

# THE LANCET

## **Supplementary webappendix**

This webappendix formed part of the original submission and has been peer reviewed.  
We post it as supplied by the authors.

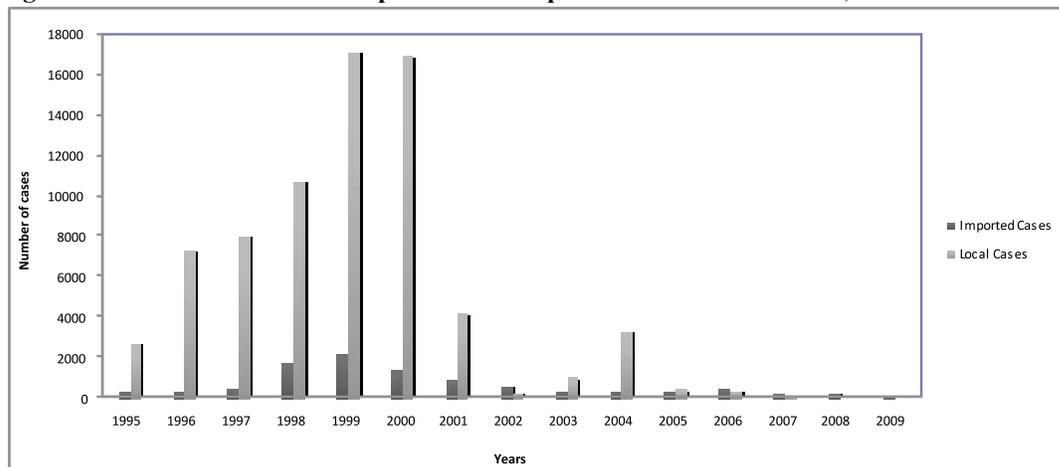
Supplement to: Moonen B, Cohen JM, Snow RW, et al. Operational strategies to achieve and maintain malaria elimination. *Lancet* 2010; published online Oct 29.  
DOI:10.1016/S0140-6736(10)61269-X.

## Reducing importation risk through cross-border collaboration: The Lubombo Spatial Development Initiative.

The Lubombo Spatial Development Initiative (LSDI) is a tri-lateral cross-border initiative aimed at promoting accelerated agricultural and economic development in southern Mozambique, eastern Swaziland, and northern KwaZulu-Natal (South Africa). However, these plans were complicated by the fact that this area straddles the highest malaria transmission areas in the three countries. In 1999, the Medical Research Council of South Africa initiated a cross-border malaria program to optimize control efforts. Apart from harmonizing malaria control strategies across the three countries, the main focus of the malaria component of the LSDI was to extend control into southern Mozambique, with the goal of not only reducing the disease burden in the high transmission areas there, but also reducing the importation of cases into South Africa. Vector control through indoor residual spraying (IRS) and parasite control through first-line treatment with artemisinin-based combination therapy were the two key malaria control interventions implemented.

An analysis of the morbidity data from KwaZulu-Natal shows that prior to the implementation of the LSDI malaria control interventions, the number of cases in KwaZulu-Natal was on the rise. Following the introduction of the LSDI initiated IRS programme in Maputo Province, the number of imported malaria cases from Mozambique decreased drastically, with consequent reductions in the amount of local transmission (**Figure 1**).

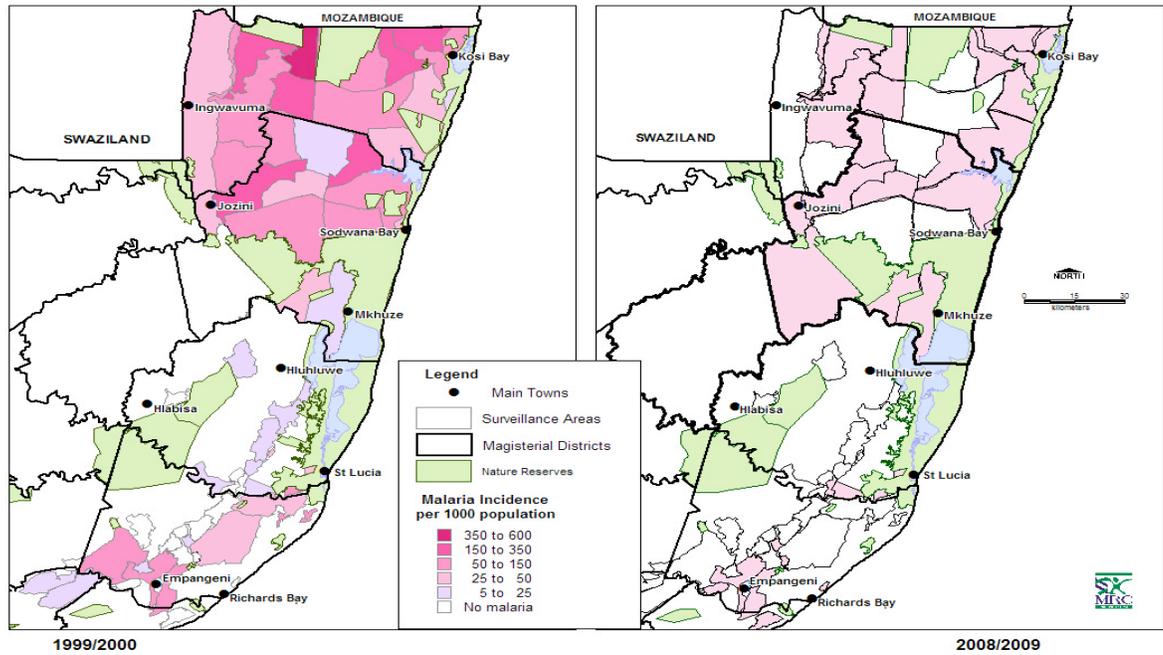
**Figure 1: Number of local and imported cases reported between 1996-2009, KwaZulu-Natal**



In addition, the strong surveillance component of the program, including a robust GIS based mapping of cases, allows for the identification of foci of transmission, especially in South Africa where incidence data are relatively well managed and based on parasitological confirmation. Figure 2 illustrates how districts in KwaZulu-Natal became progressively malaria free since the implementation of the LSDI malaria control program.

The LSDI is an excellent example of the impact that a properly co-ordinated IRS programme can have on the regional disease burden. Since the implementation of the LSDI in 1999, there has been a 99% reduction of malaria incidence in South Africa and Swaziland and a 96% reduction in malaria prevalence in Maputo Province.<sup>1</sup> This cross-border initiative will therefore directly contribute to both Swaziland and South Africa's elimination efforts by damming the flow of incoming infections.

**Figure 2: Disease incidence by district in 1999 and 2009**



**Reference**

- [1] Sharp BL, Kleinschmidt I, Streat E, Maharaj R, Barnes KI, Durrheim DN, et al. Seven years of regional malaria control collaboration—Mozambique, South Africa, and Swaziland. *Am J Trop Med Hyg* 2007; **76**:42–7.