

3.5 million extra untreated cases of malaria

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Credit: CDC

As many as 10900 extra malaria deaths may have occurred in 2014 due to the disruption of healthcare services in the three countries in west Africa currently experiencing widespread Ebola virus outbreaks (Guinea, Sierra Leone, and Liberia), with a further 3900 deaths resulting from the interruption of insecticide treated net (ITN) delivery, according to new modelling research published in *The Lancet Infectious Diseases* journal.

These new estimates of [malaria](#) deaths that would have been prevented by health systems when functioning normally, suggest that the west African Ebola outbreak could have resulted in comparable number of malaria deaths as those due to Ebola itself (8981 by Feb 1, 2015). However, the findings also indicate that implementing mass drug administration (MDA) and ITN campaigns to coincide with the 2015 malaria transmission season in May/June could largely mitigate the impact of Ebola on malaria.

"The ongoing Ebola epidemic in parts of west Africa largely overwhelmed already fragile healthcare systems in 2014 making adequate care for malaria impossible and threatening to jeopardise progress made in [malaria control](#) and elimination over the past decade," explains lead author Dr Patrick Walker from the MRC Centre for Outbreak Analysis & Modelling at Imperial College London in the UK.

Dr Walker and colleagues analysed Demographic and Health Surveys data for malaria prevalence and intervention coverage from 2000 up to the start of the Ebola outbreak in March 2014. They then removed the effect of treatment and hospital care to estimate the potential impact of the ongoing Ebola epidemic on malaria cases and deaths in Guinea, Sierra Leone, and Liberia. They also used modelling to determine how useful an emergency MDA campaign with long-lasting artemisinin combination treatment drugs not used as first-line therapy in affected areas might be in reducing malaria cases and demand for healthcare.

The worst case scenario, assuming that the Ebola epidemic led to a complete end to malaria care, shows that the number of untreated malaria cases could have increased by 45% (1.6 million) in Guinea, 88% (1.3 million) in Sierra Leone, and 140% (0.52 million) in Liberia in 2014 (figure 2). Around half (48%) of these cases are expected to occur in children under 5. What is more, lapses in ITN delivery could have led to another 0.84 million malaria cases in 2014.

The new estimates also suggest that an absence of clinic and hospital care would have increased malaria deaths by 35% (5600 deaths) in Guinea, 50% (3900) in Sierra Leone, and 62% (1500) in Liberia in 2014 (figure 1D). Moreover, say the authors, "In 2015 we estimate that pre-Ebola levels of healthcare provision would be responsible for preventing 15600 malaria deaths highlighting the urgent need to support health system recovery."

Their projections suggest that emergency MDA campaigns (assuming 70% coverage) can be a highly effective method to reduce further malaria mortality and the burden of non-Ebola fever cases upon still fragile health systems in 2015.

According to Dr Walker, "Our predictions highlight the true magnitude of the humanitarian impact caused by the Ebola epidemic. In heavily affected Ebola areas the indirect impact of Ebola upon malaria deaths is likely to be of a similar magnitude to the public health burden caused by cases of Ebola directly. Measures to prevent malaria infection, such as the emergency mass drug administration measures currently recommended by the WHO, are urgently needed while these health systems recover."

Writing in a linked Comment, Mary Hamel and Laurence Slutsker from the Centers for Disease Control and Prevention in Atlanta, USA discuss the hidden toll of Ebola, saying that, "During the past year, the consequence of the global communities' lack of investment in health-care systems in west Africa has become strikingly evident. We have an opportunity to address this shortcoming now, with the recent multinational commitment to the Global Health Security Agenda. The agenda has ambitious objectives, including support to strengthen real-time surveillance systems and to train and deploy an effective disease surveillance workforce. If implemented well, health-care systems will be strengthened so that the next global health threat will be detected,

reported, and contained quickly. But as importantly, these systems should also accurately measure and report on fluctuations in established killers, including malaria, to enable an effective programmatic response."

More information: *The Lancet Infectious Diseases:*
[www.thelancet.com/journals/lan ... \(15\)70124-6/abstract](http://www.thelancet.com/journals/lan... (15)70124-6/abstract)

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