemistry with which to develop new Indoor Residual Spraying (IRS) and Long Lasting Insecticidal Nets (LLINs) to kill pyrethroid resistant mosquitoes.

It is now 10 years since IVCC set out with this strategy and it is pleasing to see the significant progress made towards achieving this goal, but the challenge is far from over. We are moving from a focus on examining insecticide candidates with the required properties to designing the products by which the new insecticides will be delivered to control pyrethroid resistance.

When it comes down to it there are very few insecticides which match the necessary product performance requirements, residual efficacy lasting from 6 months for IRS to 3 years and 20 washes for LLINs, these are tough targets and significantly beyond the requirements for insecticides traditionally developed for agricultural uses. Moreover, the cost of development can total up to $50M and take 10-15 years. For these reasons it is important that new insecticides developed for vector control are used carefully in order to maintain their effectiveness for as long as possible. IVCC follows the World Health Organization (WHO) guidance laid out in the 'Global Plan for Insecticide Resistance Management' which requires 6 month IRS products to be rotated annually as part of a 3 year programme and for 3 year LLINs to contain a mixture of 2 different insecticides at a fully effective dose.

During recent years IRS has seen the introduction of 2 new classes of insecticides, Actellic® CS and Clothianidin-based products, SumiShield™ and Fludora® Fusion. A further product, Sylando, based on the insecticide Chlorfenapyr is under regulatory review and a fourth class of insecticide exemplified by Tenebenal is under development.

With this choice of insecticides available, used in annual rotation to avert the risk of resistance, the full impact of IRS can be realised for some years to come.

IVCC's attention is turned towards developing non-pyrethroid dual insecticide LLINs. The benefits of restoring full effectiveness of insecticidal treated nets cannot be underestimated in the goal to eradicate malaria and the introduction of dual, non-pyrethroid insecticide LLINs will require market acceptance in a market which has traditionally had a single choice of insecticide, pyrethroid.

In particular IVCC is looking for insecticides with a fast action to replace pyrethroids. There are two new insecticide compounds in IVCC's portfolio which meet this requirement and we are working with partners to study these in greater detail to determine how to build effective safe and affordable dual insecticide LLIN products. We envisage combining a fast-acting insecticide with a second insecticide with a different mode of action to provide some assurance against insecticide resistance developing.

To be successful will be technically challenging, to date there is limited expertise outside of pyrethroids in the development of formulations to introduce insecticides into LLINs. IVCC is working with our partners to build this expertise and the laboratory facilities necessary to carry out development work with compounds which are, as yet, unregistered.

Deployment Scenario

A scenario for the deployment of different insecticides where both LLINs and IRS are used in the same location is shown in the figure. A minimum of 3 different insecticides is required to implement insecticide resistance management for IRS and a total of 2 pairs of compatible insecticides is required for LLINs.

Technical Projects

In order to facilitate the development of novel and improved public health insecticides, formulations and products, IVCC undertakes and facilitates world class research and supports technical platforms that enable this mission.

Mind the Gap: Beyond Indoor Residual Spraying (IRS), Long Lasting Insecticidal Nets (LLIN) and Attractive Targeted Sugar Baits (ATSB®)

There is no doubt about the contribution that IRS and LLINs have had on the reduction in the malaria burden in Africa. Over the past decade outstanding progress has been made with the malaria incidence rate declining by 36% and the annual death rate by 60%. Modelling performed by Imperial College London indicates that IRS, LLINs, ATSB®s, vaccines and drugs could get us close to malaria elimination in Africa by 2040.

However, this would require delivery of these tools at very high coverage and even then, a sizeable gap would remain requiring additional interventions to reach our goal. This is especially true for humanitarian emergencies and outdoor transmission more generally. Closing this gap will require innovation in implementation to improve the integrated delivery of all available tools backed up by improved monitoring, evaluation, surveillance and targeting tools and approaches. IVCC and its partners are working on several "Mind the Gap" initiatives for *Anopheles* control as well as to fight the growing importance of *Aedes*-borne viruses such as Zika virus, dengue, chikungunya and yellow fever.

IVCC are working across a number of technical projects to help deliver a diverse range of tools.

Dr. Derric Nimmo

Dr. Derric Nimmo
Senior Technical Manager
IVCC

IRS Application Innovation

The Technical Team at IVCC is working with partners from industry and academia to investigate ways to improve IRS, mainly through improving application technology and developing Extra Long Lasting IRS (XLLIRS) products with 12 months or greater residual life. With the development of new and improved insecticides for IRS and the goal to improve quality, flexibility and cost-effectiveness and expand coverage of IRS, innovative ways to apply these products are essential.

IVCC has partnered with the Goizper Group to develop and test a new device for accurately guiding spray operators in IRS applications. Results from the first field-tested prototypes showed a significant improvement in spray uniformity (by 3-4 times), which could result in significant pesticide savings and extend the effectiveness of IRS applications.

Spatial Intelligence System (SIS) for Improving Larviciding

IVCC is supporting a project to test SIS for larviciding that uses aerial unmanned drones to identify waterbodies that are prime mosquito habitats, enabling faster, cheaper delivery of larvicides to support malaria elimination.

This project involves a three-tier process:
1) broad-scale mapping of water bodies using freely available radar satellite imagery;
2) fine scale mapping of water bodies using low-cost drone technology and
3) smartphone app with drone-mapped water bodies to direct field-based larviciding teams.

This project aims to demonstrate that drone technology is a more precise and accurate way of identifying target water bodies than ground-based methods and that smartphone technology can support the management of larviciding campaigns.

Targeted IRS (reaching *Aedes* indoor resting places)

Current urban vector control strategies (e.g., truck-mounted ultra-low volume spraying, thermal fogging, and larviciding) have failed to contain dengue epidemics and prevent the global expansion of *Aedes*-borne diseases.

As novel vector control approaches and intervention delivery strategies are urgently needed, IVCC is currently supporting a three-arm cluster randomised controlled trial in Merida, Mexico to test the effectiveness of Targeted IRS (TIRS) for *Aedes* mosquito control.

TIRS involves the spraying of walls below 1.5m in height, as well as the underside and back of furniture where *Aedes* mosquitoes are likely to rest, significantly reducing insecticide and application costs. Using entomological endpoints, the effects of TIRS in city blocks sprayed with pirimiphos methyl (Actellic® 300CS, Syngenta) and clothianidin (SumiShield™ 50WG, Sumitomo) will be compared to unsprayed city blocks throughout the 2019 dengue transmission season.

The aim is to apply this TIRS approach to *Anopheles*.

Zika Grand Challenge

Nine projects, exploring diverse innovations for monitoring and control of *Aedes aegypti* the vector of Zika virus (which also transmits dengue, chikungunya and yellow fever) and funded by USAID, have been successfully completed in 2019.

These projects were conducted by leading universities and research institutes and were guided and steered by IVCC and its external scientific advisors.

Projects include Proof of Concept (PoC) field studies for spatial repellents, biorational insecticides, and novel monitoring techniques. IVCC plans to build on the top performing projects to explore if they could be used to address the recent invasion of *An.stephensi* into Africa and the new Indo-Pacific Initiative (IPI) programme focused on *Aedes* and *Anopheles* control.

Access Challenges and Opportunities

Dr. Tom McLean
Access Director
IVCC

An integral part of preventing insect-borne diseases is ensuring that vector control products are integrated into country level control programmes and have an equitable impact amongst all countries and people that need them.

IVCC's Access work is driven by the need for products emerging from the Research and Development Portfolio to be available, affordable, acceptable and adopted. Therefore, as the IVCC portfolio matures and evolves the scope of work required to deliver the Access objectives evolves with it. Dimensions in which that evolution is expanding include:

- Product Classes and Technologies
- Product Life Cycle Stage
- Distribution Channels and Funders
- Geography
- Diseases and Vectors
- Partner Capability

Products Classes and Technologies

The initial focus of IVCC's Access activities was directed towards the launch and scale up of the Indoor Residual Spraying (IRS) products brought to market by our partners, including to date Syngenta's Actellic® 300 CS -Sumitomo's SumiShield™ and Bayer's Fludora® Fusion.

Leading up to the PQ listing and launch of BASFs Interceptor® G2 insecticidal treated nets, the first containing a non-pyrethroid insecticide, IVCC formed the New Nets Project to support its launch and scale up. It is anticipated that new non-pyrethroid IRS and Long Lasting Insecticidal Nets (LLIN) products will continue to need Access support in varying degrees as they come to market as well as new product classes such as Attractive Targeted Sugar Baits (ATSB®s). In particular, Access support for the most sophisticated product designs of dual new active LLINs will need to address the critical issues of pricing, the generation of cost-effectiveness data and the targeting of these products.

IVCC Access support will be needed for *Aedes* control interventions as IVCC's portfolio around those tools evolves, as well as interventions to "Mind the Gap" for the end game of malaria elimination. Closing this gap will require innovation in implementation to improve the integrated delivery of all available tools.

Therefore, by 2025 the Access portfolio may grow to include such existing technologies as larviciding, spatial repellents, personal protection, and housing improvement, and by 2030 could include novel technologies that IVCC is closely watching the progress of such as genetically modified mosquitoes if those technologies should progress enough in their development.

Product Life Cycle Stage

IVCC's early Access activity focussed on the Intellectual Property (IP) aspects of Global Access agreements with the manufacturing partners to ensure ongoing Access to funded developments. These agreements have been very successful and IVCC has retained Access to IP it supported including licenses to an Active Ingredient (AI) that had been orphaned by a development partner.

Recent progress of the product portfolio has brought a number of new AIs and their associated products to the stage gate in preparation for their graduation to the development stage. This transition will require the preparation of a sound business and impact case for the proposed products. It is, therefore, anticipated that significant Access effort will be directed to the early stages of product development in the period 2020-2025.

Distribution Channels and Funders

Vulnerable populations are almost entirely dependent on donor-funded, campaign-driven distribution of World Health Organisation (WHO) recommended vector control products including LLINs and IRS. Funding for these interventions is highly weighted to support "universal coverage" of insecticidal treated nets. As a result, IRS coverage within publicly funded programmes has been limited to 16 countries in Africa despite new evidence and modelling suggesting its cost-effectiveness and great potential for impact.

With the higher cost of nets as programmes transition to PBO and dual-AI products, it will be difficult to expand coverage of IRS or to introduce new tools such as ATSB® without new funding sources and the development of complementary distribution channels. Growth of the market for vector control tools is essential to ensure affordability and expanded access in support of ZERO by 40 targets.

Increased investment in the establishment of private and commercial channels for new nets, 3GIRS and ATSB® could help to expand coverage, increase sustainability and begin to bridge the funding gap currently faced by malaria programs and their donor partners.

IVCC's Unitaid funded NgenIRS programme has demonstrated the possibility of expanding IRS coverage through NGO's like Pilgrim Africa in Uganda and Mulanje Mission Hospital in Malawi.

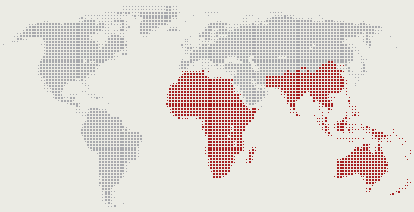
Using these examples to promote the model in other countries could result in significant expansion, particularly in high burden countries like Nigeria and The Democratic Republic of the Congo (DRC) where publicly funded IRS is limited. Based on successful partnerships with AgaMal in Ghana and mining companies in DRC, IVCC will look to develop new partnerships with extractives and agricultural estates.

In addition to these channels there is great potential in developing African capacity to provide integrated vector control services to publicly funded malaria programmes where locally owned commercial pest control companies, for example, could be contracted on a seasonal basis to conduct spray operations in rural areas while also providing commercial services to institutional and individual clients in urban and peri-urban areas.

Geography

2015 - 2019

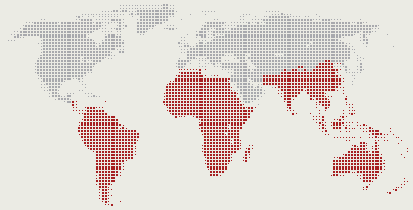
Africa
Anopheles
Malaria
Global
Funders



2019 - 2025

Africa
Anopheles
Malaria
Global
Funders

Indo Pacific
Anopheles and *Aedes* etc
Malaria, Dengue, Zika virus
Consumer markets



20?? - 20??

Africa
Anopheles
Malaria
Global
Funders

Indo Pacific
Anopheles and *Aedes* etc
Malaria, Dengue, Zika virus
Consumer markets

South Americas

Diseases and Vector

To date IVCC's Access Strategy has focused on expanding market access to Next Generation IRS (NgenIRS) and Insecticidal Treated Nets (ITNs) for malaria control, primarily by controlling *An. gambiae s.l.* and *An. funestus* group mosquitoes indoors in rural areas of Africa.

However, in order to meet the goals of the Global Vector Control Response and push toward malaria eradication, the scope of IVCC's Access programme will need to expand. Moving forward, Access initiatives will likely be required for tools targeting other malaria vectors, including the urban vector *An. stephensi* and outdoor biting forest vectors such as *Anopheles dirus s.l.* and *Anopheles minimus s.l.* In addition, Access work with a focus on *Aedes* vectors of dengue, Zika virus, chikungunya, and yellow fever will be required as interventions in this space are scaled up.

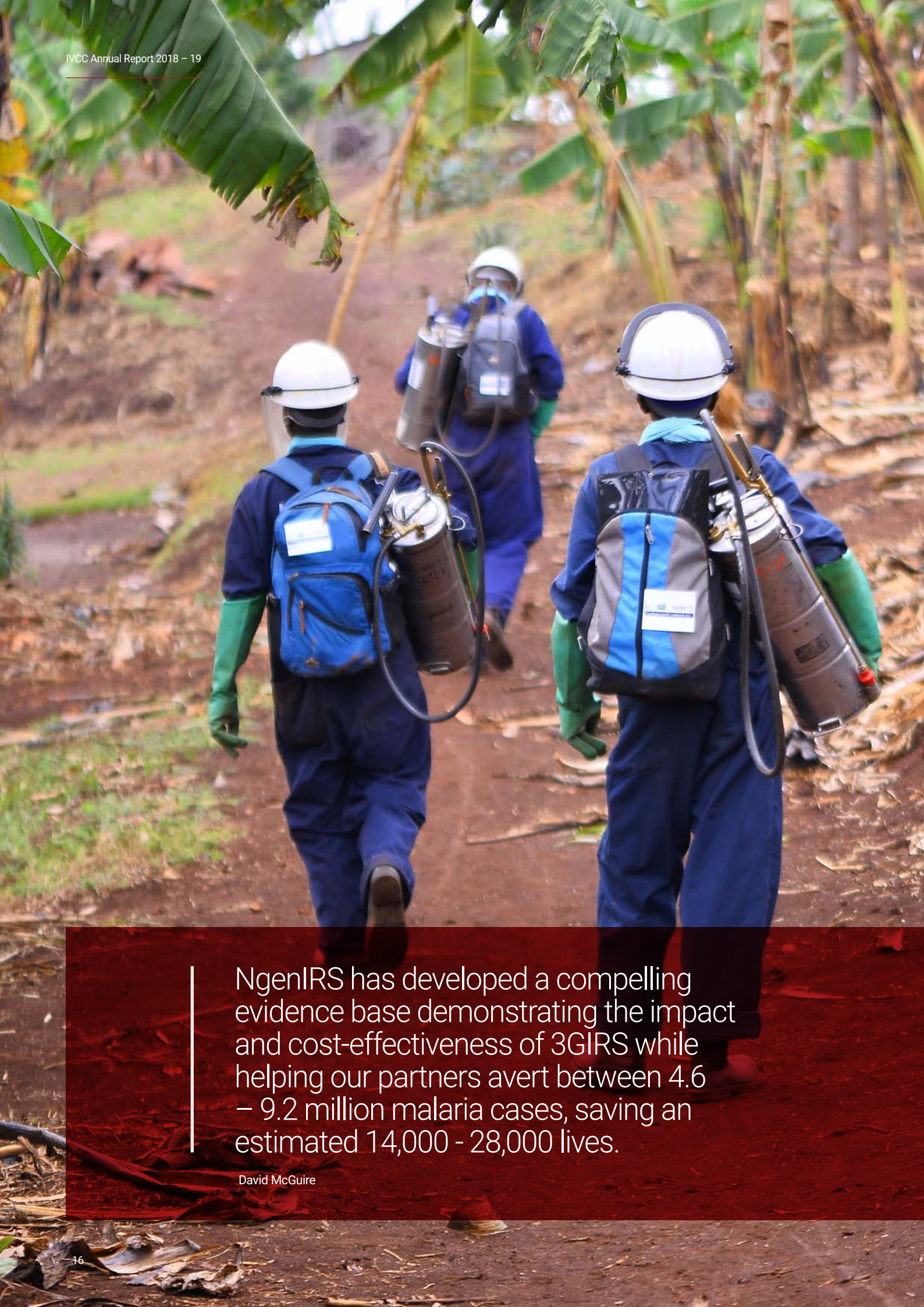
Similarly, as IVCC's work encompasses new vectors and diseases, the technologies/products supported within the IVCC Access programme will also need to expand, while maintaining a focus on killing mosquitoes and mosquito bite prevention. With a launch of ATSB®s for outdoor malaria control expected in 2024, the IVCC Access team will imminently need to begin the work of developing product business and impact cases, followed by market development planning.

Additionally, by 2025 with evidence having been built around *Aedes* control tools, Access work involving those tools (e.g., Outdoor Residual Spraying (ORS) or Targeted IRS (TIRS) for dengue control) will likely be needed.

Partner Capability

IVCC's initial product development partners were all highly vertically integrated, capable of discovery and development of Novel Active Ingredient (AI) all the way through to formulated product registration and distribution.

More recently partners have emerged who have particular expertise in a narrower part of the development spectrum. They are either focussed on AI discovery or LLIN development and may or may not have African distribution infrastructure. Partners in this group are likely to require a significantly greater level of support to develop the necessary business cases and Access Plans.



> NgenIRS has developed a compelling evidence base demonstrating the impact and cost-effectiveness of 3GIRS while helping our partners avert between 4.6 – 9.2 million malaria cases, saving an estimated 14,000 - 28,000 lives.
>
> David McGuire

David McGuire
Programme Director
NgenIRS and
New Nets Project
IVCC

The Next Generation Indoor Residual Spraying (NgenIRS) Project

As NgenIRS completes its 4th and final year of implementation, it has accomplished the overarching goal of establishing a sustainable, growing and competitive market for 3rd generation, longer lasting and resistance-breaking insecticides for IRS.

NgenIRS is Unitaid's first investment in a catalytic, market shaping intervention in the vector control space and has been a resounding success.

Through a complex and extensive set of partnerships with manufacturers, donors, implementers and national malaria programmes we have reversed the downward trend in the IRS market and laid the foundation for expanded coverage and effective Insecticide Resistance Management (IRM) with resistance breaking insecticides. In the process NgenIRS has developed a compelling evidence base demonstrating the impact and cost-effectiveness of 3GIRS while helping our partners avert between 4.6 – 9.2 million malaria cases, saving an estimated 14,000 - 28,000 lives.

In 2016 there were four countries using the one and only 3GIRS product available at the time. Thanks to NgenIRS there are now three products on the market and 16 partner countries benefiting from products that are 38% less expensive. This significant drop in the median price of 3GIRS was a result of a combination of NgenIRS' initiatives including improved forecasting, annual volume guarantees and increased competition.

NgenIRS is working closely with its partners, most notably PMI, Global Fund and Roll Back Malaria's (RBM), to ensure that the great progress made since 2016 is sustained once the project ends in December 2019. Manufacturing partners have committed to not increasing prices and annual forecasting is being integrated within national vector control advisory groups and consolidated within RBM's regional mechanisms.

Much of the evidence work begun by NgenIRS (led by PATH) will continue under PMI's VectorLink project (led by Abt Associates). In the meantime, the project partners are preparing to present the full set of evidence and overall lessons learned at an end-of-project event in March 2020.

In the words of Unitaid's Executive Director, Lelio Marmora, "This is exactly what our donors want us to do. It is how development is supposed to work. The beauty of NgenIRS has been in its complexity and we need to tell the story."

New Nets Project (NNP)

David McGuire
Programme Director
NgenIRS and
New Nets Project
IVCC

The success and lessons learned from NgenIRS have informed the design and early implementation of the NNP, the second Unitaid-funded catalytic market-shaping intervention in vector control.

As with IRS, the widespread emergence of pyrethroid resistance has prompted the development of new technologies to ensure continued effectiveness of nets, which have been the most widely used vector control tool over the past decade. Dual-active ingredient (dual-AI) nets present the best hope to upgrade this proven tool, but there are a limited number of products currently available, they cost significantly more than pyrethroid Long Lasting Insecticidal Nets (LLINs), and the data has yet to be generated to demonstrate their added value and cost-effectiveness.

NNP is co-funded by Unitaid and the Global Fund with the goal of making the latest resistance breaking net technology more widely available to malaria programmes throughout Africa. Complementary funding is also being provided by the Bill & Melinda Gates Foundation who, in collaboration with MedAccess, have entered into a volume guarantee agreement with BASF to reduce the price of the 1st available dual-AI product, Interceptor® G2.

The procurement of new nets, which also includes Royal Guard from DCT, is funded primarily by Global Fund for distribution through campaigns. The U.S. President's Malaria Initiative (PMI) are also procuring new nets with an emphasis on routine distribution following campaigns.

IVCC has created a consortium of partners to ensure the rapid deployment of new nets to a limited number of partner countries where a combination of randomised control trials in Benin and Tanzania, and pilots in several other countries seek to establish the impact and cost-effectiveness data needed for a World Health Organization (WHO) policy recommendation that would be required for scale-up.

The work of the New Nets Project will not only result in accelerated access to new nets but will also establish critical guidance to national malaria programmes.

David McGuire

IVCC is responsible for the overall management of the project, the establishment of agreements with partner countries to ensure alignment and close collaboration, and the implementation of a co-payment mechanism with manufacturers allowing countries to procure new nets at reduced price to ensure that coverage rates are not reduced.

The team will also work towards the establishment of entomological correlates to epidemiological outcomes, with the hope that this might lead to shorter times to market for future vector control products. Pilots will also be used to gather operational learnings in order to optimise future deployment of new nets. Project partners include: the London School of Hygiene and Tropical Medicine (LSHTM) who will be leading the RCTs; PATH who will lead the evidence work in the pilot studies, the Alliance for Malaria Prevention who will support the planning of multi-product campaigns in collaboration with PSI who will lead the development of operational lessons learned.

The NNP partnership also collaborates closely with Imperial College London who are developing a tool to inform decisions by malaria programmes about the optimal deployment of new nets in combination with other vector control tools.

The Liverpool School of Tropical Medicine (LSTM) is supporting the work on entomological correlates, as well as research on human behaviour impacting the acceptance and use of new nets.

Since the launch of the project in August 2018 there has been great progress. The project has signed a co-payment agreement with BASF and with DCT. Preparations are almost complete for the launch of the Benin RCT, which will provide additional data to the ongoing LSHTM study in Tanzania. MoUs have been negotiated and signed with Burkina Faso, Rwanda, Mali, Mozambique, Nigeria and Cote d'Ivoire. Nets have been deployed to Burkina Faso and Rwanda where distribution and pilot studies will begin in November 2019. Nets will be distributed in Mali and Mozambique in early 2020 followed by Nigeria and Cote d'Ivoire. The NNP steering committee has selected Ghana, Liberia, and Malawi as project countries for 2021.

NNP is an example of the importance of market shaping interventions at the early stage of product introduction. The project's work will not only result in accelerated access to new nets but will also establish critical guidance to countries as they seek to deploy the ever-growing toolbox of innovative vector control tools.

ZERO by 40

Dr. Alan Ayers
Consultant and Senior Technical Advisor
IVCC

The world has made tremendous strides in the fight to end malaria. However, eradication of this disease requires the use of effective public health insecticides and tools along with other public health interventions to control the mosquitoes which transmit this vector-borne disease.

The private, public and charitable sectors must collaborate as never before to bring innovation to development tools that can address this critical health issue.

The crop protection industry has already contributed significantly to the fight against malaria. These companies renewed their commitment to accelerate vector control innovation and join the ongoing effort by many collaborating organizations to defeat malaria.

In 2018 at the Commonwealth Heads of Government Meeting in London, the global leadership of BASF, Bayer, Syngenta, Mitsui Chemicals, and Sumitomo Chemical made their commitment official by signing a declaration to unite to help eradicate malaria by the year 2040, becoming the official founding members of ZERO by 40. In January 2019 another unprecedented meeting took place at the World Economic Forum in Davos, Switzerland, where IVCC and the CEOs of these five major research-based agrochemical companies in the world, along with Gaoning (Frank) Ning, Chair at Sinochem met again with Bill Gates to confirm and align their commitment to the ZERO by 40 efforts.

This year in July 2019 the ZERO by 40 coalition team got to work to discuss how this group would collaborate and focus on those key areas of Research and Development, as well as other efforts (regulatory policy, Integrated Resistance Management (IRM), Integrated Vector Management (IVM), stewardship and engagement) that would be needed to support these R&D efforts.

The three primary goals of the collaboration are:
- 'Stay the course' on new product development in vector control
- Sharing of know-how if it can be demonstrated doing so would help save additional lives
- Work collaboratively on selected potentially game changing intervention classes

The main objective of the ZERO by 40 coalition will be to focus on the eradication of malaria by 2040.

Based on these commitments, priorities, goals and objectives three key initial interventions were proposed for collaborative project innovation based on impact criteria:
- Extra Long Lasting Indoor Residual Sprays (XLLIRS): chosen due to its obvious impact, opportunities for innovation and growing market experience.
- Long Lasting Insecticidal Nets (LLINs): proven impact to date, low cost, market proliferation, effective use of insecticides and relative ease of deployment.
- Attractive Targeted Sugar Baits (ATSB®s): High potential for transformational impact on outdoor transmission.

The ZERO by 40 team is currently working through the governance and structure of the coalition to ensure that the team brings the most effective innovative solutions and technologies to the vector control toolbox to target mosquitoes and continually reduce transmission of malaria to ZERO by 40.

More information on ZERO by 40 can be found at ZEROby40.com.

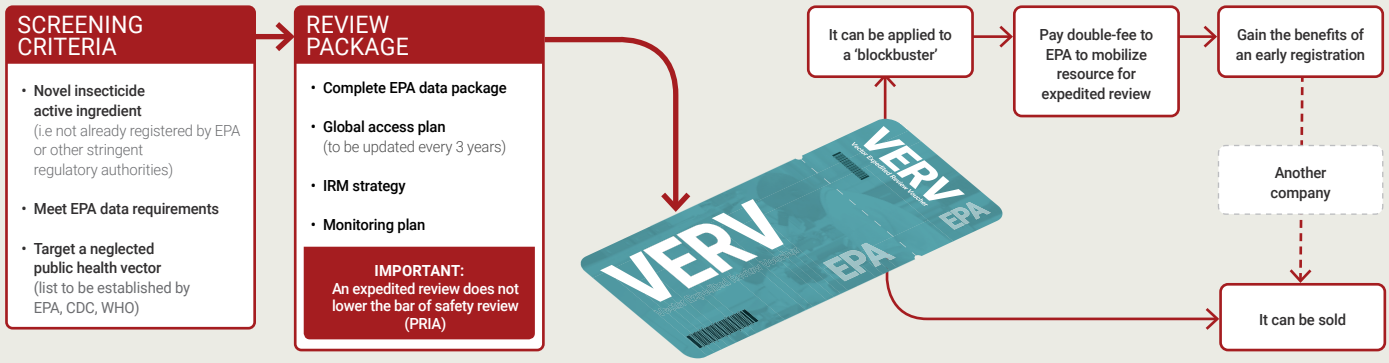
Vector Expedited Review Voucher (VERV)

A VERV has the potential to create a new incentive for manufacturers and innovators to develop novel insecticides where the market for public health insecticides does not provide an adequate return on development costs.

A VERV would reward the manufacturer of a new public use insecticide with a voucher to receive expedited regulatory review by the U.S. Environmental Protection Agency (EPA) of a second product (for agricultural use) with no sacrifices in safety or thoroughness. Getting to market faster is valuable and that speed to market acts as an incentive to invest in novel new insecticides for insect-borne diseases. Awarding a VERV would give an innovator company an opportunity to generate a financial return on another product as well as reducing the time to market of a new critically important public health tool.

VERV is modelled on the Priority Review Voucher (PRV) that has been a proven incentive for Neglected Tropical Diseases (NTDs) drug and vaccine development administered by the FDA since 2008. PRV's have been exercised by winning companies to bring a new drug more quickly to patients.

In 2019, IVCC met with industry partners, stakeholders, the U.S. EPA and others in the U.S. to review and position the VERV as an advantageous regulatory tool to expedite registration of new insecticide vector-control tools, which would improve global public health. Discussions are ongoing and we hope to initiate VERV registrations soon.



> Getting to market faster is valuable and that speed to market acts as an incentive to invest in novel new insecticides for insect-borne diseases.
>
> Dr. Alan Ayers

Using our expertise we will help improve and expand the range of vector control interventions available in the Indo-Pacific region.

Fred Yeomans

Indo-Pacific Initiative

Fred Yeomans
Project Manager
Indo-Pacific Initiative
IVCC

In 2018, IVCC received its first grant from the Australian Government's Department of Foreign Affairs and Trade (DFAT) as part of its established Indo-Pacific Health Security Initiative.

The objective of the 5-year A$18.75 million grant is to capitalise on the expertise IVCC has accrued in vector control product development and delivery in sub-Saharan Africa and apply this expertise to help improve and expand the range of vector control interventions that can help address malaria and Neglected Tropical Diseases (NTDs) in the Indo-Pacific region.

To facilitate the early preparatory work, IVCC established an Advisory Group which met twice in 2019 following an earlier visit to meet the DFAT team in Canberra in 2018. The Advisory Group, made up of regional vector control experts, has helped IVCC scope out potential Research & Development and industry partners to work with and prioritise which vector control products to test, based on impact, geographic focus and need. Underpinning these priorities was the completion of three interlinking landscaping studies - a technical, regulatory and market access study - a key early milestone of the programme delivered in May 2019.

The Technical Landscaping provides a comprehensive dataset and overview of the Indo-Pacific region, identifies the key gaps and opportunities for impact and makes recommendations on high priority products. The report includes a deep-dive analysis of the technical landscape across 6 counties: Papua New Guinea, Indonesia, Vietnam, Cambodia, Malaysia and Myanmar.

The Regulatory Landscaping maps the various routes to market for vector control tools including the registration processes and associated regulatory hurdles for the deep-dive countries. The Market Access Landscaping details the consumer market size and donor activities for vector control tools for the region. The studies have proved valuable in guiding the early progress of the project and will continue to do so as products move through the testing regimes, and registration and Market Access issues become increasingly pertinent.

Priorities and Next Steps

The project prioritisation process undertaken by the Advisory Group this year has identified two key investments to be made under this programme.

The first is to fund a partnership between the Papua New Guinea Institute of Medical Research, James Cook University and the Burnet Institute to deliver a national vector control network, strengthened national capacity to test new vector control tools and an evidence base to guide malaria prevention based on locally generated data on a suite of tools. Developing a capacity for the rapid testing and adoption of novel vector control tools in Papua New Guinea. The suite of tools likely to be tested include new Long Lasting Insecticidal Nets (LLINs), Indoor Residual Spray (IRS) including eaves and verandas, Larvicides and Spatial Repellents.

The second investment focuses on the Greater Mekong Subregion as the other key centre of activity, due to an emphasis on malaria elimination, the threat of the spread of multi-drug resistant malaria and a number of significant at-risk population groups. Here IVCC will fund University of California, San Francisco's (UCSF) Malaria Elimination Initiative and partners to test a number of bite prevention tools (treated clothing, spatial repellents and topical repellents) which are delivered by means of 'Forest Packs' to forest workers.

Focussing on this key at-risk demographic, UCSF will lead a series of semi-field, small scale field and epidemiological trials in Thailand and Cambodia, to down-select efficacious and effective products, and then explore scale-up in the use of optimised Forest Packs. Underlying these activities will be a component led by Imperial College London, modelling the impact of novel vector control tools in the Indo-Pacific, bridging from their existing work with IVCC on modelling in Africa.

A series of inspiring and thought-provoking sessions ensured that key challenges were debated and achievements were appropriately recognised.

Chris Larkin

Chris Larkin
Head of
Communications and
External Relations
IVCC

IVCC hosts 2019 Stakeholder Forum

Under the conference theme, 'Partnering for Impact', IVCC hosted its first Stakeholder Forum in three years in its home town of Liverpool on 19th September.

Ahead of the full day conference at Liverpool's Town Hall, 150 guests were invited to a very special pre-conference dinner at Liverpool's iconic Anglican Cathedral where they were able to meet and network over dinner whilst being treated to a stunning performance from mezzo soprano Jennifer Johnston, artist in residence at Liverpool's Philharmonic Orchestra.

IVCC was delighted to welcome Dr. Ruth Shakespeare, former Medical Director of the Mulanjee Mission Hospital in Malawi, as the keynote speaker. Ruth's honest and very real testimony to the challenges of dealing with malaria on the ground grabbed everyone's attention. Ruth spoke passionately about how her hospital ward can become overrun with malaria cases if there is no adequate vector control support in the local area, often with more than 70% of hospital beds being filled with children suffering from serious cases of malaria.

However, Ruth's message was also one of real hope. Following the introduction of Next Generation Indoor Residual Spraying (NgenIRS) in the area, malaria cases have fallen dramatically. Moreover, Ruth has shown how the mission hospital approach can be a model for how future IRS and other vector control initiatives can be efficiently and effectively rolled out across local community settings.

IVCC's programme for the day was filled with a series of panel discussions and presentations from a range of distinguished guests drawn from all corners of the malaria community, including funders, industry, academia and regulators. As well as valuable networking time, attendees were able to view an extensive scientific poster programme and see a demonstration of new 'smart-lite' IRS spray technology from Goizper.

A series of inspiring and thought-provoking sessions ensured that key challenges were discussed and debated and, where achievements had been made, they were appropriately recognised.

IVCC would like to thank all participants for making it's Stakeholder Forum a highly engaging and successful event.

Finance Report 2018/19

Duncan Preston
Director of Finance
IVCC

Financial Audit and Governance

Financial Governance

IVCC is a not for profit company limited by guarantee with charitable status in both the UK and U.S. The annual statutory accounts of IVCC are audited by Grant Thornton UK LLP. This ensures compliance with FRS 102, the Companies Act 2006 and the Charities SORP. IVCC benefits from shared accounting and audit arrangements with its host institution the Liverpool School of Tropical Medicine (LSTM). The LSTM research management team used by IVCC has extensive knowledge of all major funders within the sector and the expertise to comply with all external funder audit requirements.

A finance and investment committee made up of senior employees and trustees external to the organization give governance oversight on all financial operations of IVCC and meet 4 times a year. A specialist taxation service is provided by external parties to give expert advice on both UK and overseas taxation ensuring IVCC is fully compliant.

All internal audit work is carried out by RSM Risk Assurance Services LLP, part of a global group specializing in audit, tax and consulting services. RSM's remit is to provide independent and objective assurance to add value and where appropriate make recommendations to strengthen governance and control processes and identify opportunities for operational efficiencies adopting a risk-based approach. An audit committee exists to oversee all recommendations made.

IVCC received an unqualified and unmodified clean statutory audit report and no significant control issues were identified by the external auditor, Grant Thornton UK LLP.

Value for Money (VfM)

Value for money is important to IVCC and its funding partners.

Responsibility for the delivery of VfM is recognized at IVCC and LSTM by virtue of the group operating an integrated purchases and procurement function. This enables IVCC to benefit directly and indirectly from the synergies generated by this centralized procurement function.

The VfM Steering Group is responsible for monitoring the VfM programme and for driving forward the Strategy.

The VfM Strategy, approved by the audit committee has the following objectives:

- To appraise the institution's operational effectiveness and increase the efficiency and effectiveness of our systems and processes that seek to fulfil the corporate strategic plan;
- To embed the pursuit of increased efficiency and effectiveness while maintaining costs to affordable levels throughout all layers of management in the institution;
- To include a balance between economic and social factors, to help meet our sustainability aims;
- To challenge current practices and approaches in order to improve performance and position the institution to meet future challenges; and
- To apply the lessons learned from investigations and reviews in certain areas, to other areas in order to maximise the benefit of this work.

The primary focus of the Procurement team during the last 12 months has been the roll out of the new eProcurement system and delivering value through best practice. The eProcurement platform will be rolled out to IVCC in the latter part of 2019. It is anticipated that IVCC will benefit from the fine tuning and tailored software enhancements made since the platform went live in 2018. LSTM has fully transitioned onto the platform and currently places 90% of orders electronically.

In harmony with the objectives of the VfM Steering Group, IVCC is leveraging the enhanced strategic service offering of the procurement team and working in cross functional collaboration on complex procurement engagements.

FlowForma (a Business Process Management tool on the Sharepoint platform) continues to expand and evolve. New and enhanced workflows covering a wide range of departments and functions have been introduced since initial rollout as part of an ongoing cycle of process improvement. The electronic workflow has proven to be a powerful enabling tool in the implementation of new and revised processes and procedures. The workflows were initially launched for paper-based completion with the ultimate vision to achieve paperless flows introduced through subsequent updates. In 2019/20, the plan is to expand the number of paperless workflows alongside the ongoing process improvement initiatives associated with this business-critical platform.

IVCC's Portfolio Management team launched a project management tool using a CRM software application of Salesforce during the year. This has been tailored to IVCC's unique specifications and internally rebranded "VectorPath". This centralized planning and management tool is primarily used by the project delivery teams, with the added benefit of making real-time project update dashboards readily available to the wider IVCC team and informing data provided to the finance team for budget and forecasting purposes.

UK Referendum on EU Membership

On 23 June 2016, the UK voted to leave the European Union. The UK Parliament voted in favour of invoking Article 50, and on 29 March 2017, the UK Government gave the requisite notice thereby triggering a two-year process for the UK leaving the EU. In the final quarter of 2019, there remain many unknowns and uncertainties surrounding the UK's future relationship with the EU.

Brexit is a standing item considered by group management and a Brexit working group meets on a regular basis to discuss issues pertinent to IVCC. The principal risks, uncertainties and the associated mitigating controls are monitored in the context of a scenario-based risk register.

Whilst IVCC's funder portfolio continues to strengthen and diversify, an inherent key risk area specific to IVCC is currency volatility and the weakening of the pound giving rise to an increase in project costs. IVCC enters into forward currency contracts and hedging instruments to manage the cash flow exposures of foreign currency research income. It should be noted that these are medium-term instruments linked to individual grants awarded in U.S. dollars and the associated timelines. Furthermore, hedge effectiveness can be materially impacted by complex project-related and macro-economic factors. Longer term, risk mitigation is focused on ensuring that cost estimates are underpinned by realistic assumptions with respect to foreign exchange.

Other factors of potential relevance to IVCC include the following:

- The general macro-economic position and consumer confidence;
- Ability to apply for EU research and capital funding;
- The UK may experience a loss of influence over EU policy in areas such as science and public health;
- Restriction in the movement of labour across borders;
- General Data Protection Regulation (GDPR) status in the event the UK leaves the EU without a withdrawal agreement.

Financial Performance

Income for the year of £39.6m was £10.9m up from last year, with resources expended of £36.3m up by £7.5m giving a gain of £3.3m before other recognised gains and losses. During 2016/17 IVCC started hedge accounting under FRS 102 in relation to forward contracts and this continue during 2018/19.

	2019/20*	2018/19	2017/18	2016/17	2015/16
Income	£40.85m	£39.64m	£28.50m	£20.81m	£18.58m
Expenditure	£39.43m	£37.29m	£28.86m	£19.16m	£18.28m
Surplus/(Deficit)	£1.42m	£ 2.35m	£(0.36m)	£1.65m	£0.30m

*forecast numbers

The statement of financial activities reflects an amount of £0.9m of foreign exchange loss which has been taken to the hedging reserve and £0.2m foreign exchange loss taken to expense in the year. This compares to the previous year with total foreign exchange loss of £0.1m of which £0.4m was taken to the hedging reserve.

A total of £27.3m was spent on direct charitable project activities (2018 : £21.7m) with a further £2.8m paid out on project activities undertaken in-house. Core administration support costs of £5.9m (2018 : £5.1m) were also incurred in the year.

Income from charitable activities in 2018/19 was originally budgeted at £36.3m (2018/19 actual - £36.0m) and represents growth on prior year actual income of 25% (2017/18 actual - £28.7m). Total income from charitable activities in 2018/19 is in line with budget. The composition of the income associated with the underlying projects is subject to compensating budget variances as a result of the decisions taken at portfolio and project level on a rolling basis. The growth in income achieved was planned and generated by a combination of new grants awarded in 2017/18 and an acceleration in the rate of utilisation of established grants as key projects in IVCC's portfolio enter the more costly development phases.

It is forecast in 2019/20 that income from charitable activities will increase by £4.5m to £40.8m. The key driver of this growth is the evolving and phased resource requirements of IVCC's portfolio of committed projects. It is assumed that 2019/20 income will be sourced through existing funder awards.

Other income of £3.4m comprises a release of the cumulative net overhead contribution generated by IVCC through its grant activities. This is the result of a decision by management to re-designate the net contribution as uncommitted funds driven by IVCC's active treasury management and ongoing sustainability assessment.

Reserves policy and going concern

Unrestricted reserves of £5.5m (2018: £2.3m) are used to finance activities currently out of scope with existing funders, but within the overall mission and objectives of the organisation. IVCC aligns with the group policy of ensuring that unrestricted reserves represent a minimum of 6 months' pay expenditure.

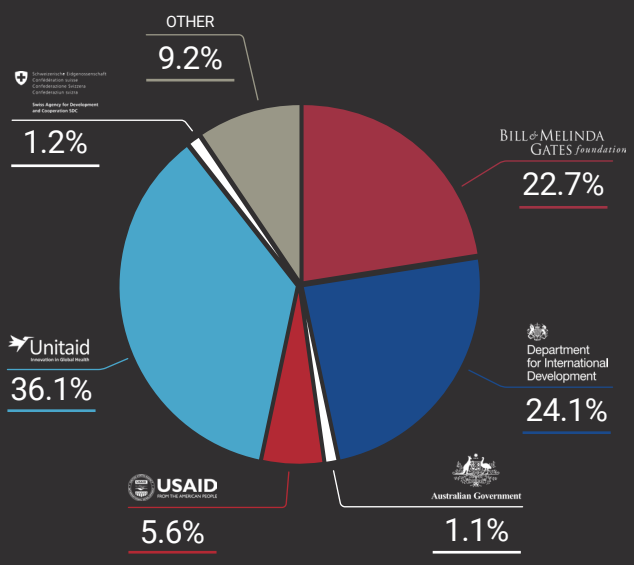
No contract is entered into unless it can be fully resourced from beginning to end; this includes staffing contracts, partner contracts and all contracts in the supply chain.

IVCC has a healthy bank balance of £45m comprised largely of advanced grant funding from its partners, no loans outstanding and a strong, well balanced portfolio of active grant agreements.

Being part of the wider LSTM group gives IVCC enhanced security in the event of any future cash flow issues, or financial difficulty that may arise. The organisation and group benefits widely from this synergistic relationship in terms of high quality shared services, scientific resources and knowledge.

Investments

IVCC continues to adopt a conservative investment strategy using a combination of money market deposits and secure U.S. government and corporate bonds, in line with current unsettled market conditions. Consequently, returns are modest on both the sterling and dollar funds held. Interest received during the year will be used to fund future project activity.



BMGF provided 22.7% of the charity's income in the year, down from 27% in 2017/18 which is a measure of growth in the overall grant funding base.

IVCC continues to diversify its funding base to provide a stable platform from which to deliver its mission. Funding from DFID as a proportion of the charity's total income has reduced from 27% last year to 24.1% in 2018/19. In absolute terms, DFID funding has increased from £8m in 2017/18 to £9.6m in 2018/19 therefore the reduction in proportion is due to an exceptional year of Unitaid income and activity due to it being the final full year of activity on the NgenIRS project coupled with the first full year of project activity on the New Nets Project.

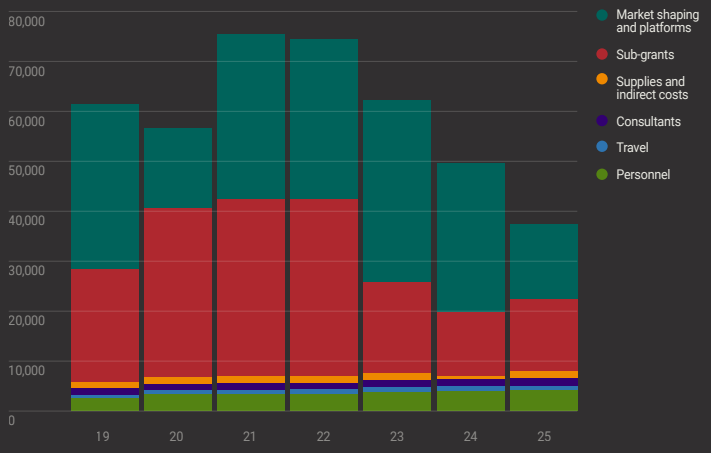
The contribution from Unitaid for work on the NgenIRS programme and the New Nets Project was the largest aggregate funder contribution (36.1% of funded activities in the year). This money is ring fenced for specific implementation work on these market intervention projects and includes the cost of planned co-payments on orders placed with IRS and net manufacturers. As an indication, the 2019/20 budget allowed around £6.8m for co-payments across the Unitaid projects.

The remaining 16% of income was split 5.6% USAID, 1.2% SDC and 9.2% from other sources, including bank interest, foreign currency fluctuations and £3.4m of other income representing the release of cumulative net overhead contribution generated by IVCC through its grant activities.

It is forecast for 2019/20 that the contribution from BMGF will account for around 30% of the total funding received, with Unitaid at 48%, DFID at 14%, USAID 4% with other income including funding from SDC and DFAT making up the remainder.

Funding Requirements 2019-2025

Predictive model of IVCC Expenditure to 2025



Forecasting long term funding and income scenarios enables IVCC to manage its product portfolio more effectively. It provides a base analysis for fundraising activities aimed at financing the portfolio in line with latest projections, operational updates and provides a framework for negotiation with recipients of IVCC sub-awards and generation of updates to key stakeholders including IVCC's funding partners.

All this work will only be possible if IVCC continues to receive financial and holistic support from its partners. During this financial year, IVCC has signed the following new grant and cooperative agreements:

- $66M from Unitaid to lead a market-based intervention project for Long Lasting Insecticidal Nets (LLINs).
- $3.1M awarded by The Bill & Melinda Gates Foundation to supplement Unitaid's New Nets Project.
- £2.5M from the Swiss Confederation (acting through the Swiss Agency for Development and Cooperation) by way of a core contribution under a grant funding agreement.

As reported in last year's financial review report, by Q1 2018/19, IVCC had completed an intense period of grant renewal arrangements with its principal funders and introduced a new recipient, the Australian Government operating through its Department of Foreign Affairs and Trade (DFAT).

Accordingly, the latter half of 2018/19 has been a relatively quiet financial period in the grant renewal cycle with an emphasis on the establishment and integration of new and existing grant awards. Significant planning and preparatory work has already commenced on the next BMGF grant proposal.

New Starters 2018 / 2019

Dr. Derric Nimmo
Senior Technical Manager

Derric manages the IVCC technical team and portfolio, evaluating new active ingredient and innovative vector control tool. With 25 years' experience in molecular entomology and field research of insect vectors of disease, he is motivated by the practical application of tools for vector control to make a real difference in people's lives.

Ingrid Etoke
Market Access Manager

Ingrid develops and oversees market access plans reaching from the late stages of product development to establish implementation and optimal impact, working with manufacturers, intervention funders and country implementation teams. Her experience with GlaxoSmithKline and Sanofi have solidified the experience required to support projects such as NgenIRS, New Nets Project and VectorLink.

David Worrall
Group Legal and Intellectual Property Adviser

David provides advice and support to the IVCC team on all matters with a legal, contract or intellectual property element. His LLB (EC) and LLM in European and International Trade Law position him perfectly to advise on various contracts within IVCC's successful product development partnership.

Leonora Smedley
Portfolio Finance Manager

Leonora's role involves providing professional and strategically focussed accounting and management support. As a fully-qualified accountant, she is able to act as a dedicated finance contact to IVCC and the diverse network of internal and external stakeholders.

Christina Berry-Moorcroft
Communications Officer

Christina leads the communications for New Nets Project and ZERO by 40 and contributes to the wider communications portfolio, with an emphasis on digital media. Christina has worked in the philanthropic sector for a decade, across the UK and sub-Saharan Africa, specialising in communications and campaigns. She also sits on the board of trustees for a refugee charity.

Andrew Saibu
Africa Regional Coordinator

Andrew's key responsibilities are to provide coordination, oversight and day-to-day management of country-level engagement for NgenIRS and New Nets Project. His previous roles include positions with Abt Associates, Catholic Relief Services and RTI International.

Dr. Stephania Herodotou
Analytical Chemist

Stephania's role consists of the development and evaluation of analytical surface chemistry techniques. She graduated with a PhD in Materials Science and Engineering which developed her into a materials scientist with speciality in materials characterisation.

Funding Partners

Thank you to our generous funders, whose partnership makes life-saving vector control possible.

The Bill & Melinda Gates Foundation and IVCC are a long-standing partnership. The foundation works to tackle critical problems worldwide through building partnerships across the globe. The Global Development Division seeks to help the world's poorest people help themselves in alleviating hunger and poverty, harnessing advances in science and technology to save lives in poverty-stricken areas in the world. The foundation emphasises collaboration, innovation, risk-taking and results, which fits precisely with IVCC's mission and achievements. The foundation recognised the urgent need for new vector control tools to fight malaria and other insect-borne diseases and supported the establishment of IVCC as a product development partnership to make it happen.

Ukaid is the public face of the Department for International Development (DFID), which is the UK government department with a mission to promote sustainable development and eliminate world poverty. DFID aims to halve the number of people living in extreme poverty and hunger, combat HIV, AIDS, Malaria and various other diseases, and build partnerships across the world to support development. DFID's partnership with IVCC has provided a substantial boost to the practical task of developing effective vector control approaches, such as insecticidal treated nets, that have substantially reduced child and maternal deaths and the overall incidence and death rate from malaria.

The Australian Government's Health Security Initiative for the Indo-Pacific region, launched by the Minister for Foreign Affairs on 8 October 2017, contributes to the avoidance and containment of infectious disease threats with the potential to cause social and economic harms on a national, regional or global scale. With funding of AU$300 million over five years from 2017, the Health Security Initiative aims to inform evidence-based planning, help prevent avoidable epidemics, strengthen early detection capacity, and support rapid, effective national and international outbreak responses.

Unitaid is engaged in finding new ways to prevent, treat and diagnose HIV/AIDS, tuberculosis and malaria more quickly, affordably and effectively. It turns gamechanging ideas into practical solutions that can help accelerate the end of the three diseases. Established in 2006 by Brazil, Chile, France, Norway and the UK to provide an innovative approach to global health, Unitaid plays an important part in the global effort to defeat HIV/AIDS, tuberculosis and malaria, by facilitating and speeding up the availability of improved health tools, including medicines and diagnostics. Unitaid funds the IVCC NgenIRS market interventions programme to address factors hindering wide-scale use of new resistance breaking insecticides.

The Global Fund is a 21st-century partnership organization designed to accelerate the end of AIDS, tuberculosis and malaria as epidemics. Founded in 2002, the Global Fund is a partnership between governments, civil society, the private sector and people affected by the diseases. The Global Fund raises and invests nearly US$4 billion a year to support programs run by local experts in countries and communities most in need.

USAID is the leading US Government agency, which works to eradicate extreme global poverty, and allow for resilient, democratic societies to realise their own potential. USAID's mission seeks to promote economic prosperity, protect human rights, provide humanitarian assistance in all disasters, strengthen and promote democracy and improve global health.

The Swiss Agency for Development and Cooperation (SDC) is Switzerland's international cooperation agency. SDC's humanitarian aid seeks to reduce global poverty through a variety of methods. This is promoted through fostering economic self-reliance and state autonomies, finding solutions to environment problems, problems in regards to access to education and basic healthcare, and enabling access to resources and services to the greatest number of people. SDC's support to IVCC acknowledges that many of the poorest countries in the world suffer from endemic malaria, which not only kills and incapacitates large numbers of people, but also seriously damages economic development.

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