

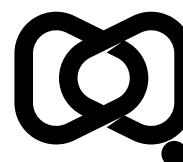


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# **Epidemiology of malaria in the Torres Strait Islands, Australia, 2000-2025 and the public health response to three recent outbreaks**

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## Abstract

### Background

Australia was declared malaria free in 1981. However, the proximity of Australia's Torres Strait region to malaria-endemic Papua New Guinea (PNG), and the presence of the *Anopheles* mosquito across Northern Australia, means there is an ongoing risk of malaria for many Australian residents. This paper describes the epidemiology of malaria in the Torres Strait region between 2000 and 2025 and reports the public health response to three malaria outbreaks between 2023 and 2025.

### Methods

Case data from 1 January 2000 to 31 December 2025 were extracted from the Queensland Notifiable Conditions System to describe the epidemiology of malaria in the Torres Strait. The public health responses to each of the three recent outbreaks were reported against the Queensland Health Public Health Unit Guidelines for Malaria.

### Results

During the period 2000–2013, there were 171 cases of malaria reported in the Torres Strait region. Of these, 89 (52%) were positive for *Plasmodium falciparum* and 82 (48%) for *P. vivax*. Of cases during this period, 130 (76%) were imported from PNG; 13 (8%) were acquired in Australia; and 28 (16%) had an unknown place of acquisition. After a nine-year period without any confirmed malaria cases in the region, eight cases were reported across three outbreaks between 2023 and 2025. In all six of the outbreak cases in which a species could be confirmed, *P. vivax* was identified. The three outbreaks were managed effectively in partnership with local leaders, and included active case finding and vector control activities.

### Discussion and conclusion

The public health response successfully halted transmission of malaria during three separate outbreaks in the Torres Strait Islands. However, there is an ongoing local risk due to the high incidence of malaria in PNG and cross-border movement under the Torres Strait Treaty. Ongoing collaboration with PNG stakeholders and enhanced local surveillance are essential to minimise the future importation of malaria, and other potentially life-threatening pathogens, into mainland Australia.

Keywords: malaria; outbreak; First Nations health; public health; Aboriginal and Torres Strait Islander people

## Background

Malaria is caused by protozoan parasites of the *Plasmodium* genus and is transmitted by *Anopheles* mosquitoes.<sup>1</sup> At least six species of *Plasmodium* infect humans: *P. falciparum*; *P. vivax*; *P. ovale curtisi* and *ovale wallikeri*; *P. malariae*; and *P. knowlesi*.<sup>2,3</sup> *P. falciparum* and *P. vivax* are responsible for 95% of global malaria cases, with *P. falciparum* causing more than 95% of malaria deaths.<sup>1</sup>

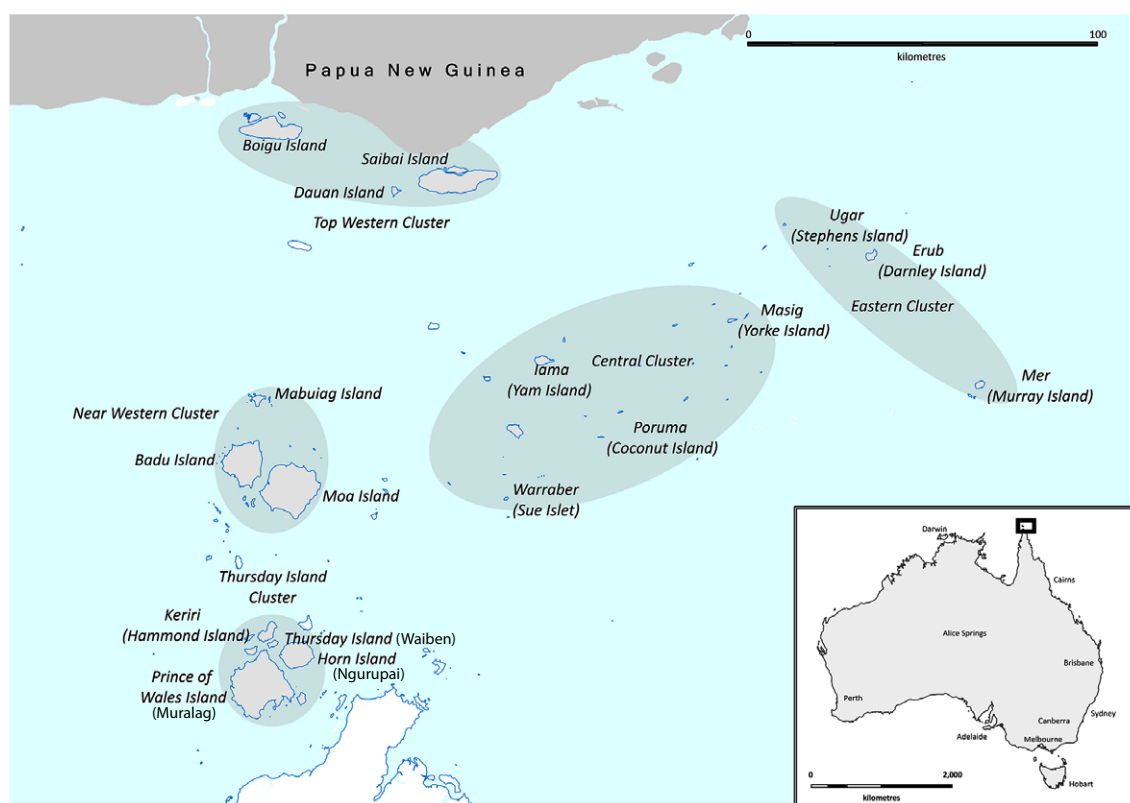
Australia was certified as free of endemic malaria by the World Health Organization in 1981.<sup>4</sup> However, the *Anopheles* mosquito vector is present in Australia. The *Anopheles farauti* sensu lato mosquito is endemic in North Queensland, between Townsville and the Torres Strait Islands, and this region remains receptive to malaria transmission.<sup>5</sup> The last outbreak of locally acquired malaria in mainland Australia occurred in North Queensland in 2002.<sup>6</sup>

The Torres Strait Islands are a group of 31 islands located between mainland Australia and Papua New Guinea (PNG) (Figure 1). Residents of the Torres Strait Islands often have close family and cultural ties to PNG. Under the Torres Strait

Treaty, residents of villages in the Torres Strait and PNG can move freely throughout the region for traditional activities in the Torres Strait Protected Zone.<sup>7</sup> Movement under the Torres Strait Treaty was suspended when the Australian border with PNG was closed from 22 March 2020 to 21 December 2022 due to the COVID-19 pandemic.<sup>8</sup> Three islands across the Torres Strait, the top western cluster, are at particularly high risk of imported malaria cases due to their proximity to PNG, where malaria is endemic:<sup>9</sup> Saibai Island, 4 km from the PNG mainland, with a population of 340 people; Boigu Island, 6 km from the PNG mainland, with a population of 200 people; and Dauan Island, 11 km from the PNG mainland, with a population of 130 people.<sup>10–12</sup> Saibai and Boigu Islands are low-lying and prone to seasonal flooding, with extensive swampland areas, while Dauan Island has a steep granite peak surrounded by coastal lowland.<sup>10–12</sup>

Here we describe the epidemiology of malaria in the Torres Strait between 1 January 2000 and 31 December 2025, and report the response to three recent malaria outbreaks which occurred during the period 2023–2025.

**Figure 1: Map of the Torres Strait Islands,<sup>a</sup> Australia**



<sup>a</sup> Image credit: this map has been provided by Torres and Cape Hospital and Health Service and permission for use has been granted.

## Methods

### Epidemiology of malaria, 2000–2025

Malaria has been a notifiable condition in Australia since 1991.<sup>13</sup> We extracted confirmed and probable malaria cases, with a residential address in the Torres Strait Islands or PNG and an onset date between 1 January 2000 and 31 December 2025, from the Notifiable Conditions System (NoCS) in Queensland. Available demographic (age, sex, residential location and report location), laboratory (nature of test, result and species), clinical (requirement for hospitalisation) and epidemiological (place of acquisition and case classification) data were reviewed. Locally acquired cases were defined as cases who were diagnosed with malaria in the Torres Strait Island region and who reported no overseas travel in the previous three months (a standard NoCS case investigation question). Details of previous malaria infection and extended travel history were not consistently available in NoCS. Additionally, detailed demographic and clinical data were not consistently available before 2023. All requests for malaria testing in the Torres Strait Islands between 1 January 2000 and 31 December 2025 were extracted from the Pathology Queensland Information System (AUSLAB), which records all laboratory testing in the state's public health system.

### Malaria outbreaks, 2023 and 2025

#### Case definitions

Responses to the three most recent malaria outbreaks in Australia were described in accordance with the Queensland Health Public Health Unit Guidelines for Malaria.<sup>14</sup> The Torres and Cape Public Health Unit (TCPHU) successfully advocated for the probable malaria case definition to be added to the Guidelines on 1 April 2023,<sup>14</sup> and this was used to define outbreak cases (Box 1). Confirmed and probable cases were reported to NoCS at the time of each outbreak.

#### Data sources

The outbreak cases and public health response were retrospectively described using TCPHU line lists and NoCS. Laboratory results were cross-checked with AUSLAB, while treatment and hospitalisations were cross-checked with the patients' electronic medical record.

### Box 1: Outbreak case definitions

Outbreak cases were those that met the confirmed or probable case definition, reported no overseas travel during the exposure period and spent some, or all, of their exposure period on Saibai or Boigu Islands respectively, and reported onset between:

- 1 July and 18 September 2023 [Boigu Island 2023 outbreak];
- 1 July and 18 September 2023 [Saibai Island 2023 outbreak]; or
- 17 April and 13 July 2025 [Saibai Island 2025 outbreak].

#### Confirmed case

- detection and specific identification of malaria parasites by microscopy on blood film with confirmation of species by the Queensland Public Health Reference Laboratory; or
- detection of *Plasmodium* species by nucleic acid testing.

#### Probable case

- detection and specific identification of malaria parasites by microscopy at a non-reference laboratory (Pathology Queensland laboratory); or
- a positive result with a rapid antigen, immunodiagnostic or immunochromatography test.

## Active case finding and testing

Active case finding was conducted during each outbreak response. To support this, the local population for each outbreak was determined from active patient medical records, with the list reviewed by local clinic staff to identify those not currently on the island. Paper-based forms were developed to screen household contacts of cases and community residents for malaria symptoms and to collect information about any overseas travel within the prior three months. Household contacts were asked to visit the clinic and were offered blood specimen collection for laboratory testing. Residents reporting current or recent malaria symptoms were also invited to the clinic for blood specimen collection for laboratory testing. To expedite commencement of treatment, symptomatic household contacts and residents were offered a rapid diagnostic test (RDT) at the clinic, which returned results within 15 minutes. More information about the active case finding strategy is outlined in Appendix A, Figure A.1.

The Abbott BinaxNOW™ RDT was used at the point-of-care during the outbreaks. The screening test targets the *P. falciparum* histidine rich protein-2 (PfHRP2) antigen and a pan-malarial antigen found in *P. falciparum*, *P. vivax*, *P. malariae* and *P. ovale*.<sup>15</sup>

Blood samples for laboratory testing were sent for Giemsa-stained thick and thin blood films and loop-mediated isothermal amplification (LAMP) (Alethia®, Meridian Bioscience) testing at the Thursday Island Hospital laboratory (~150 km and a 40-minute charter flight and 15-minute ferry from the top western cluster islands) and the Cairns Hospital laboratory (~900 km and a five-hour trip with two connecting flights from the islands). Positive laboratory specimens were then forwarded to the Public and Environmental Health Reference Laboratory (PEHRL) in Brisbane (~1,400 km and a 2.5 hour flight from Cairns) for confirmatory microscopy and polymerase chain reaction (PCR) testing. The *Plasmodium* species was determined by microscopy, or from PCR if microscopy was non-diagnostic.<sup>16</sup> The RDT was used to report the species when microscopy was non-diagnostic and when PCR was not performed.

## Ethics

The report was granted an ethics exemption by the Far North Queensland Human Research Ethics Committee and received ethics approval from the Australian National University Human Research Ethics Committee (Protocol 2017/909).

## Results

### Malaria cases notified in the Torres Strait, 1 January 2000 to 31 December 2025

#### 2000–2013

A total of 171 cases of malaria were notified among Torres Strait Island and PNG residents in the Torres Strait Islands between 2000 and 2013. Of these, 89 (52%) were positive for *P. falciparum* and 82 (48%) for *P. vivax* (Figure 2a). Of the 171 cases, 130 (76%) were acquired in PNG; 13 (8%) in Australia; and 28 (16%) in Torres Strait Island residents with an unknown place of acquisition (Figure 2b). The median age was 24 years (interquartile range: 14–35 years) and 72 cases (42%) were female. One case required hospitalisation, with no deaths recorded.

#### 2014–2022

No cases were notified between 2014 and 2022 (Figure 2a). Malaria testing declined during this period; however a small number of tests were conducted each year (Figure 2b).

#### 2023–2025

Between 2023 and 2025, there were 30 cases reported. Of these, 22 cases (73%) were acquired in PNG and eight cases (27%) were acquired in Australia, with all eight Australia-acquired outbreak cases described in the next section. Of the 30 cases, 17 (57%) were positive for *P. vivax*; ten (33%) were RDT positive for non-falciparum malaria; one was positive for *P. falciparum*; one was positive for *P. malariae*; and one did not have a species identified (Figure 2a). The median age was 32 years (interquartile range 13–45 years) and 14 cases (47%) were female. Four cases (13%) were hospitalised, with no deaths recorded. Malaria testing increased across the region from 2023 (Figure 2b).

Of the 22 imported cases, nine presented to Boigu Island (five in 2023 and four in 2025); seven presented to Saibai Island (three in 2023, two each in 2024 and 2025); two presented to Masig Island (2023); two to Dauan Island (2024); one to Mer Island (2025); and one to Mabuiag Island (2025) (Figure 3).

Since the introduction, on 1 April 2023, of the probable case definition, 9/28 notified malaria cases (32%) have been classified as probable, meaning they were positive on RDT without laboratory confirmation. All nine probable cases were imported, with six not having a blood specimen collected for laboratory testing in

Australia; two testing negative on microscopy (without PCR confirmation); and one returning a nondiagnostic laboratory result due to a degraded specimen. Probable cases were referred to the Mabudawan Health Centre in PNG for ongoing treatment in line with the Torres Strait Treaty.

**Figure 2a: Annual malaria notifications in the Torres Strait Islands, by *Plasmodium* species, 1 January 2000 to 31 December 2025 (includes residents of the Torres Strait Islands and Papua New Guinea)**

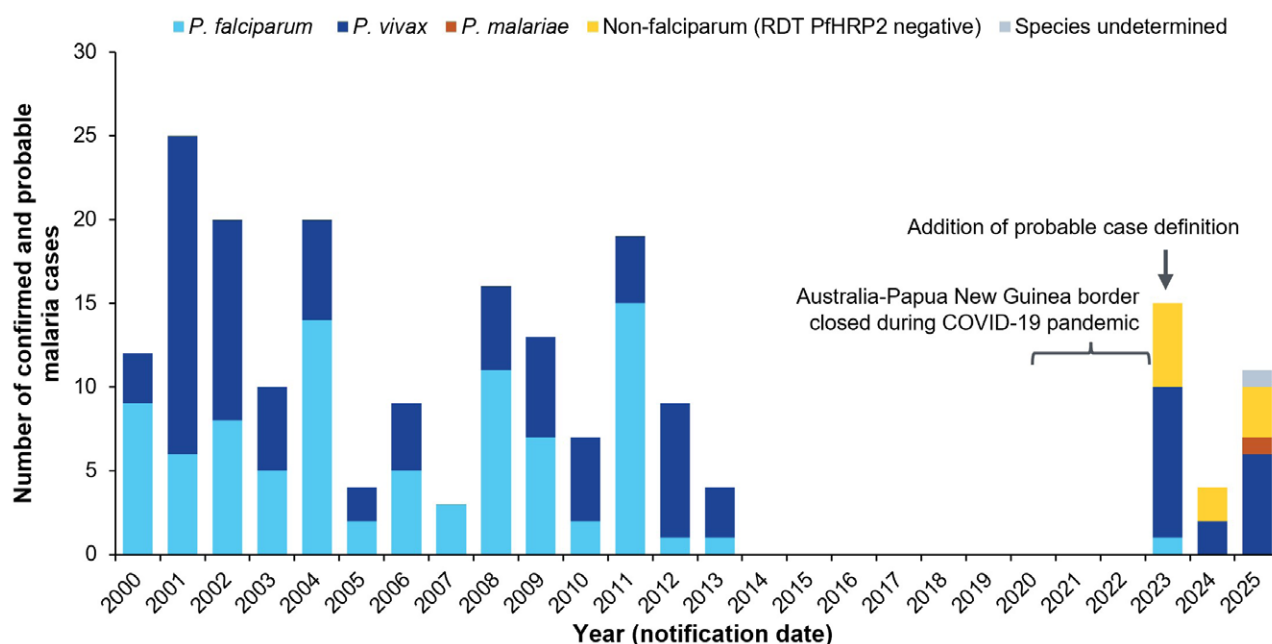


**Figure 2b: Annual number of malaria tests and notifications by place of acquisition in the Torres Strait Islands, 1 January 2000 to 31 December 2025 (includes residents of the Torres Strait Islands and Papua New Guinea)**

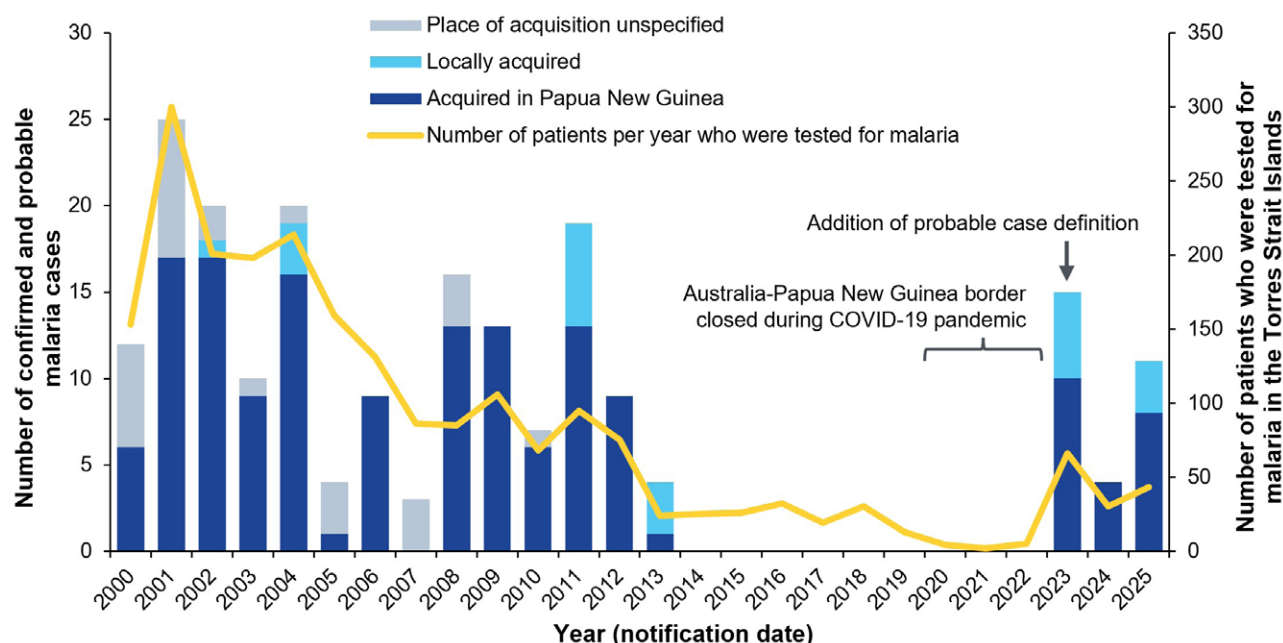
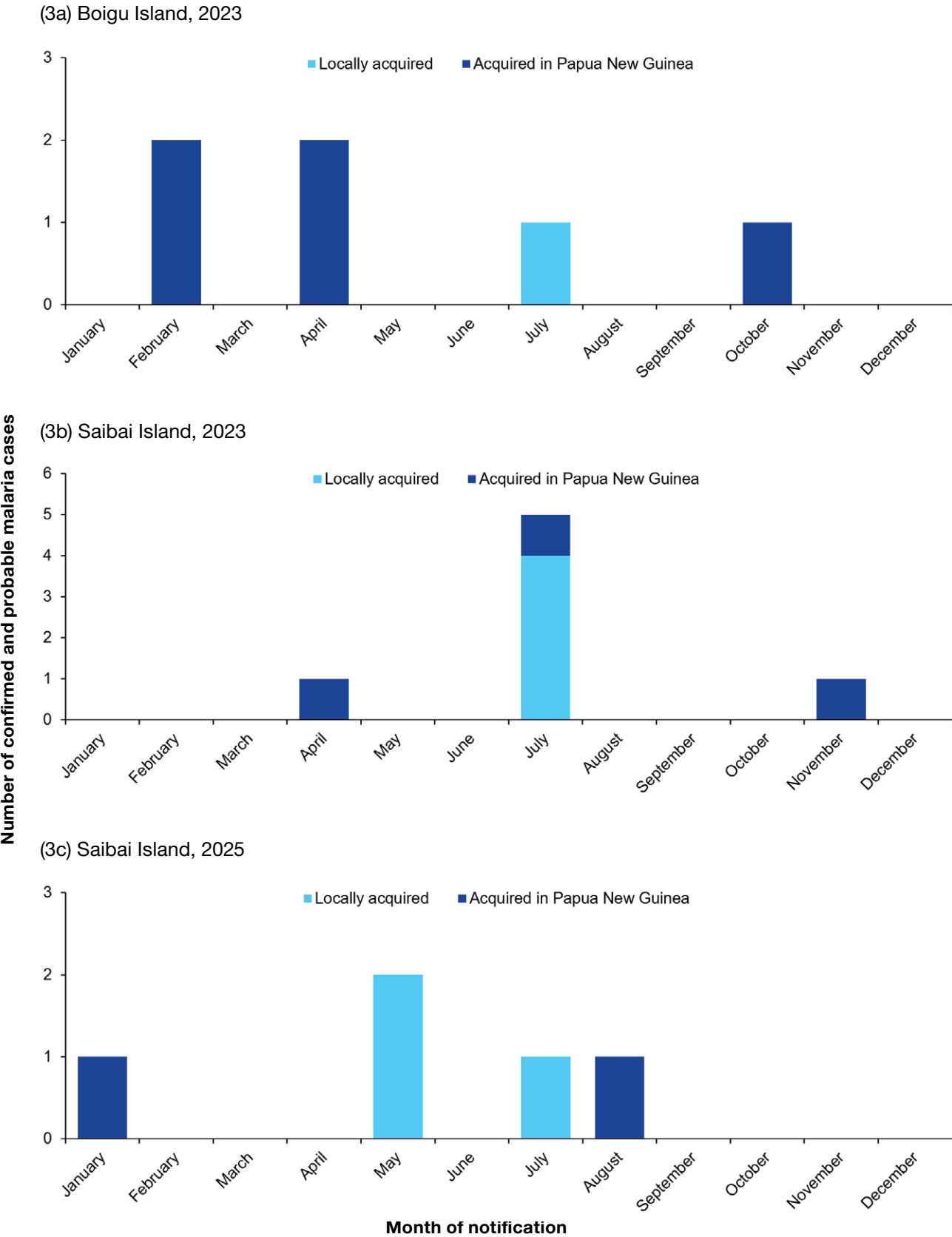


**Figure 3: Malaria notifications, by month, on Boigu and Saibai Islands during recent outbreak years (Boigu Island: 2023; Saibai Island: 2023 and 2025),<sup>a</sup> stratified by place of acquisition**



<sup>a</sup> On Boigu Island in 2023, three imported cases were *P. vivax* and two were RDT positive for non-falciparum malaria. On Saibai Island in 2023, one imported case was *P. vivax* and two were RDT positive for non-falciparum malaria. On Saibai Island in 2025, one imported case was *P. vivax* and one was RDT positive for non-falciparum malaria. For speciation of locally acquired cases, please see text and Table 1.

# Public health response to three malaria outbreaks in the Torres Strait, 2023 to 2025

## Pre-outbreak preparation

After the detection of five imported malaria cases to Saibai and Boigu Islands in early 2023, the TCPHU collaborated with local primary healthcare services to preposition resources and implement readiness measures. Several education sessions about malaria testing and management were provided to local clinicians. To support timely diagnosis and treatment, malaria RDTs and artemether-lumefantrine medications were deployed to the primary health care clinics (PHCCs) of the islands that had received PNG visitors since the border reopened after the COVID-19 pandemic.

## Description of outbreak cases

A total of eight locally acquired, confirmed cases were identified across the three outbreaks between 2023 and 2025 (Table 1). The median time from symptom onset to case detection was 6 days (range: 4–41 days). The median age was 25 years (range: 11–49 years). In six of the eight locally acquired cases, *P. vivax* was detected as the infecting species, with the species unable to be determined in 2/8 cases due to sample degradation. Two cases reported no previous travel to PNG and five cases reported no travel to PNG in the preceding three months.<sup>i</sup> One case reported a prior malaria infection acquired in PNG some years ago; however, the specific year, species, and treatment received were not able to be ascertained.

All cases reported at least two malaria symptoms (fever, headache, chills and/or nausea), with 7/8 reporting fever and 5/8 reporting chills and nausea. Three cases were hospitalised for a median of four days (range: 2–4 days), with no deaths, acute complications or relapses reported. Seven cases received artemether-lumefantrine and one received atovaquone-proguanil treatment within a median of one day of blood specimen collection (range: -2 to 21 days) (Table 1). All cases returned normal glucose-6-phosphate dehydrogenase (G6PD) enzyme levels and received primaquine within a median of 8 days of G6PD testing (range: 1–23 days). There was no recurrence among cases who received primaquine treatment.

Of 790 people present on the three islands at the time of each outbreak, 478 (61%) were screened, with 14/478 (3%) reporting symptoms, 10/14 (71%) were tested (four did not present to the clinic) and

3/10 (30%) were confirmed as malaria cases. The remaining five outbreak cases self-presented to health services. Across the three outbreaks, one non-symptomatic household contact declined testing, and one resident declined screening and testing. No household contacts of the eight cases tested positive to malaria.

## Outbreak response

On 7 July 2023, the TCPHU was notified of a positive *P. vivax* case in a Boigu Island resident with no previous overseas travel. The TCPHU declared an outbreak in response to the confirmed case of locally transmitted malaria.<sup>14</sup>

A response team arrived within four days of the notification and included a Public Health Medical Officer, a Public Health Nurse, a Cross Border Communications Officer and Vector Control Officers. The public health response included active case finding, education and vector control activities and was led by local Torres Strait Island Health Workers in partnership with the visiting public health staff and Torres Strait Island Regional Council (TSIRC). This collaboration enabled culturally considered engagement, including adapting response activities during periods of Sorry News.

The response provided education to households and the local primary school in English and Yumplatok (Torres Strait Creole). Mosquito repellent containing diethyltoluamide (DEET) or picaridin and 'Stop the Bite' information leaflets were handed out within the community (Appendix A, Figure A.2). Radio and media messages were broadcast in English during the response to remind residents across the Torres Strait to take precautions against mosquito bites. Vector control staff conducted harbourage spraying with a residual pyrethroid insecticide around houses, shops, community areas and nearby vegetation, starting with the residence of the case and expanding outwards.

On 15 July 2023, another locally acquired *P. vivax* case was detected on neighbouring Saibai Island. A second outbreak was declared, and a similar outbreak response conducted. No locally acquired cases were notified during 2024. On 18 May 2025, a locally acquired case was detected on Saibai Island, and a third response implemented.

## Outbreak closure

The outbreaks closed after two *P. vivax* incubation periods (maximum extrinsic period of 10 days and maximum intrinsic period of 18 days) had passed with no additional locally acquired cases identified. The first outbreak closed after 73 days, the second after 65 days and the third after 56 days.

<sup>i</sup> Of the latter five cases, two reported travel to PNG eight months and ten years prior to their respective outbreaks.

**Table 1: Characteristics of malaria outbreak confirmed cases, Torres Strait Islands, Australia 2023–2025**

| Outbreak <sup>a</sup> | Case detection method <sup>b</sup> | Interval between symptom onset and notification (days) | Results of testing <sup>c,d</sup> |      |            |      |                 |                          |              | Interval between outbreak declaration and case detection (days) | Treatment received <sup>e</sup> | Interval between BSC and treatment (days) <sup>f,g</sup> |
|-----------------------|------------------------------------|--------------------------------------------------------|-----------------------------------|------|------------|------|-----------------|--------------------------|--------------|-----------------------------------------------------------------|---------------------------------|----------------------------------------------------------|
|                       |                                    |                                                        | RDT                               | LAMP | Microscopy | PCR  | Species         | Parasite count / $\mu$ L | Hospitalised |                                                                 |                                 |                                                          |
| 1                     | SR                                 | 6                                                      | Pos.                              | —    | Pos.       | —    | <i>P. vivax</i> | 15,000                   | Yes          | 0                                                               | AL                              | 0                                                        |
| 2                     | SR                                 | 6                                                      | Pos.                              | —    | Neg.       | Pos. | <i>P. vivax</i> | N/A                      | No           | 0                                                               | AL                              | -2                                                       |
| 2                     | ACF                                | 4                                                      | Neg.                              | —    | Pos.       | —    | <i>P. vivax</i> | 900                      | No           | 7                                                               | AL                              | 1                                                        |
| 2                     | ACF                                | 5                                                      | Neg.                              | —    | Pos.       | Pos. | <i>P. vivax</i> | 260                      | Yes          | 7                                                               | AL                              | 2                                                        |
| 2                     | SR                                 | 6                                                      | —                                 | —    | Pos.       | Pos. | <i>P. vivax</i> | 16,000                   | No           | 13                                                              | AP                              | 1                                                        |
| 3                     | SR                                 | 5                                                      | Pos.                              | Pos. | Pos.       | —    | NFM             | 8,200                    | No           | 0                                                               | AL                              | -1                                                       |
| 3                     | ACF                                | 41                                                     | —                                 | Pos. | Neg.       | —    | ND              | N/A                      | No           | 10                                                              | AL                              | 21                                                       |
| 3                     | SR                                 | 15                                                     | —                                 | —    | Pos.       | —    | <i>P. vivax</i> | 11,000                   | Yes          | 58                                                              | AL                              | 0                                                        |

a Outbreaks are identified as: 1: Boigu Island (2023); 2: Saibai Island (2023); 3: Saibai Island (2025).

b SR: self-report; ACF: active case finding.

c RDT: rapid diagnostic test; LAMP: loop-mediated isothermal amplification testing; PCR: polymerase chain reaction; NFM: non-falciparum malaria (PfHRP2 negative).

d Pos.: positive; Neg.: negative; N/A: not applicable; ND: not detected; —: not tested.

e All cases received primaquine after glucose-6-phosphate dehydrogenase (G6PD) testing, and either artemether–lumefantrine (AL) or atovaquone–proguanil (AP) as shown here.

f BSC: blood specimen collection.

g Two cases commenced treatment upon positive rapid diagnostic test, prior to blood specimen collection for laboratory testing.

## Discussion

After almost a decade without detection of any locally acquired or imported cases of malaria in the Torres Strait, three separate outbreaks occurred between 2023 and 2025. A robust, locally led public health response successfully halted transmission of malaria during each outbreak. However, ongoing vigilance is necessary. The rising incidence of malaria in PNG, and of *P. falciparum* in particular, means there is an increased risk of importation and local transmission in the Australian Torres Strait Islands.<sup>18</sup>

The number of malaria cases in PNG increased by 163% from 346,431 cases in 2015 to 910,747 cases in 2024.<sup>19</sup> In 2024, PNG accounted for almost 90% of all estimated malaria cases in the Western Pacific Region and, importantly, 77% of these PNG cases were *P. falciparum*.<sup>20</sup> In 2023, the community prevalence of *P. falciparum* was estimated to be 2.4% in PNG's Western Province, a region which includes all 13 PNG villages that are part of the Torres Strait Treaty.<sup>21</sup> Between 2023 and 2025, just one of the 30 notified cases in the Torres Strait were confirmed as *P. falciparum*. This may be explained by the often severe clinical complications of *P. falciparum* infection, which may reduce the likelihood of travel to an Australian PHCC and subsequent detection.<sup>2,21</sup> However, the potentially fatal infection remains a real risk for local Torres Strait residents who have little or no acquired immunity.<sup>22</sup>

The absence of malaria notifications between 2014 and 2022 may be at least partly explained by the lower incidence in PNG during this period.<sup>23</sup> However, the number of tests conducted by Australian clinicians in the Torres Strait declined over the same period, highlighting the importance of ongoing vigilance. Reopening of the border coincided with commencement of enhanced TCPHU surveillance activities, which may also have increased the ascertainment of malaria cases from 2023.

Since the border reopened after the COVID-19 pandemic, there has been an increase in the movement of Australian and PNG residents across the Torres Strait Protected Zone.<sup>8</sup> Movements are likely to rise further following the 2025 Defence Treaty between Australia and PNG.<sup>24</sup> This movement may increase the risk to Australians of several diseases which are highly prevalent in PNG, including malaria, dengue,<sup>25</sup> tuberculosis,<sup>26</sup> typhoid, Japanese encephalitis,<sup>27</sup> and HIV.<sup>28</sup>

The successful strategies that underpinned our approach to the malaria outbreaks may also prove beneficial in detecting and responding to other outbreaks of similarly imported pathogens in the region. Continued collaboration with PNG health stakeholders remains vital to prevent and manage cross-border disease transmission.

Environmental factors may also increase the risk of malaria transmission in the Torres Strait in the future. Warming temperatures shorten the *Plasmodium* parasite's extrinsic incubation period and may extend the length of the transmission season.<sup>29–31</sup> The social determinants of health have an impact on the incidence of malaria and other tropical diseases in Australia.<sup>32–34</sup> This emphasises the importance of evidence-based approaches to manage local mosquito-borne disease risk, which include the optimisation of water drainage and waste collection, and housing design that prevents mosquitoes from entering and biting occupants.<sup>35</sup>

Our public health response to the 2023 and 2025 outbreaks was based on a successful response to a malaria outbreak in the region in 2011.<sup>5</sup> The success of the recent outbreak responses can be attributed to several factors. Firstly, three out of eight outbreak cases were detected through active case finding and these cases may not have otherwise presented to health services. This is an important aspect of the response to *P. vivax* outbreaks in non-endemic regions, as infections can be mild and can relapse without appropriate treatment to eradicate hypnozoites, which can result in ongoing transmission.<sup>36</sup> Secondly, in locations where blood specimens can take several days to reach a laboratory, the use of rapid point-of-care tests expedited case detection, treatment and response. Thirdly, comprehensive vector control disrupted mosquito breeding. Lastly, and most importantly, local Torres Strait Island leaders and health workers with a knowledge of the local language and customs enabled a response which engaged residents through individual conversations and community events. Embedding First Nations leadership into the outbreak response ensures local community needs are identified and addressed, reducing public health risk.<sup>37</sup> This approach has been replicated in response to incursions of COVID-19 and dengue in the Torres Strait region.<sup>38,39</sup>

The most likely source of each outbreak was an undetected imported infection from PNG. However, another explanation is that the outbreaks occurred after relapse of a prior untreated or inadequately treated infection, or a known imported infection with a longer than usual incubation period.<sup>36,40</sup> Alternatively, *P. vivax* may have been introduced by windborne migration of infected *Anopheles* mosquitoes from PNG.<sup>41</sup> Regardless of the source, early case detection and vector control remain essential to minimise transmission during malaria outbreaks.

A key challenge identified during each outbreak was the diagnostic sensitivity of the RDTs and microscopy.<sup>16</sup> While RDTs can diagnose severe, life-threatening *P. falciparum* under time-sensitive circumstances, they have lower sensitivity for cases of non-severe, non-falciparum malaria.<sup>42,43</sup> Positive RDT results for species other than *P. falciparum* are useful, as demonstrated in our report; however, false negatives are expected.<sup>42–44</sup> While microscopy can be highly sensitive, the diagnostic performance depends on the operator, and low parasite density may lead to false negative results.<sup>16</sup>

Despite the dedicated public health responses, it was not possible to screen and test all residents for malaria. Some cases may have been missed as part of the unscreened population. Communities in the Torres Strait Islands are highly mobile, and some individuals may not have been present on the island at the time of case finding activities. There is a need for ongoing community messaging so that potential cases who are symptomatic present to the clinic for prompt testing, diagnosis and treatment.

## Conclusion

After nine years without malaria in the Torres Strait Islands, there were three separate outbreaks between 2023 and 2025. The TCPHU public health response successfully halted transmission of malaria in each outbreak; however, sustained surveillance is essential. There is an ongoing risk of malaria importation and transmission in the region due to increasing prevalence in PNG and the cross-border movement of people under the Torres Strait Treaty. Ongoing collaboration with PNG health stakeholders, mosquito-proof housing design and culturally-considered community messaging are needed to minimise the risk of future malaria outbreaks and to prevent the spread of other diseases to mainland Australia.

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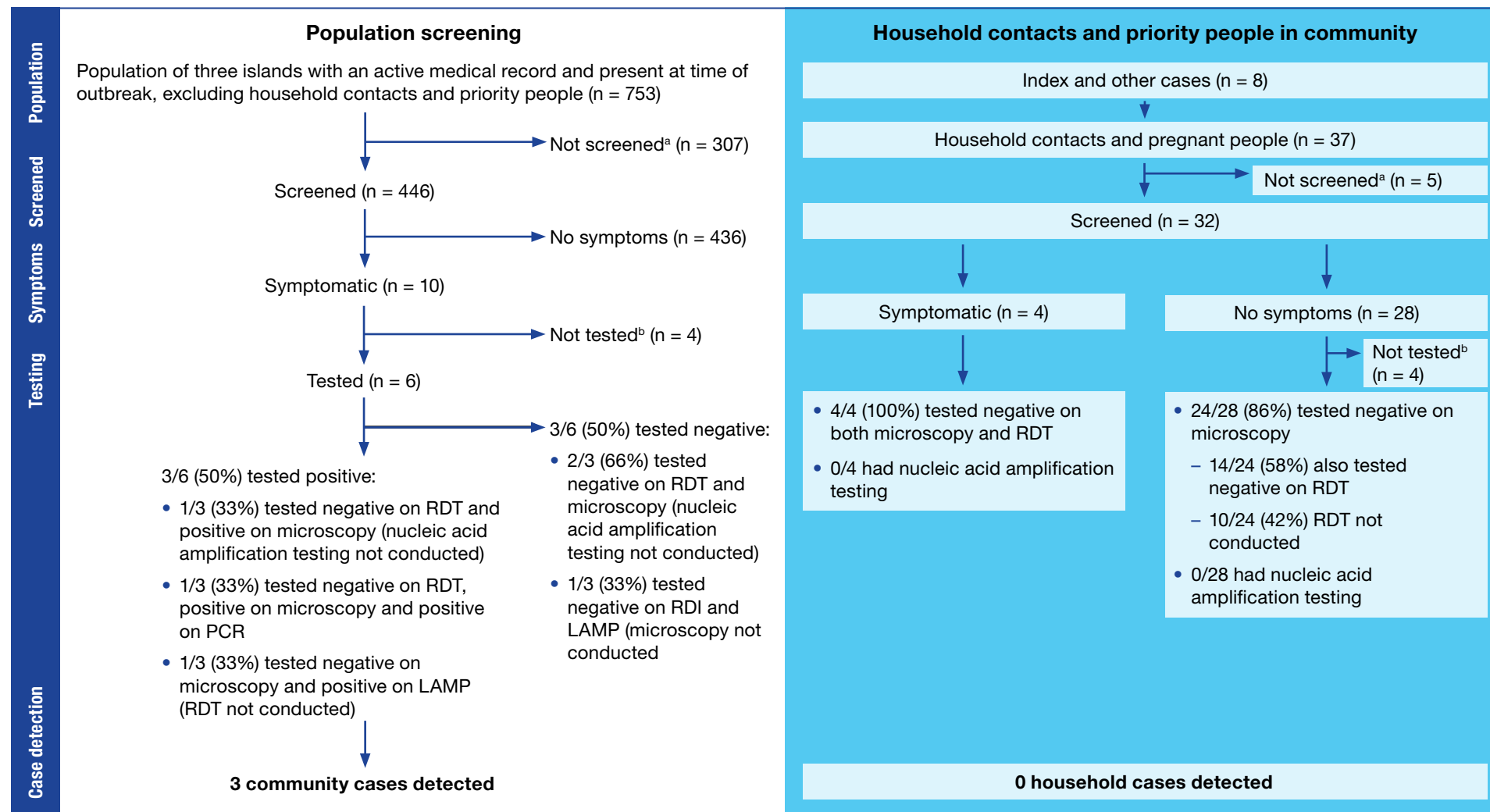
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## Appendix A

Figure A.1: Active case finding strategy of three malaria outbreaks combined, Torres Strait Islands, 2023–2025



<sup>a</sup> Resident not screened due to decline, resident could not be located for screening or were the index or other cases.

<sup>b</sup> Resident declined testing or did not present to local clinic.

Figure A.2: 'Stop the Bite' information leaflet, Torres and Cape Hospital and Health Service, 2023–2025

### What are mosquito-borne illnesses?



Mosquito-borne illnesses are sicknesses you can get from the bite of an infected mosquito.

Mosquitoes can spread Dengue, Japanese encephalitis, Ross River, Malaria, Barmah Forest Virus, just to name a few.

### Common signs and symptoms

Common mosquito-borne illness signs and symptoms include:

  
FEVER

  
HEADACHE

  
JOINT AND/OR MUSCLE PAIN

Other signs may include:

  
RASH

  
VOMITING

  
SWOLLEN JOINTS

  
STOMACH ACHES

  
NECK STIFFNESS

  
DISORIENTATION

### If you have any of these signs and symptoms, visit your local PHCC.

### For more information about the most common mosquito-borne illnesses scan the QR codes




**or go to**

[www.qld.gov.au/health/conditions/all/prevention/prevent-mosquito-bites/symptoms](http://www.qld.gov.au/health/conditions/all/prevention/prevent-mosquito-bites/symptoms)  
<https://www.health.qld.gov.au/newsroom/podcasts/it-cant-hurt-to-ask/mosquito-borne-viruses>

**Torres and Cape**  
Hospital and Health Service

# STOP THE BITE



## MOSQUITO-BORNE ILLNESS


**Queensland Government**

## STOP THE BITE...

### ...and you can stop the disease:

- Use insect repellent** containing DEET or Picaridin 
- Cover up**  
Wear long sleeves, pants and cover your feet 
- Screen your home**  
Install screens on windows and doors, ensure there are no holes in the screens 
- Sleep under a bednet** 
- Use mozzie coils or plug-in zappers** 

## STOP MOZZIES

Tip it • Store it • Throw it • Spray it



### INDOORS

#### Where mozzies hide...



**Spray it**  
Spray long-lasting surface spray under and behind surfaces where it is dark, such as:

- Sink
- Shower/bath/toilet
- Couch
- TV
- Tables and chairs
- Outdoor furniture
- Leafy plants
- Washing machine
- Beds
- Cupboards
- Bench/fridge/cooktop

### OUTDOOR

#### Where mozzies lay eggs...



**Tip it, store it, throw it**  
At least once per week, search your yard for containers and empty the water:

- Bird bath
- Palm fronds
- Sump pit
- Buckets
- Boat
- Bromeliads
- Tyres
- Wading pool
- Pot plants/buckets
- Roof gutter
- Wheelbarrow
- Water tank
- Toys
- Tarps