Towards eradication: three years after the tsunami of 2004, has malaria transmission been eliminated from the island of Simeulue?

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ABSTRACT
The island of Simeulue was the first landfall of the tsunami of December 2004. The tsunami destroyed many villages on the island, leaving one third of the population homeless. Malaria is endemic in Simeulue and an epidemic was reported to have occurred three months prior to the tsunami. Information concerning malaria was, however, not easily available. The earthquakes related to the tsunami may have created extensive potential breeding sites of Anopheles sundacus, the probable vector, and increased vulnerability of the human population; a possibility of increased transmission made a further outbreak possible. Consequently, subsequent to the tsunami, considerable amounts of aid, including anti-malarial measures such as insecticide treated mosquito-nets, were deployed on the island. A series of island-wide cross-sectional surveys were conducted in 2005–2007 to determine whether these had had any effect on malaria prevalence. Larval sampling, and CDC light-trap and landing collections of hungry mosquitos were also undertaken. The results indicate that despite the continuing presence of potential vectors in some places the anti-malaria measures introduced following the tsunami have controlled, and may now be close to eliminating, malaria from the island.

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1. Introduction

The mountainous island of Simeulue (2° 29' N, 96° 22' E) 120 kons off the northwest coast of Sumatra, Indonesia, was the first landfall of the tsunami that occurred on 26 December 2004. The scale and nature of the effect of the tsunami on Simeulue was different to that at Banda Aceh where over 150,000 people were killed. Although villages in Simeulue were destroyed, leaving one third of the population homeless, with more than 80% of the houses suffering damage, only three or four people died, apparently because when the sea withdrew (the first warning sign of a tsunami) people ran into the hills, which come down close to the sea, and most escaped. The earthquake responsible for the tsunami and a subsequent earthquake in March 2005 lifted the coast of Simeulue by up to 1.5 m in places. This may have created breeding sites for Anopheles sundacus, a major vector of malaria which breeds in brackish water and is known to have a considerable flight...