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Letter Open Access

Mitigating the Spread of Antimalarial Drug Resistance and Sustaining the Achievements in Malaria-Eliminating Countries

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Letter

Global efforts at controlling malaria have resulted in significant successes in reducing malaria prevalence in many endemic countries. As a result, Cotter and colleagues highlighted the changing trends in malaria as countries approach elimination [1]. The efforts in controlling malaria have led to a decrease in global malaria incidence and mortality, and the decrease is even more impressive in malaria-eliminating countries [2]. Cotter and colleagues however raised the concern that traditional control interventions are likely to be less effective due to the changing epidemiology, and detailed the need for very important strategies that must be adopted in order to continue shrinking the malaria map. However, the concern of resistance to antimalarial drug, especially artemisinin, has not been sufficiently raised and discussed in the concept of the changing epidemiology. Carrara et al. [3] pointed out that resistance to artemisinin could trigger a catastrophic resurgence in malaria in many parts of the world where significant reductions in malaria morbidity and mortality have been attained.

With increasing reports of artemisinin resistance [3,4], there is the need for improved diagnostics for monitoring the spread of artemisinin-resistant *Plasmodium falciparum*, which threatens the sustainability of the ongoing global efforts to reduce the burden of malaria. The development of simple *in vitro* and *ex vivo* Ring-Stage Survival Assays (RSAs) [5] that can clearly identify artemisinin-resistant, slow-clearing *P. falciparum*, provides us with an additional tool not only for monitoring the worsening artemisinin resistance, but in combination with other resistance monitoring tools provides us with ways of mitigating the further spread of resistance.

In the fight against the resistance to antimalarial drugs, an important strategy that must be considered in ensuring and sustaining a downward trend in malaria morbidity and mortality prevalence, is the optimization of existing antimalarials by either replacement/rotation or combination approach [6]. Plowe raised the possibility of rotating drugs to preserve or resuscitate their efficacy [7]; following the reemergence of chloroquine-sensitive *P. falciparum* strains in Malawi 10 years after its withdrawal from use [8]. While Cotter and colleagues identified migration and imported malaria as the main threat to the achievement and maintenance of elimination in malaria-eliminating countries, it is important to note that these migrants may come from countries where certain antimalarials have been withdrawn from use. Thus, the development of new and improved diagnostics for the identification of resistance/susceptibility to various antimalarial drugs can inform the controlled use of some antimalarials in health care facilities. This will go a long way in mitigating the further spread of resistance, while sustaining the achievements in malaria-eliminating countries.

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I declare that I have no conflicts of interest.

References

1. Cotter C, Sturrock HJ, Hsiang MS, Liu J, Phillips AA, et al. (2013) The changing epidemiology of malaria elimination: new strategies for new challenges. Lancet 382: 900-911.
2. Feachem RG, Phillips AA, Hwang J, Cotter C, Wielgosz B, et al. (2010) Shrinking the malaria map: progress and prospects. Lancet 376: 1566-1578.
3. Carrara VI, Lwin KM, Phyo AP, Ashley E, Wiladphaingern J, et al. (2013) Malaria burden and artemisinin resistance in the mobile and migrant population on the Thai-Myanmar border, 1999-2011: an observational study. PLoS Med 10: e1001398.
4. Dondorp AM, Nosten F, Yi P, Das D, Phyo AP, et al. (2009) Artemisinin resistance in Plasmodium falciparum malaria. N Engl J Med 361: 455-467.
5. Witkowski B, Amaratunga C, Khim N, Sreng S, Chim P, et al. (2013) Novel phenotypic assays for the detection of artemisinin-resistant Plasmodium falciparum malaria in Cambodia: in-vitro and ex-vivo drug-response studies. Lancet Infect Dis 13:70252-7054.
6. Grimberg BT, Mehlotra RK (2011) Expanding the Antimalarial Drug Arsenal-Now, But How? Pharmaceuticals (Basel) 4: 681-712.
7. Plowe CV (2007) Combination therapy for malaria: mission accomplished? Clin Infect Dis 44: 1075-1077.
8. Kublin JG, Cortese JF, Njunju EM, Mukadam RA, Wirima JJ, et al. (2003) Reemergence of chloroquine-sensitive Plasmodium falciparum malaria after cessation of chloroquine use in Malawi. J Infect Dis 187: 1870-1875.