

## 2 SEASONAL DISEASES

### a An entomological survey of an odyssean malaria outbreak investigation in West Rand District

On the 22 January 2016, a case of malaria was reported from Leratong Hospital, West Rand District in Mogale City, Gauteng Province. The patient was a 34-year-old female, who was born in Standerton, Mpumalanga Province, and had lived in Simunye settlement (near Westonaria) since 2005. She was an underground worker for a gold mine, and while residing at the mine residence temporarily in late December and early January, suddenly fell sick. There was no history of recent travel to a malaria endemic area, use of needles or blood transfusion. She experienced the onset of fever, severe headache, fatigue and body cramps on the 4<sup>th</sup> January 2016. She visited the mining health facility, and a nurse treated her and sent home. However her condition worsened compelling her to visit the same facility again on 16 January, and she received treatment for 'flu. On the 20 January upon her visiting the facility for the third time, a malaria rapid test was performed. She was immediately treated with Coartem but her health continued to deteriorate to the extent of being unconscious. On the 21 January while unconscious she was taken to Leratong Hospital. The presence of malaria parasites were noted during a routine haematology differential smear on the 22 January. *Plasmodium falciparum* was confirmed on blood smear, with 3.1 % parasitaemia. She was admitted to ICU, responded positively to treatment and has since recovered and been discharged.

The patient's residence in Simunye and the mine where she worked are flanked by, or close to busy roads: N12, R559, R93 and R28. The mine residence accommodates 214 employees plus 60 undocumented migrants, comprising individuals from all the Provinces in South Africa and migrant workers from the neighbouring countries such as Mozambique and Zimbabwe. An investigation of the

property revealed several potential breeding and resting sites: blocked storm water canal in front of the room, leaking pipes, borrow pits along the main pipe line, and open drains with stagnant or very slow moving water. Upon investigation, the bodies of water, open drains and borrow pits revealed the presence of adult mosquito and larvae (Figure 2). All adult mosquitoes and larvae collected were identified as *Culex* species, which are not vectors of malaria; thus they could not be implicated in disease transmission. Entomological investigation was also conducted at the patient's residence in Simunye as she had spent some nights and weekends there, especially when she was not on a night shift.

#### Conclusion

The entomological survey concludes that even though there is the possibility for malaria vectors to breed near the mine residence, it is unlikely that the current case was due to a locally-breeding population as no evidence of anopheline adult and larvae were found. It is therefore concluded that this case of malaria is classified as odyssean. The infective mosquito could have been introduced by road transport or by an individual inadvertently carrying it in a bag or suitcase.

#### Recommendation

It is crucial that the community be educated about malaria and the transmission of the disease. Speaking to the hostel managers and the patient it was apparent that there is a general lack of knowledge of malaria epidemiology. The potential breeding and resting sites on the property could be minimised by urgent maintenance of the infrastructure e.g. fixing the leaks and replacing the metal drain covers/lids with plastic ones. The use of mosquito coils and other available repellents by residents should be encouraged.



**Source:** Centre for Opportunistic, Tropical & Hospital Infections, NICD-NHLS; West Rand District and Gauteng Provincial Departments of Health. ([johnf@nicd.ac.za](mailto:johnf@nicd.ac.za))

**Figure 2.** Stagnant water around the mine residence - potential mosquito breeding and resting sites