Public Health England

Protecting and improving the nation's health

Imported malaria in South London

2019 annual report

Data from 2018

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Executive summary

Malaria is a serious febrile illness caused by the *Plasmodium* parasite. While the infection does not naturally occur in the UK, travel-related (imported) cases are regularly reported in the UK.

Although nationally the number of imported cases has fluctuated over the past decade, 10-year averages indicate an overall downwards trend in numbers of imported cases despite increasing global travel.

London consistently reports the largest share of cases. In 2018, 1,683 cases were reported in the UK with 48% of these reported in London. This report presents data for South London in 2018.

405 cases were reported in South London in 2018, which was a marked decrease from 2017 (450 cases). 10 of the 12 South London boroughs reported a lower or equal number of cases in 2018 than in 2017.

Rates of imported malaria vary between the South London boroughs. As in 2017, Southwark, Greenwich and Lewisham reported the highest rates and numbers of cases. Kingston, Richmond and Sutton reported the lowest figures.

In line with previous years, the majority of cases were male and aged 40 - 49 years. Among cases where travel history was available, 96% were UK residents who had travelled abroad to visit family in their country of origin.

Where ethnicity data were available, 93% of cases were Black African or of African descent. This was a larger proportion than reported nationally (79%), which may reflect South London's relatively large African population.

90% of cases acquired malaria in Western Africa and 8% in Eastern or Middle Africa. As in 2017, Nigeria, Sierra Leone and Ghana were the top 3 countries visited by cases.

Malaria cases appeared to be associated with UK holiday periods, with diagnosis frequently occuring in the months following holidays (September, October, August and January).

90% of cases were caused by *P falciparum*, similar to national figures and previous years. 93% of *P. falciparum* cases were linked with travel to Western Africa.

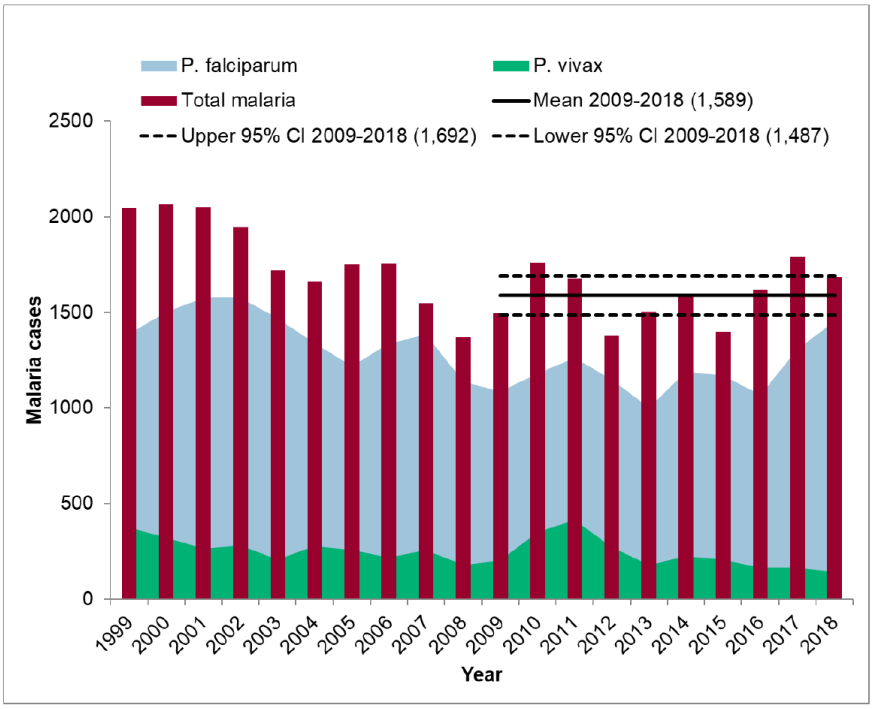
Where reported, 88% of cases did not take appropriate antimalarial medication. Of UK residents travelling abroad without appropriate anti-malarials, 85% were visiting family in their country of origin. Of these, 91% had travelled to Western Africa.

Introduction

Malaria is a serious and potentially life-threatening illness characterised by flu-like symptoms and high fever. The infection is transmitted through the bite of female Anopheles mosquitoes throughout tropical and subtropical regions of the world, including sub-Saharan Africa, Asia and South and Central America. It is caused by the *Plasmodium (P.)* parasite, of which there are 4 key species that infect humans: *P. falciparum, P. vivax, P. ovale* and *P. malariae.* Of these, *P. falciparum,* mostly found in sub-Saharan Africa, is most likely to cause severe forms of malaria and malaria-related mortality. A fifth species, *P. knowlesi* is a rare cause of malaria in South-East Asia.

Malaria does not naturally occur in the UK but travel-related cases are reported each year in people returning to or visiting the UK from malaria-endemic areas. Over the past 20 years the UK has seen fluctuations in the number of reported cases (Figure 1). Between 2015 and 2017, numbers seemed to have increased steadily although the last year has seen a small decline with 1,683 cases of malaria reported nationally in 2018 (PHE, July 2019). Looking at the latest 10-year average (2009 – 2018) the mean was 1,589 cases which was down from 1,792 for the previous 10 years; thus it appears that malaria rates may be decreasing within the context of increasing worldwide travel to and from the UK (International Passenger Survey, ONS).

Figure 1. Cases of malaria in the United Kingdom: 1999 to 2018



London consistently has the greatest share of cases in the UK. In 2018, London reported 816 cases, which represented 51% of cases in England and 48% of all reported UK cases (Table 1).

Table 1. Cases of malaria in the UK by geographical distribution, 2018

Geographical area	2018	2017	% change	% of UK total
London	816	922	-11%	48%
West Midlands	161	161	0%	10%
South East	120	155	-23%	7%
North West	137	128	7%	8%
East of England	134	114	18%	8%
Yorkshire and Humber	89	79	13%	5%
South West	52	73	-29%	3%
East Midlands	55	50	10%	3%
North East	33	26	27%	2%
England	1,597	1,708	-6%	95%
Scotland	52	50	4%	3%
Wales	23	24	-4%	1%
Northern Ireland	11	10	10%	1%
UK total	**1,683**	**1,792**	**-6%**	**100%**

Source of data: PHE, 2019

This report presents data on reported cases of imported malaria in South London in 2018.

In line with the rest of England, 3 South London boroughs - Lambeth, Lewisham and Southwark, have recently discontinued the provision of anti-malarial chemoprophylaxis through the NHS. Lambeth decided to discontinue the policy in July 2017, Lewisham in October 2017 and Southwark in January 2018. The impact of this policy-change on the rates of malaria cases in these Boroughs is currently under review.

Data sources

The data used in this report comes from the Public Health England (PHE) Malaria Reference Laboratory (MRL), which is responsible for carrying out enhanced malaria surveillance for the UK. Malaria is a notifiable disease in the UK and registered medical practitioners have a statutory duty to notify cases (Health Protection Regulations, 2010). Local laboratory samples should be sent to the MRL for further testing along with a completed surveillance form providing key information on the case, including demographic details, travel history, type and time of infection, and use of chemoprophylaxis (anti-malarial medication). The form is available here: malaria report form.

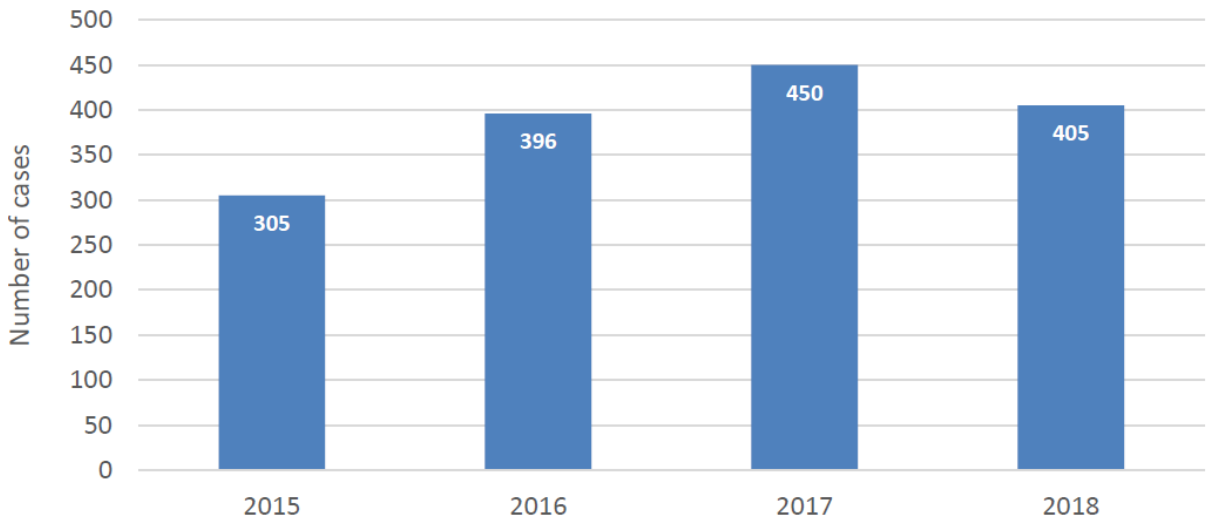
The MRL dataset is the most complete single source of data on imported malaria, but it relies on accurate reporting by each Acute Trust across the country. It has been suggested there may be underreporting of cases due to variations in reporting protocols between Trusts. Thus, actual numbers of imported malaria nationally and regionally may be higher than those presented in this report. In addition, year-on-year comparisons can be limited by variability in the completeness and consistency in reporting of demographic details and travel history. An analysis of reporting rates and completeness of reporting in South London is currently underway.

Trend and geographical distribution

South London

In 2018, 405 cases of malaria were reported in South London, representing almost half of those in London. This number was 10% lower than in 2017 (n=450), see Figure 2. Across the UK, 6% less cases were reported in 2018 than in 2017.

Figure 2. Reported South London malaria cases, 2015-2018



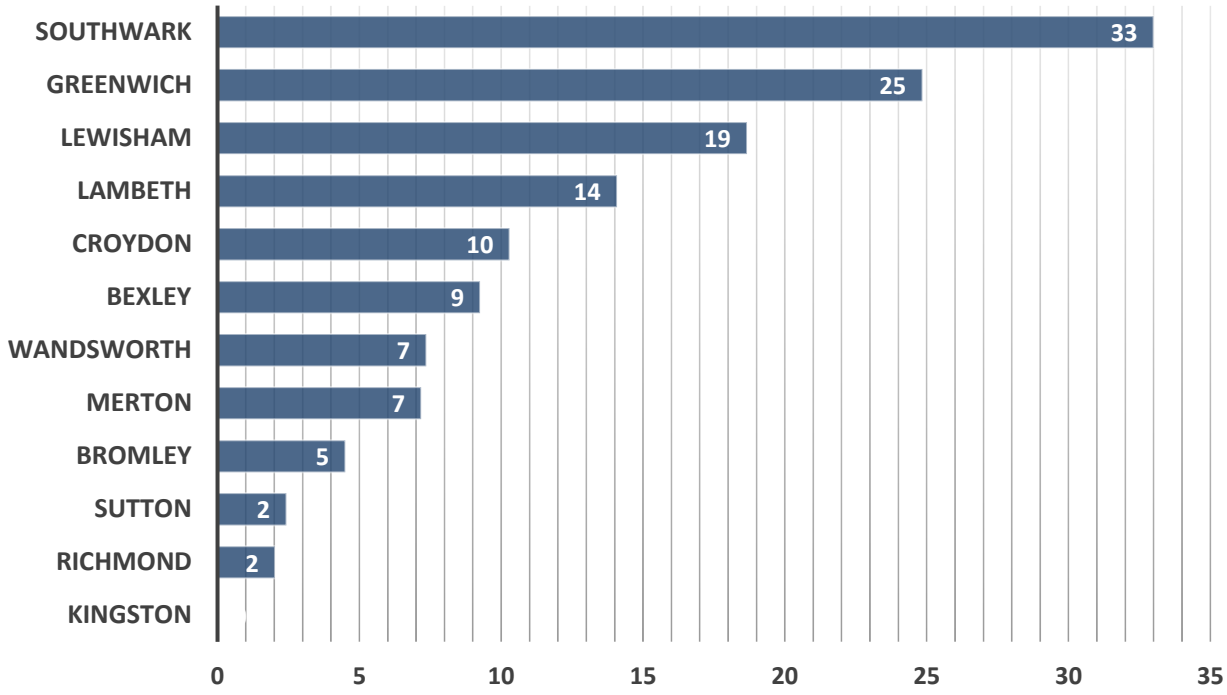
Source of data: MRL

Distribution by borough

Among the 12 South London boroughs, the highest rates (per 100,000) and numbers of cases were reported by Southwark (33 per 100,000; n=105), Greenwich (25 per 100,000; n=71) and Lewisham (19 per 100,000; n=57). These 3 boroughs accounted for 58% of the total South London burden. Meanwhile, Kingston reported no cases and Richmond and Sutton were second and third lowest with only 4 and 5 cases respectively (see Figure 3 and Table 2).

Ten out of 12 boroughs reported a decrease in the rate of cases from the previous year, with Croydon and Lambeth showing the biggest improvements (see Table 2).

Figure 3. Reported South London malaria cases by borough, rate per 100,000 persons, 2018



Source of mid-year population estimates: GLA (most up-to-date figures are for 2017), available online. Source of malaria data: MRL

Table 2. Number and proportion of South London malaria cases by borough, 2018

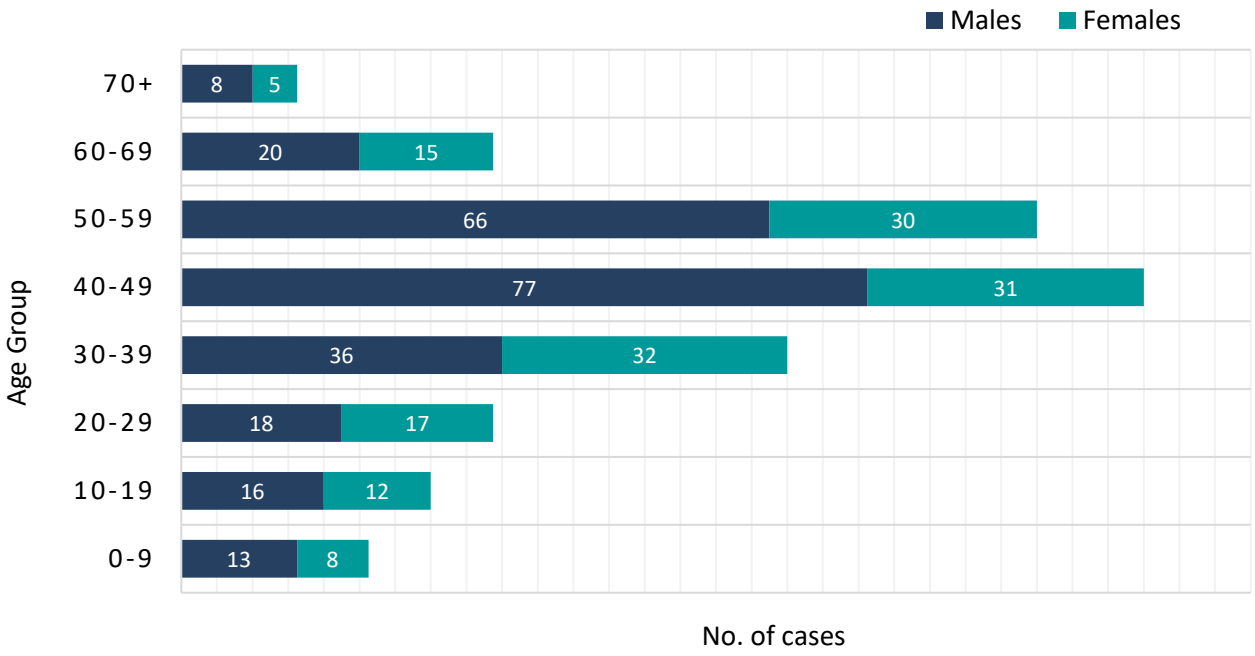
South London Borough	Number of reported cases (2018)	% of reported South London cases (2018)	% change from 2017
Southwark	105	26%	0%
Greenwich	71	18%	-14%
Lewisham	57	14%	0%
Lambeth	46	11%	-25%
Croydon	40	10%	-29%
Wandsworth	24	6%	-13%
Bexley	23	6%	-18%
Bromley	15	4%	+67%
Merton	15	4%	-22%
Sutton	5	1%	-50%
Richmond	4	1%	+50%
Kingston	0	0%	-100%
Total	**405**	**100%**	**-**

Gender and age

Age was recorded for all reported South London cases in 2018 and gender was recorded for 404 out of 405. The majority were male (63%) consistent with national figures and the pattern in South London in 2017. The male:female ratio was similar across the 12 Boroughs.

29% of all reported cases were aged 40 - 49 years (n=109) representing the highest frequency age group. Males outnumbered females in all age categories, and this was particularly notable in the age groups with highest prevalence, ie 40-49 and 50-59 (Figure 4).

Figure 4. Reported South London malaria cases, by age and gender, 2018



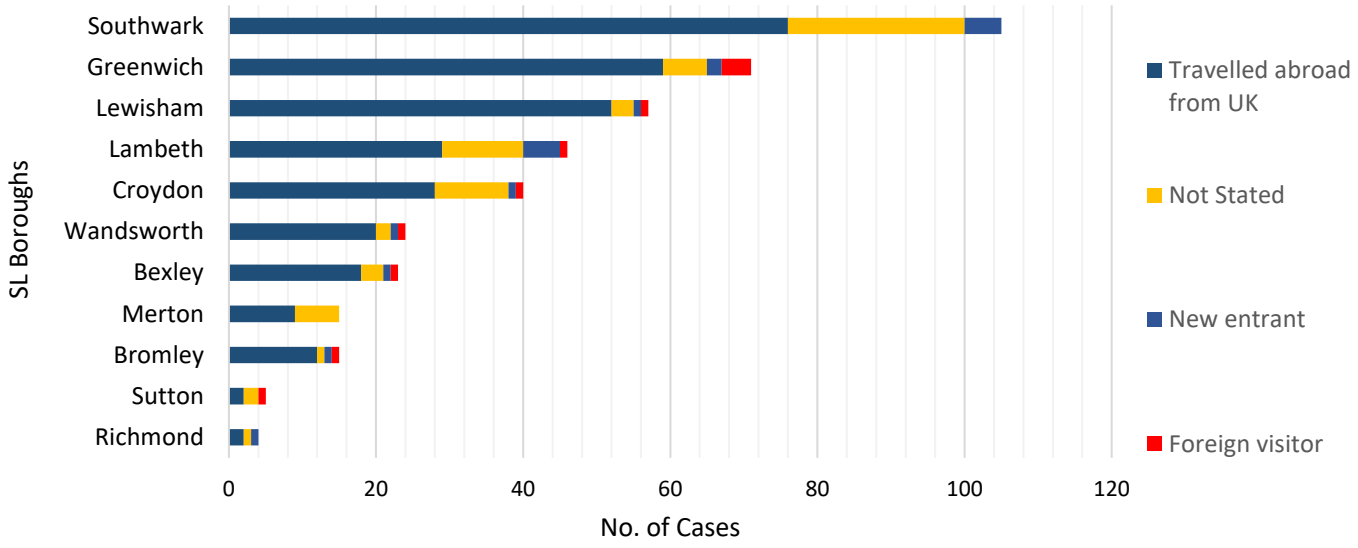
Source of data: MRL

Travel and ethnicity

Travel history

In 83% (336 of 405) of reported cases, information was captured regarding the origin of travel, ie whether the case had travelled abroad from the UK, or was a foreign visitor or new entrant to the UK. Of these, 91% (307) were usual residents of the UK who had travelled overseas. Of those remaining, 5% (n=18) were new entrants and 3% (n=11) were foreign visitors. At the national level, a much lower proportion of cases were in UK residents who had travelled abroad (69% of 1591 with recorded travel history). The proportion of cases in new entrants and foreign visitors was variable at borough-level (see Fig. 5).

Figure 5. Travel history among reported South London malaria cases by borough, 2018

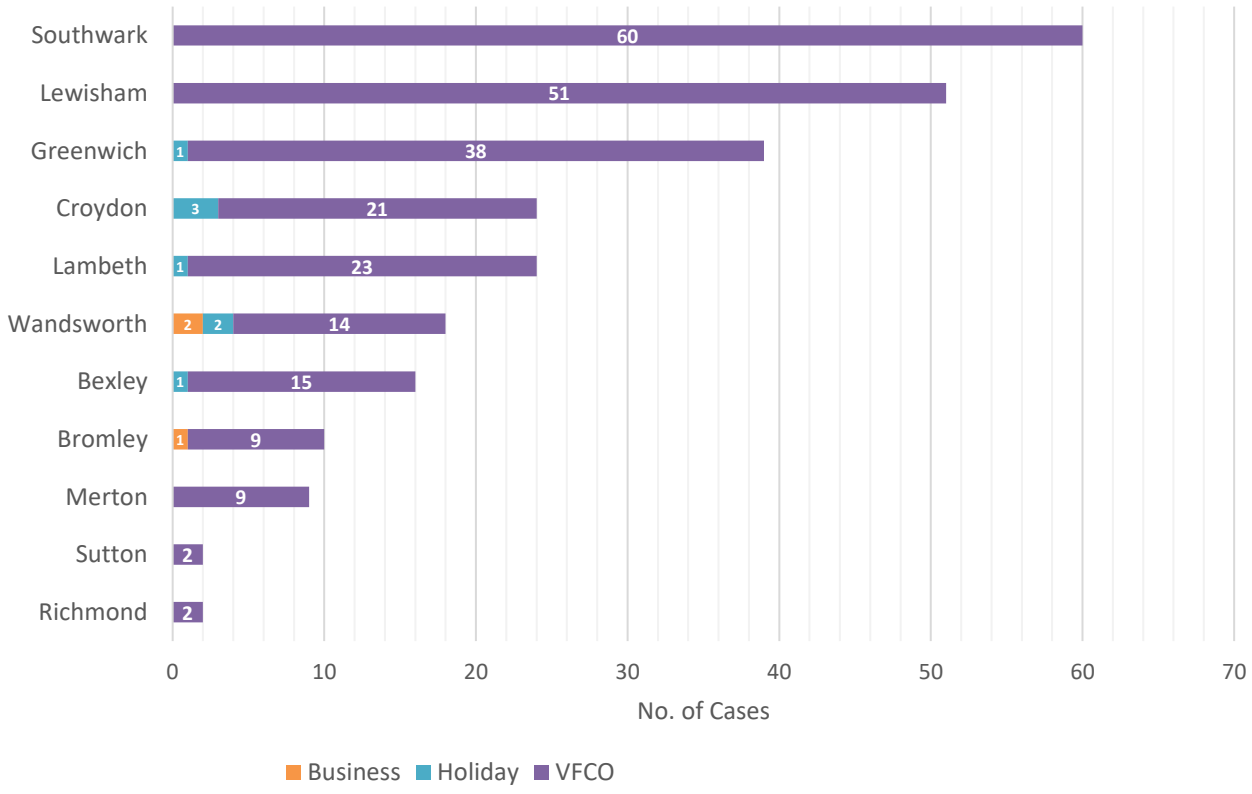


Reason for travel (UK residents who travelled abroad)

The specific reason for travel was recorded in 83% of the cases related to travel abroad from the UK (255 of 307). Of these, 96% were visiting family in their country of origin, also known as ‘visiting friends and relatives’ (VFR); while the rest reported having travelled for a holiday or for business (Figure 6). A similar pattern was seen across the UK (86% VFR). Wandsworth had the highest proportions of cases arising from travel for business or holiday compared to other South London Boroughs. It is important to note however, that the relatively low numbers of cases from Wandsworth reduce the significance of this finding.

Figure 6. Reason for travel among reported South London malaria cases who had travelled abroad from the UK, 2018

Figure 7. Reason for travel among cases who had travelled abroad from the UK, by South London borough, 2018



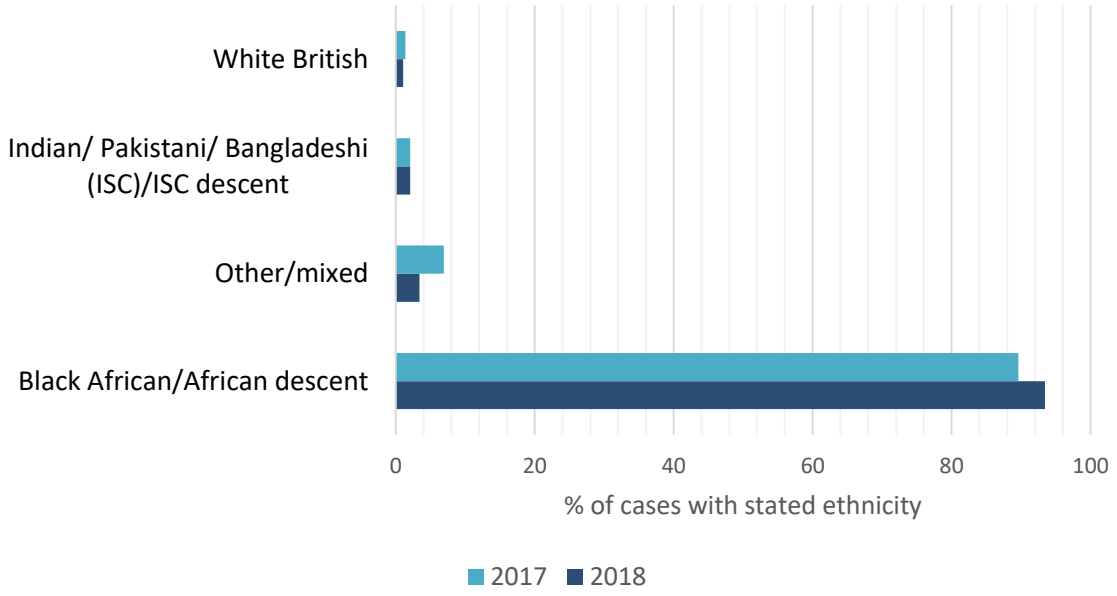
Source of data: MRL

Ethnicity

Ethnicity was stated for 94% of reported cases in 2018 (compared to 96% in 2017). Of the cases where ethnicity was stated, 93% (356 cases) were travellers of Black African or of African descent. 2% (8 cases) were of Indian, Pakistani, Bangladeshi or Indian Subcontinent (ISC) descent, 1% (4 cases) were White British, and 3% (13 cases) were of Mixed or other ethnicities including Black Caribbean, Other Black and Other White (Figure 8). This pattern is consistent with the 2017 South London data.

Figure 8. Reported South London malaria cases, by ethnicity, 2017 and 2018

Ethnicity categories as per PHE 2016



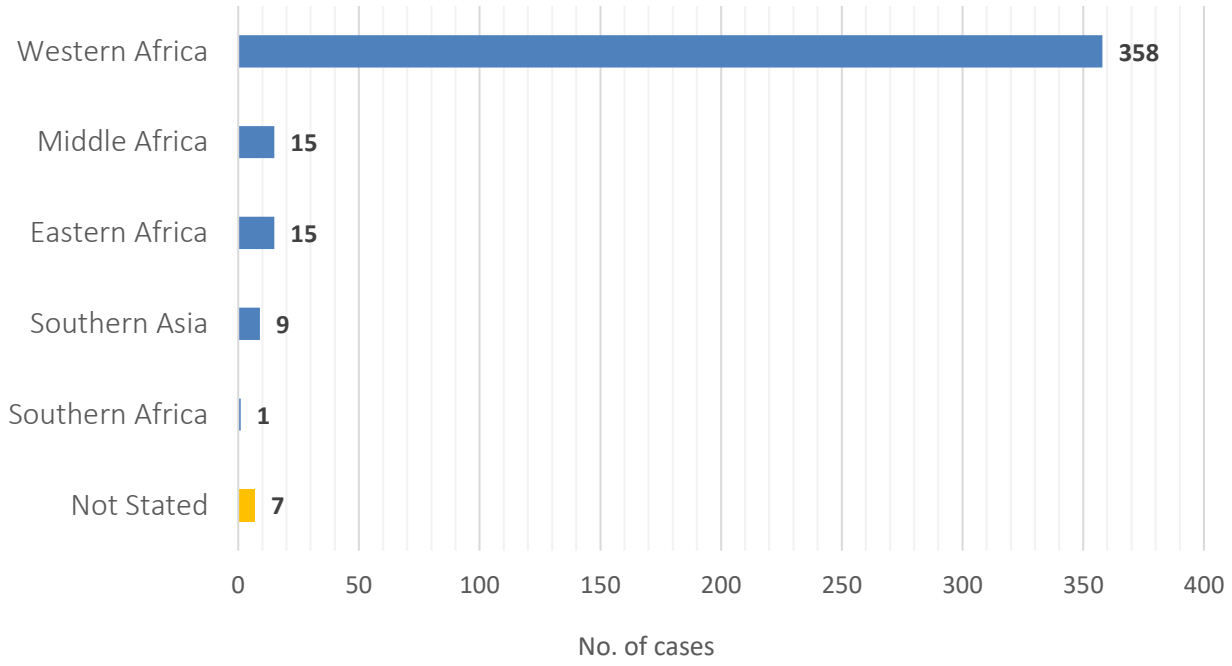
Source of data: MRL

Among cases known to have travelled abroad from the UK for whom ethnicity was recorded, travellers of Black African or of African descent constitute a higher proportion than is reported nationally (93% compared to 79%), which may reflect South London's relatively large African population.

Area in which infection acquired

Of the 398 cases where the travel destination was stated, 90% cases had travelled to Western African countries. A further 8% (n=30) acquired malaria in Middle or Eastern Africa and 2% (n=9) acquired the infection in Southern Asia. Southern Africa accounted for <1%. Seven cases did not have a specified travel destination (Figure 9).

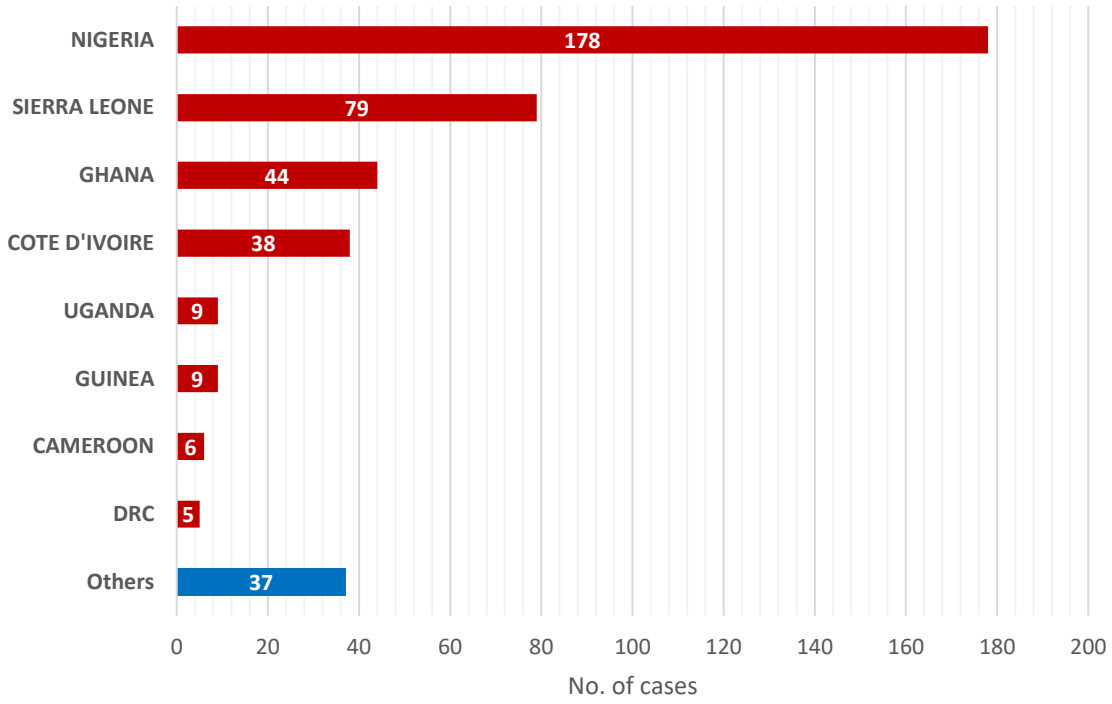
Figure 9. Region visited (where stated) by reported South London malaria cases, by United Nations region, 2018



Source of data: MRL

Nigeria (178 cases), Sierra Leone (79 cases), Ghana (44 cases) and Cote D'Ivoire (38 cases) were the most commonly stated travel destinations; all other named countries accounted for less than 10 imported malaria cases each. Nationally, Nigeria, Ghana and Sierra Leone were the top 3 countries visited by cases who had travelled abroad from the UK in 2018.

Figure 10. Top countries visited by reported South London malaria cases, 2018

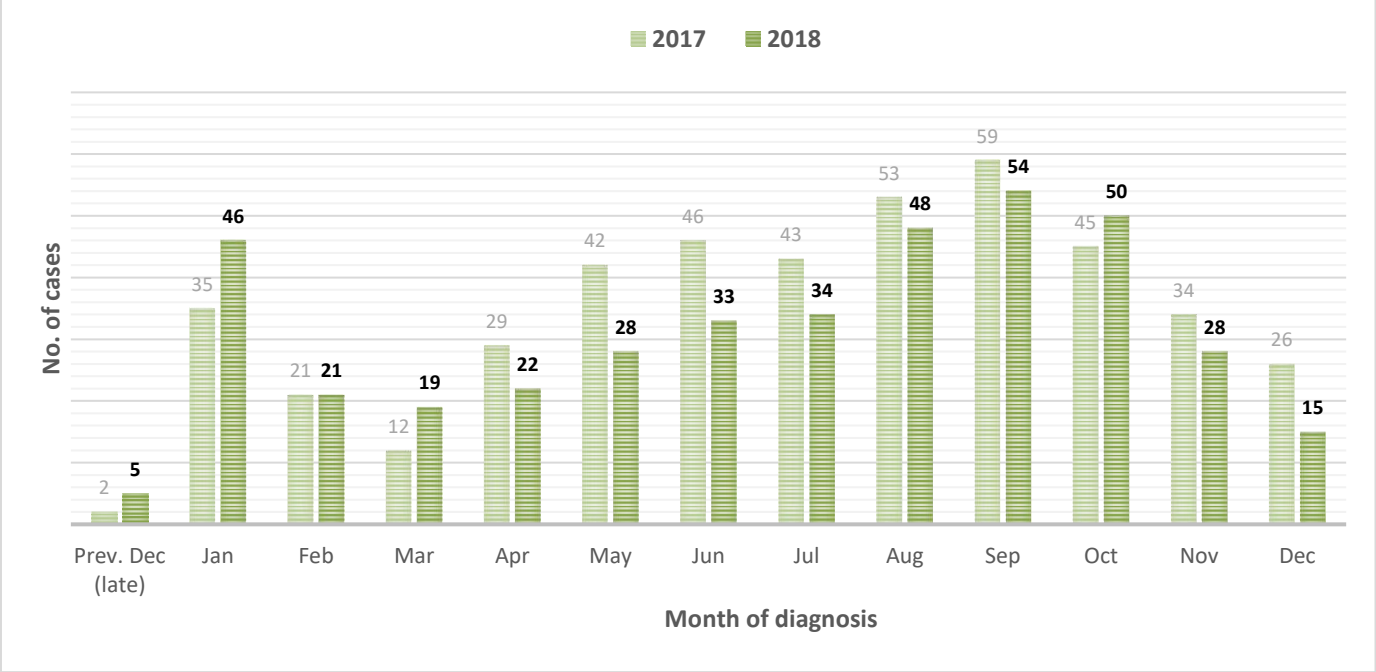


Source of data: MRL

Month in which infection acquired

Rates of imported malaria fluctuate over the year in tandem with holiday periods. The month of diagnosis was recorded for all reported South London cases and thus can be reliably used as an indicator of time of infection (taking incubation period into account). Date of symptom onset is a less reliable indicator as it is often poorly recorded; it was not stated for nearly a third of cases in 2018. The number of reported cases diagnosed in the August-October period was significantly higher than for any other time of year in 2018, indicating that the majority of cases likely acquired malaria over the summer school-holiday period (see Figure 9).

Figure 11. Reported South London malaria cases by month of diagnosis, 2017 and 2018



Source of data: MRL

Parasite species

The causative parasite species was recorded for all reported cases in 2018. In line with current national figures and previous years, 90% (n=363) of South London cases were caused by P. falciparum. P. ovale was the second commonest cause (5%) with P. malariae, P. vivax and mixed infections (more than one species found) accounting for the remaining 5% of cases (Figure 10).

Figure 12. Reported South London malaria cases by species, 2018

Source of data: MRL

Travel to Western Africa was linked to 93% of ***P. falciparum*** cases, 95% of ***P. ovale*** cases and 55% of ***P. malariae*** cases. Travel to Southern Asia was linked to 80% of ***P. vivax*** cases. This is in keeping with the known epidemiology and regional endemicity of the different species.

Anti-malarial use

Among the 307 South London cases known to have travelled abroad from the UK, information on the use of anti-malarial medication was recorded for 66% (n=202) and use of appropriate anti-malarials (a drug that was recommended to UK travellers for their destination by the PHE Advisory Committee for Malaria Prevention, ACMP) was recorded for 65% (199 of 202). 88% (175 of 199) had not taken effective anti-malarials (Figure 11), which was consistent with 2017 rates. A similar picture existed in each borough, with Greenwich and Lambeth performing worst out of Boroughs that had ≥20 cases (Table 3).

Figure 13. Reported South London malaria cases known to have travelled abroad from the UK, by documented use of appropriate anti-malarials 2018

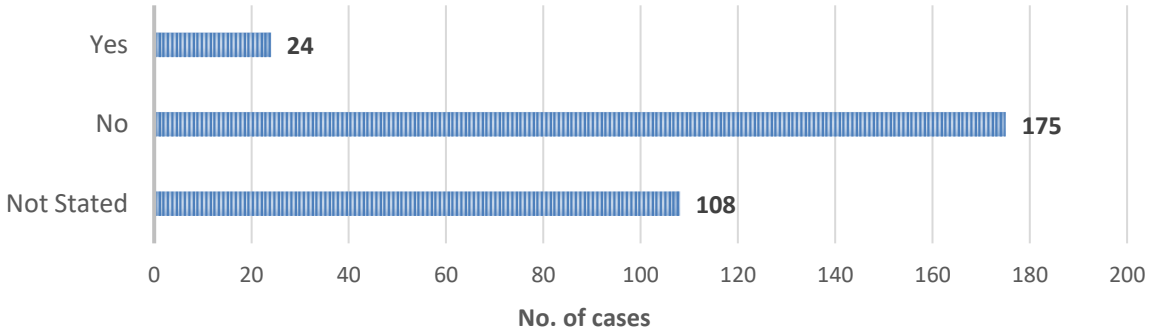


Table 3. South London malaria cases, of which travelled abroad from the UK (UKTA) and documented use of appropriate anti-malarials, by Borough, 2018
(boroughs with ≥20 cases in bold)

	Total cases	UKTA	Not Stated re: app. prophylaxis	% of UKTA *NOT STATED*	Not Taken app. prophylaxis	% of Stated UKTA *NOT TAKEN*
Southwark	**105**	**76**	**31**	**41%**	**36**	**80%**
Greenwich	**71**	**59**	**22**	**37%**	**36**	**97%**
Lewisham	**57**	**52**	**12**	**23%**	**34**	**85%**
Lambeth	**46**	**29**	**7**	**24%**	**21**	**95%**
Croydon	**40**	**28**	**11**	**39%**	**14**	**82%**
Wandsworth	**24**	**20**	**10**	**50%**	**9**	**90%**
Bexley	**23**	**18**	**8**	**44%**	**8**	**80%**
Bromley	15	12	4	33%	8	100%
Merton	15	9	2	22%	7	100%
Sutton	5	2	1	50%	1	100%
Richmond	4	2	0	0%	1	50%

Source of data: MRL

Of UK residents who travelled abroad without appropriate anti-malarials (175 out of 307), 85% were visiting family in their country of origin. Of these (n=148), 91% had travelled to Western Africa. Of non-White British UK residents travelling abroad where reason for travel was known, 95% were visiting family in their country of origin, which was in line with national data for 2018.

Recommendations

Surveillance

We recommend that acute trusts, primary care, walk-in centres and local laboratories are encouraged to report malaria cases promptly and to include as much additional data as possible on the MRL reporting form.

We recommend that the Travel Health Division of the National Infection Service continues to provide data to the South London HPT on an annual basis. This will be used to monitor local incidence and reporting patterns, and to produce an annual report for distribution to Directors of Public Health and other partners.

We recommend that South London HPT works with reporting laboratories and the MRL to examine reporting practices and completeness of data, to identify areas for improvement and to explore possible approaches to improving surveillance.

Communication plan

We recommend that South London local authorities consider engaging with the South London HPT to conduct an annual summer malaria campaign for residents. This is especially important for local authorities with higher rates of imported malaria.

We recommend that South London local authorities involve key local health professionals, for example pharmacists and community nurses, as well as engage community organisations in promoting travel health.

We recommend that all malaria prevention campaigns promote the ABCD of malaria prevention: **A**wareness of risk, **B**ite prevention, **C**hemoprophylaxis, **D**iagnose promptly and treat without delay.

Up-to-date, comprehensive guidance on malaria prevention in travellers from the UK (PHE 2019) is available here: Malaria prevention guidelines for travellers from the UK

Targeted campaigns

The data presented in this report and in the national report on imported cases of malaria imply that the most at-risk groups are not necessarily receiving or acting on the health messages about the importance of malaria prevention. The group most at-risk are UK residents who are visiting family in their country of origin, particularly middle-aged males of African heritage or who are travelling to West Africa. There may be a

variety of reasons why these groups are not taking the recommended precautions: it could be that effective health promotion messages are not reaching them, that they do not feel the messages apply to them, ie perceive themselves to be at low risk due to their background or age, or that there are unacceptable resource implications or opportunity costs for adhering to the recommendations. It is also possible that they have concerns about using the recommended chemoprophylactics, for example possible side effects.

We recommend South London local authorities consider targeting campaigns towards most at-risk groups, for example local Nigerian and other West African communities, through community engagement methods involving trusted community leaders and making use of established communication channels.

Although malaria rates are highest in adults, children may be at greater risk of severe malaria including cerebral malaria, and malaria-related mortality. Local authorities could consider school-based campaigns to increase pupils' and parents' awareness of malaria and prevention methods.

It is recommended that bite prevention methods should be adequately emphasised in malaria prevention campaigns in order to capture groups who may be reluctant to take chemoprophylaxis.

References

PHE, June 2019. *Malaria imported in the United Kingdom: 2018: Implications for those advising travellers*, London: Travel Health and IHR, Public Health England.

PHE, January 2019. *Guidelines for malaria prevention in travellers from the UK: 2018,* London: Public Health England.