Recent exceptional progress in containing malaria is raising hopes globally that this major burden on a large proportion of the poorest people in the world really can be beaten. This has been achieved through various investment of effort and funds in ensuring wider-scale access to effective interventions. The shift over the last few years away from using drugs to the highly effective artemisinin-based combination therapies (ACTs) has been a landmark, but it was hoped that their design as combinations of two efficacious drugs with different modes of action would preserve the value of individual components. Alas, this has not turned out to be the case. The spread of artemisinin resistance through Asia to Africa would be a catastrophic setback to global efforts to control malaria, as there are currently no equally effective alternative drugs. While artemisinin resistance can be managed rapidly on a small scale, the cost is big enough to make it urgent to mount a vigorous response to stop further spread from areas where artemisinin resistance has been identified (Fig 1), whilst simultaneously undertaking further research to define the nature and geographical extent of the problem.

Asia has fought resistance to one drug after another from the 1970s. Research in recent years has confirmed an increased parallel development time on the Thai-Cambodian border. The biggest problem is confirming how fast it has spread, but we cannot wait for more information without response, so a special containment programme is underway in the areas where there is evidence.

The aim is to contain artemisinin-resistant P. falciparum by removing selection pressure and reducing and ultimately eliminating falciparum malaria.

Key areas of focus:
- Mobile and migrant populations, who have limited access to control services but will spread rapidly if artemisinin resistance becomes widespread.
- Surveillance and information systems, which need to be rapidly upgraded to detect hotspots in transmission, to capture areas with higher frequency of slow parasite clearance and to be timely for rapid response.
- Suppression of monotherapies
- Private sector strategies to ensure the appropriate use of artemisinin combinations
- Understanding patient behaviour to support changes which will limit the emergence and spread of resistance

Conclusions: Extraordinary efforts are needed to control malaria even where it is less common, but there will be beneficial side-effects of improving surveillance and learning for elimination. A major question is whether we are missing the main target, i.e., information on drug efficacy is available, but we are not using it in any consistent way. The problem is not new, but we still continue to lose good tools permanently if we do not strengthen health systems and regulation. The lessons learnt from this effort will be fully documented and highly relevant to the development of approaches to eliminate malaria.

**ABSTRACT**

**NEXT STEPS AND PRIORITIES**

- Ongoing intensive project implementation.
- Surveillance, including mapping of Day 3 Pf positive cases.
- Involving the private sector and piloting innovative approaches.
- Intensiﬁcation of cross-border cooperation.
- Health system strengthening.
- M&SP indicator survey, household, outlet and health facility planned for Q4 2009.
- Inclusion of artemisinin resistance in next two years Budget.

**SUMMARY AND CONCLUSIONS**

- Since the preparation of this abstract, evidence of artemisinin-resistant malaria parasites has been detected in the regions of the containment project.
- The containment project will continue to focus on eliminating the artemisinin-resistant malaria burden.
- Lessons learned from this project will be fully documented and shared to further shape our strategies towards the goal of malaria elimination and to guide containment efforts elsewhere.
- A key challenge is to mobilise resources to mount an immediate response to the same time as confirming the existence of resistance. Given the relatively low incidence of malaria in the region, it was difficult to communicate the urgency for action.

**OBJECTIVES OF THE CONTAINMENT PROJECT**

1. To eliminate artemisinin resistant parasite by detecting all malaria cases in hotspot areas and ensuring effective treatment and vector control.
2. To prevent use of artemisinin-based monotherapy (AMT), fake drugs and inappropriate treatment in the private sector.
3. To prevent transmission of artemisinin resistant malaria parasites by implementing effective vector control.
4. To support continued operational and surveillance of artemisinin resistant malaria parasites through comprehensive entomological and behaviour change communication (BCC), community mobilization and advocacy.
5. To undertake baseline and operational research to fill knowledge gaps and ensure that strategies applied are evidence-based.
6. To strengthen and harmonize surveillance systems, monitoring and evaluation, and coordination to enable rapid and high-quality implementation of the strategy.

**PROGRESS TO DATE**

- This initial two-year project started on 1 January 2009 and will continue until 31 December 2010. It is anticipated that longer-term funding will be secured to ensure that the momentum for this project is not lost.
- Project staff in place (Fig 2).
- Project management staff for CNM and BVBD have been recruited.
- WHO, containment project manager and technical advisor.
- Malaria Control: Epidemiologist, data manager, communications specialist and ﬁeld ofﬁcer.
- Surveillance and information systems.
- Suppression of monotherapies.
- Private sector strategies.
- Understanding patient behaviour.
- Joint action by Thailand and Cambodia.

**CONCLUSION**

The containment project will continue to focus on eliminating the artemisinin-resistant malaria burden. Lessons learned from this project will be fully documented and shared to further shape our strategies towards the goal of malaria elimination and to guide containment efforts elsewhere.