

Update on the Strategic Advisory Group on Malaria Eradication (SAGme)

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Malaria Policy Advisory Committee

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Global **Malaria** Programme



**World Health
Organization**



- Purpose of the SAGme:
 - Analyze future scenarios for malaria
 - Biological, technical, socioeconomic, political and environmental determinants
 - Potential products of innovation
 - Provide advice to WHO on the feasibility, expected cost and potential strategies of malaria eradication over the ensuing decades
- Meetings in August 2016, February and November 2017
- Subgroup meeting in June 2018
- Likely final meeting in Q4 2018



Participants and agenda of the 3rd SAGme meeting



- Attended by 5 SAGme members, 3 WHO collaborating centres, 11 partners and 13 WHO secretariat
- 2-day meeting reviewing 7 work packages
 - Evaluating the economics and financing of malaria eradication
 - Health systems readiness to support eradication
 - Elimination in high-burden areas
 - Potential risks that could threaten or delay eradication
 - Megatrends and populations at risk of malaria in the future
 - Community engagement
 - Lessons learned from previous eradication efforts



- GMP hosted a meeting of economists and epidemiologists in June 2017 to refine questions addressed by the work stream
- Columbia University assisted in developing a framework for economic evaluation of eradication
 - Justification for pursuing eradication should rest on whether eradication would make the world better off, a question of economics
 - The economics of eradication will depend on how eradication will be achieved, the feasibility of achieving it and the risks involved, including risk of resurgence (i.e. operation, technical, biological, ecological and social aspects of eradication must be reflected in the analysis)
 - The economics of eradication should *expose* the incentives of all *players* to contribute to the effort
 - Incentives for individuals to adopt interventions, even when their risk is low
 - Incentives for countries to pursue elimination
 - Incentives for public-private partnerships to develop new tools
 - Incentives for countries to finance the effort and see it through to completion



Four main areas of analysis:

- Empirical analysis of link between malaria and country's gross domestic product (Graduate Institute, Geneva)
 - Malaria-free status associated with 5% higher GDP/capita and a 1% increase in annual GDP growth/capita, less than the original Gallup and Sachs (2001) analysis
 - Malaria eradication would benefit poorer countries more
- Modelling of malaria's impact on labour force, human and physical capital using the Economic Projections of Illness and Cost (EPIC) tool (Graduate Institute and WHO)
 - Results for Ghana and Senegal indicate positive effects of malaria control on modelled GDP, of the same order as that found in the empirical analysis
- Analysis of the relationship between costs and benefits of malaria control (Imperial College, London and Columbia University)
 - Economic benefits of malaria control exceeded costs over most of the programme coverage range (up to 75% coverage), suggesting malaria control is a good investment
- Analysis of financing of malaria programmes (WHO and IHME)
 - Benefits of malaria control and elimination for a country's budget is greatest for countries with lowest GDP per capita, where the financial burden of malaria on public expenditures is highest.

Work package 1: Economics of malaria eradication (3)



Comments/recommendations

1. Economic benefits were not generally an argument for eradication of other diseases, although often considered retrospectively
2. Nonetheless, economic analyses have helped elevate issues for investment and promoted donor engagement in other programmes
3. The cost and financing of eradication likely to be a primary question from the World Health Assembly
4. Many values to working on the relationship between malaria and economic growth
 - a. Demonstrate to donors the wider impact of malaria investments
 - b. Help to make the case for malaria exceptionalism in eradication
 - c. Assist in developing business case for domestic investment
5. Consider positive effects of eradication on tourism and business development, not just on productivity
6. Demonstrate the benefits of malaria eradication to the most marginal and vulnerable in a country

Next steps

- Continue EPIC case study on impact of malaria on economic growth
- Literature review of financial and economic burden of malaria on households and businesses
- Economics meeting in June

Work package 2: Health systems (1)



Health systems strengthening to support malaria eradication, and use of malaria eradication strategies to improve health systems

1. Minimum critical health systems requirements for malaria eradication
2. Health systems requirements that can be improved as part of pre-eradication efforts
3. Essential health system requirements that can be developed or improved over time as a result of malaria eradication
4. Current status of malaria-endemic countries based on minimum critical health system requirements

Figure 1. PHCPI Conceptual Framework for PHC



- The conceptual framework with 25 indicators from the Primary Health Care Performance Initiative was considered for comparison across countries by levels of malaria control
- However, few indicators available over time in all countries for trend analysis
- Approach was reconsidered

Work package 2: Health systems (2)



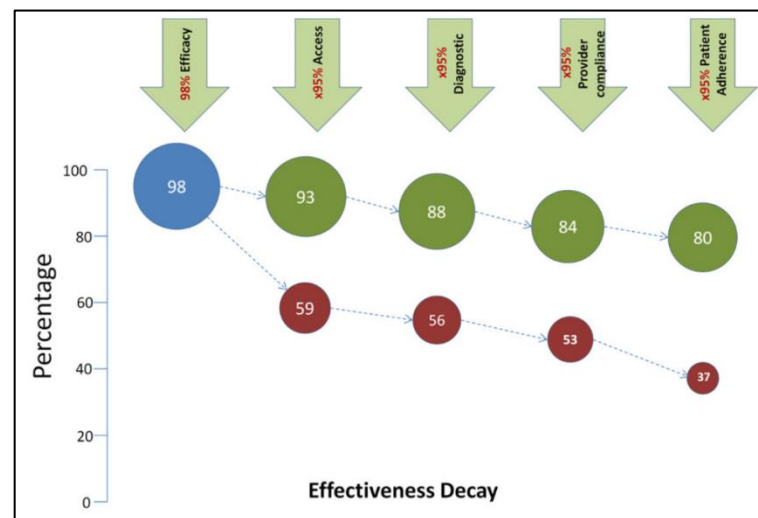
- The objectives of the analysis were shifted from health systems readiness to health systems effectiveness
- Analyze changing access to interventions and impact on disease in an effectiveness decay analysis to investigate health systems factors most important to each component of the effectiveness process

Comments/recommendations

1. SAGme considered effectiveness decay the appropriate approach
 - a. However, some concerns about ability to isolate specific features associated with more rapid progress
2. The health system may lack some mechanisms/indicators that would be important for eradication, i.e. mass drug administration and indoor residual spraying
3. Private sector must be considered

Next steps

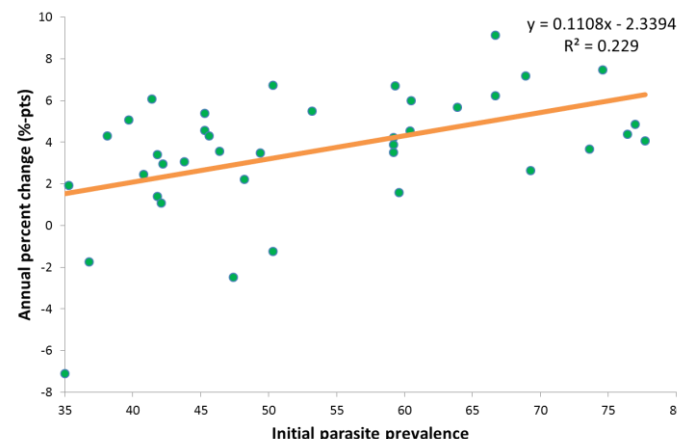
- Analytical support requested from Swiss Tropical Institute
- Preliminary analysis presentation at June working group meeting



Work package 3: High transmission areas



- The objective decided at the last meeting was to identify factors associated with rapid declines in transmission in formerly high transmission areas of Africa
- Data extracted from national household surveys to identify subnational regions with a high prevalence of malaria (i.e. >35%)
- Preliminary multivariable model used to identify factors associated with higher rates of decline of malaria transmission between surveys
 - The average decrease was 3.7 percentage points per year between 2006 and 2015
 - Areas with a higher baseline malaria prevalence experienced higher rates of decline in parasite prevalence over time
 - Areas with higher rates of decline had lower mortality rates and higher indicators of socioeconomic status



Comments/Recommendations

1. Change focus to identifying areas likely to have persistent high transmission in the future after modeling full coverage of known and likely interventions, and accounting for likely impact of megatrends

Next steps

- Analysis to be conducted with Malaria Atlas Project (University of Oxford)
- Analyses conducted for the megatrends work stream will contribute to this paper



- Aim of the work package is to identify potential risks that can threaten or delay eradication, and activities to mitigate these risks.
- Some overlaps with other work packages and the risk originally identified. Thus, this work package focuses on:
 - **Risks at macro level:** natural disasters, break down of normal governance, other public health emergencies.
 - **Risks at micro level:** Malaria in non-human primates.
- The key products of the work package:
 - Report on the risk posed by malaria in non-human primates.
 - Case study series on malaria in conflict and emergencies – conducted by UCSF's Malaria Elimination Initiative (MEI).



- Non-human primate malaria literature review

- Short report on the risk posed by currently known parasites in primates that could infect humans commissioned (from Harvard University)
- Experts reviewed and made minor changes to the report
- The report presents examples of recent zoonotic malaria and argues that as malaria control efforts inch closer to elimination, the proportion of cases attributable to zoonotic parasites will likely increase





- Case study series will examine malaria control and elimination activities in the context of:
 - Violent conflict (Afghanistan, Sri Lanka)
 - Natural disasters (2010 Haiti earthquake)
 - Other health emergencies (2014-15 Ebola outbreak in Sierra Leone)
- Preliminary results from the case studies on violent conflicts presented
 - Findings include the importance of use of non-governmental organizations when the government has limited access and the importance of establishing trust with local leaders and communities

Comments/recommendations

1. Review actions needed to diminish the threat posed by non-human primate malaria, eg., longitudinal monitoring in areas at high risk, investment in R&D
2. Expand case series to other potential scenarios, including government health system breakdowns, complex emergencies and natural disasters

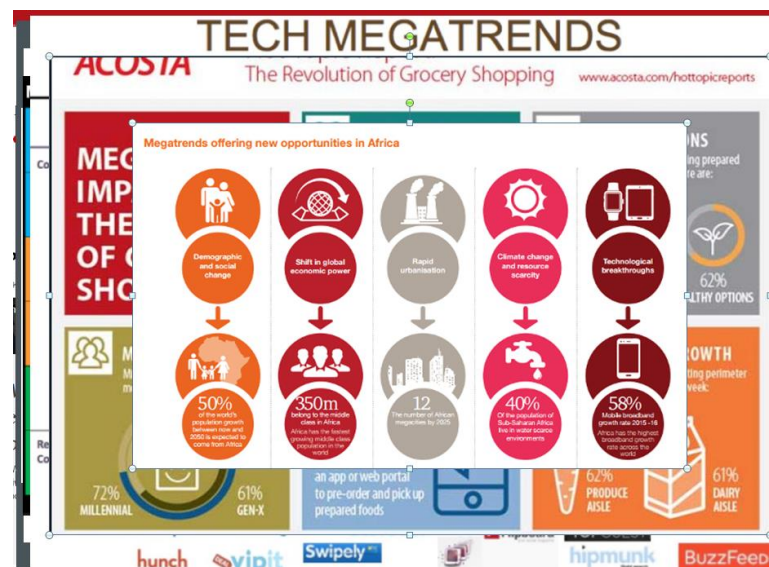
Next steps

- Commission report on actions to mitigate the threat
- Present findings at June working group meeting

Work package 5: Megatrends (1)



- Megatrends that are potentially relevant to malaria in the future include
 - Population growth
 - Urbanization
 - Land use change
 - Migration
 - Development
 - Climate change
- No robust estimates of the effects of these trends on malaria risk and complex interactions
- Africa will drive global population changes in the coming decades
 - Links with economic development, urbanisation, migration
- Opportunities and potential for impact in urbanisation agenda
- Important to consider climate in malaria eradication strategies
 - Need flexibility to incorporate new climate and forecast information
 - Invest in monitoring and surveillance systems for climate and malaria
 - Invest in capacity building to use climate information for malaria





Comments/Recommendations

1. The SAGme acknowledge the difficulty in predicting the future
2. Develop matrices to assist in evaluating effect of each megatrend on malaria overall and by region, as well as on parasites, vectors and people
3. Some risks may be mitigated, while the malaria community may have no control over others. Some trends will be more important (eg. economic development) than others (eg. climate change)
4. Bringing trends together: categorize trends as “working in our favour, against our favour or unknown”

Next steps

- Analysis of the potential impact of megatrends on malaria in collaboration with Malaria Atlas Project, University of Oxford
- Presentation at the working group meeting in June



- Successfully eliminating malaria ultimately relies on how well the malaria programme engages, builds trust and works alongside local communities
- A community engagement framework for quality, people-centred and resilient health services that could integrate and mainstream engagement within public health practice will be adapted and tested for malaria elimination

Comments/Recommendations

1. Broad consensus on the strong linkage between communities and surveillance and need to foster trust and respect between the health sector and communities, and between communities and their governments.
2. SAGme members supported the idea of synergistic approaches to explore the continuum of engagement from communities to health systems

Next steps

- Methodology for field-testing the framework to be developed at a technical meeting in Kigali, Rwanda, during the first week of May
- A second country assessment should be conducted where malaria has been successfully eliminated through strong community support and participation (e.g. Sri Lanka).

Work package 7: Lessons from previous elimination or eradication efforts



- Smallpox, polio and dracunculiasis eradication efforts reviewed with respect to political support, funding, community support, coordination and innovation
- Smallpox eradication:
 - Launched despite lack of universal political support and no increase in funding at the start of the programme
 - Organizing elimination efforts within regions was recognized as important to prevent 'ping-pong' cases.
 - Although WHO coordinated the effort, eradication considered the result of individual national elimination programmes working out their own problems in their own ways.
- Dracunculiasis eradication:
 - Due to the low prevalence of infection, political support was considered critical
 - Funding for dracunculiasis eradication has come from a number of sources, mostly private
 - Level of community engagement has been exceptionally high

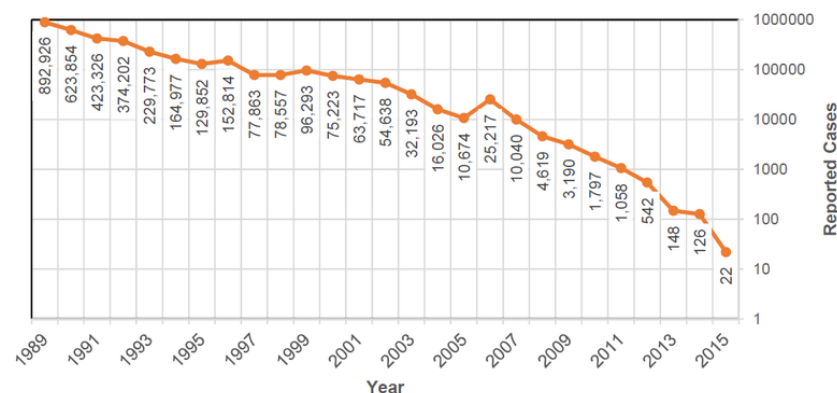
Comments/Recommendations

1. Highlight more information on the launch conditions
2. Highlight the role of surveillance in each effort as well as the late failures in each disease

Next steps

- Complete polio review
- Cross-disease comparisons

Guinea Worm Reported Cases By Year





- Agreement on the need to map out the various pathways that could be taken to support an eradication campaign, including political mapping.
- GMP will map out the potential timing of regional resolutions in conjunction with the Regional Offices.
- Organization of a task force meeting with several work package leaders to present and discuss close-to-final products (to be held in June 2018).

Thank you!

