Case Management Working Group (CMWG)

10th Meeting, 6-8 February 2019
Global Health Campus, Geneva, Switzerland

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Wednesday 6th February 2019

Day 1

Session 1: Introductions, objectives, key updates

Introduction - Larry Barat, President's Malaria Initiative/USAID

The Co-Chairs welcomed the participants to the 10th Annual Meeting of the RBM Case Management Working Group (CMWG). 63 participants were present, with a well-balanced representation in terms of geographical origins, constituencies and gender. The participants came from 23 different countries, representing 5 WHO regions (AFRO, PAHO, EURO, EMRO, WPRO). Of the 23 countries, 5 were malaria free, 2 had the potential to eliminate malaria by 2020 and 16 were still malaria endemic. Different constituencies were represented including multi-lateral organisation, research, private sector, governments, etc. with about one quarter representing malaria affected country governments. In regards to gender balance, there was an equal participation from women and men. The very diverse group with many attending for the first time made up for wide range of technical experience.

The participation of 18 members from malaria affected countries was through a generous grant from the Swiss Agency for Development and Cooperation (SDC) that also sponsored this meeting and the secretariat for the CMWG.

Overview of agenda and objectives for the CMWG-10 Meeting, Elizabeth Juma, WHO

The Co-Chairs introduced the Case Management Working Group, its purpose, scope, role and objectives (see presentation).

What's the purpose?

The CMWG aims to minimize wasteful duplication, maximize synergies, and encourage harmonisation and pooling of efforts for faster uptake and scale up of malaria case management strategies and interventions. It will help achieve the same goal all members want to achieve with their interventions. It aims to achieve consensus on complex strategic issues concerning scaling up implementation of policies for malaria case management and synthesizing and disseminating evidence-based best practice. The CMWG will ensure its alignment with WHO and make sure not to duplicate their responsibility. The CMWG remains accountable to the RBM Partnership Board through the RBM CEO.

What's our scope?

Case management encompasses the three pillars of diagnosis, treatment, and monitoring (test, treat, track). There are overlapping topics with other working groups, e.g. the Malaria in Pregnancy Working Group (MiPWG) that deals with case management of pregnant women. Hence exchange and collaboration with these are key.

What is our role as CMWG team?

The CMWG members convene because they have shared interests, about quality, access, delivery of services, preventing mortality and ending malaria. The CMWG coordinates and aligns the work of the members. Its role also includes mobilizing resources to solve challenges and facilitate communication, share experiences and best practices and identify challenges and bottlenecks.

Meeting objectives

The aim is to revitalise CMWG and decide about the new way forward. The CMWG offers a forum for all partners to share innovations, learn from each other, identify priorities and deliverables and decide on the method of work to achieve them.

Update on case management policies and guidelines – Andrea Bosman, GMP, WHO

See presentation

1. *Updates on medicines/ new WHO recommendations under review*

The WHO guidelines for treatment is a reference book for policy-makers in ministries of health, who formulate national treatment guidelines, which is developed in consultation with key experts. Multiple quality products from different suppliers are today available and prequalified by WHO for malaria treatment. In terms of access, the World Malaria Report 2018 shows that 36% of children with fever seek treatment in public health facilities where case management is relatively good, a smaller number seeks care in the private sector with less access to diagnosis and treatment and 40% don't seek care at all. However, this averages obscure a great diversity in care seeking among countries. For example, countries like Nigeria, Uganda, DRC, and Chad have very high utilization of the private sector, where very few receive a diagnostic test or a quality assured ACT.

Regarding the updated treatment guidelines that are currently under development, a new WHO recommendation on the ACT artesunate-pyronaridine is pending the review of hepatotoxicity by the WHO Advisory Committee on Safety of Medicinal Products, expected to be completed in April 2019. Another recommendation under review is the use of ACTs in the first trimester of pregnancy. The following recommendation was developed: *Artemisinin combination treatments should be used to treat malaria in pregnant women in the first trimester of pregnancy, except where the partner drug is contraindicated as with AS+SP*: its release is pending approval of a legal disclaimer for "off-label use of medicines". The current recommendation for pregnant women exposed to malaria in the first trimester is with quinine plus clindamycin. This is considered suboptimal because dosing is quite difficult (42 tablets of quinine and 28 capsules of clindamycin for seven days at different times of the day), often leading to poor adherence to treatment. Furthermore, different formulations and strengths of quinine tablets are available on the market while clindamycin is often not available at all. Non-adherence to this regimen can lead to incomplete treatment and progression to severe disease, posing a risk to the foetus and the mother. As a consequence, studies show that there is a higher risk of miscarriage when quinine is administered in the first trimester to treat uncomplicated malaria as compared to pregnant women unexposed to antimalarials.

2. *Updates on diagnostics/treatment for P. vivax*

A new recommendation on RDTs to for the diagnosis of vivax malaria was presented indicating that either RDTs or microscopy were suitable to confirm vivax malaria. The old recommendation gave a

preference to microscopy There are about 50 different malaria RDTs that perform well in detecting P. vivax at 200 parasites/uL, and WHO has prequalified 5 RDTs which can detect *P. falciparum* and *P. vivax* as separate infections.

Apart from the tests to diagnose vivax, medicines are needed to radical cure of *P. vivax*. Primaquine is the only currently available antimalarial drug on the market that kills dormant liver stages of *P. vivax* and *P. ovale* malaria and therefore prevents their relapse. The main adverse effect is acute haemolysis in patients with G6PD deficiency, and knowledge of G6PD status is important before administering these medicines for preventing relapses.

There are already rapid diagnostic tests on the market that detect severe G6PD deficiency (enzyme activity below 30%). Because G6PD deficiency is an X chromosome-linked genetic condition, the tests work relatively well for men, but are problematic for women (who can be heterozygous for this gene). The interpretation of the test can be difficult (colour of pink fading to white) and the results of the test are influenced by temperature.

A few new quantitative point-of-care tests, mostly using a handheld device, have been developed and are now being piloted, although not yet recommended by WHO. These devices are likely to be the primary tool for measuring G6PD status and will be required before treatment with tafenoquine. People with G6PD deficiency can be given primaquine weekly but it requires close medical supervision for potential primaquine-induced haemolysis.

WHO is also assessing the potential role for highly-sensitive RDTs in the context of malaria elimination and malaria in pregnancy. Three areas of research were identified: 1) Can they accelerate elimination? 2) Can they help in surveillance in elimination settings? 3) Could they have a role in single screening and treatment of malaria in the first trimester of pregnancy?

Update on HRP2 deletions

As of 2018, WHO has prequalified 16 RDTs, but there is a need for more RDTs able to detect P. falciparum infections with *pfhrp2* gene deletion: there is only one prequalified test available and limited global supply). Histidine-rich protein-2 (hrp-2) is a protein specific to *P. falciparum.* Parasites have been identified where the hrp-2 gene is deleted. Thus, these parasites do not express the antigen and can cause false negative RDT results. Hrp-2 deletions were initially detected in South America, but have recently been identified in high prevalence in Eritrea, and may be present in Ethiopia and other parts of Africa. There is guidance from WHO on how to investigate suspected hrp-2 deletions. First, one should confirm suspected false negative tests by repeating the test using another non-hrp-2 RDT or confirm by microscopy by a qualified microscopist. If discrepancies are confirmed, then further investigation is warranted, including PCR testing to confirm hrp-2 gene deletions. If the prevalence of false negative hrp-2 RDT results due to hrp-2 gene deletions among symptomatic patients attending health facilities with *P. falciparum* infection exceeds 5%, the country should consider changing to a non-hrp-2-based RDT. Priority areas for current investigations are countries surrounding Eritrea to help us understand if the extent of the distribution of these hrp2-deleted parasites.

3. Lessons learnt from multi-scale country intervention (RAcE)

The Rapid Access Expansion Programme (RAcE) has contributed to the reduction of child mortality by increasing access to treatment for malaria, pneumonia and diarrhoea in five African countries and also

helped to make policy changes and catalyse scale-up of iCCM. High disease burden countries including the Democratic Republic of Congo (DRC), Malawi, Mozambique, Niger, and Nigeria were selected for the pilot, targeting 1.5 million children and around 8500 community health workers (CHW) were trained. Key lessons from RAcE are that iCCM is an effective strategy to save lives and it extends universal health coverage. Key requirements are: available CHWs, services accessible 24/7, continuous supply of commodities, community engagement, and regular supervision to ensure the quality iCCM services. Finally, iCCM has to be an integral part of the national primary health care system, and a prioritized intervention at the community level.

Q&A

- iCCM assumes the availability of sufficient CHWs in all areas, but in reality, there may be only 1 CHW for 10 villages. However, each country intending to implement iCCM needs a mapping exercise by state, province or district level to determine the hard to reach areas most likely to benefit from iCCM and therefore fewer CHWs needed.
- Regarding policy changes in Nigeria since the uptake of the RAcE-Programme, the national programme stated that iCCM was being implemented in 14 states in Nigeria. The problem is that iCCM is still seen as a vertical, ad hoc intervention, but to be fully scaled up it needs to be an integrated extension of peripheral health facilities.
- In relation to possible expansion of the population for iCCM beyond the children under 5 years to also include the older children and adults, the focus of iCCM is to reduce mortality in the population group was carrying the highest burden. The primary objective is not malaria elimination, but reducing mortality in under 5 for the three major killers, malaria, pneumonia and diarrhoea.
- The issue of malaria-only CCM versus iCCM was raised by NMCP managers: what to do when iCCM is not moving and you need to do CCM? It was answered that this poses numerous challenges on which this working group could elaborate more. In settings were only malaria case management and not integrated case management is done, people may no longer seek out services from the CHW when malaria burden drops and this means that potential malaria cases will be missed and elimination efforts will be undermined. It was also commented that iCCM is not a replacement for higher levels of the health system, but an extension of it. If the primary health care system and the referral system does not function, then the iCCM program is also likely not to function.
- WHO clarified that there were no new recommendations for the prevention of malaria in pregnancy since none of the alternative medicines in trials have shown superiority to IPTp with sulfadoxine-pyrimethamine (IPTp-SP). There are other trials ongoing in Africa and results and updates may be available in 2020.
- On the status of tafenoquine and its recommendation WHO stated that the use of tafenoquine was strongly linked to the availability of quantitative point of care tests that were undergoing field assessments. The drug has similar effect as primaquine but given its long half-life no risk can be taken by giving it to persons with G6PD deficiency. The results of the assessments of the new quantitative point of care tests may be available mid-2020.
- On the available data on safety of ACT for pregnant women in the 1st trimester WHO stated that about 1000 women have been carefully followed and documented, which was not a high number. However, the frequency of miscarriage after exposure to artemisinin was similar to

quinine with quinine given in first trimester having a bit of a higher risk of stillbirth for pregnant women as was shown in the presentation.

- Regarding the new recommendation of ACT for pregnant women in the 1st trimester, it was asked how fast it could be disseminated and implemented in the countries. It was answered that a roll-out of the new recommendation is planned with the RBM Malaria in Pregnancy Working Group, WHO guidelines are being updated and an evidence review regarding the safety is being done.

Update from the RBM Secretariat, Daddi Wayessa, RBM Partnership To End Malaria

See presentation

The RBM partnership is the largest global multi-stakeholder platform to fight malaria and last year celebrated its 20th anniversary. It provides a forum to engage, amplify and align partners across sectors and geographies with the common goal to progress towards malaria elimination. RBM formed effective partnerships and is able to bring together partners from the private sector, research, affected country governments, multilateral organisations, etc.

RBM has recently undergone a process of revitalisation with the new objectives to spur greater cross-border collaboration and to become more able to respond to the changing needs of the Sustainable Development Goals (SDG) environment, e.g. create forum for committed partners (including working groups), engage senior leadership to keep malaria high on the political agenda, deepen expertise in core functions (communication, financing, country support). The working groups (WG) coordinate members around a defined technical area and share best practices; they are accountable to CEO and must be accredited by the board. One of the most important points of success of WG is its self-financing and self-convening capacity. Currently, there are six WG with the Multi-Sectoral WG being newly established. There also are three partner committees (Country/Regional Support, Advocacy & Resource Mobilisation, and Strategic Communication).

The opportunities of CMWG for engagement include cross-fertilising experiences to other WG; participating in Country/Regional Support Partner Committee (CRSPC) meetings to engage with countries, other WG and partners, and help to disseminate WG products such as best practices. CMWG can also help to source and mobilise partner support to address country level bottlenecks. Finally, the CMWG can engage in supporting the advocacy for the Global Fund replenishment.

Q&A

- It was asked how RBM works together with organisations to integrate malaria with other diseases as the approach looks very vertical. It is answered that several initiatives are going on, e.g. Multi-Sectoral WG and that this integration has to be tackled from different levels (international, country) and all experts.
- It was clarified that WGs do not provide direct support to support to countries, however, the WG could help to identify individuals with the required technical expertise to provide specific support if requested by the RBM secretariat.

Results of CMWG members survey, Larry Barat, PMI / USAID

See presentation

A survey was sent out prior to this meeting to identify the priority areas of work for the CMWG. Out of approx. 200 people the survey has been sent to, 44 responses were received and 41 were analysed (three responses arrived after the survey data were analysed). The survey participants were asked to rank the priority areas out of a list of ten specific priority areas. Access to diagnosis and treatment was ranked top priority. Second and third priorities were the quality of diagnosis and quality of CM. Interestingly, failure of diagnostic tests was not ranked as priority at all.

The participants were also asked to give their own three top priorities. Again, quality of diagnosis, quality of CM, and access to diagnosis and treatment were ranked the first priority most often. Other areas listed multiple times as a first priority were the private sector, CM in the context of elimination, severe malaria and M&E. If one looks cumulatively at all three priorities listed by respondents, the results were largely the same as those listed as first priority. When asked to describe the greatest challenges in CM, poor quality of diagnosis and treatment, lack of access to services, lack of commodities, and the private sector were listed most often.

To the question of what the WG has done well in the past, the most common answer was "I'm new to the group", followed by convening experts from different backgrounds and developing useful manuals/tools. To the question of what could be done better, better communication and coordination, embrace innovations, have meetings (a reference to the long gaps between past meetings), and better engagement of affected-countries were mentioned. At least the last point was fulfilled: this meeting had the largest representation of malaria affected-countries a CMWG meeting ever had. In conclusion, access and quality issues were the dominant priority areas identified.

Q&A

- It was commented that there should be broader guidelines for community engagement having seen the success of iCCM. It was answered that iCCM is often key to start improve access and there will be an operational handbook from WHO for programme managers about iCCM coming out at the end of the year.
- It was commented that a lot is known about what happens around uncomplicated malaria (e.g. treatment seeking, sources of care, etc.) but what is not known is why children are dying of malaria. It should be looked at from a community level to identify the system failures that led to mortality. This would better help to address the access problem. It was answered that in the survey both aspects of access have been raised: the availability of services and also people not accessing them when they were available.
- It is asked about updates on endectocides (endectocides are antiparasitic drugs that are also active against external parasites and mosquitoes). Ivermectin has been most commonly used as endectocide and an effect on malaria transmission by killing the vector has been observed. A potential role of endectocides in malaria control was discussed and it is hoped that there will be more research in this area.
- It is commented that for example in Nigeria seeking care in the private sector is a big issue and malaria surveillance does not capture data from this sector.
- It was commented that RDT is becoming more often used than microscopy for detecting severe malaria. It is answered that both should be of quality, there should not be one diagnostic method dominating over the other. Severe malaria should be managed at the highest possible level of care available so complications can be managed and they should have microscopy available. At a lower level, only RDTs may be available.

- Tanzania will pilot iCCM in one district. A major issue is the big shortage of staff, so it is asked how to ensure good quality of iCCM. It is commented that there have been several ways to motivate CHW, e.g. in DRC, CHW received a bicycle to go to the health facilities.
- It was commented that it was interesting that SMC didn't come up as a priority, even though it is coming up as an issue from several countries. It was answered that if SMC didn't come up in the survey responses doesn't mean that it is not important. Also, only 44 of 200 members responded to the survey, so the results cannot be viewed as a definitive representation of all the membership. It was noted there is a separate task force that focuses on SMC and that respondents may have considered that in their responses. The break-out sessions will provide participants an opportunity to discuss priorities for the WG.
- It was stated that it would be helpful to know what came out as the main challenges of the high burden countries to align with what the CMWG sees as priorities. It was answered that the NMCP representatives will present their challenges to the WG in the next session.

Session 2: Discussion of priority areas

Discussion of priority areas, panel discussion, NMCP Representatives

The National Malaria Control Programme (NMCP) representatives discussed challenges faced in malaria case management and how these challenges could be addressed by the CMWG.

NMEP Nigeria

Patient and provider behaviour is a main issue. Patients don't trust the diagnosis of the provider. There also is lack of communication between programmers, health workers and academics. If there is a change in treatment or diagnosis recommendation, how can it be ensured that the information trickles down and health workers are updated and trained about the new recommendations? The private sector is another big issue. A lot of patients seek care at the private sector, but a lot of programme interventions do not include the private sector. There is a need to start from the population to address the issues and have the most impact to make progress.

NMCP Papua New Guinea

Universal diagnosis and treatment is an issue in PNG. The health system is weak and the procurement and supply chain system is a challenge. As a consequence, partners come in and create parallel systems but they don't last. Once the partners withdraw, everything collapses. The procurement and supply management (PSM) should be integrated in the NMCP. The policies are in place, but it fails when it comes to implementation. Going to the CMWG meeting is useful to get the latest information and recommendations in CM, e.g. new guidelines of WHO about treatment in the 1st trimester of pregnancy. Reduction in funding is another challenge. An iCCM pilot was stopped when funding was reduced.

NMCP Malawi

The attitude of health workers (similar to Nigeria) is a problem. Despite robust training, they tend not to follow recommendations. Another part of the problem is lack of supervision. But there also is a shortage of qualified human resources. Only a few microscopists are available and the capacity of doing diagnostic testing is often limited. They are used to identifying the prevalent species which is *P.*

falciparum, but not others. Poor supply chain management is also a problem. Stock-outs at the central warehouse lead to stock-outs of commodities in the health facilities. NMCP would like to strengthen health worker capacity and supply chain management, e.g. come up with a programme of mentorship.

NMCP Cameroon

A challenge is that health workers don't respect policy guidelines, e.g. for 1st and 2nd line treatment for uncomplicated and severe malaria. Health workers (HW) will end up using RAS for treatment of simple malaria. ASAQ is cheap (supported by MoH) but HW will refuse to use it because they can charge more for the 2nd line treatment, which means more benefit for the health facility (HF). They also refuse to treat children free of charge, even if it is policy. If they do not charge, though, they may not have sufficient funds to run the HF. Supply chain management is also a challenge, because there are frequent stock-outs of some commodities and at the same time drugs are expiring because they are not being prescribed, like ASAQ. In addition, some HW prefer to treat even if the RDT is negative. Part of the solution that could be proposed is having several 1st line treatments and maybe subsidise all lines.

NMCP South Sudan

There is poor access to diagnosis and treatment because of insecurity and poor road infrastructure. Stock-outs are frequent, particularly when there are high caseloads during the rainy season. There is a lack of funding for the last mile: drugs and supplies are sitting in the central medical store, but there is no funding or insecurity or bad road conditions to transport them to the HF. The capacity of health personnel and of microscopists is also a challenge. Furthermore, coordination of PSM partners is poor because there are multiple partners that don't collaborate and distribute in parallel. Private sector is a challenge as they are not collaborating with the public sector. Counterfeit medicines are circulating because of lack of proper control at the port of entry. There are also issues of quality in diagnostics because of the low trust in the RDT result by HW. To address these challenges, supportive supervision is key and tools are needed for RDT field testing, as well as a forum to train clinicians.

NMCP Tanzania

Malaria testing at community level is an issue. HRP2 deletion may also be a challenge in the future.

NMCP Uganda

The diagnosis and treatment in the private sector is of doubtful quality. NMCP has no control of it. Drugs tend to be cheap, sometimes cheaper than the official subsidised drug. Stock-outs of RDTs are a problem and testing in the community is still a challenge. The Global Fund is still a major funder. They fund ACTs and RDTs but not gloves and other safety components needed. Accessing funds takes a lot of time for governments and funds are not there when needed.

NMCP Pakistan

Pakistan is the 6th most populous country in the world. P. vivax and P. falciparum are both prevalent. Challenges include low coverage of interventions, especially diagnosis and treatment. A lot of the population seeks treatment in the private sector that is highly unregulated, not controlled for quality, and does not report cases to the surveillance system. G6PD screening is another issue: the prevalence of G6PD deficiency is not known, but still the primaquine is prescribed without testing. Cross-border

transmission is a big issue: malaria is low in Pakistan overall. The highest prevalence is in the Western part of the country, at the border to Afghanistan and Iran. A cross-border network (PIAM) has been established. But because of different issues (e.g. political), not many cross-border interventions are implemented.

NMCP Ghana

There are several challenges in the context of diagnostics. If RDTs are available, most health facilities adhere to RDTs and neglect microscopy. The private sector brings in a lot of different types of RDTs and it is difficult to assess their quality so that clinicians decide not to rely on testing. A lot of RDTs are received from donors. If they switch to another type of RDT and guidelines differ, there is no time to train health workers. Health facilities are not prepared from a central level. Different guidelines exist. Counterfeit drugs are also an issue. Unqualified personnel are used at private facilities and this is difficult to control.

NMCP Solomon Islands

Weak procurement and supply chain management systems, as already mentioned by other NMCP representatives, is also an issue. Solomon Islands have a Ministry of Malaria Control which is a vertical programme. There has been a change in species prevalence with P. vivax now being the predominant species. With this change, it has to be assessed whether G6PD deficiency is a problem. Diagnostic infrastructure often is not available in isolated states/islands. There is a need for diagnostic tools robust enough to be used in remote settings. There are also multiple challenges in terms of the health system.

NMCP Mozambique

Patients arrive late to the health facility for diagnosis. There is a need to improve the knowledge of signs and symptoms of malaria in community. Stock-outs are also a problem. Laboratory technicians are trained in microscopy, but there is a need to train more to improve the quality of microscopy. The private sector does not follow the guidelines of the government.

Development of priority areas of work - plenary discussion, Elizabeth Juma, WHO Zimbabwe & Larry Barat, PMI / USAID

Many of the challenges raised by the NMCPs mirror what has been shown from the member survey. They can be summarised into broad areas of ***access to services*** and ***quality of diagnosis and treatment services***. Areas frequently raised, such as the private sector, present challenges both of access and quality. The discussion was opened to the plenary about the development of priority areas of work.

Plenary discussion:

- It was commented that there are big issues around supply chain management and human resources. However, the group has to think of what they can provide as CMWG. Problems like staffing shortages in the countries cannot be solved by the WG. But the group can provide specific deliverables, e.g. a manual, guidelines, advocacy, etc. In the past, manuals have been developed-- e.g. an operational manual of universal access to malaria diagnostic testing or good practices for selecting and procuring rapid diagnostic tests for malaria— and have been welcomed by NMCPs.

- It was proposed to define deliverables rather than have open-ended work streams with wide mandates. From a donor's perspective, it is more attractive to fund an activity with clear deliverables than an open-ended activity.
- It was commented that it would be easier to engage people if the activities of the WG relate directly to what people are working on in their organisation.
- It was commented that the CMWG could also think of areas of policy deficiency that could be transmitted to WHO. One could be the role of quinine after recommendation of ACT as first-line treatment for uncomplicated malaria in the 1st trimester of pregnancy.
- It was commented that an issue that came up was lack of up to date information. The CMWG network could be used to disseminate tools and information even if these were not CMWG products but were of interest to the CMWG members.

The CMWG meeting continued with break-out group discussions based on two broad themes 1) Access to Case Management Services and 2) Quality of Case Management Services. The objective for each group was to identify specific outputs/deliverables that the CMWG should prioritize for the year.

End of Day 1

Thursday 7th February 2019

Day 2

Session 3: Invited presentations

Improving quality of malaria diagnosis, Elizabeth Juma, WHO, Zimbabwe

See presentation

The policy recommendation is that all cases of suspected malaria should have a parasitological test (microscopy or RDT) to confirm the diagnosis. Quality microscopy depends a lot on the performance of the health worker. Whereas for RDTs, quality depends mainly on the product. A big challenge is the poor coordination of quality assurance (QA) and quality control (QC). Often the NMCP requirements and the implementation in the laboratory departments are not aligned. There is a lack of control and monitoring of the importation of diagnostic products in the private sector and a lack of compliance with NMCP guidelines test methods and recommended products. A lot of regulators have no capacity to enforce regulations when it comes to diagnostics. Proper QA/QC structures have not been established to monitor the quality of diagnostic services. This does not only affect the diagnosis of malaria but also other diagnostic services. We do have a human resources challenge for many countries to run comprehensive quality assurance programmes. There are not sufficient personnel to support the NMCP in implementation. In many countries post market surveillance is non-existent. There are no adequate programmes for training. Poor infrastructure brings many barriers to performing RDTs in non-laboratory sites. There is not sufficient space, bad light, no flat surfaces are used etc. Often in a pharmacy testing is done in the same window as dispensing. There is also no waste management. The goal of the QA and QC programme is to have quality assured for all malaria diagnostic services. The programme wants proof that diagnostic tests are performed by trained and certified personnel who are continuously being educated and regularly assessed to be competent. It wants proof that the right test methods are performed correctly under the right environmental conditions and are quality controlled and it wants proof that reporting is accurate, regular and complete and good record keeping. WHO supports the training and external competency assessments of key malaria microscopists from countries.

Q&A

- As the challenge of infrastructure was highlighted, it was asked if it would make sense to collect positive experiences on practical organisation on how, where and by whom the test is done. It is answered that best practices do exist. But there is not one best practice for all the countries. The issues are very individual and the NMCP is trying to solve them. It cannot build the infrastructure but make sure for example that a flat surface is used to do the test.
- It was commented that the NMCP could address issues with the quality of RDTs and microscopy but not resolve the problem of infrastructure. This is a core health systems issue that has to be addressed by the MoH. NMCPs could also collaborate on laboratory services with other specialty programmes to address infrastructure and quality assurance issues.
- It was noted that despite appropriate off site trainings, health workers were often frustrated, as the working environments were not appropriate for them to implement recommendations

from training. It was recommended to iuse more on the job trainings for quality assurance in order to address actual challenges in the workplace, instead of solely relying on class based trainings.

- For challenges with infrastructure, a holistic approach was recommended as malaria diagnosis and treatment is a primary health care service and unlike other programmes, could not develop specialised laboratories..

Update on drug pipeline and market introduction – Pierre Hugo, Medicines for Malaria Venture

See presentation

MMV is a foundation of ~100 people working to reduce the burden of malaria by discovering, developing and delivering new, effective and affordable antimalarial drugs. A significant number of products are now registered and used that did not exist 10 years ago. Within the last year, four new products supported by MMV have been approved by stringent regulatory authorities, adding to a growing list of vital antimalarials.

The first product, co-developed with Novartis, was the child-friendly Coartem®*Dispersible* (artemether-lumefantrine) approved in 2008; to date, over 350 million treatments have been distributed. Eurartesim® (dihydroartemisinin-piperaquine or DHA-PQP), co-developed with Alfasigma, received stringent approval by the EMA in 2011; Wee expect another DHA-PQP product, D-Artepp from Fosun to be prequalified by WHO in 2019. Pyramax® (pyronaridine-artesunate), for adults and children, developed with partner Shin Poong is now on the essential medicines list and registered in many countries.

With MMV support, Guilin Pharma, a Fosun Pharma company, was granted WHO prequalification for its injectable artesunate (Inj AS) for severe malaria, Artesun®, in November 2010; >25 million vials are produced every year. Information on severe malaria is available from the WHO or the Severe Malaria Observatory.

Recently, IPCA's Inj AS product was WHO pre-qualified, and will help to ensure availability and diversify the supply of this drug. A key area of focus of MMV is the development of quality-approved child-friendly medicines. For the management of pre-referral severe malaria in children in remote areas without immediate access to a health facility, Cipla and Strides Pharma Rectal Artesunate (RAS) 100mg products secured WHO prequalification with MMV's support.

In addition, MMV collaborated with GSK for over 10 years on the development of an anti-relapse therapy for P. vivax malaria, Krintafel/Kozenis (tafenoquine), which was FDA approved in 2018.

Some of MMV's projects to improve access to important antimalarials are listed below:

MMV is piloting a multiple first-line treatment (MFT) strategy in Burkina Faso, using more than one effective treatment to manage uncomplicated malaria cases. One scenario for this strategy could be the partitioning of the artemisinin combination therapy (ACT) market by age, level of care, or sector (public or private). In the example of Burkina Faso, three ACTs will be used and assigned to specific segments of the population to reduce the use of one class of drugs alonethereby extend the useful

therapeutic life of the current ACTs by reducing drug pressure and slowing the spread of resistance without putting live at risk (theoretical models).

Through UNITAID funding MMV is working to increase access to malaria chemoprevention commodities. One area of focus is to ensure adequate supplies of quality-assured sulfadoxine-pyrimethamine (SP) for intermittent preventative therapy in pregnancy (IPTp) by supporting local manufacturers of the drug in Kenya and Nigeria.

Project CARAMAL, funded by Unitaid, supported by CHAI, UNICEF and Swiss TPH, and implemented in DRC, Nigeria and Uganda, will generate considerable understanding on treatment-seeking behaviour of severe malaria patients.

MMV and Transaid, in collaboration with a consortium of partners and the Zambian National Malaria Elimination Centre (NMEC), have completed the 12-month MAMaZ Against Malaria (MAM) programme pilot with exceptional success – reducing severe malaria case fatality by 96% in Serenje district, Zambia.

Tafenoquine, the new radical cure for *P. vivax* malaria, could reduce the current treatment regimen from 14 days to one day. All patients must be tested for G6PD deficiency prior to prescribing. Feasibility studies in Brazil, Thailand and Ethiopia are planned and the drug will be assessed in tandem with new point-of-care quantitative G6PD tests, once these are available.

Q&A

- It was asked if the higher costs of producing SP for IPTp locally were considered. It was answered that definitely local production does not necessarily mean the product will be cheaper, the opposite is more often the case. The intention here with local production is rather to increase the use of SP in pregnant women through a packaging that is promoting IPTp.
- It was commented that with an MFT strategy procurement challenges will arise ending up with having overstock of one drug and stock-out of the other. It was answered that this is in particular looked at in the Burkina Faso pilot.
- It was asked if it is possible to make ACTs in a paediatric formula as a suspension. It was answered that in general artemisinins are not stable in a suspension form.
- It was commented that while the development of tafenoquine was welcome, it was not a replacement for primaquine in all settings, but would be used in addition to it where appropriate.
- It was asked how much of the 1.5 million treatment doses of RAS going out get used in a meaningful way. It was answered that while rapid assessments had been done, better understanding of rational use was still needed.
- It was also confirmed that for tafenoquine, use, quantitative G6PD testing would be required.

Are we achieving universal access to malaria testing in health facilities? Julie Thwing, U.S. Centers for Disease Control and Prevention

See presentation

Children seeking care for fever are often not tested for malaria. According to the World Malaria Report, only 43% of those with fever are tested, but this percentage is increasing. A meta-analysis of household survey data demonstrated that 19.7% of children <5 years with fever in the previous two weeks with a positive RDT at the time of the survey had received an ACT. Countries, though, often report higher testing rates (>90%) than those reported in household surveys. What might explain this is that in a consultation register (e.g. example of Nigeria), there is no column for suspected malaria cases. NMCPs, therefore, often count the number of suspected cases as the number of RDTs performed, resulting in a higher testing rate. So the question is can we do a better job of using routine data to monitor testing practices?

The gold standard for health facilities is that all acute care consultations are screened for febrile illness and RDTs offered to all patients with current or recent febrile illness. In the absence of malaria, the proportion of patients with fever of all ages is between 50 and 70 %. If only looked at children under five, the proportion is even higher (60-80%). This is the case if ideal case management is done. Guinea and Senegal have been looked at in real life settings. In Senegal, testing seems to be highly related with providers' perception about malaria transmission. So in the dry season testing is much lower and during rainy season it gets higher. In Guinea, transmission is generally higher than in Senegal, but there is no geographical difference for regions with higher malaria transmission. Testing rates are higher in areas close to Conakry where services are more easily accessible. Reasons for poor testing practices vary. Looking at the guidelines, there is a great variability and lack of coherent recommendations/guidance for providers. Partners have to work together to make sure case management guidelines give clear and unequivocal guidance to identify all patients with febrile illness as requiring a malaria test in endemic areas. It has also to be considered that improving testing practices will also require increasing RDT and ACT procurement.

Situation of antimalarial drug efficacy and resistance, Pascal Ringwald, Global Malaria Programme, WHO

See presentation

Resistance should not be confused with treatment failure. Artemisinin resistance is defined as delayed parasite clearance following treatment with an artesunate monotherapy or with an ACT treatment. While treatment failure is the inability to clear parasites from a patient's blood and can have many causes including incorrect dosing, poor patient compliance, poor drug quality, poor absorption, drug interactions, and resistance.

Artemisinin partial resistance on its own does not lead to treatment failure. If there is a good partner drug, very high efficacy can be reached. If there is resistance to both drugs, e.g. artemisinin and the partner medicine, it becomes worrying; this can lead to a high number of treatment failures. K13 is the gene that leads to artemisinin resistance. Looking at the Mekong region, there are two patterns of resistance in that area, one East of Bangkok where the C580Y is fixed and had replaced all the other mutants and one West of Bangkok where the situation of K13 markers is more diverse. Overall, despite widespread artemisinin resistance in the Mekong region, the number of cases and deaths are decreasing. Falciparum cases are progressively disappearing and vivax is taking over. The so-called super bug that has been described in the press is a multidrug resistant malaria parasite found in Cambodia (resistant to artemisinin and piperaquine), that has now spread due to massive drug pressure

to neighbouring countries. Artesunate-mefloquine, artesunate-pyronaridine, and to a lesser degree artemether-lumefantrine can effectively treats these infections.

In India, Somalia and Sudan, where AS-SP is used, treatment failures are associated with Pfdhfr and Pfdhps quadruple and quintuple mutants that signal SP resistance. These mutations are still rare in Afghanistan, IR Iran, and Pakistan. In Africa, most of the drugs are working extremely well. What is ringing an alarm bell is the increased prevalence of multicopy *plasmepsin 2-3* in Africa. This is a potential concern in terms of the use of DHA-PIP. DHA-PIP is used in many African countries in the private sector as a first-line treatment and can quickly develop resistance mainly because quality of the multiple generics is not optimal.

An arising problem is the promotion of artemisinin tea and capsules by certain NGOs to treat malaria. Using the tea or capsules will lead to some effect because it contains an artemisinin compound but not in sufficient doses to either treat or prevent malaria, but it can have the huge disastrous consequence of promoting resistance.

The data shown reaffirms that 1) surveillance of resistance development is important, not only in the Mekong regions but also outside of it and 2) ACTs must be changed when signs of partner drug resistance develop.

Q&A

- It was widely discussed if it is reasonable to test all fever cases for malaria even if transmission is very low (e.g. <5 % during the dry season). In Pakistan, there is little malaria prevalence in some parts of the country and it is also very seasonal. They are testing all fever patients but do not get a lot of positive cases. It was asked to get some clarification how to move forward with this. Some contended that only testing some fever cases was a rational use of RDTs, as it is expensive to test every fever case. Others argued that if malaria is prevalent in a country even if transmission is low, all fever cases should be tested and that an RDT is more than half the cost of an ACT, so there is no logic in the argument that testing is too costly. Some argued that in the context of elimination, it's not necessary to test every fever case because there are very rare malaria cases, while others argued that to achieve elimination you must even screen more to reduce the parasite reservoir. It was noted that a high number of malaria infections are missed if they are not tested, particularly if their symptoms are non-specific. WHO recommended following the IMCI guidelines as a best practice, based on the epidemiological context of the country.
- It was commented that many adults go to private pharmacies and are treated without being tested first. It was answered that it has been difficult to improve case management in the private sector because of legal and regulatory barriers, but such efforts must be made. Also, more could be done to encourage people to seek care at the public health facilities.
- It was commented that public education is needed, e.g. the caregivers, to demand these tests. It should not only be focused on the availability of the commodity but also on education of the clinicians and the public. It was answered that an example of this is how the prescription of antibiotics in Europe and the USA dropped after caregivers where educated that antibiotics are not necessarily needed to treat every ear infection.

Session 4: Break-out discussions

The group split into two groups and discussed possible priority tasks and deliverables in the two areas of access and quality. The results of the break-out sessions were presented on the last day.

Update from the Malaria in Pregnancy Working Group, Viviana Mangiaterra, Global Fund

Viviana Mangiaterra presented the MiPWG. She will soon step down as Co-Chair and be succeeded by the newly elected Maurice Bucagu, WHO. The purpose of the MiPWG is to promote the use of LLIN, case management and IPTp. The latter two overlap with the work and interest of the CMWG. So there are opportunities to collaborate. Other key collaborations for the MiPWG include collaborations with the Maternal and Child Health Programmes and the National Malaria Control Programmes. Deliverables include advocacy products in the form of infographics, or manuals to support best practices, disseminate lessons learned and provide guidance like "Implementing Malaria in Pregnancy Programs in the Context of WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience", and more recently an M&E brief developed in collaboration with the MERG.

https://endmalaria.org/our-work-working-groups/malaria-pregnancy

Update from the Vector Control Working Group, Konstantina Boutsika, Swiss Tropical and Public Health Institute

The Vector Control Working Group (VCWG) is the oldest RBM WG and has been successful in expanding its membership; the last VCWG meeting counted 278 participants from 52 countries and the distribution list has 1600 members. The WG has six work streams. Objectives include dialogue around best practice sharing, information dissemination, aligning constituencies on challenges faced in malaria vector control and networking. The WG has an innovative financial model with a meeting registration fee of CHF 250 per person. There is sponsorship available for a limited number of affected country participants which is supported through SDC commitment and an industry forum during the meeting presenting new vector control tools and paying an exhibition fee.

https://endmalaria.org/our-work-working-groups/vector-control

Update from the Social and Behaviour Change Communication Working Group, Angela Acosta, Johns Hopkins Center for Communication Programs

The SBCCWG is a technical WG with a cross-cutting topic. Core functions include coordination, technical assistance and making the case for SBCC by mobilising political, social, and financial resources to position SBCC as a core component of malaria control. The WG has no work streams or task forces but time limited deliverables. Potential areas for alignment with the CMWG include strengthening standardised supportive supervision checklists, conducting formative research, and developing behaviour change strategies that target communities and providers.

https://endmalaria.org/our-work/working-groups/social-and-behaviour-change-communication

Multi-Sectoral Working Group, Robert Bos, International Water Association

This WG is the newest addition to the RBM WGs. The MSWG had its kick-off meeting in October 2018 in Basel. The second meeting was held just before this CMWG meeting in Geneva and included about 45 participants from different sectors beyond the health sector alone. The main objectives of this

group are to explore gaps in the design and delivery of integrated multi-sectoral approaches, encourage a wider participation in malaria control and elimination from other, non-health sectors, identify additional resources to support activities, establish priority regions/countries where political will and resources in existing initiatives are conducive to multi-sectoral action and develop prototype project concepts aimed at demonstrating new multi-/inter-sectoral approaches. The sectors initially focused on are tourism, the extractive industry and agriculture.

https://endmalaria.org/our-work-working-groups/multi-sectoral-action

Monitoring & Evaluation Reference Group, Konstantina Boutsika, Swiss TPH on behalf of MERG

The MERG is also an older WG and has meetings twice per year with the last one taking place in September 2018 in Dar es Salaam, Tanzania. MERG has five active task forces on the following topics: surveillance, routine health information systems, seasonal malaria chemoprevention (in close collaboration with CMWG), indoor residual spraying (in close collaboration with VCWG) and evaluation.

https://endmalaria.org/our-work-working-groups/monitoring-and-evaluation

Q&A

- It was asked about any recommendation for the sustainability of the WG. It was answered that financial resources are important, e.g. fundraising ideas and partners stepping in for resources, and having a secretariat paid for coordination. Dedicated members, Co-Chairs and Coordinators were key as well as the commitment of partners and donors.
- It was asked how SBCC could play a role in access or in general play a role in other WG. It was answered that it could be used for better messaging for patients and provider compliance. It could also be used to disseminate the new recommendation of malaria treatment in the 1st trimester of pregnancy.
- It was asked who was targeted with advocacy. It was answered that advocacy was targeting the board members of partners but the ultimate goal was to target the beneficiaries.
- It was asked how best to engage partners. It was replied that for the MSWG, the outcomes of the activities need to be policy relevant to the other sectors, e.g. the rubber industry is highly affected by malaria. So they have an interest to collaborate with the health sector to reduce the malaria burden of their workers.

End of Day 2

Friday 8th February 2019

Day 3

Session 3: Report out and next steps

Report out from break-out groups Q&A

The representatives from the two break-out groups "access" and "quality" reported on their discussion outcomes.

"Access Group" – Pierre Hugo, Medicines for Malaria Venture, and Ricki Orford, PSI/Impact Malaria

The group suggested that the CMWG functions like a "think tank" with all the strengths of the different organizations. They proposed a fresh start with SMART objectives in a 6 -12 months' time frame. Major challenges identified by the group included, how to engage the private sector and how to advocate for iCCM? The group reviewed the feedback given by the NMCP representatives on Davy 2 and recommended tying activities to high burden countries as to have high impact with focus on reducing mortality and lessons learnt should be cross-cutting, avoiding duplication with other working groups.

The proposed activity plan of the "access group" identified six priority topics:

1) SMC and drug-based prevention (be a partner forum and disseminate information of members)
2) Improving access through multiple channels (go to WHO meetings and report back for next steps; advocate for funding)
3) Severe malaria and mortality prevention (reviewing latest research and providing an interpretation)
4) Supply Chain Management (having experts in the CMWG meetings about SCM)
5) Collection and dissemination of lessons learned (cross-cutting to other work streams)
6) CMWG portal / webpage (have a common platform to link experts and disseminate information)

Q&A

- It was asked what could be done differently to keep the CMWG group alive. It was commented that it is up to the members to keep the group alive and the Co-Chairs are very committed to keep the group active. If people are committed, resources can be mobilised.
- It was discussed what the work of the group would be in order to be effective. This could be a task force, having a website, hiring a consultant, having meetings, etc.
- It was commented that a more aggressive agenda to address better access was needed.
- It was commented that the barriers to access in the field need to be better understood.
- It was mentioned that there is a new head of SCM at Global Fund and that it would be good to hear what GF's plans are around SCM.

"Quality Group" – Meera Venkatesan, President's Malaria Initiative

There is a lot of cross-learning potential within the CMWG. There might be tools and solutions that are already available. In the previous discussions in during this meeting many health systems issues came up. Even if the CMWG cannot solve health systems issues, they can play a role in advocating addressing these issues.

The short term deliverables identified for the next 6-12 months were:

1) Compile and disseminate tools that already exist (supervision checklist, training materials, SOPs)
2) In addition, pool together resources, document best practices by talking to country colleagues and updating pre-service training
3) Create a user friendly repository – e.g. a website, a forum
4) Actively link with other working groups, e.g MERG and SBCC

The medium-term deliverables (24 months) identified were:

1) Identify gaps, organise a workshop about exchanging best practices.
2) Organise workshop with NMCP about improving quality of services
3) Develop an advocacy statement on the importance of investment in high quality services.

Q&A

- It was commented that there were areas concerning access as well as quality were the two groups overlap and it should be made sure to have no duplication but complementation.
- It was commented that the RBM website could be used as a forum to pool resources and disseminate information.

Discussion of next steps

All of the topics mentioned by the two groups could be summarised in three main areas of activities: 1) advocacy, 2) developing and disseminating best practices and tools, 3) coordinating with other working groups.

The Co-Chairs will be working in the next few weeks to identify Focal Points for the 3 subgroups and requested participants to volunteer for one of these subgroups. Once Focal Points are identified, they will reach out to the membership to organize meetings/calls, as appropriate.

It also was recommended to set up calls for the whole CMWG between in-person meetings to keep momentum going. It was agreed that it would be appropriate to schedule a call in the June 2019 timeframe to get debriefings on the WHO private sector meeting, the SMC annual meeting, and the iCCM meeting. The Co-Chairs will arrange a call with the Secretariat.

The meeting was closed by the Co-chairs thanking everyone for actively engaging in the CMWG.

End of Day 3

Table 1: CMWG subgroups and priorities

Advocacy for malaria service delivery *Focal Point: TBD*	**Developing and sharing best practices in implementation** *Focal Point:* TBD	**Coordination with other workstream / groups** *Focal Point: TBD*
Short term priorities (First 12 months)		
1. Develop a plan for improving advocacy for: i. Scaling up Malaria service delivery and improved quality ii. SMC iii. Improved supply chain management across partners	2. Compile and disseminate existing tools for achieving quality in case management 3. Identify lessons learnt from success stories in malaria service delivery around the world 4. Update CMWG webpage to link to resources, partners contacts, partner activity map and project resource pages 5. Develop a plan for sharing tools to improve supply chain management 6. Organize the 2020 annual meeting and coordinate ASTMH presence	7. Actively link with other relevant RBM WGs to identify areas of shared interest 8. June WG call to debrief on the upcoming SMC, WHO private sector, ICCM meeting and Meeting on severe malaria and identify priorities for work group & identify activities for CMWG
Longer term priorities (Beyond 12 months)		
	• Identify any gaps in tools for improving quality of service delivery in malaria that are available and fill them • Organize a workshop with NMCP CM focal persons to share experiences, tools, and lessons on improving and maintaining quality of case management services. • Develop an access mapper tool	• Create a forum for improved coordination of partners and NMCPs around supply chain management

Annexes

Abbreviations

AFRO	WHO Regional Office for the African Region
AL	artemether–lumefantrine
API	Active Pharmaceutical Ingredients
ASAQ	artesunate-amodiaquine
ASMQ	artesunate-mefloquine
ASSP	artesunate–sulfadoxine–pyrimethamine
CHAI	Clinton Health Access Initiative
CHW	community health workers
CMWG	RBM Case Management Working Group
CRSPC	Country/Regional Support Partner Committee
EMRO	WHO Regional Office for the Eastern Mediterranean Region
EURO	WHO Regional Office for the European Region
FDA	US Food and Drug Administration
G6PD	glucose 6-phosphate dehydrogenase (G6PD) deficiency
GMP	Global Malaria Programme
HF	Health facility
HRP2	histidine-rich protein 2
HSPOCT	highly-sensitive point-of-care tests
HW	Health workers
iCCM	integrated Community Case Management
IMCI	integrated management of childhood illness
IPTp	Intermittent preventive treatment in pregnancy
M&E	Monitoring and Evaluation
MFT	Multiple first-line treatment
MiPWG	Malaria in Pregnancy Working Group
MoH	Ministry of Health
PAHO	Pan American Health Organization
PIAM	Pakistan, Iran, Afghanistan Malaria Network
PMI	President's Malaria Initiative
PSM	Procurement and supply management
QA	Quality assurance
QC	Quality control
RAcE	Rapid Access Expansion Programme
RAS	Rectal artesunate
RDT	Rapid diagnostic test
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SMC	Seasonal Malaria Chemoprevention
Swiss TPH	Swiss Tropical and Public Health Institute
Unicef	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WG	Working Group
WHO	World Health Organisation
WPRO	WHO Regional Office for the Western Pacific Region

RBM Partnership To End Malaria

RBM CASE MANAGEMENT WORKING GROUP (CMWG)
10th Annual Meeting 6-8th February 2019
Forum, Global Health Campus, Chemin du Pommier 40
1218 Le Grand-Saconnex Geneva

Agenda

Objectives of the 10th Annual RBM CMWG Meeting

- To convene the global malaria partners to share experience and evidence on best practices for improving malaria case management
- To identify priority areas of work and deliverables for the coming year
- To determine appropriate methods of work and focal points for identified priorities and timelines for deliverables.

Co-Chairs: Larry Barat & Elizabeth Juma

Coordinator: Konstantina Boutsika

Rapporteur: Layla Hasler

Wednesday 6th February 2019 **Day 1**		
8:30 - 9:00	**Arrival and registration with welcome coffee/tea**	
Session 1	**Introductions, objectives, key updates**	**Chairperson** **Elizabeth Juma**
9:00 – 9:15	Welcome and introduction of participants	Larry Barat
9:15 – 9:30	Overview of agenda and objectives for CMWG-9	Elizabeth Juma
9:30 – 10:30	Update on Case Management Policies and Guidelines Q&A	WHO GMP
10:30 – 11:00	**Morning Break**	
11:00 – 11:30	Update from the RBM Secretariat Q&A	Daddi Wayessa
11:30 – 12:30	Results of CMWG members survey Q&A	Larry Barat
12:30 – 14:00	**Group photo/Buffet lunch**	
Session 2	**Discussion of priority areas**	**Chairperson** **Larry Barat**
14:00 – 15:00	Panel discussion - NMCP Representatives- Africa Region	Facilitator: Elizabeth Juma
15:00 – 15:30	Panel discussion - NMCP Representatives- Other regions	Facilitator: Larry Barat
15:30 – 16:00	**Afternoon break**	
16:00 – 17:00	Development of priority areas of work - plenary discussion	Elizabeth Juma & Larry Barat
End of Day 1		

Thursday 7th February 2019 Day 2		
8:00 – 8:30	**Registration**	
Session 3	**Invited presentations**	**Chairperson Larry Barat**
8:30 – 9:00	Scale-up of QA of diagnostic testing in Africa	Elizabeth Juma
9:00 – 9:30	Update on drug pipeline and market introduction	Pierre Hugo
9:30 – 10:00	Clinicians adherence to testing guidelines	Julie Thwing
10:00 – 10:30	Update on emerging issues on drug resistance	Pascal Ringwald
10:30 – 11:00	**Morning break**	
11:00 -12:00	Q&A	
Session 4	**Break-out discussions**	
12:00 – 15:00	Break-out discussions/working lunch- Refinement of priorities, identification of deliverable, and identification of focal points (**Buffet Lunch available from 13:00**)	Facilitators TBD
15:00 – 15:30	**Afternoon break**	
15:30 – 17:00	Brief updates from other RBM Working Groups, Q&A	WGs Co-Chairs/representatives
End of Day 2		

Friday 8th February 2019 Day 3		
8:30 – 9:00	**Registration**	
Session 5	**Report out and next steps**	**Chair Elizabeth Juma**
9:00 – 11:00	Report out from break-out groups Q&A	Group facilitators
11:00 – 11:30	**Morning break**	
11:30 -12:30	Discussion of next steps	Elizabeth Juma & Larry Barat
12:30 – 13:00	Final remarks and meeting close	Elizabeth Juma & Larry Barat
13:00 – 14:00	**Buffet Lunch**	
End of Day 3		

Sponsorship of endemic-country participants is provided by *the Swiss Agency for Development and Cooperation (SDC) and Swiss Tropical and Public Health Institute (Swiss TPH).*

List of participants

10th Annual RBM CMWG Meeting
Global Health Campus, Chemin du Pommier 40, 1218 Le Grand-Saconnex/Geneva, Switzerland
6 - 8 February 2019
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