

Solid Foundations for a New Partnership: How China and the United States Can Collaborate with Africa to Eradicate Malaria

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Preface

The United States and China prioritize malaria assistance by broadening diagnosis and treatment availability at regional and grassroots levels. Despite complementary elements and direct overlap in their malaria assistance, there has been little collaboration between the two countries. Systematic challenges including mutual suspicion, incompatible government structures, and hesitancy on the part of Africans contribute to this lack of progress. China and the U.S. can collaborate to broaden diagnosis and treatment availability, distribute insecticide-treated bed nets more effectively, standardize anti-malaria training, and share relevant information on behavior change strategies, operational research, and monitoring and evaluation. This collaboration can create synergy, producing greater health outcomes and improving the assistance programs. For instance, Chinese Medical Teams (CMTs), the anti-malaria project in the Comoros, and anti-malaria centers can especially benefit. Perceptions are changing, with leaders such as Liberian President Ellen Johnson Sirleaf praising past collaboration and former Tanzanian President Jakaya Kikwete welcoming Chinese participation in multi-donor programs. The current policy framework makes Ghana, Kenya, Zimbabwe, Angola, and Zambia especially viable for partnership. Greater Chinese participation in multi-donor forms and improved transparency can also facilitate this shift.

1. Background

Malaria is one of the most pressing public health challenges facing humanity, with the worldwide human cost on the same level as diabetes and HIV and just ahead of lung cancer, according to the World Health Organization's 2015 Global Burden of Disease report. Both a disease of poverty and a cause of poverty, over 90 per cent of malaria deaths occur in sub-Saharan Africa, and in most cases victims are children under the age of 5 (WHO, 2004). This tremendous human loss, almost 400,000 African lives each year, translates to an intense economic burden hindering development and growth (Sicuri, 2013). The World Bank estimates malaria costs Africa US\$12 billion a year in lost production and opportunity (World Bank, 2009).

The United Nations includes curbing malaria as part of its 2015 Sustainable Development Goals (SDGs). Under the third goal, covering good health and well-being, the U.N. recognizes the important strides that have been made while describing malaria as an epidemic to be ended by 2030. Combating malaria requires various interventions, including indoor residual spraying of insecticide, provision of artemisinin-based treatment, education, technical training, and infrastructure support, among others. The WHO outlined a global technical strategy for addressing this disease in 2014. Priority aims include increasing coverage with long-lasting insecticide-treated nets to 80 percent of the population at risk, ensuring 50 percent of confirmed malaria cases are treated with artemisinin combination therapy in the public sector and administering intermittent preventive treatment to 80 percent of pregnant women in recommended countries by 2020 (World Health Organization, 2014).

African leaders have called for action through the African Leaders Malaria Alliance (ALMA). This partnership of 49 African heads of state and government was created in 2009 and its mission is to coordinate the effort to eliminate malaria by 2030 (United Nations, n.d.). It is a forum for high-level, collective advocacy to ensure efficient procurement, distribution and utilization of malaria control

interventions, an avenue to share the most effective malaria control practices and to ensure malaria remains high on the global policy agenda. The ALMA states African governments should address the critical challenges in securing adequate domestic and external funding for sustained commitment to malaria elimination, strengthen national malaria control programs in the context of strengthening the broader health system, ensure free access to malaria diagnosis, and offer treatment for vulnerable groups such as children and pregnant women. Additionally, they should provide universal access to long-lasting insecticide-treated nets; strengthen human resource capacity at central, district and community levels; and establish strong logistics, information and surveillance systems as well as early detection mechanisms for response to malaria epidemics and other public health threats (ALMA, n.d.). Malaria's biological complexity and expansive range make progress easily reversible. The movement of both the mosquito vector and humans can cause disease reductions in isolated areas to quickly rebound. Effective treatment includes a steady supply of testing equipment, medication and trained personnel to administer them. Any break in this chain may cause community member frustration and erode disease reductions.

2. The role of China and the United States

Both the U.S. and China have answered the call of the ALMA and responded to the U.N.'s sustainability goals positively. To both Washington and Beijing, Africa is of tremendous importance in global peace and development. Sino-African trade totaled over US\$220 billion in 2014 (Agence EcoFin, 2015) while U.S.-African trade was valued at US\$37 billion in 2015 by the Office of the U.S. Trade Representative. In addition to the huge economic potential, all parties benefit from a viable and stable Africa, better positioned to address transnational issues including future disease epidemics, organized crime, piracy and violent extremism. Thus, both countries have a shared interest in combating this disease and are deeply invested in its elimination. In addition to the construction of 30 hospitals and 30 anti-malaria centers, China invested US\$123.9 million in malaria prevention by 2014 (Lin, 2016: 83). Similarly, the U.S. will invest US\$745 million to combat malaria during the 2017 fiscal year (Valentine, 2016). These multifaceted aid programs have direct overlap both programmatically and geographically, in addition to complementary elements.

While both the U.S. and China are dedicating enormous resources to combating malaria, the two countries have fundamentally different approaches to their participation in this African campaign. China's anti-malaria strategy places an emphasis on the construction of health service facilities, training African health officials, and offering provision of medical equipment and medication. The U.S. takes a much broader approach, dividing assistance into technical areas such as medical equipment provision and indoor insecticide in addition to cross-cutting program areas such as operations and behavior change research. Over the years, the U.S. and China have coordinated their public health and development assistance, but there has been little collaboration between them in meeting the calls of African governments and the international community to combat malaria. Close communication and association with all entities involved in malaria's elimination maximizes efficiency and produces stronger health outcomes. Disjointed interventions operating in silos reduce synergy and directly translate to lost lives and economic stunting. To harness the full benefit of both China and America's aid programs, in addition

to meeting African requests and the SDGs, all aid recipients and donors must fully communicate and coordinate to combat malaria in a more unified manner.

3. Overcoming Systemic Challenges

American and Chinese actors largely view each other's African engagement with suspicion. Chinese actors tend to see American efforts as heavy-handed and self-centred with an agenda designed to serve its own strategic agenda. By the same token, Americans, including top U.S. leaders, often accuse China's approach to Africa of being neo-colonial and exploitative. A reluctance on the part of African leaders to encourage a Sino-U.S. partnership has made this situation worse. Many African officials prefer to negotiate aid packages individually with donor countries. This strategy is intended to produce better outcomes for their countries by maximizing leverage and keeping options open. Concerns have also been raised that collaborative aid programs will result in U.S.-imposed conditionality (Shinn, 2011). Historically, Chinese aid has fewer of these extenuating demands, which is frequently welcomed by African leaders. Some African officials perceive that Sino-American collaboration on the continent will result in the formation of a "G-2." This tri-party relationship would then run the risk of continually emphasizing Sino-American interests, relegating African concerns to a lower priority.

Currently China does not maintain a centralized foreign assistance agency. Foreign aid is principally administered through the Ministry of Commerce. However, responsibilities are widely distributed across different government agencies. For example, public health assistance projects to African nations are vetted through the Ministry of Commerce, the Ministry of Health and provincial departments of health. This multi-agency coordination makes collaboration with outside entities especially difficult as responsibilities and authorities overlap. China is less public with statistics about assistance programs, making collaboration difficult. The Chinese government also avoids participation in the Organization for Economic Co-operation and Development (OECD) and other Western-led organizations, which limits the Chinese voice in international forums. Chinese inclusion in these organizations would be welcomed by African leaders.

Assistance programs to African countries by the U.S. also involve multiple departments, but most of them are coordinated by the U.S. Agency for International Development (USAID). USAID also provides a leadership role on various initiatives such as the President's Emergency Plan for AIDS Relief (PEPFAR), the President's Malaria Initiative (PMI) and numerous partnerships. The PMI was launched in 2005 and aimed to reduce malaria mortality by 50 percent in 15 high-burden countries through interventions both in malaria technical areas and in cross-cutting initiatives.

4. Broadening Diagnosis and Treatment Availability

Both the U.S. and China have responded to calls from the ALMA and the WHO for diagnostic and treatment supplies. Effective case management remains a cornerstone for malaria prevention and control. Unfortunately, artemisinin-based combination therapy, the principle WHO-recommended malaria treatment, has seen a depletion in stock across the continent. During a 15-month period in Tanzania, 29 percent of health facilities were completely stocked out of all four age dose levels of the first-line anti-

malarial medication with a median duration of total stock-outs of six weeks. The reality of treatment unavailability costs lives, fosters malaria transmission, and erodes community member faith in the health care system. China, the U.S. and African nations can collaborate to ensure equipment provisions reach necessary regions while duplication of effort in geographic areas is minimized. Logistical best practices can be shared among all stakeholders to increase efficiency and overcome past challenges. This coordination can reduce medication stock-outs and broaden reachable geographic areas. Additionally, Chinese-built anti-malaria centers can be equipped with diagnostic equipment or artemisinin-based treatment supplied by the U.S. This can further ensure the availability of medicine and necessary equipment and allow newly constructed clinics to become operational more rapidly. These necessary resources can be supplied by either the U.S. or China to health facilities with African health professionals that have received training in China, the U.S., or locally by a similar expert. This will ensure individuals with the knowledge utilize the tools efficiently and effectively and are equipped with the necessary assets.

5. Unlocking the Full Potential of Insecticide-Treated Mosquito Nets

High ownership and use of insecticide-treated mosquito nets (ITN) reduce the incidence of uncomplicated malaria episodes by 50 percent. In communities with high levels of use, the risk of malaria infection can decline even among those not using an ITN. The U.S. is active in providing or assisting ITN distribution across 19 African countries (U.S., 2017). The 49 African countries represented through ALMA have stated that universal access to ITNs is a critical challenge. While ITN delivery is not part of China's aid program, opportunities are still present to collaborate in less expensive ways. Chinese built anti-malaria centers can be supplied with ITNs given by the U.S. This can ensure any patients receiving inpatient care are protected from malaria and reduce the chances that patients receiving malaria care facilitate transmission to other community members. Chinese Medical Teams (CMTs) who are often stationed in resource-limited or rural areas can be provided with U.S.-supplied ITNs for distribution to their patients. This can increase coverage in remote areas. Additionally, CMTs frequently run medical training courses and can engage their communities by highlighting the importance of proper ITN usage and maintenance after ITN distributions.

6. Improving Training and Strengthening Health Systems

One of the largest overlaps in the Chinese and American response to malaria is health system strengthening through health workforce education. China holds training programs to provide knowledge of anti-malaria measures to African medical specialists and officials. The Jiangsu Provincial Centre for Parasitic Disease serves as the base for international human resource development assistance. As of 2002, 169 African government officials and special technicians in 43 countries have undergone training there (Li, 2011). The Centre's Training Course on Malaria Control for African Countries in 2015 hosted 20 participants per class and is held multiple times per year. The course consists of basic knowledge of malaria, a description of the Chinese experience in the prevention and control of malaria, an introduction to the national malaria elimination program in China, strategies for vector control, proposals for new anti-malaria drugs, progress on a malaria vaccines and diagnosis and management of the Global Fund Project,

a partnership formed in 2002 between governments, civil society and the private sector to accelerate the end of AIDS, tuberculosis and malaria epidemics. The experimental component includes microscopic examination and blood smear preparation and staining, using polymerase chain reaction (PCR) for malaria detection and identification, morphological and molecular identification of Anopheles mosquitoes and technology for detection of drug-resistant parasites and insecticide-resistant mosquitoes (Zhou, 2010).

The U.S. tailors education and training to the needs of each country in the PMI. Included in these activities are training on indoor residual spraying, building host country managerial and leadership capacity for effective malaria control, integrated training and support supervision for health care workers, improving and monitoring the quality of laboratory diagnostic services, and training to improve the capacity for operational research.

China and the U.S. can open a dialogue with African leadership to standardize training programs. This can ensure efficiency and easier collaboration between African health care workers from different areas of the country or continent. This is especially important and in line with African priorities to strengthen overall health systems and surveillance. As Africa develops its own joint Center for Disease Control and Prevention with assistance from the U.S. and China, the importance of consistent training will be increasingly needed. The three parties can also work together to develop a universal certification program for health care workers. The completion of agreed courses and mastery of core competences can enrich the formal education received while providing opportunities for Africans to more tangibly further their technical skills. Receiving certificates can aid in promotion decisions and enhance African governments' ability to efficiently distribute health workers. By working in greater unison, Africa, China and the U.S. can explore opportunities to widen the array of training programs available. Different courses can be targeted for health professionals at different levels in the health system and more specifically address their most relevant needs.

7. Empowering Grassroots Aid

Since 1963, China has dispatched medical teams (CMTs) throughout Africa. These highly qualified individuals provide free medical services in often remote or resource-scarce areas and serve to meet the immediate human resource needs of their host nations. CMTs typically serve for a duration of two years, and by 2008, 47 CMTs made up of 1,235 members were working in 122 hospitals. Additionally, CMTs have organized training programs and compiled resources into reference books such as *One Hundred Cases of Prevention and Treatment of African Children's Brain Malaria* to assist local medical workers (Li, 2011: 52). CMTs embedded in the local community build trust and respect with their African hosts. These professionals are positioned to play an effective role in patient behavior change and malaria intervention uptake.

The U.S. places an emphasis on social and behavior change strategies including operational research and behavior change implementation. Efforts should be made to share this previous research and results with CMTs and incorporate their knowledge and experiences into future studies. CMTs share many of the programmatic themes of the U.S. Peace Corps, which sends Americans to underserved areas for two years. These American volunteers also work from the grassroots level and have an emphasis on

community integration. Opportunities for both CMTs and U.S. Peace Corps volunteers to collaborate in reaching shared goals should be explored. The U.S. Peace Corps volunteers can be engaged in behavior change training while the CMTs treat active cases. In Ethiopia, U.S. Peace Corps volunteers and Chinese volunteers collaborated in the agricultural sector. However, this came to an end with the arrival of a new U.S. Peace Corps director and the downsizing of the Chinese volunteer program (Shinn, 2011).

8. Scaling Up Effective Programs

Central to China's malaria strategy is the construction of anti-malaria centers across Africa. As of 2009, 27 had been built (Li, 2011: 52). These facilities have been effective in diagnosing and treating malaria. Typically, they are equipped with microscopes, polymerase chain reaction (PCR) machines and non-medical devices such as cabinets, air conditioning units and washing pools (Zhou, 2010). Chinese health professionals frequently accompany the opening of these facilities and provide training on malaria treatment, equipment usage, and laboratory operations. However, calls have been made by Chinese journalists and organizations to move China away from its “turnkey” construction approach, where a completed construction project is sold to a buyer. The sustainability of many anti-malaria centers has been questioned as site selection, equipment configuration and required medical staffing are not in line with local capacity. Hospital management knowledge and equipment maintenance are especially needed by African health care workers (Lin, 2016). Staffing Chinese-built anti-malaria centers with African health care workers who have undergone U.S. training in these core areas may improve sustainability and health outcomes.

Chinese entities have led effective and innovative albeit highly controversial programs in the Union of the Comoros. In 2007, a joint project between Moheli island, the smallest island in the Comoros, and 38 University of Traditional Chinese Medicine experts sought to remove the malaria parasite from the human body. This highly unique approach differs from most interventions which focus on controlling the mosquito that transfers the disease. After each islander was given artemisinin combination therapy (ACT) and primaquine, the rate of infection decreased 98.7 per cent and the number of infected people decreased by 89.9 per cent. During the year, there were no malaria deaths and the anti-malaria effort received praise from the president of the Comoros (Li, 2011). Despite these claims and demonstrated successes, controversy surrounds aspects of the program. Questions remain if medical side effects of the treatment were being monitored in a systematic way and if all participants were provided adequate informed consent. Furthermore, since both the Chinese Ministry of Commerce and Chinese drug manufactures were involved, the level of commercial motivation is unclear (Brautigam, 2014). Additional details regarding these priorities and financial information have not been made public. This program warrants closer examination and possible applications elsewhere in Africa.

Operational research is another cross-cutting area under the PMI. This supports the scale-up of interventions and examines the cost-effectiveness of intervention combinations. Both American and Chinese stakeholders can examine ways to scale-up the anti-malaria centers and the anti-malaria program on Moheli island while increasing costs efficiently and reexamining potential areas of improvement.

9. Bolstering Monitoring and Evaluation

China now ranks among the top 10 bilateral global health donors (Lin, 2016). Despite this and decades of health assistance, very little information is available regarding the scale, scope and impact of Chinese health assistance in Africa. Domestic pressure has also mounted as greater health care capacity is demanded by Chinese actors themselves and foreign aid is less prioritized. There is a great need for systematic and rigorous evaluations of the various approaches and investments made by the Chinese government (Lin, 2016). With China's extreme relevance in providing health assistance, serious efforts should be made to quantify the impacts of Chinese assistance, justify the financial investment, and monitor the progress of projects.

The PMI has collaborated with Roll Back Malaria, the global platform for coordinated action against malaria, and the Global Fund, a financing institution providing support to countries in response to AIDS, tuberculosis and malaria. These parties have carried out in-depth evaluations of malaria control that examine mortality reductions between 2000-2010. Efforts should be made to share past research with Chinese counterparts and include Chinese projects in future studies. Additionally, Chinese actors should become more directly involved in this and other forms of global health dialogue.

10. In It Together

Opportunities for both players to collaborate with African governments in combating malaria are present across the continent. Starting to develop this relationship within the public health arena is a logical place to begin as U.S. health aid normally does not come with attached political conditionality. This reality can assure African leadership that any Sino-American collaborative effort surrounding malaria eradication will not impose extenuating requirements including political or economic reform. African governments should feel assured this novel cooperation will benefit them in their efforts to combat health issues. By starting basic, at the least controversial level, all three parties can realistically begin to work together. China and America should identify and focus on African countries that welcome this cooperation. This was the case in Liberia, where the two countries jointly addressed malaria and received the praise of President Ellen Johnson Sirleaf. Chinese Ambassador Zhou Yuxiao and American Ambassador Linda Thomas-Greenfield further highlighted the cooperation. After demonstrated success, collaboration can be explored in other areas of mutual agreement, including economic growth and development, mitigating conflict, enhancing political stability, and fighting violent extremism and organized crime (Pollock, 2017).

This new tripartite relationship is starting to take hold and produce tangible results. The U.S. and China have demonstrated successful collaboration during the 2013-2016 West African Ebola crisis, cooperating to provide assistance, coordinating logistics, and building an Ebola treatment center (Sun, 2015). Additionally, China and the U.S. have vowed to continue to support the operationalization of an Africa Center for Disease Control and Prevention (CDC). This has come in the form of infrastructure construction, equipment, information systems, expertise, training, and sharing experiences in CDC operation management (FOCAC, 2016). The existing policy implementation structure makes a joint fight against malaria ripe for collaboration. PMI has programs in 19 African countries. Chinese health

assistance is highly concentrated in Africa. Estimates place 89 percent of aid going to the top 10 Chinese health recipients: Cameroon, Ghana, Kenya, Sudan, Zimbabwe, Angola, Mauritius, Ivory Coast, Zambia, and Niger. These realities leave strong programmatic overlap in Ghana, Kenya, Zimbabwe, Angola, and Zambia. Within these countries, communication channels and pilot programs can be developed which can be further expanded upon demonstrated success.

The proposed cooperative activities will go nowhere without a strong African voice and presence. Collaboration must be African-led by individuals with the strategic vision to see the synergic effects of a stronger partnership. Without Africa taking the lead, greater coordination will be extremely unlikely. This strong African call remains the first step toward rethinking disjointed initiatives and is a prerequisite for meaningful dialogue. The appeal has begun with leaders like Tanzanian President Jakaya Kikwete welcoming Chinese participation in Tanzania's multi-donor antimalarial program in 2008 during a meeting in Washington (Shinn, 2011).

Additionally, greater Chinese transparency regarding international aid and a stronger Chinese voice in international forums are needed. With China's tremendous global health engagement and economic power, the need to integrate more fully into these organizations is obvious. This transition is already underway as China has improved its willingness to participate in donor coordination under the U.N. and related agencies. Greater involvement in multi-donor programs is in line with China's acting as a responsible global power.

Both the U.S. and China already have several consultative forums, so there is an existing institutional setting for dialogue. The three parties can further develop relations through the Forum on China-Africa Cooperation (FOCAC) by using this platform to share information and jointly address other concerns shared by all entities (Wang, 2014). FOCAC has expanded to include other organizations such as the African Union and is not exclusive. Other African regional bodies such as the Economic Community of West African States (ECOWAS) should welcome the collaboration and promote dialogue.

In the African countries with strong programmatic overlap, Chinese and American ambassadors can begin to develop communication channels. This dialogue can continue with members of the foreign assistance community such as USAID and the Chinese Ministry of Commerce. Through these conversations, pilot programs can be agreed upon with the possibility of scaling up, both in other African countries that receive U.S. and Chinese malaria assistance and in countries not yet receiving a high proportion of aid. Rethinking these habits can increase the chances the global community's call to action through the SDGs is met, in addition to improving the overall assistance programs provided to all entities.

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