Barriers to expanded malaria diagnosis and treatment

A focus on barriers which may be addressed through advocacy, communication, and training interventions

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INTRODUCTION

In 2010, the World Health Organization (WHO) announced a policy that all suspected cases of malaria should be diagnosed using microscopy or rapid diagnostic tests (RDTs) and that treatment should be guided by that diagnosis. In support of this paradigm shift, in 2012, the US President's Malaria Initiative (PMI) initiated MalariaCare, a five-year partnership led by PATH and supported by Medical Care Development International, Population Services International, and Save the Children US. MalariaCare is funded by the US Agency for International Development (USAID) under PMI. The overall goal of MalariaCare is to scale up high-quality diagnosis and case management services for malaria and other febrile (fever-causing) illnesses.

A key element of MalariaCare's strategy is to reduce barriers to improved case management through policy adjustments and behavior change interventions among decision-makers, health care providers, the community, and patients and caregivers—what PATH calls Applied Behavioral Communication. This report documents a variety of such barriers, as highlighted in the professional literature and as identified through a series of interviews with international and national malaria program experts from diverse organizations and countries. While many other barriers also exist, this paper highlights only those amenable to Applied Behavioral Communication interventions. These data have proven useful to MalariaCare as it develops strategies for its advocacy and communication work.

> Our findings demonstrate that a key barrier continues to be failure to fully transition from presumptive diagnosis of malaria to a system of universal testing of suspected malaria cases, followed by diagnosis-guided treatment of disease and subsequent tracking of malaria patients.

METHODS

During May-September 2013, the MalariaCare partnership used two approaches to gather data related to policy and behavior change barriers in the field: (1) a review of select, current reports and peer-reviewed publications; and (2) a series of in-depth interviews with 24 international and national experts based in the United States, Europe, and Africa.

A first list of barriers/issues was developed following the initial literature review. That list was shared with the first interviewees for comment and expansion. After the first round of interviews, the list was updated and

expanded, and new versions were shared with new respondents. This process was repeated four times, resulting in a total of 45 issues identified by the end of the interviewing process (see pages 4–8).

The documents included in the literature review and the experts interviewed are listed in the annex to this paper.

FINDINGS

Following is a list of key advocacy, policy, and behavioral issues that, as reported by the experts interviewed, create barriers to improved malaria case management (diagnosis and treatment) and improved diagnosis and treatment of other febrile illnesses. The list is a compilation of data gathered through the literature review and in-depth interview processes described above. The raw data were collated into six issue categories and edited to remove redundancy and to summarize each concept. The findings cover issues related to:

A. **Malaria control strategies, policies, and guidelines**
B. **Patient awareness, demand, and behaviors**
C. **Provision of quality services**
D. **Quality assurance, quality control, and regulation**
E. **Availability of supplies, funding, and procurement**
F. **Monitoring, evaluation, and surveillance**

Addressing issues such as these will require interventions at global and national levels. And, as will be evident when reviewing the findings, many of the issues below are associated with broader health systems, beyond malaria and febrile disease.

A. Issues related to malaria control strategies, policies, and guidelines

1. It is imperative to refresh malaria control strategies at all levels of the health care system and to move beyond presumptive diagnosis. This is crucial in both public- and private-sector programs; the private sector is even less likely to use RDTs than the public sector.

2. Some governments still do not actively promote universal diagnosis and treatment at all levels, and especially at the community level, where a high proportion of malaria cases occur. Updated diagnostic policies at the national level may not be implemented at regional/local levels. Sometimes governments choose to phase in new approaches; that can take time and lead to confusion.

3. Strategies have been evolving and messages have been shifting, and sometimes by the time an updated policy has been implemented in the field, the policy has changed again. This can be confusing to managers and health care providers, and they may not be aware of the latest changes.

4. For decades, the malaria community has told parents and providers that fever = malaria, so it is not surprising that there is inertia against changing the paradigm.

5. Some current, key global documents do not effectively communicate or adequately emphasize the universal diagnosis and treatment strategy.

6. Some national malaria strategic plans and policies are out of date. In many countries, policies are updated only every five to ten years and have not yet incorporated the new strategies. Even if countries cannot update now, they should prepare for updating as soon as possible.

7. There is a shortage of clear national guidelines for implementing universal diagnosis and treatment. Countries are requesting guidelines that clearly specify "do this…and do this…."

8. Some countries have outdated policies related to treatment of severe malaria; these should be aligned with WHO 2011 guidelines.

9. There are multiple policy and regulatory barriers to availability of RDTs and artemisinin-based combination therapy (ACT): in some countries, community health workers, other frontline health workers, and drug dispensers are not allowed to draw blood and therefore cannot use RDTs. Some providers may be allowed to distribute ACT, but not to use RDTs, so the universal diagnosis and treatment strategy breaks down. Some governments do not allow private-sector sales of RDTs and ACT even though a significant proportion of health care is provided by the private sector.

10. In some situations, there may be a tension between programs focused on malaria control versus elimination. It could become challenging for country program managers to make sense of differing strategies and shifting resources.

B. Issues related to patient awareness, demand, and behaviors

11. Patients and caregivers often do not request/demand malaria diagnosis. They may not be aware that they should request it.

12. Sometimes patients distrust RDT results (though this issue may be decreasing). They are concerned that malaria may still be present following a negative RDT result.

13. Patients routinely pressure health workers for ACT, even after a negative RDT. Parents may not feel satisfied leaving the clinic without medications after their febrile child is diagnosed with a cold or viral infection.

14. Patients do not comply with malaria treatment, do not understand how to comply, do not know what to ask for, are afraid of malaria drugs, and/or discontinue treatment early. Sometimes, rather than completing all doses, patients or caregivers save ACT for future use, or for use by other people with fever.

15. Sometimes caregivers do not take patients to the hospital when danger signs are present. This results in treatment-seeking at the community level, where some complications cannot be properly managed.

C. Issues related to provision of quality services

Provision of malaria services

16. Like patients, sometimes health workers distrust RDT results and are concerned that malaria may still be present following a negative result.

17. Some providers do not educate their patients about malaria diagnosis and treatment compliance.

18. There can be a disconnect between staff who run diagnostic tests and those who prescribe treatment. Due to heavy workloads and crowded clinics, sometimes clinicians do not wait for the diagnostic result (this is especially a problem with microscopy, but can be with RDTs as well). So while the clinician may order the test, s/he may simultaneously prescribe ACT presumptively because of pressure to see more patients and patient demand for therapy. This especially is a challenge in private pharmacies and drug shops.

19. Sometimes adherence to diagnostic protocols is better at the periphery (especially where community health workers are using RDTs) than in hospitals, where staff are invested in microscopy and/or presumptive treatment.

20. In some countries, malaria diagnostic testing is more common for patients older than five years, perhaps a result of long-term policies promoting presumptive treatment in younger children.

21. Use of RDTs is threatening to some providers: "I have 20 years of experience diagnosing malaria and I don't need this device." And providers may be concerned that using RDTs will cause them to miss malaria cases: "What if it really is malaria?"

22. It can be difficult for providers to resist patient pressure to provide anti-malarials even after a negative diagnosis. This especially may be a problem when providers are motivated by profit. Lack of availability of alternate treatments for other infectious/febrile conditions likely contributes to this problem, since ACT may be all that is available to the health worker who feels pressured to give something.

23. In some countries, providers still routinely prescribe inappropriate drugs, such as artemisinin monotherapy. This especially can be a problem in the private sector.

24. Taxes and tariffs on malaria diagnostics and drugs increase costs for consumers. This may affect the private sector more than the public sector.

25. Universal diagnosis and treatment should be incorporated into all relevant pre-service and in-service training curricula for clinicians and laboratory technicians; some curricula have not been updated in decades.

26. There is a need for more training on integrated fever management.

Provision of services for non-malarial febrile illnesses

27. Unfortunately, there are no low-cost diagnostic tools as reliable as RDTs for pneumonia and other febrile diseases. Frontline health workers frequently have poor understanding of pneumonia—often there is no local word for it—and they are not able to diagnose and treat non-malarial fevers. They need better access to and understanding of guidelines and tools for diagnosis and treatment, and they need drugs and other treatments for non-malarial febrile diseases.

28. In some countries, health workers and community health workers are not allowed to provide amoxicillin for pneumonia.

29. Conversely, some health workers overuse antibiotics. This is true in the public sector, and may be especially challenging in the private sector. If not done carefully, introduction of universal malaria diagnosis could exacerbate this problem and result in every individual who presents with non-malarial fever being presumptively given antibiotics.

Provision of microscopy services

30. Microscopy services are not used strategically and may become overwhelmed. Where microscopy services are in short supply, reserve them for investigation of treatment failure and for diagnosis and monitoring of severe malaria.

31. Donors or managers may require that donated equipment is used only for specific projects, meaning that microscopes could stand idle even though there is need to use them: "That is the tuberculosis program microscope." That said, this may be less an issue today than it was in the past.

D. Issues related to quality assurance, quality control, and regulation

32. Without continuing quality assurance for RDTs—the products themselves and the way they are used—quality could slip and confidence in the tests could erode. PMI conducts stringent quality control for RDTs, but other donors may not.

33. Some countries have assessed the quality of RDTs, but they have compared the RDTs with substandard microscopy and perfectly good RDTs have been discredited. This contributes to lack of trust in the tests.

34. Even with good microscopy, because RDTs pick up antigens not detectable through microscopy, there can be dissonance between the two diagnostic results.

35. Some countries lack standards and quality assurance systems for reference laboratories and clinics.

36. There is proliferation of fake malaria drugs. USAID, the American Society of Tropical Medicine and Hygiene, and others are focusing on monitoring the problem and working with producer countries.

37. Regulation of pharmacies and drug sellers is insufficient in many countries.

38. Regulation of drugs also is insufficient. Ineffective or inappropriate drugs still appear on essential medicines lists and are prescribed (e.g., chloroquine in countries without *Plasmodium vivax*).

E. Issues related to availability of supplies, funding, and procurement

39. More funding, and more stable funding, is needed for malaria diagnosis, treatment, and tracking. External funding for training and scale-up often is erratic or not sustainable.

40. Because RDTs in a given country may be provided by different sources, and because there is little standardization across RDTs, health workers may receive different RDT brands and formats and this can be confusing. Sometimes old or inappropriate formats are procured. Training programs may not cover all the types of RDTs a health worker may encounter. It is crucial to build coordination mechanisms to deal with this challenge. It also is crucial to encourage manufacturers to harmonize RDT formats.

41. In some countries, RDTs are not universally available. In Thailand, for example, districts supported by a World Bank program have RDTs, but other districts do not. Some countries may prioritize buying ACT over RDTs due to limited funding, leading to a breakdown of the universal diagnosis and treatment approach. Those countries may not be giving full consideration to the likelihood of decreasing ACT use as a result of improved, RDT-based diagnostics.

F. Issues related to monitoring, evaluation, and surveillance

42. Health management information systems have not been updated to include data on who has been tested for malaria, who was treated, etc. Systems must add malaria indicators to surveillance tools and must differentiate between confirmed malaria and presumptive diagnosis of malaria.

43. Most governments do not gather data from private-sector providers.

44. On the other hand, some governments impose complicated reporting protocols on private-sector providers. Those systems may not be implementable and could be simplified.

45. As with malaria data, community-level child management data are not routinely gathered.

DISCUSSION AND RECOMMENDATIONS

The preceding pages document a variety of barriers to improved case management of malaria and other febrile illnesses which may be addressable through Applied Behavioral Communication interventions.

> Addressing issues such as those documented in this paper will require interventions at global and national levels.

Our findings demonstrate that a key challenge is failure to fully transition from presumptive diagnosis of malaria to a system of universal testing of suspected malaria cases, followed by diagnosis-guided treatment of disease and subsequent tracking of malaria patients. There could be many reasons for this failure to adapt programs, and it would be worthwhile to interview program managers and frontline staff to better understand all relevant factors. That said, this study and others have shown that lack of knowledge; suspicion of RDTs; and comfort with long-established, traditional approaches is part of the problem. It is reasonable to contend that without

widespread understanding of the rationale for current international policies supporting the universal diagnosis and treatment approach, adoption of this radically different way of managing febrile cases will continue to be slow, and may never reach certain populations.

Success of the universal diagnosis and treatment strategy also is dependent on availability of high-quality RDTs and appropriate drugs for treatment of malaria and other diseases, along with adequate funding for malaria and integrated disease management programs.

With this in mind, and considering the findings of this study, initial advocacy, communication, and training priority areas may include:

a. Working with global partners to <u>amplify and reinforce messaging about the universal diagnosis and treatment strategy</u>, with a special focus on explaining the rationale for and advantages of the approach. Primary targets include government decision-makers and professional medical, nursing, and pharmacy organizations.

b. At the global level, <u>advocating for harmonized RDT standards and formats</u> to make it easier for countries to work with different products.

c. At the global and national levels, <u>promoting sensible, effective quality assurance and quality control strategies for RDTs and microscopy and for drugs to treat malaria and other diseases</u>.

d. At the national level, <u>assessing the status of existing guidelines</u>, including essential medicines lists, and <u>ensuring that they are up to date and in line with WHO policies</u>. Also ensuring consistency across national policies.

e. Also within countries, <u>focusing on innovative ways to retrain, re-educate, and change behaviors among providers at all levels</u>, and <u>as necessary, revising policies related to provision of quality services and task-shifting</u>. Both public and private providers should be included. To the extent that it is feasible, programs should increase integration of case management of febrile disease. Coordination among key national players is crucial.

f. As providers internalize and accept this new way of working, <u>mobilizing communities and patients to demand diagnosis and appropriate treatment of febrile illness</u> and empowering patients to comply with treatment protocols. An important element will be to ensure that providers pass on accurate and relevant information to patients and caregivers, including instructions on appropriate treatment-seeking in cases of fever.

g. Encouraging countries to <u>emphasize the important role of diagnostics and diagnosis-based treatment when they update national malaria control plans</u>.

h. <u>Overcoming provider resistance to RDT use</u> by broadly disseminating up-to-date data on the devices, sharing country experiences and lessons learned regarding RDT use, and reinforcing the mandate to base treatment on diagnostic results.

i. <u>Incorporating up-to-date information about current malaria control strategies into all health worker training curricula</u>. Improving provider training on case management of fever.

j.   Urging countries to <u>update monitoring, evaluation, and surveillance systems</u> in light of evolving control strategies.

k.   Encouraging countries to <u>develop more effective standards for reference laboratories and clinics</u>.

l.   Continuing to <u>encourage countries and development partners to mobilize resources</u> for malaria control.

RECOMMENDATIONS FOR MALARIACARE APPLIED BEHAVIORAL COMMUNICATION INTERVENTIONS

The MalariaCare partnership alone will not be able to address the myriad challenges documented above. The following recommendations seek to prioritize and focus our efforts where they will have greatest impact at this point in time.

1.   **Reinvigorate global advocacy in support of the universal diagnosis and treatment strategy**

- The data from this study suggest that not enough attention has been paid to ensuring that decision-makers, public- and private-sector providers, community health workers, and patients and caregivers understand the universal diagnosis and treatment approach and why it is crucial for improving management of febrile diseases, including malaria. Existing policy and guidance documents need to be updated, new documents may need to be written and broadly promoted, and messaging about the new strategy must be integrated into new malaria communication initiatives.

- Malaria programs should seek out advocacy partnerships with other programs and organizations focusing on proper diagnosis and treatment of pneumonia, diarrhea, tuberculosis, and other febrile illnesses. When developing interventions, partners should take into account the lessons learned and experiences of Integrated Management of Neonatal and Childhood Illness programs. A common theme may be "the burden of misdiagnosis and inappropriate treatment of fevers."

2.   **Advocate for similar country-level initiatives**

- Malaria program staff should discuss with ministries of health and in-country donors whether or not the ministries have adequately adopted and implemented the universal diagnosis and treatment strategy. If not, include relevant Applied Behavioral Communication interventions in future work plans.

- Provider training, community education, and increasing patient demand for diagnostics likely will be important foci of this work.

- Advocacy and communication interventions will have to be tailored to specific issues and challenges in each country and based on the progress the country has made in rolling out universal diagnosis and treatment.

- National training institutes should be supported in incorporating universal diagnosis and treatment content into pre-service and in-service courses.

- Local professional societies should be encouraged to change provider behavior. This will work best in countries where professional societies are strong.

ANNEX
List of documents reviewed and experts interviewed

DOCUMENTS REVIEWED

Print materials for review were selected to represent the perspectives of a diverse range of organizations in the malaria field (the Roll Back Malaria Partnership, PMI, and WHO, among others), with a special focus on information related to barriers to use of diagnostic tests and/or treatment of malaria and other febrile diseases.

Following is the tally of materials consulted for this process, listed in alphabetical order by title:

- Barriers to prompt and effective malaria treatment among the poorest population in Kenya, J Chuma et al., Malaria Journal, 2010.
- Barriers to the effective treatment and prevention of malaria in Africa: a systematic review of qualitative studies, D Maslove et al., BMC International Health and Human Rights, 2009.
- Community perceptions on malaria and care-seeking practices in endemic Indian settings: policy implications for the malaria control programme, A Das et al., Malaria Journal, 2013.
- Guidelines for the Treatment of Malaria, Second Edition, WHO, 2010.
- Integrated Management of Childhood Illness: Caring for Newborns and Children in the Community, WHO, 2011.
- Malaria case-management following change of policy to universal parasitological diagnosis and targeted artemisinin-based combination therapy in Kenya, A Nyandigisi et al., PLOS ONE, 2011.
- Malaria Diagnostics Market Landscape 2012, UNITAID.
- Mapping the Donor Landscape in Global Health: Malaria, Henry J. Kaiser Family Foundation, 2013.
- Review: Provider Practice and User Behavior Interventions to Improve Prompt and Effective Treatment of Malaria: Do We Know What Works?, LA Smith et al., London School of Hygiene and Tropical Medicine, 2009.
- Scale-up of malaria rapid diagnostic tests and artemisinin-based combination therapy: challenges and perspectives in sub-Saharan Africa, GJH Bastieens et al., PLOS Medicine, 2014.
- Scaling-up malaria treatment: a review of the performance of different providers, MM Kamal-Yanni et al., Malaria Journal, 2012.
- Seventh Annual Report, US President's Malaria Initiative/USAID, 2013.
- Tariffs, Taxes and Non-Tariff Barriers on Access to Anti-malarial Commodities, Malaria Taxes & Tariffs Advocacy Project, 2010.
- The Strategic Framework for Malaria Communication at the Country Level 2012–2017, Roll Back Malaria Partnership, 2012.
- Understandings of Malaria and Implications for RDT Use in Cameroon, RF Wagner, New York University Graduate School of Public Service and Malaria No More, 2012.
- Universal Access to Malaria Diagnostic Testing: An Operational Manual, WHO, 2011.
- World Malaria Report 2012, WHO.

EXPERTS INTERVIEWED

In-depth interviews were conducted with the following individuals, all of whom are involved with malaria prevention programming in the developing world; some have been working on malaria for many years. Most of the interviews were conducted over the telephone, though some were face to face or via email. The author sincerely thanks all respondents for their thoughtful input and critiques of the list of issues as it evolved.

Expert
(listed in alpha-order by last name)

		Organization
Angela	Acosta	The Johns Hopkins University Center for Communication Programs
Michael	Aidoo	US Centers for Disease Control and Prevention
Lawrence	Barat	US President's Malaria Initiative/USAID
Luis	Benavente	Medical Care Development International
Hannah	Bowen	Malaria No More
Carlos (Kent)	Campbell	PATH
Meg	DeRonghe	PATH
Shannon	Downey	CORE Group
Jeff	Doyle	Malaria No More
M. James	Eliades	PATH
Asefaw	Getachew	PATH, Ethiopia
Paul	Hamilton	PATH
Paul	LaBarre	PATH
Megan	Littrell	PATH
Matthew	Lynch	The Johns Hopkins University Center for Communication Programs
John	Miller	PATH, Zambia
Boniface	Mutombo Wa Mutombo	PATH, Senegal
Charles	Ocan	Save the Children US, Uganda
Michel	Pacqué	PATH
Tanya	Shewchuk	Population Services International, Kenya
Eric	Swedberg	Save the Children US and CORE Group
Kathy	Tietje	PATH
Nicole	Whitehurst	Medical Care Development International
Mark	Young	United Nations Children's Fund

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