

Risk Matters



Dear Reader,

The development of serious illnesses is to be lamented for any member of society, but when the person has a high public profile, the illness suddenly becomes “news”. Such was the case when former U.S. president Ronald Regan developed dementia. The news that English pop singer and TV personality Cheryl Tweedy (Cole) was admitted to hospital having contracted malaria whilst in Tanzania, has shone a spotlight upon this large public health issue. Malaria is endemic in parts of Africa, Asia, Central and South America and Oceania, and is responsible for 1-3 million deaths a year, mostly in sub-Saharan Africa. As people seek ever more exotic locations for their holidays, the risk of contracting malaria, or indeed other infections that are not commonly found at home, poses a risk to the insurance industry. This edition of Risk Matters looks at the risk malaria poses.

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Malaria

Malaria is a potentially life threatening disease caused by infection with the protozoae of the Plasmodium family that is transmitted by an infected female Anopheles mosquito. There are many members of this family but only four infect humans and cause malaria. They are *P. falciparum* (the most common and dangerous), *P. vivax*, *P. ovale* and *P. malariae*.

Globally, half a billion new cases are reported, and in consequence malaria is as much of a threat to human health, HIV and tuberculosis. Around 1200 Britons return from abroad infected each year, although there have been an average of only nine deaths each year since 2000.¹

Although no vaccination is available, prophylactic anti-malarial medication is recommended for travellers visiting areas of the world where infection is common. Despite the availability of this protection, case numbers remain high due to the emergence of medication-resistant strains of the organism. Appropriate anti-malaria prophylaxis is prescribed based on a careful assessment of the traveller's planned route and knowledge of the drug-resistance strains of malaria local to it. Travel to remote areas, for long periods during the season of transmission, puts the traveller at greatest risk. In the UK, the Health Protection Agency (HPA) provides detailed guidelines on malaria prevention to travellers.² In addition to recommending appropriate preventative treatment for the chosen destination, they caution against reliance upon herbal and homeopathic medications. No anti-malarial guarantees 100% protection; however, and for many nationals of countries where malaria is endemic access to even basic protection, advice is often limited.

Symptoms of malaria

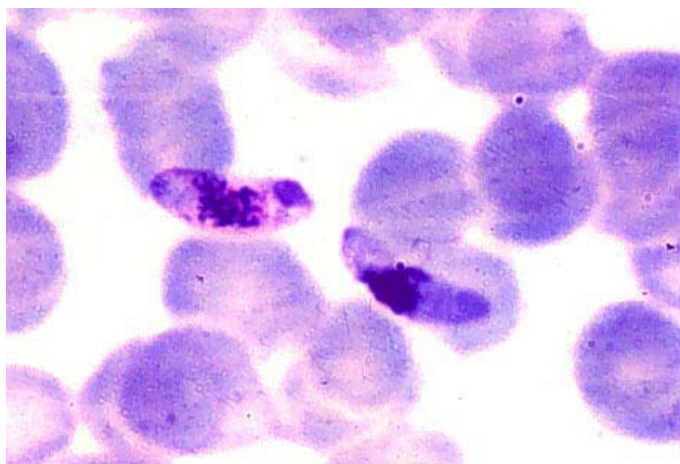
Following a bite from an infected mosquito, the parasite travels in the bloodstream of the host to the liver. Here it reproduces thousands of times before it re-enters the bloodstream to cause symptoms. This occurs generally one week after exposure. The protozoa that are released into the blood stream are taken up by the liver again and the cycle continues.

The initial presentation is fever accompanied by a wide range of other non-specific symptoms.³

- a high temperature (fever) of 38°C (100.4F) or above
- sweats and chills
- general malaise
- muscle pains
- headaches
- cough
- diarrhoea

The illness usually presents within a month of infection, but for some the disease may lie dormant in the liver for many years. Although the symptoms are often non-specific and can be difficult to diagnose in its severe forms, malaria may infect the brain, cause severe anaemia, liver and renal failure, respiratory problems and death. The prognosis for most malaria sufferers is good if the diagnosis is made early. It is therefore vital that the doctor considers the diagnosis in all symptomatic patients who have returned from travel to endemic areas in the previous year and more especially in the last three months. A blood film diagnosis must be obtained urgently. It may take several tests over several days to identify the parasite.

Figure 1 – A thin blood film showing *Plasmodium falciparum* (darkly stained)⁴



Acute treatment requires regimens of antibiotics tailored to the precise strain of *Plasmodium* the patient is carrying in addition to general measures to support the body systems affected. The treatment and recuperation of malaria sufferers can be prolonged.

Malaria risk in the UK

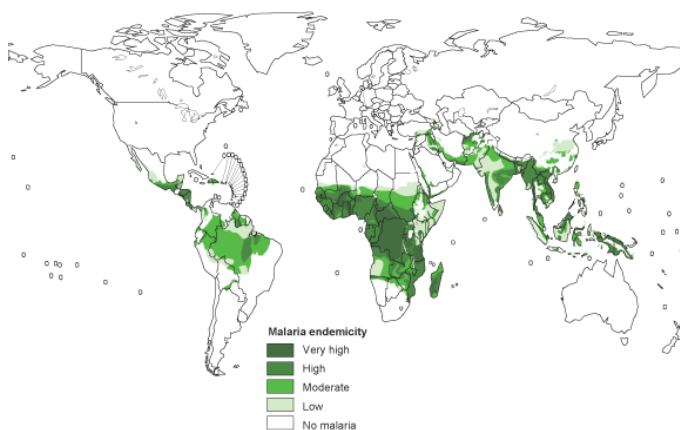
Health agencies have given reassurance that, despite the increase in the numbers of mosquitoes in the UK in recent summers (combinations of high temperatures and rainfall have encouraged their breeding) there is no risk of their transmitting malaria within the British Isles. While this has been the case for the last 100 years, some municipal councils have been forced to spray mosquito breeding grounds to keep insect numbers under control.⁵

The main risk still stems from exposure to insect bites when travelling outside the UK. In 2009, the majority of those who developed malaria in the UK did so after visiting West Africa.⁶

Malaria risk globally

In December 2009, the World Health Organisation (WHO) published a global malaria report.⁷ Their stance on the fight against malaria was one of cautious optimism. Thirty-one percent of African households own at least one insecticide-treated net (ITN) to protect them from mosquito bites while sleeping. In 13 of the 35 countries with the highest malaria burden, ITN ownership was over 50%, but the use of medical treatments remains relatively low. In some areas, there have been remarkable improvements. For example, in Tanzania the number of recorded deaths and cases of malaria has fallen by 50%, the target set by the WHO for 2010.

Figure 2 – The Global Map of Malaria⁸



Two major threats to the improving picture are identified. Firstly, that the malaria parasite itself will develop resistance to medications, and secondly, that the mosquito itself will become resistant to insecticides used to spray their breeding grounds. The key to combating these threats is the rapid dissemination of malaria prevention tools that lead to correct diagnosis, treatment and follow up. This ensures that the parasite is not passed from person to person as the mosquito feeds. All treatment should be with combination therapies, as opposed to mono-therapy, and careful monitoring of the efficacy of medication is required to detect the development of resistance.

Table 1 – Malaria Reduction by Region⁹

Impact: number of countries that achieved > 50% reduction in malaria cases in 2008 compared to 2000		
African Region, high burden	---	4 of 35 (11%)
African Region, low burden	---	5 of 7 (71%)
Outside of African Region	---	29 of 56 (52%)

Implications of complications for underwriters

Malaria causes distortion and then damage to the red blood cells as the parasites multiply and burst out of the cells. This can result in:

- Anaemia – from destruction of red cells by the protozoa
- Cerebral infarctions as the distorted red cells block the small blood vessels in the brain tissue
- Pulmonary oedema
- Liver failure and jaundice
- Renal failure from micro-infarctions as well as dehydration and increased blood viscosity

Falciparum malaria has the greatest risk of severe haemolytic complications. Recurrence of infection may occur due to inadequate initial treatment, relapse as the protozoa may have a dormant phase (especially in Vivax and Ovale forms) or immune factors in the host. While the underwriter would want to know that there has been no cerebral, liver or renal damage, the vast majority of people with malaria will have only a single attack, not require admission to hospital and will have a complete recovery without any significant complications.

Conclusion

High profile cases serve to focus our attention on areas of risk that may otherwise go un-noticed. Although the financial recession has hit the travel plans of some Britons (visits abroad have decreased by 2 % to 13.2 million in the first three months of 2010) the squeeze is less likely to affect more affluent travellers with an urge to visit exotic locations, thereby exposing themselves to risk.¹⁰ The WHO is cautiously optimistic about the effectiveness of its programme to reduce malaria worldwide, yet it remains a significant risk to those travelling to the endemic areas. However, as the Health Protection Agency data shows, the overall impact on UK citizens is low. Uncomplicated single attacks of malaria may be accepted by underwriters for life insurance, although a more cautious approach to disability is appropriate in the early stages. Only applicants for insurance that have suffered significant complications or recurrent attacks represent a more aggravated risk to underwriters.

Endnotes

- 1 <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Malaria/EpidemiologicalData/malaEpi10CasesandDeaths/> accessed 13th July 2010.
- 2 http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1203496943523.
- 3 <http://www.nhs.uk/Conditions/Malaria/Pages/Symptoms.aspx>.
- 4 Source: http://www.medicine.cmu.ac.th/dept/parasite/proto/Pf_gam.jpg.
- 5 http://news.bbc.co.uk/2/hi/uk_news/england/merseyside/6951671.stm.
- 6 http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1203496943523.
- 7 http://www.who.int/malaria/world_malaria_report_2009.html.
- 8 Source: <http://www.rollbackmalaria.org/wmr2005/maps/map1.gif>.
- 9 http://www.who.int/malaria/world_malaria_report_2009/factsheet/en/index.html.
- 10 <http://www.statistics.gov.uk/pdffdir/ott0610.pdf>.



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