vector control saving lives

IVCC ANNUAL REPORT 2013/14

IVCC

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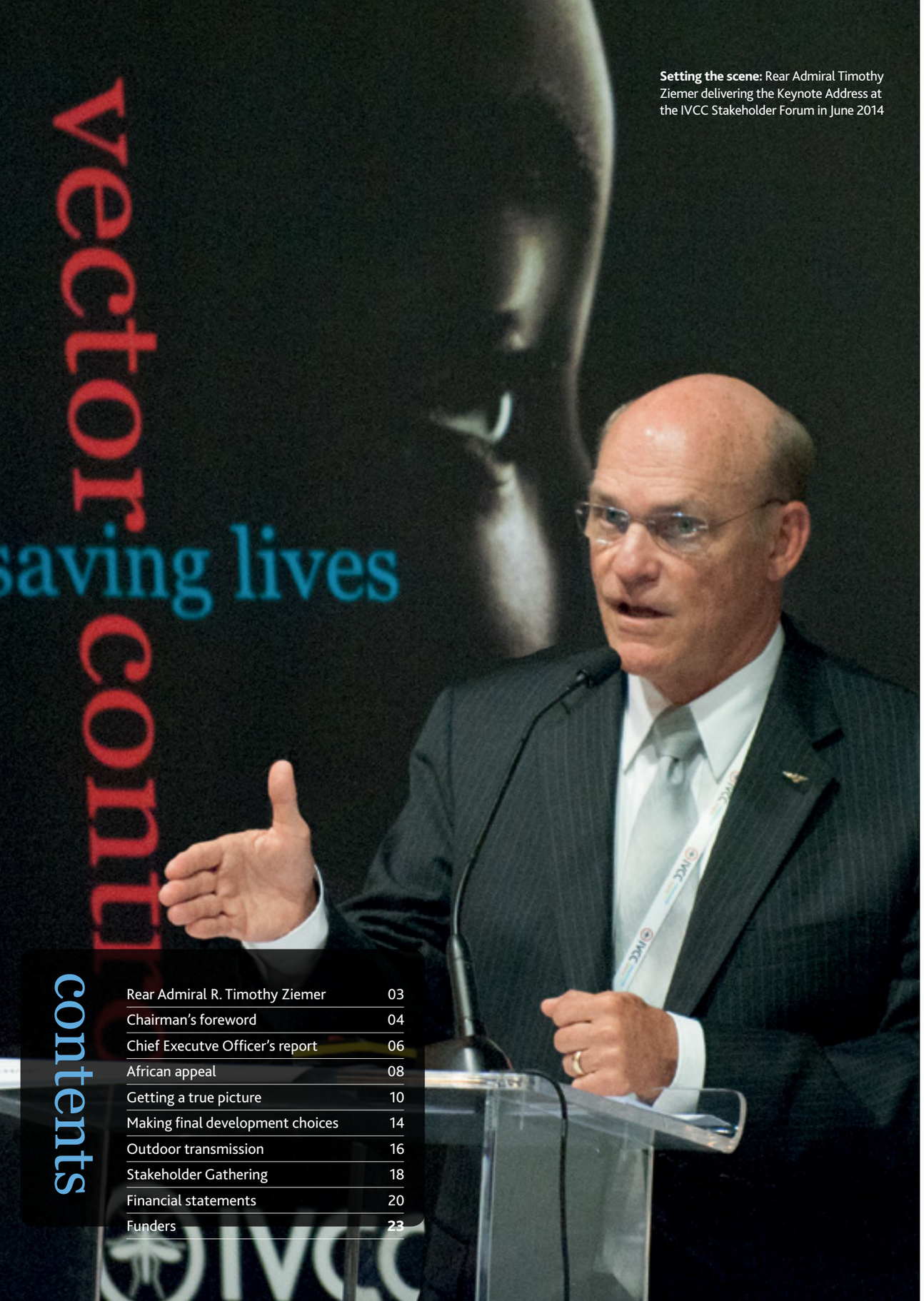

Setting the scene: Rear Admiral Timothy Ziemer delivering the Keynote Address at the IVCC Stakeholder Forum in June 2014

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Deliverables

Investments in IVCC are beginning to bear fruit

Rear Admiral
Timothy Ziemer
President's Malaria Initiative

I am pleased to introduce the 2014 annual report for the IVCC. This international public-private partnership to foster research and development of new vector control products for public health is particularly exciting because it offers value for money in a high-risk, high reward, and highly technical field. This report features programs, innovations, compelling research, and the promise of new tools, including new insecticides and insecticide formulations, to end deaths from malaria.

IVCC brings together a unique blend of pioneering entrepreneurs, scientists, researchers, public health experts, and investors —all committed to developing innovative tools and strategies for vector management. The global malaria community is not going to be able to achieve malaria control and elimination without a mechanism like IVCC to facilitate development of new vector control tools and products.

Vector-borne diseases have plagued humanity for millennia, and half of the world's population still is at risk from malaria. Even today, a single mosquito bite can lead to serious illness or even death. In the middle of last century, malaria was largely controlled in many endemic countries through intensified vector control programs. However, malaria in these countries re-emerged due to a combination of decreased investment in vector control and emergence of resistance to commonly used insecticides.

The success of the IVCC is crucial to avoid repeating these past mistakes. In most U.S. President's Malaria Initiative (PMI) focus countries, we are seeing confirmed resistance to pyrethroids, the only class of insecticide currently available for use on insecticide-treated mosquito nets. While there are three additional classes of insecticides currently available for indoor residual spraying, if mosquitoes become resistant to those insecticides, the efficacy of our interventions will be compromised.

Therefore, we must all be diligent in identifying and monitoring mosquito resistance to insecticides so that the most effective prevention measures we have today are not undermined. In addition, we must support work toward the development of novel vector control products and tools. PMI, with other partners, are invested in IVCC's goal to advance three insecticide candidates to the final stages of development by 2019.

Tackling these strategic challenges is a top priority for PMI, and investments in IVCC are beginning to bear fruit. The first IVCC supported long-lasting, non-pyrethroid IRS formulation, Actellic CS, was brought to market in 2012 and almost immediately began to be utilised in PMI supported indoor residual spraying programs. By the end of 2014, PMI will have supported spraying with Actellic CS in eight countries. Results to date are encouraging, showing up to nine months of residual efficacy for this organophosphate insecticide – further reconfirming the extreme value of the contributions that IVCC is making in bringing to market needed new vector control tools.

At the same time, PMI partners with IVCC on other important priorities including policy, evaluation, and regulatory reform for insecticide based products. Efforts are currently focused on preparing a regulatory landscape so that once new products are identified, the next steps – of evaluation and roll out – can be expedited. And when new classes are introduced, it will be critical to generate stakeholder buy-in to use the products rationally, rotating them as appropriate, to protect their effectiveness. Partnering on these issues benefits PMI, countries supported by PMI, and the global malaria community at large.

The US government's partnership with IVCC is central to global efforts to accelerate progress in malaria control and elimination. With the commitment, determination, and competence of product development partners like IVCC, PMI and the global malaria community are seeing more promising products in the pipeline than we ever have before. For an investor, that represents an exciting deliverable.

The global malaria community stands within the reach of achieving the goals that we once thought were unimaginable: ending deaths from malaria and then eliminating malaria from the globe. It is critically important that we build on this momentum.

Rear Admiral R. Timothy Ziemer, USN (ret)
U.S. Global Malaria Coordinator
President's Malaria Initiative

The US government's partnership with IVCC is central to global efforts to accelerate progress in malaria control and elimination.

Chairman's foreword

Filling the gap

The year has been one of great progress for IVCC on several fronts.

First and most importantly, as a result of the hard work and outstanding guidance of our Expert Scientific Advisory Committees (ESACs)—bringing together a group of independent scientists of the highest calibre—we will be able to select three lead chemical molecules for further development to produce the three new malaria mosquito control products that are needed to overcome the great threat of resistance to current technologies.

The ability to make this selection results from our cooperation with industrial partners such as Bayer, Sumitomo and Syngenta who have worked closely with our ESACs to identify these novel active ingredients—each with a different mode of action.

On the funding front, we have also made great progress. Whilst initial funding was based on the vision and generous grants from the Bill and Melinda Gates Foundation, the success of IVCC's work has attracted additional funding from the UK's DFID, USAID, the Swiss Agency for Development and Cooperation, and the Wellcome Trust.

None of this would have been possible without the support of industrial partners who have not only given IVCC access to their chemical libraries, but have also made available working space for IVCC funded researchers, as well as critically diverted key scientists from their own commercial operations to work on the development of new products.

These products are absolutely vital in the fight against malaria, but the public health market in which they will be deployed is far too small, and potential sale prices too low, to allow stand-alone commercial development of these products.

Without the unique partnership of the IVCC bringing together philanthropic and public funding, independent scientific input and far-sighted corporate commitment, such developments would not have been financially possible.

But the work is not over yet. With continued commitments of all partners there still remains a financial gap to be filled in order to bring these new products through the final stages of regulatory testing.

The work is not yet over. With continued commitments of all partners there still remains a financial gap to be filled in order to bring new products through the final stages of regulatory testing

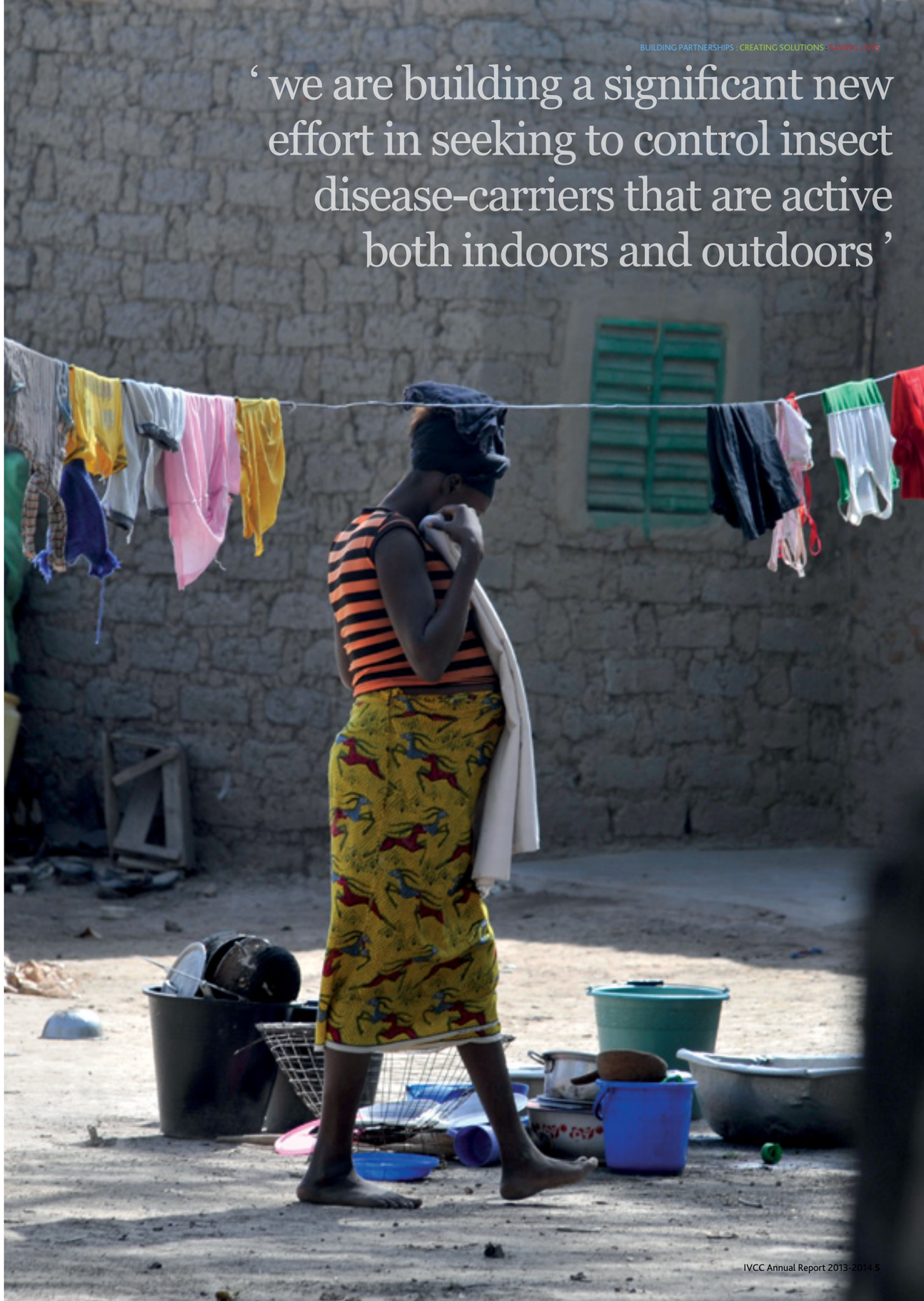
This coming year, the challenge will be to fill this gap through discussions with new funders. Our aim is to develop mutually beneficial relationships with farsighted companies working in malaria-endemic areas, who seek to protect their workers and families, as well as customers and the communities in which they live. Alongside existing funders and partners, these new additions will help further the hard work IVCC is putting into the eradication of malaria.

At the same time, we have to work with all concerned to accelerate the regulatory process through which these products must necessarily pass before they can be launched into the field. For this, we are extremely lucky and honoured to have Lois Rossi join us to help IVCC and our partners on our regulatory journey.

In addition to this stream of work, we are building a significant new effort in seeking to control insect disease carriers who are active both indoors and outdoors, and at varying times during the day. This means that insecticide bed nets can only provide so much protection, which is a major challenge to our cause as it will require more ingenuity to develop our three new products. This will involve a new means of making such products effective, as well as other forms of protection such as baits and repellents.

Lastly, I would like to thank the committed work of the small but dedicated IVCC staff, as well as the scientists of our ESACs, our partners and their equally dedicated scientists, and the scientists at the Liverpool School of Tropical Medicine who act as hosts for IVCC. Without the dedicated contribution of all of these, our work would not be possible.

Sir Mark Moody Stuart
Chairman, IVCC



‘ we are building a significant new effort in seeking to control insect disease-carriers that are active both indoors and outdoors ’

‘ we are working with BMGF and other stakeholders to reduce time to market, saving lives in the process ’

IVCC can only deliver its mission with the support of all its partners; industry, innovation funders, ngos, government organisations and academics

Nick Hamon
CEO’s Report

On track

Delivering the mission is the next stage

2014 has truly been a transition year for IVCC. We are on track with our partners to deliver three novel designer insecticides to the public health market. We have seen the success of long lasting, repurposed insecticides for areas of high resistance, and dual action bed nets will be available in the 2015/2016 timeframe. IVCC’s Disease Data Management System and Insecticide Quantification Kits are being incorporated into a number of intervention programs and our pilot on Serious Gaming for vector control decision-making is showing great promise.

IVCC can only deliver on its mission with the support of all its partners; industry, innovation funders as well as NGOs, government organisations and academia. In 2014 we saw a significant broadening of our funder base to include USAID, Department of International Development (UKAID), Swiss Agency for Development and Cooperation (SDC), as well as continued and much valued support from the Bill and Melinda Gates Foundation (BMGF).

This is a great opportunity to thank all of our innovation funders for recognizing the importance of the IVCC mission and partnering with us to deliver new and effective tools and diagnostics for the vector control toolbox. We need our partners to stay the course and help us to cross the finish line, putting new tools in the hands of those that desperately need them. Our objective is to over-deliver on the promises we make to our funders, and so we are pleased to have Mathias Mondy join the IVCC team in the role of Project and Business Resources Manager. We are creating a project management system that will reduce complexity and improve transparency.

Our goal is to accelerate the discovery and introduction of new vector control tools by encouraging a vibrant marketplace for ideas in vector control. This year the Gates Foundation have asked IVCC to work more closely with them on finding solutions to controlling the transmission of malaria through outdoor biting mosquitoes, an initiative we are calling Mind The Gap. In August we published a call for proposals and have sufficient funding to support a select number of proof of concept programs. We hope to identify a handful of high probability of success, short time to market, high impact technologies that are at or slightly beyond the proof of concept stage.

The new generation of indoor residual spraying products developed by our partners Syngenta and Bayer have started to achieve registration and reach the marketplace where early indications of real world epidemiological impact show great promise. However, as is often the case for public health interventions, uptake is slow and market dynamic barriers pose the risk of limiting coverage with these products. IVCC is working with the President’s Malaria Initiative and the Global Fund, the major funders and implementers of IRS, to overcome the market issues and accelerate adoption of these lifesaving products.

Today it could take 12 years to bring a new insecticide through development, registration and approval and into the market place. In an initiative called Innovation to Impact (I2I), IVCC is working closely with BMGF and other stakeholders to hopefully reduce the time to market to a more respectable eight years, saving lives in the process.

To help with this we are pleased to have brought on-board Lois Rossi, an experienced regulatory executive, to help us and our partners navigate the regulatory pathway and find efficiencies. We are asking all stakeholders to play their part in getting new tools into the hands of the intervention community. Innovation funders need to deliver the necessary funding pipeline, regulators need to help us harmonize and accelerate the regulatory pathway, and industry must put the highest priority on getting new chemistry to market and managed in a way that optimises portfolio performance whilst reducing the risk of developing resistance.

So, what might be achievable if we can truly work in a partnership? Public health innovators will get a more stable and predictable market and supply chain, with reduced financial and operational risks, innovation funders and control programs will experience accelerated delivery and implementation, optimised portfolio performance, reduced risk of resistance, and ultimately, end users will see reduced transmission, improved quality of life and many lives saved.

Dr Nick Hamon
Chief Executive Officer, IVCC

African appeal

Dr Ambrose Talisuna brings a malaria endemic country perspective on IVCC's steady progress towards delivering new vector control tools

I attended my first meeting of IVCC's External Scientific Advisory Committee (ESAC) in June 2014, joining a multi-disciplinary group of highly talented chemists, epidemiologists and malaria experts. My role on ESAC is to bring a perspective from malaria-endemic countries to facilitate the design of a demand-based IVCC portfolio.

Many malaria-endemic countries are worried that the global economic downturn since 2008 might result in decreased funding for their programs. This is irrespective of their current malaria control context and ambitions. In reality, to maintain the fight against malaria, funding needs to increase.

During the late 1990s, a 'one size fits all' technical approach for malaria control was adopted in response to the malaria 'epidemic'. This approach, however, no longer appears to be the most efficient use of funding. It is likely to prove unsustainable, particularly as future funding for malaria remains uncertain and threats such as drug and insecticide resistance become real.

Malaria endemic countries are therefore likely to require significant increases in funding as resistance to current malaria control tools increases and new and potentially more expensive tools might be needed.

IVCC is playing a critical role in bringing new vector control tools into action, and needs support in this noble effort. Vector control, parasite prevention and treatment remain major tools in malaria control and elimination.

As IVCC grows and new products and tools emerge from its product portfolio, there will also be a need to establish mechanisms to quickly support the adoption and delivery of new products, including new solutions for dealing with outdoor transmission of malaria. This will ensure that new products do not suffer undue delays in reaching the populations at risk in malaria endemic countries. With the availability of new tools and innovations, malaria-endemic countries are likely to maximise value for money through more intelligent targeting of the appropriate interventions.

IVCC is the best placed product development partnership (PDP) for the development of new public health insecticides, and will dramatically help malaria endemic countries to be ahead of the evolutionary path of disease-causing vectors that are developing resistance to current public health insecticides.

In recent decades, the scale up of malaria control and interventions, including IVCC's work on vector control, has contributed in a broader shift in the malaria epidemiology and transmission intensity across the world, more specifically in Africa.

This changing epidemiology and transmission of malaria has resulted in diverse ambitions; some countries are aiming at total elimination, for others elimination may not be currently feasible due to technical, operational or financial circumstances as they must first sustain the path for impact in order to reduce the disease burden from high to low levels.

As malaria programs globally contribute to developing comprehensive pictures of control efforts, data generation and sharing across countries will be extremely valuable to respond to emerging opportunities, challenges and threats within national boundaries and beyond.

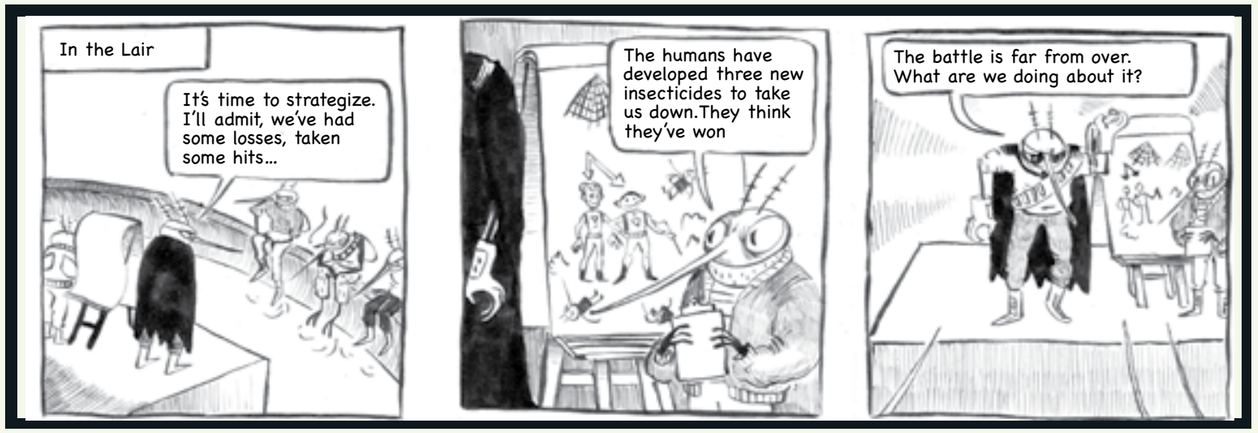
Presently, one of the biggest threats for malaria vector control and elimination is insecticide resistance—the threat that IVCC in particular is working towards removing.

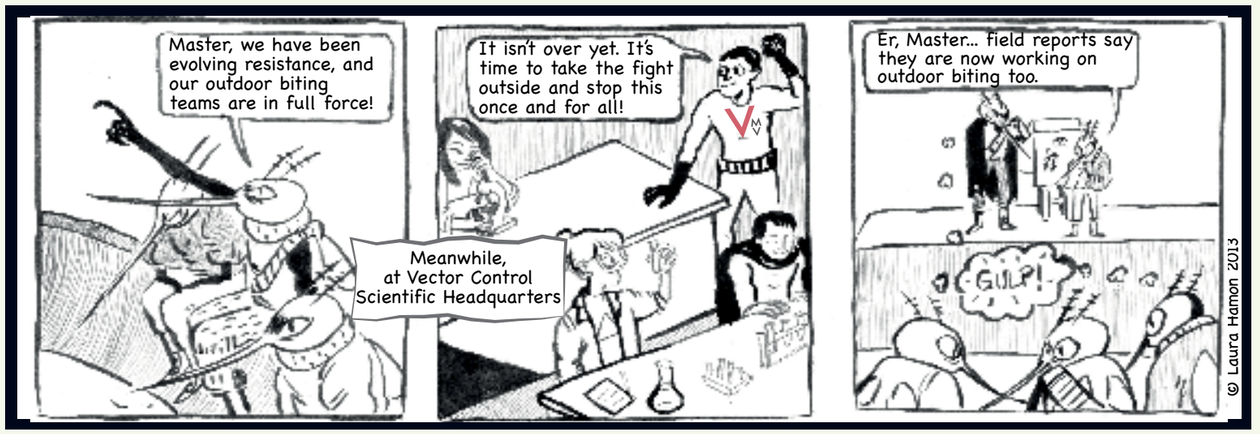
In 2012, the World Health Organization (WHO) estimated over 45 countries have identified resistance to at least one of four classes of insecticides currently approved for public health use. Without swift action in developing new vector control tools and technologies, the advances we have made in malaria endemic countries could be reversed in just a couple of years.

Thanks to the IVCC, this threat could be averted. We appeal to current and future funders to continue to support IVCC. The evidence we have of the PDP models succeeding in an environment of market failure in the development of new tools and products, suggests that IVCC is making keen steps closer to the complete eradication of malaria.

STAKEHOLDER ENGAGEMENT: Ambrose Talisuna (right) at the IVCC Stakeholder Forum in discussion with George Jagoe (MMV)

Professor Mozzie





Want to know more? Watch the 'What is Vector Control' video at www.IVCC.com

Getting a true picture

IVCC tests its new products as soon as possible, preferably in an African setting where they are designed to make a difference

Dave Malone
Technical Manager

In July 2014, Bill Gates and Sue Desmond-Hellman (CEO of the Bill and Melinda Gates Foundation) visited IVCC's field trial site in Moshi, Tanzania. This was an exciting time and an important opportunity to showcase the importance of vector control in the fight to eradicate malaria.

The visit highlighted IVCC's work in vector control product development and the way field trial sites are an essential element in making sure new products work effectively against resistant mosquitoes.

It was encouraging to see how both visitors were genuinely interested in what was going on. They understood the unique role vector control has played in the substantial reduction in malaria deaths over the last decade, and its crucial importance in a future malaria eradication programme.

Field sites have always been a vital part of IVCC's product development process. As African mosquitoes increasingly develop resistance to all current public health insecticides, good data from field sites is an essential element in the scientific battle to develop new insecticides to combat malaria.

The work of field sites was vital to the recent success of Bayer's K-Othrine Polyzone and Syngenta's Actellic CS, both now available to malaria control programmes. IVCC trial sites are a key component in the development of new insecticide treated bednets from BASF and Sumitomo, which will be available soon.

An important element of field sites are insectaries where mosquitoes are cultivated, and experimental huts where new insecticides and bednets can be tested against both wild and laboratory reared mosquitoes. Through this form of testing, IVCC can discover if new products are capable of controlling resistant mosquitoes in natural conditions.

Testing in Africa is essential. Ultimately a true picture of how the product is likely to work can only be seen when it is applied against real mosquitoes in the African setting in which it is expected to work. This allows researchers to evaluate the effectiveness of the product within specific malaria endemic locations, each with its unique characteristics.

Trial sites are able to control lots of variables, ensuring that excellent data about the product under development can be fed back directly to the developers. This is efficient in both cost and time.

The process is not, however, without complications. For example, there are logistical challenges of getting equipment and materials to people in remote places. This needs advance planning.

Another challenge comes from the mosquitoes themselves. Mosquitoes don't behave exactly as developers and researchers would like. Fluctuating populations mean that sites that expect high populations don't always get them for testing. This is one reason IVCC has not created its own field sites—by using a variety of independent field sites already in place, IVCC has more options.

> Ultimately, you only get a true picture of how a new product is likely to work against real mosquitoes in an African setting

FIELD WORK: discovering how insecticide resistance is tested in the field at IVCC's trial site in Moshi, Tanzania. (l to r) Raphael N'Guessan, Bill Gates, Mark Rowland, Sue Desmond-Hellman, Frank Mosha

Reliable data is essential to IVCC's development porfolio. The emphasis on development and not simply interesting research sets apart the product development approach of IVCC from a purely academic model. IVCC needs the discipline of working to strict protocols to develop products that work effectively and conform to a precise design.

New products have to be safe for the environment and humans, and they have to work in the field. Collecting reliable field data demands good laboratory practice in line with the best industry standards. IVCC's industrial partners need good field data to confirm the effectiveness of the products as they work imaginately and creatively to develop them.

IVCC works with field sites to train staff and develop professional standards. This also helps field sites develop and grow. According to vector ecologist Abdoulaye Diabate, who is based at the IRSS/Centre Muraz trial site in Burkina Faso, one of the benefits of working with IVCC is the way it helps build a critical mass of scientists locally.

'IVCC's involvement facilitates a local team of African scientists with unique expertise that can be found in few places across Africa,' he said. 'It also empowers us, by supporting human resources and equipment acquisition.'

Without the support and funding of IVCC's partners, this work would not be possible. IVCC's long-standing commitment from the Bill and Melinda Gates Foundation, amongst others, supports the field site programme and makes their future secure.

There are improvements to be made in the way field-site testing is developed and IVCC has taken steps towards improving data quality, but it is a long journey and there is still some way to go. Although the testing methods we use are valid, big questions still remain to be answered with regard to experimental design.

Looking at the bigger picture, IVCC may need to extend its network of field sites, not only in Africa but also in South America, South-East Asia and Australasia. This will require more staff and more resources targetted at field site testing.

The IVCC field trial sites have proved their worth in the vector control products that have been developed so far. The feedback they provide underpins the momentum of innovative products in the pipeline. They are essential to everything that we do.

It’s in the net

Bednets can mean the difference between life and death for a family in Africa. The protective shield of insecticidal bednets has saved over a million lives in the past 10 years. Millions of people have avoided getting sick.

Better diagnostics and improved drug treatments for malaria have also helped, but stopping people getting bitten in the first place has an immeasurable value. Prevention is better than cure.

The protective shield that bednets provide for people sleeping under them wouldn’t be nearly as effective without the insecticide in the net. This not only kills malaria-carrying mosquitoes, it also deters them.

When high numbers of nets are used in a community, the reduction in the numbers of mosquitoes also means that all members of a community benefit from some protection regardless of whether they’re under a net.

Over the past 9 years, world leading scientists, funders and industrial partners have been working with IVCC to find ways to keep the protective shield effective.

Together with our partners we have developed new bednets with longer lasting insecticides, and bednets with a combination of insecticides that help combat insecticide resistance. We have also developed better insecticides for indoor residual spraying.

A new generation of anti-malaria insecticides will start full development in 2015. These will be the first new public health insecticides in over 30 years. It is an investment that has been long overdue. It will mean bednets and indoor residual spraying will continue to save lives and protect health into the future.

The ultimate goal is malaria eradication. Together with our existing partners, and new funders, we intend to get it ‘in the net’.

Robert Sloss
Portfolio Manager

The high level of commitment and support that IVCC has received from its industry partners has been invaluable

Making final development choices

New active ingredient projects are reaching a critical and exciting phase within their predicted timelines

IVCC continues to make excellent progress towards delivering the three product development goals we set ourselves in 2005.

- Developing three new and different mode of action insecticide active ingredients.
- Ensuring all the WHOPES approved insecticide classes had long-lasting IRS formulations, testing and developing any suitable re-purposed active ingredient
- Delivering at least one insecticidal net that contains an insecticide that is not a pyrethroid.

We are reaching a critical and exciting phase with our new active ingredient projects. Within the next 12 months we and our industrial partners (Bayer Sumitomo and Syngenta), will select the compounds for final development with their backups.

All three of our new active ingredient projects are at this stage and the exciting thing is that, in each project, we have choices to make.

The projects are reaching this milestone within their predicted timelines, which, considering the complexity of the task to find new active ingredients that kill insects by contact, are unaffected by known resistance mechanisms, are safe to humans and the environment, can easily be formulated into bed nets and IRS products is an achievement the industry can be proud of.

The next development phase is the most expensive and possibly the highest risk phase as our partners develop the regulatory package for the compounds, develop the manufacturing processes, ensuring the formulations can deliver the efficacy needed. This all needs to be done at an acceptable cost.

In the end, the only statistic that matters is the number of lives that these products have and will continue to save

The fact that we have compounds to choose from as well as alternative classes of chemistry gives us the confidence that three new active ingredients will be available for vector control between 2020 and 2022.

Another exciting milestone has been the implementation of new insecticide formulations being in the battle against malaria.

Syngenta's Actellic CS and Bayer's K othrine polyzone, developed in partnership with IVCC, achieved WHOPES recommendation in 2013 and are now being used to augment existing vector control tools. This means that longer lasting IRS formulations covering different insecticide modes of action are available to malaria control programmes in line with one of our original objectives.

IVCC is currently working with BASF and Sumitomo to bring more new formulations into the market for vector control to combat insecticide resistance. With BASF we are working on two products based on chlorfenapyr, an entirely new mode of action insecticide for vector control, although it has been registered for crop protection applications for some time.

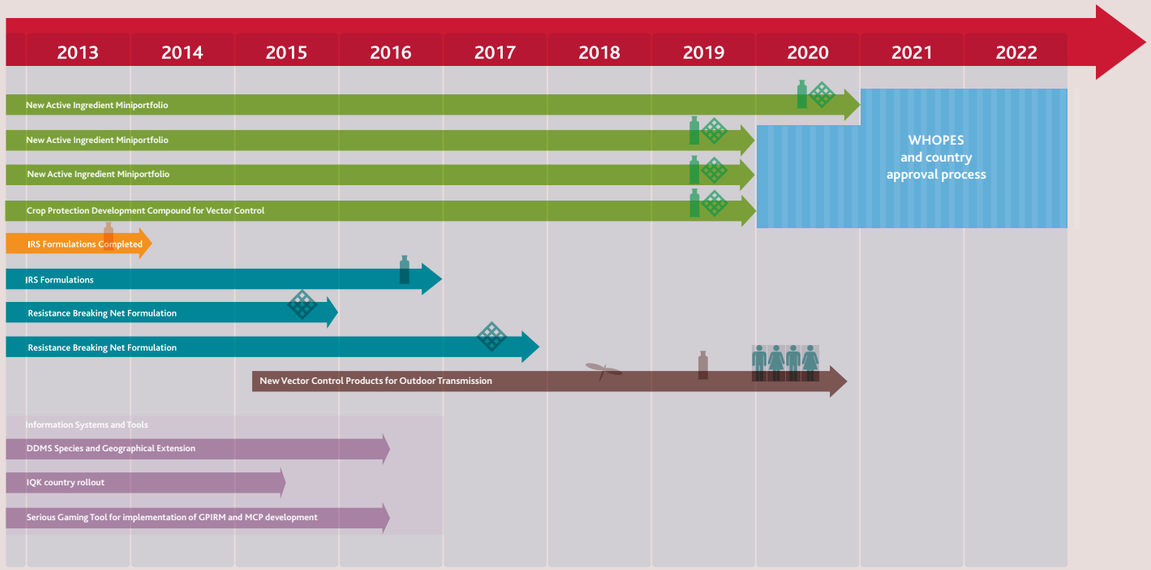
The first product, a bi-treated net with alphacypermethrin, has been submitted to WHOPES this year and we hope that the chlorfenapyr-based IRS formulation will reach the same stage early in 2016.

Sumitomo have developed a bi-treated net based on permethrin and pyriproxyfen, Olyset Duo, which has shown very positive results in experimental huts. This is now being tested through the AvecNet programme in a randomised, controlled epidemiological study in Burkina Faso to show whether this novel mode of action will have an impact on malaria transmission.

All three of these current projects have the potential to deliver products that will maintain vector control even in areas that are experiencing high levels of pyrethroid resistance.

All this work and the products developed could not have been achieved without the support of our industrial partners and our funders. In the end, the only statistic that matters is the number of lives that these products have and will continue to save.

Product development roadmap



Active ingredients and new formulations portfolio

Lois Rossi
Regulatory Strategy Manager

I am pleased to be bringing to the IVCC team experience from a long career with the Office of Pesticide Programs, US Environmental Protection Agency.

Throughout my career at EPA I held several senior leadership positions in the pesticide program. The mission was always to protect the public health and environment, whilst providing the necessary pest control tools for use in agriculture and non-agricultural settings.

For many years, I managed the review of existing pesticide products, making sure their safety profile met current safety standards. Since 2004 I managed the registration of new conventional pesticide active ingredients and products, introducing newer chemistries to the market, yet maintaining the highest level of safety and environmental protection.

I championed and placed high importance on coordinating and cooperating with other national regulatory authorities and relevant international organisations on the review of newer, safer pesticide active ingredients resulting in a robust scientific, transparent review and timely global market access.

At IVCC I will be engaging with partners to define efficient regulatory pathways for new vector control tools and solutions, providing for a thorough review of safety and performance, yet allowing for timely market access to save lives lost from vector borne diseases.

Defining efficient regulatory pathways for vector control products will be informed by existing processes as well as those developed for agricultural pesticide products, drugs and vaccines. Regulatory review processes are essential to the use of safe, efficacious products, but they must be designed to also encourage the discovery and development of new vector control tools by the pesticide industry.

I feel privileged to be able to join IVCC at a time when the development of new vector control tools is the priority. I look forward to contributing towards the goal of providing new tools to help eradicate vector borne diseases.

Evolution

IVCC's core team is growing to meet its broader scope

Teamwork from l to r: Karen Johnson, Nick Hamon, Mathias Mondy, Duncan Preston, Robert Sloss, Lynn Byrne, David Malone, Janet Hemingway, Jed Stone, Tom McLean

Mathias Mondy
Project and Business Resources Manager

It is a pleasure to join IVCC and to direct the insights and expertise I have received from industry towards eradicating malaria. My primary role at IVCC is to provide support to our innovation partners to help them maintain their engagement in what is a relatively small marketplace

Maintaining an innovation stream for vector control is not a simple issue for agro-chemical companies. The public health market is small compared to corn, soy or wheat; it needs special expertise to formulate active ingredients as bednets or indoor residual sprays; and commercialisation of products fluctuates according to public tenders.

Fortunately, more often than not, there are people in management who understand that the impact of vector control products goes well beyond simply killing mosquitoes. They enable populations to access the tools they need to protect themselves against deadly and debilitating diseases such as malaria.

I first heard of IVCC back at its very inception in 2005 when I worked for Bayer Environmental Science. I was in charge of the marketing of public health products for Europe, and my colleagues from development were already singling IVCC out as one of the most exciting Product Development Partnerships.

All in all, I spent 17 years in the Ag industry, working in development, marketing and stakeholder outreach.

There is widespread recognition of the urgency of reducing the time to market for novel vector control products and this is a very exciting time to be joining IVCC as it enters into the development phase of its active ingredient projects. One of my first responsibilities will be to create a framework to track the advancement of partnerships and to report transparently to funders, providing them with great support and dialogue.

At the IVCC stakeholder forum in June I saw the dedication and commitment of the vector control stakeholder community, and I have been impressed with the professional expertise and dedication of the IVCC ESAC.

The mission of IVCC to save lives through delivering innovative and sustainable vector control solutions depends on the efforts of a wide variety of people, many of them experts in specific areas and I look forward to playing my part.

Outdoor biting

Responding to the challenge of malaria outdoor transmission

Current malaria vector control relies almost entirely on killing malaria-carrying mosquitoes that have come into a house to feed or rest. Spraying houses, schools and other buildings with insecticides, and wide distribution of insecticide-treated bednets have been highly succesful at reducing deaths and sickness from malaria.

But not all mosquitoes bite inside. Some species of mosquito prefer to bite their victims outdoors when they are unprotected. These outdoor biting mosquitoes provide a route to continuation of transmission that prevents elimination. Sometimes this becomes the dominant source of new malaria infections.

To address this challenge, new vector control tools are needed for two overlapping ecological contexts: where people are away from the house for occupation or necessity, like rubber tappers, forest workers, miners, or displaced persons, and where biting mosquitoes transmit malaria outside the house but still within the community.

The key to bringing a new class of intervention tools (often referred to as new paradigms) to wide and effective use, is to validate the effectiveness of the Target Product Profile of that class of products.

This is done by testing prototypes in the field to demonstrate the technical requirements of the products and the settings in which they work.

Clear evidence is required to show that these new tools are epidemiologically effective. This is necessary to support policy recommendation and large scale intervention funding.

IVCC has published a guide to the type and scale of evidence, supporting activities and technology development that would be required in order for new ideas to grow efficiently from concept to established intervention.

'A framework for validation of new intervention paradigms and product categories in vector control interventions', covers issues of user acceptance, manufacturing sustainability, economics, and technical and epidemiological evidence.

Earlier this year, IVCC issued a call for proposals to respond to the challenge of outdoor transmission. The objective of this IVCC initiative is to support partners to develop the necessary evidence for a 'proof of concept' for new paradigms targeting transmission outside of homes.

These approaches will then potentially be further developed for potential policy recommendation and broad implementation, provided that they fulfil the requirements of short time to market, and high impact technologies.

Nineteen high quality proposals were received in response to the call for proposals. With the assistance of the Expert Scientific Advisory Committee (ESAC) these have been narrowed down to four areas of work: attractive sugar bait traps, controlling mosquito mating swarms, push-pull strategies of repellents and traps, and targeted protective clothing.

IVCC and ESAC are now working with the teams who made the proposals to develop their expressions of interest into full scale project proposals. If these are approved, new projects will start in mid 2015 .

Working together to make it happen

Commitment and cooperation to eradicate malaria are key messages to vector control experts at IVCC Stakeholder Forum

Malaria eradication is not possible without robust and effective vector control tools, was the clear message from both keynote speakers at the IVCC 2014 Stakeholder Forum in June.

Rear-Admiral Tim Ziemer (President's Malaria Initiative) and Alan Magill (Bill and Melinda Gates Foundation) both stressed the importance and urgency of the global vector control community working together to develop the new tools that are essential to combat insecticide resistance.

Speaking to an audience of vector control specialists from around the world, they also emphasised the need to collaborate on delivery and management of the new insecticides when they become available. Vector control stakeholders would need to cooperate closely, working together to plan how the novel products will be made available and applied in endemic countries to maintain their sustainability.

IVCC CEO Nick Hamon made special presentations at the Stakeholder Dinner to Mark Rowland (LSHTM) for his pioneering work with IVCC trial sites, and Janice Culpepper (BMGF) for her outstanding contribution to IVCC's mission since its inception in 2005.

'The success of IVCC's mission to save lives through vector control is dependent on the skill, commitment and cooperation of our partners from every part of the vector control community,' he said.

Stakeholder gathering

finances

Finance Report 2013/4

Financial audit and governance

IVCC is a not for profit company limited by guarantee with charitable status in both the UK and the US. The annual statutory accounts of IVCC are audited by Grant Thornton UK LLP and are produced using the Statement of Recommended Practice: Accounting for Charities (SORP) issued in March 2005. This ensures compliance under both the Companies Act 2006 and amended Charities Act 2006.

IVCC benefits from shared accounting and audit arrangements with its host institution the Liverpool School of Tropical Medicine (LSTM). A finance and investment committee made up of senior employees and trustees external to the organisation give governance oversight on all financial operations of IVCC and meet 4 times a year.

A specialist taxation service is provided externally. The team has extensive knowledge of all major funders within the sector and the expertise to comply with all external funder audit requirements.

All internal audit work is carried by an independent external organisation whose remit is to provide independent and objective assurance to add valve and improve the organisation's operations. This is carried out through the evaluation and improvement to risk management, governance and control processes. An audit committee exists to oversee all recommendations made.

IVCC received a clean unqualified audit report for the 5th year in succession and no control issues were identified by either the external or internal auditors.

Value for money is important to IVCC, so extensive work on improvements to the document management system, began this financial year using SharePoint, will continue into next year.

This will greatly improve the efficiency and effectiveness of sharing and editing documents and the electronic authorisation of documents, both internally and with our partner organisations, in a safe and secure environment. SharePoint will improve communications and allow a more open and transparent engagement with our partners and funders as the organisation grows.

Income and expenditure

IVCC's income and expenditure has grown significantly over the past 4 years, doubling from a base level of £4.31m in 2010/11 to £8.25m in 2013/14. A further increase in income of 40% to £12.36m is predicted in 2014/15 as IVCC enters the important next phase in the management of its new active ingredients portfolio. In the current financial year, and for the first time in its history, IVCC received unrestricted funding in the region of £0.54m. This will enable the organisation to fund activities in furtherance of its mission, which cannot easily be funded from any of the other current donors.

	2014/15	2013/14	2012/13	2011/12	2010/11
Income	£12.36m	£8.79m	£8.30m	£6.07m	£4.31m
Expenditure	£12.34m	£8.25m	£8.30m	£6.07m	£4.31m
Surplus/(Deficit)	£ 0.01m	£0.54m	-	-	-

Investments

IVCC continues to use a conservative investment strategy using a combination of money market deposits and secure US government and corporate bonds, in line with current unsettled market conditions. Consequently, returns are low on both the sterling and dollar funds held. The total interest received during the year was £30k (£46K: 2012/13) and this will be used to fund future project activity.

Financial performance

2013/14 saw a consolidation of program activity, with total spending maintained at £8.3million, but an increase in income of £0.5m.

A total of £5.97m was spent on direct charitable project activities ,with a further £0.7m paid out on related project supporting activities.

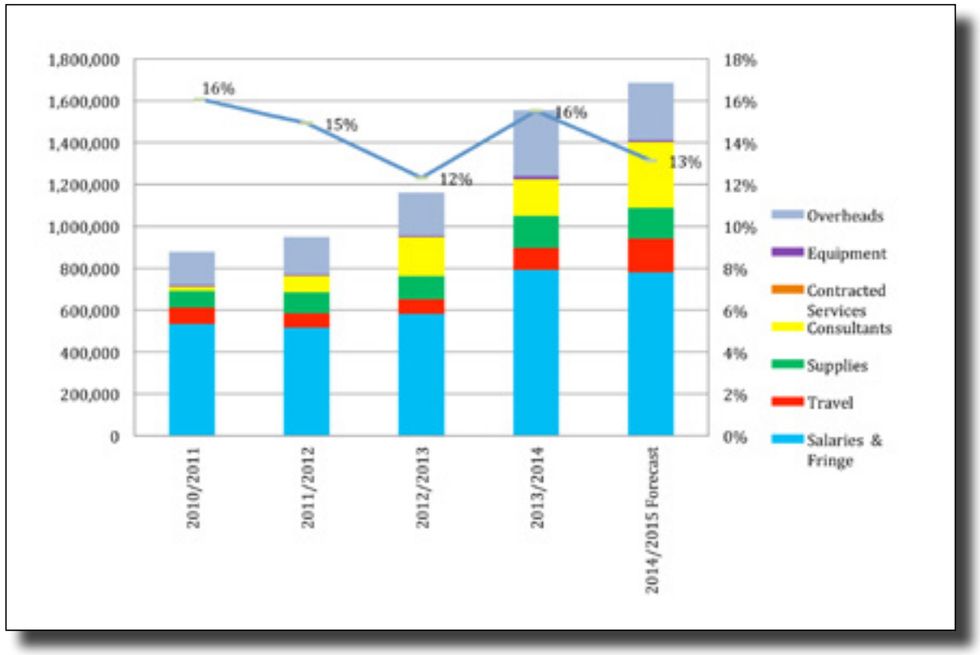
The new active ingredients portfolio has seen an increase in annual product development costs, rising from £2.2 million in 2011/12 to £3.8 million.

A significant increase in costs will happen in 2014/15 as the next phase of development starts, with costs estimated to nearly double to £6.8m.

Costs for new Tools and Technologies dropped to £0.3k to fund on-going development work and product testing in the field.

Spend of £0.4m on new paradigm work is set to increase significantly during 2014/15 following a grant supplement from BMGF.

Core administration support costs of £1.6m were also incurred in the year representing 16% of total cash received from donors. This is forecast to drop to 13% in 2014/15 representing an improvement in value for money.



Funding Mix

BMGF provided 31% of the charity's income in the year, down from 70% in 2012/13 and 83% in 2011/12. Successful fundraising efforts, in particular with the UK's Department for International Development (DfID) and USAID has enabled IVCC to diversify its funding base and reduce its reliance on one main donor. The remaining 69% of income was split 46% DfID, 14% USAID, 6% the Swiss Agency for Development and Cooperation (SDC) and 3% several smaller donors.

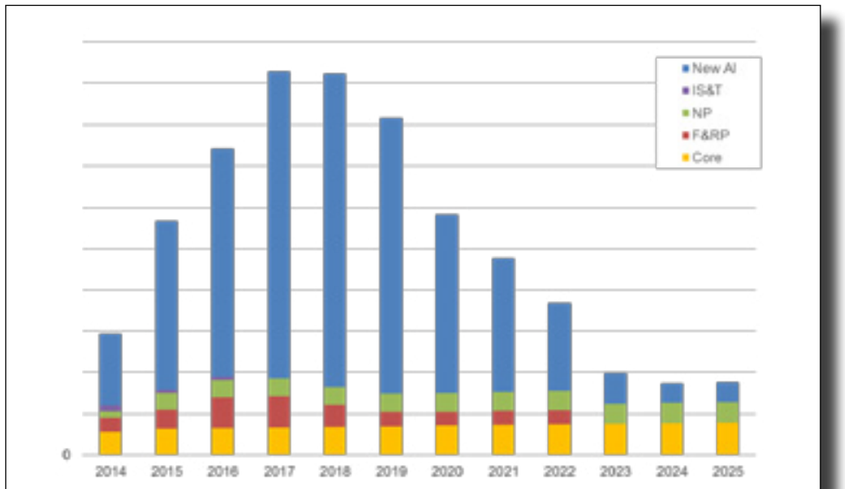
It is forecast for 2014/15 that the contribution from BMGF will increase again to 67% of the total funding received, with DfID at 17%, USAID 11% and SDC 4%. This reflects a more sustainable funding mix over the next few years in the absence of any major new donors.

finances

Funding Requirements 2014-2025

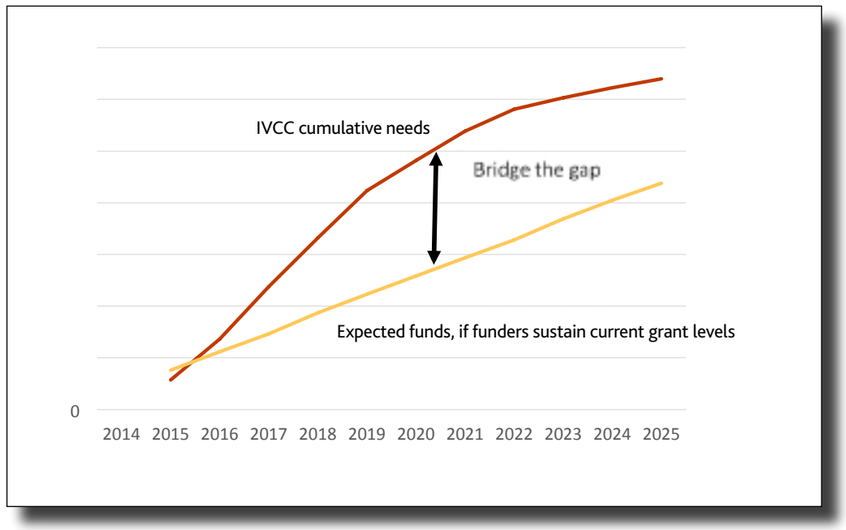
Forecasting long term funding and income scenarios enables IVCC to manage its product portfolio more effectively. It provides a base analysis for fundraising activities aimed at financing the portfolio in line with the latest projections and for negotiations with partners more effectively.

The total funding required to enable IVCC to meet all of its current objectives up to 2025 is dominated by the new active ingredients portfolio. Year on year, funding steadily rises from 2014, peaking in 2017 at $46.5 million before dropping off significantly by 2025 at $8.8 million. This is one of several likely key scenarios currently being considered by the team.



Bridging the Gap

If current funders (BMGF, DfID, USAID, SDC) sustain their current funding levels, there is still a significant gap to bridge if IVCC is to fulfill its needs. Major negotiations need to take place with funders and other key stakeholders over the next few years to ensure IVCC is able to deliver on its core mission.



funders

> None of the life-saving advances we have made would have happened without the support of our major funders. Their investment is at the heart of the exciting deliverables in the IVCC pipeline that will accelerate progress towards malaria eradication

Bill & Melinda Gates foundation

The **Bill and Melinda Gates Foundation** have had a long-standing partnership with IVCC. The organisation 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. BMGF emphasises collaboration, innovation, risk-taking and results, which fits precisely with IVCC's mission and achievements. BMGF 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 bring together the resources to make it happen.

UKaid from the Department for International Development

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 insecticide treated bednets, that have substantially reduced child and maternal deaths and the overall incidence and death rate from malaria.

USAID FROM THE AMERICAN PEOPLE

USAID is the leading US Government agency, which works to eradicate extreme global poverty, and allow for resilient, democratic societies to realize 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. USAID, through the President's Malaria Initiative (PMI), is a strong supporter of IVCC and their investment in the development of new public health insecticides for bednets and indoor residual spraying will help produce the new vector control tools that are urgently needed to combat insecticide resistance.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

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.

Written, edited and designed by Karen Johnson, Gabriella Sloss and Jed Stone.
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IVCC

PRODUCTIVITY
VITALITY
PROSPERITY

COMMIT TO A WORLD WITHOUT MALARIA.