

Use of cell phones to strengthen malaria surveillance-response systems of Bangka/Belitung, Indonesia—a proposal

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Objective

To seek collaboration with international research institutions and funding agencies.

Introduction

The Government of Indonesia (GoI) aims to eliminate malaria by 2030 in 4 stages (1). To reach the elimination phase, High Case Incidence (HCI) areas go through a preelimination phase. The aim of the proposed project is to support one of the Stage 3 provinces in reaching the preelimination phase by 2015 and to assist its HCI districts and municipalities in reorienting their programs to malaria elimination. The preelimination phase can be attained by following these evidence-based technical strategies: (1) prompt and accurate diagnosis of cases; (2) prompt treatment with effective medicines, including intermittent preventive treatment in pregnancy (IPTp); (3) selective, targeted and integrated vector control; and (4) emergency and epidemic preparedness (2).

These strategies can only be properly carried out if the District/Municipal Health Offices (D/M HOs) have a timely, useful and reliable malaria surveillance-response (S-R) system. The use of computers and electronic telecommunication networks has sped up the flow of institution-based case surveillance data to the D/M HO.

To increase its usefulness, however, the S-R system must include data of cases detected in the community along with data of the disease agent and environment. The proposed project will include the collection of all these surveillance data in order to be useful for the implementation of malaria control strategies. Furthermore, to increase timeliness and reliability, the project will support the malaria S-R systems of the Bangka Belitung Province, Sumatera, by means of cell phone (CP) applications through the following activities:

- 1) To develop a CP software for a malaria S-R system and to set up a malaria S-R central data bank (CDB) that will be placed at a commercial hosting server.
- 2) To set up a village CP network in each HCI village for demographic data and home malaria management (HMM) data reporting by households.
- 3) To train village midwives or village malaria workers (VM/MW) to provide HMM, to administer IPTp to pregnant members, to send diagnosis, treatment and IPTp data to the CDB and to obtain blood films for microscopic examination by the HC parasitology microscopist.
- 4) To train HC parasitology microscopists to perform microscopic examinations, to use a microscopy-enabled CP for sending microscopy images to the Provincial Lab for reliability testing and to send data to the CDB.

- 5) To train HC coassistant entomologist, D/M HO assistant entomologist and Provincial HO entomologist to collect vector and environment data, to use a CP for sending vector control targets data to the CDB and to use a microscopy-enabled CP for sending microscopy images to the Provincial Lab for reliability testing.
- 6) To provide consultations, training and resources for the D/MHOs to facilitate the utilization of CP applications for reporting demographic and HMM data and drug and insecticide resistance/efficacy sentinel surveillance and to facilitate sector and intersector surveillance-based rapid and planned response decision making.

To ensure the attainment of project objectives, the GMU CHSM and collaborating institutions will (1) obtain endorsements from the heads of the District/Municipal and Provincial Governments; (2) engage MoH Directorate of Malaria and GMU Medical School staff in workshops and technical guidance; (3) engage malaria program managers of the District/Municipal and Provincial HOs as project field coordinators; and, (4) recruit experienced technicians as on-the-job trainers in parasitological microscopy, entomology and information technology and experienced experts as trainers and consultants in public health surveillance and management.

Methods

Poster presentation at the ISDS 10th Annual Conference 2011.

Conclusions

Benefits of the project: (1) elimination of malaria in Bangka, Sumatera; and, (2) recommendations for expansion of the project/model to other districts/municipalities of Sumatera, Nusa Tenggara Barat, Kalimantan and Sulawesi.

Keywords

Malaria; elimination; surveillance-response; cell-phone application; Indonesia

References

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