Operational Research for Malaria Elimination in Bhutan

Kinley Wangdi, The Australian National University, 2016

Abstract

Bhutan is one of the 30 countries with a stated goal of malaria elimination, having a target of elimination in 2016. Malaria is reported in seven southern districts of Bhutan bordering India, with an at-risk population of 160,000. The aims of this study were to assess Bhutan’s elimination progress and identify potential challenges to achieving this national goal. The study involved carrying out field surveys, and analyzing secondary data from the Vector-borne Disease Control Program data repositories. Additionally, an operational tool, namely a spatial decision support system (SDSS), was developed and piloted in two districts for planning, monitoring and implementation of long-lasting insecticide net (LLIN) distribution in December 2013 and for focal indoor residual spraying (IRS) in April and May 2014. The utility and acceptability of the SDSS was assessed through in- depth interviews with the national and district malaria program officials, and field workers.

Malaria trends were analyzed from 2006-2014 using secondary data. There was an overall decrease in malaria cases from 1,751 to 21 cases, from 2006 to 2014. By 2013, there was an average of one LLIN for every 1.51 individuals. The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) was the main international donor, accounting for more than 80% of total funds for malaria elimination. A cross-sectional survey on the coverage, use and ownership of LLINs was carried out in Samdrup Jongkhar and Sarpang districts. LLIN coverage was high with more than 99.0% of households owning LLINs, with regular use throughout the year. Asymptomatic malaria infection was assessed using rapid diagnostic tests (RDT) in 380 randomly selected participants in these districts. All of the results were negative for Plasmodium parasites. There was high acceptability of the SDSS by public health officials and field workers.

In conclusion, Bhutan seems to be on track to achieve elimination by 2016 given there was a significant reduction in local malaria cases during the study period and confirmation of the study settings being low-transmission areas with no asymptomatic carriers in the community. LLIN coverage was high with regular use throughout the year. However, malaria control measures were mainly donor funded. The SDSS assisted intensified control measures and surveillance, and was well accepted by the national and district officials, and field workers.

The foreseeable challenges that require national attention to maintain malaria-free status after elimination are: importation of malaria, especially from India; continued protection of the population in endemic districts through complete coverage with LLINs and IRS; and exploration of local funding modalities post-elimination in the event of a reduction in international funding. SDSS assisted control activities and surveillance can be expanded to other malaria transmission districts and integrated into the routine surveillance system, to support malaria elimination and post-elimination strategies in Bhutan.

Key words: Bhutan, malaria, operational research, control, elimination, geographic information system