



CONSULTATIVE SIGNAL ASSESSMENT  
**PRIMARY RISK ASSESSMENT**  
 EVIDENCE BASED RISK ASSESSMENT  
 PUBLIC HEALTH EVENT ASSESSMENT  
**AUTOCHTONOUS MALARIA CASE IN STEENOKKERZEEL**

Date of the signal	Date of the PRA	Signal provider	Experts consultation	Method
27/06/2022	29/06/2022	COCOM	<b>Permanent experts:</b> Dirk Wildemeersch (AZG), Romain Mahieu (COCOM), Tiffany Dierinck (AViQ), Karin Cormann (DGOV), Patrick Demol (HGR-CSS), Tinne Lernout (Sciensano)  <b>Specific experts :</b> Wim Van Bortel (ITG), Emmanuel Bottieau (ITG), Marjan Van Esbroeck (ITG)	E-mail consultation
Date of update	Closing date			

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## Signal

### Confirmed malaria case, autochthonous, from unknown origin.

On the 29th of June 2022, a case of malaria caused by *Plasmodium falciparum* in a person without recent travel history was reported. The case is a woman of 31 years who lives in Steenokkerzeel.

Symptoms such as fever and pain in the back/legs started on the 22th of June 2022. The high fever (39°C) prompted her to go to the emergency department of CHIREC - Delta hospital on the 24th of June, where she was admitted. She developed an encephalitis on June 26<sup>th</sup>. The case has then been admitted to the ICU.

The date of diagnosis was on the 24th of June, and the diagnostic was confirmed by the ITM on June 27<sup>th</sup>

**The prognosis is uncertain as of today.**

## Description

### Cause known?

Although the route of transmission remains undetermined for this autochthonous malaria case, *Odyssean*<sup>1</sup> malaria i.e., malaria acquired through an imported exotic mosquito (*Anopheles*) seems the most plausible explanation for infection. The patient lives in Steenokkerzeel which is next to the Zaventem International Airport (only 3-5 km away from it, very close to the north east edge of the airport).

According to the current information from AZG, travel related malaria, acquired in endemic zones, could be excluded, as the patient reports:

- no recent travel history;
- visiting her parents in Châtelet (near Charleroi) a few days before onset of symptoms
- no travel of another member of the family to an endemic area and no visitors from abroad;
- no relapsing malaria as *Plasmodium falciparum* spp.
- No blood transfusion or recipient of SoHO

Introduced malaria, or transmission by local *Anopheles* infected on a (asymptomatic) gametocyte carrier (originating from endemic areas) is very unlikely based on the information available from the investigation.

Although competent vectors to transmit the parasite could be present, as already identified by Modirisk project in 2008 in Belgium, it is unlikely that they are at the origin of the case. Most of the *Anopheles* species in Belgium are not known as vectors of PF, except *Anopheles plumbeus*. The presence of this *Anopheles* species in Steenokkerzeel is not known.

### Unexpected/unusual

- Autochthonous malaria cases have already been described in Belgium and occur sporadically. **It is rather an unusual event, however an increase in the frequency of these events is being observed in the last years (cases observed three years in a row).** The latest cases were in autumn 2020 in a couple living in a vicinity nearby the airport and in summer 2021 in an airport employee. All were classified as malaria acquired through imported exotic mosquitoes.

<sup>1</sup> Malaria acquired in a non-malarious area from the bite of an imported mosquito

<p><b>Severity</b></p> <p><b>Dissemination</b> (Low/Medium/High)</p> <p><b>Risk of</b> <b>(inter)national</b> <b>spread</b></p>	<p>Patients with autochthonous malaria can present complications and die due to the delayed or missed diagnosis of the cause of illness.</p> <p>- No risk of further malaria dissemination in Belgium expected.</p> <p>- No</p>
<p><b>Preparedness and response</b></p>	
<p><b>Preparedness</b></p> <p><b>Specific control measures</b></p>	<p>- The laboratory capacity to diagnose malaria is available in most Belgian labs and Belgium has a National Reference Laboratory (NRL). ITM (the NRL) offers free service to all labs to confirm the diagnosis by PCR.</p> <p>- Malaria surveillance in Belgium relies on the sentinel laboratory network and the NRL. Both report on a voluntary base. Autochthonous malaria is mandatory notifiable, and all cases are to be reported to regional health authorities.</p> <p>- National surveillance/monitoring of (invasive/exotic) mosquitoes in Belgium is (again) in place since May 2022 but with focus on <i>Aedes</i> mosquitoes. The surveillance is carried out through active monitoring in specific points of entry and passive monitoring through a citizen science platform/website for the notification of mosquitos by pictures. There is currently no long term national plan though to prevent the potential establishment of invasive/exotic mosquitoes.</p> <p>- Saniport performs checks on respect of procedures for disinfection before take-off from endemic countries, for planes with travelers arriving at Zaventem National airport. In June 2021, there were 169 of such flights and all respected the procedure. Manpower is lacking to check the cargo flights (about 5 planes a week from risk areas). These checks do not currently take place in other airports.</p> <p>- No measures taken so far.</p>
<p><b>Public health impact</b></p>	
<p><b>Public health impact in Belgium</b> (Low/Medium/high)</p> <p><b>Recommendations</b> (surveillance, control, communication)</p>	<p>- Low. No further autochthonous malaria cases are expected related to this event.</p> <p>- Raise awareness among airport staff and train them for the use of the citizen science platform/website for the notification of mosquitoes observed at the airport.</p> <p>- Since this type of event have occurred in three years in a row, it is worth looking further into this to better understand the situation. Consider :</p> <ul style="list-style-type: none"> <li>o Setting-up a specific entomological investigation at airports in and around planes (for passengers and cargo) arriving from Malaria endemic countries (particularly from Africa)</li> <li>o Attention should be paid for disinsection of planes and check of the cargo flights to ensure these activities occur.</li> <li>o Not only focus on Brussels international airport, but also other Belgian airports with flights (for passengers and cargo) from Malaria endemic countries (particularly from Africa).</li> </ul>

## Actions

- No entomological investigation will be put in place, since one week has already passed after the initial diagnosis (so transmission occurred at least 7 days before 24/6) and it will therefore be unlikely to find the actual mosquito responsible for transmission.
  - In view of the upcoming summer months :
    - o Communication should be done to GPs and hospitals in the area/cities around airports, raising awareness about airport/suit case malaria.
    - o For treatment, artesunate should be either positioned in hospitals in the vicinity of international airports or at least easily and immediately available from an academic hospital close by (with clear appointment for very fast delivery of drug, or very fast referral of patient).
  - Raising awareness among airport staff about airport/suit case malaria.
  - The notification of the event to WHO (IHR) is not necessary since this is an isolated case. The event should be notified through EWRS for information.
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