MALARIA

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INTRODUCTION [1]

Malaria is caused by a parasite called Plasmodium, which is transmitted via the bites of infected *Anopheles* mosquitoes, called "malaria vectors", which bite mainly between dusk and dawn. In the human body, the parasites multiply in the liver, and then infect red blood cells.

Symptoms of malaria include fever, headache, and vomiting, and usually appear between 10 and 15 days after the mosquito bite. If not treated, malaria can quickly become life-threatening by disrupting the blood supply to vital organs. In many parts of the world, the parasites have developed resistance to a number of malaria medicines.

KEY FACTS [1,2]

- According to the latest estimates, released in December 2014, there were about 198 million cases of malaria in 2013 (with an uncertainty range of 124 million to 283 million) and an estimated 584 000 deaths (with an uncertainty range of 367 000 to 755 000).
- Malaria mortality rates have fallen by 47% globally since 2000, and by 54% in the WHO African Region.
- Most deaths occur among children living in Africa where a child dies every minute from malaria. Malaria mortality rates among children in Africa have been reduced by an estimated 58% since 2000.
- Malaria is preventable and curable.
- Increased malaria prevention and control measures are dramatically reducing the malaria burden in many places.

There are four parasite species that cause malaria in humans:[1]

- *Plasmodium falciparum*
- *Plasmodium vivax*
- *Plasmodium malariae*
- *Plasmodium ovale.*

Plasmodium falciparum and *Plasmodium vivax* are the most common. *Plasmodium falciparum* is the most deadly.[1]

SYMPTOMS [3]

The first symptoms of malaria are nonspecific and similar to those of a minor systemic viral illness. They comprise:

- headache,
- lassitude,
- fatigue,
- abdominal discomfort and
- muscle and joint aches, usually followed by

- fever,
- chills,
- perspiration,
- anorexia,
- vomiting and
- worsening malaise.

* In young children, malaria may also present with ***lethargy***, ***poor feeding*** and ***cough***.
* Severe malaria usually manifests with one or more of the following: coma (cerebral malaria), metabolic acidosis, severe anaemia, hypoglycaemia, acute renal failure or acute pulmonary oedema.
* If left untreated, severe malaria is fatal in the majority of cases.

WHO IS AT RISK? [1]

- young children in stable transmission areas who have not yet developed protective immunity against the most severe forms of the disease;
- non-immune pregnant women as malaria causes high rates of miscarriage and can lead to maternal death;
- semi-immune pregnant women in areas of high transmission. Malaria can result in miscarriage and low birth weight, especially during first and second pregnancies;
- semi-immune HIV-infected pregnant women in stable transmission areas, during all pregnancies. Women with malaria infection of the placenta also have a higher risk of passing HIV infection to their newborns;
- people with HIV/AIDS;
- international travellers from non-endemic areas because they lack immunity; immigrants from endemic areas and their children living in non-endemic areas and returning to their home countries to visit friends and

DIAGNOSIS [3]

Early diagnosis and treatment of malaria reduces disease and prevents deaths. It also contributes to reducing malaria transmission.

In all settings, suspected malaria should be confirmed with a parasitological test. The results of parasitological diagnosis should be available within a short time (< 2 h) of the patient presenting. In settings where parasitological diagnosis is not possible, a decision to provide antimalarial treatment must be based on the probability that the illness is malaria.

TREATMENT [4]

SUMMARY OF CURRENT MALARIA TREATMENT POLICY – MALAYSIA

SPECIES	UNCOMPLICATED LAB-CONFIRMED	TREATMENT FAILURE	SEVERE MALARIA	PREGNANCY*
falciparum	i) CQ+PQ 3 days (in CQ sensitive areas) ii) CQ+SP+PQ – 3 days and SP only on first day in suspected CQ resistant areas) iii) SP+PQ – single dose regime in CQ resistant areas in the State of Sabah	i) QN – 7 days ii) QN+T – 7 days iii) MQ – use for multi-drug resistance	i) QN – 7 days ii) QN+T – 7 days	QN – 7 days *Chemoprophylaxis for pregnant women is not usually practiced *All cases of malaria in pregnancy are treated in hospital and closely monitored
vivax	CQ+PQ – CQ for 3 days and PQ for 14 days	-	-	-
malariae	i) CQ+PQ ii) SP+PQ (in Sabah)	-	-	-
Mixed infection a) *falciparum* + *vivax* b) *falciparum* +*malariae*	 i) CQ+PQ – CQ for 3 days and PQ for 14 days ii) SP+CQ+PQ – SP for 1 day, CQ 4 days, PQ 14 days (in Sabah) CQ+PQ SP+PQ (in Sabah)	-	-	-

CQ = Chloroquine; PQ = Primaquine; QN = Quinine; T = Tetracycline; SP = Sulphadoxine-Pyrimethamine

TREATMENT OF SEVERE FALCIPARUM MALARIA [5]

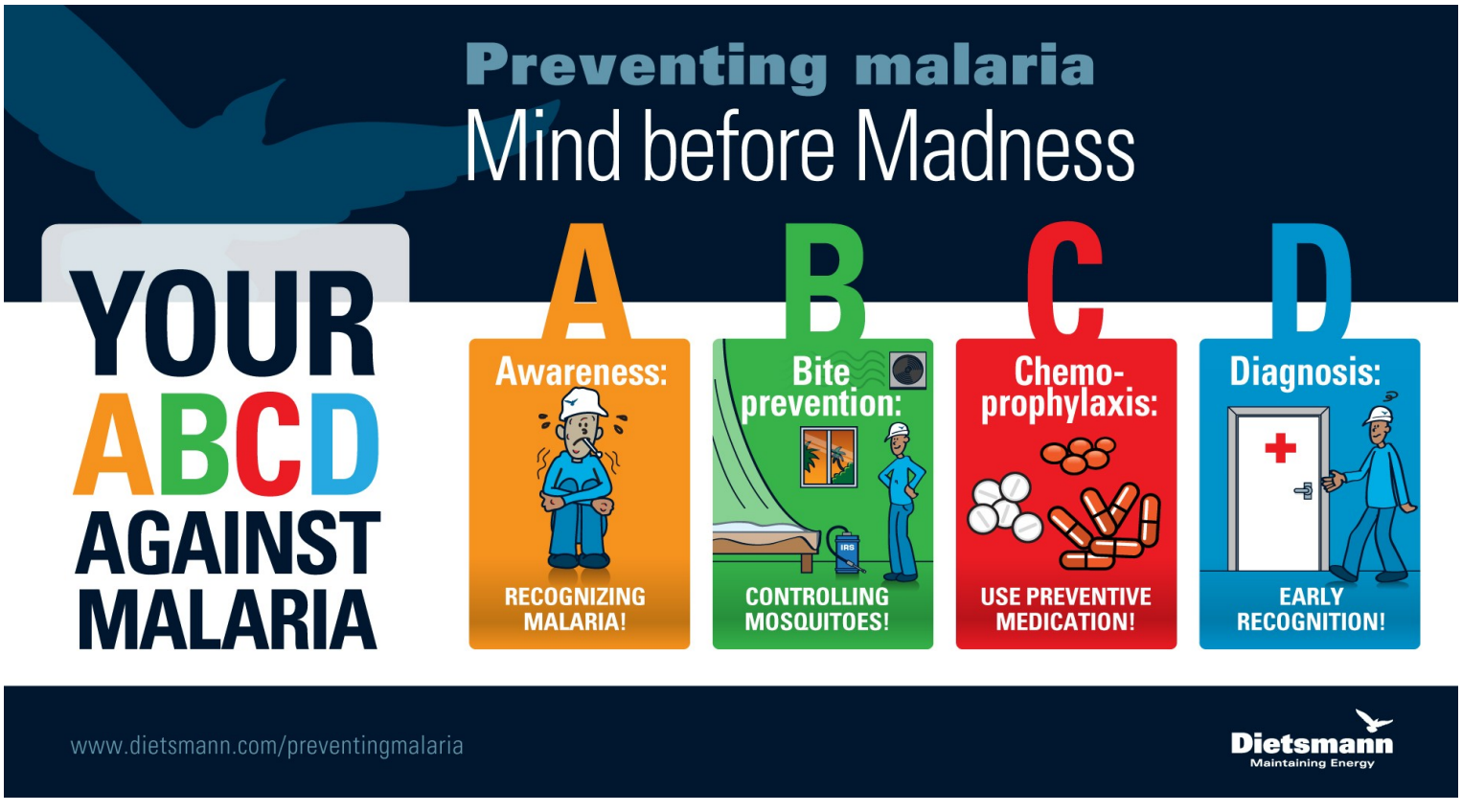
Preferred regime	Alternative regime
➢IV Artesunate (60mg): 2.4mg/kg on admission, followed by 2.4mg/kg at 12h & 24h, then once daily for 7 days. ➢Once the patient can tolerate oral therapy, treatment should be switched to a complete dosage of Riamet (artemether/lumefantrine) for 3 day.	➢IV Quinine loading 7mg salt /kg over 1hr followed by infusion quinine 10mg salt/kg over 4 hrs, then 10mg salt/kg Q8H or IV Quinine 20mg/kg over 4 hrs, then 10mg/kg Q8H. **Plus** ➢Adult & child >8yrs old: Doxycycline (3.5mg/kg once daily) **or** ➢Pregnant women & child < 8yrs old: Clindamycin (10mg/kg twice daily). Both drug can be given for 7 days.
➢Reconstitute with 5% Sodium Bicarbonate & shake 2-3min until clear solution obtained. Then add 5ml of D5% or 0.9%NaCl to create total volume of 6ml. ➢Slow IV injection with rate of 3-4ml/min or IM injection to the anterior thigh. ➢The solution should be prepared freshly for each administration & should not be stored.	➢Dilute injection quinine in 250ml od D5% and infused over 4hrs. ➢Infusion rate should not exceed 5 mg salt/kg per hour.

TREATMENT OF UNCOMPLICATED FALCIPARUM MALARIA

Preferred regime				Alternative regime
Artemether plus lumefantrine(Riamet) (1 tab: 20mg artemether/120mg lumefantrine)				**Quinine sulphate (300mg/tab)**
Weight Group	Day 1	Day 2	Day3	Day 1-7: Quinine 10mg salt/kg PO Q8H Plus *Doxycycline (3.5mg/kg once a day) OR *Clindamycin (10mg/kg twice a day) *Any of these combinations should be given for 7 days. Doxycycline: Children>8yr Clindamycin: Children<8yr
5-14kg	1 tab stat then 8hr later	1 tab Q12H	1 tab Q12H	
15-24kg	2 tab stat then 8hr later	2 tab Q12H	2 tab Q12H	
25-34kg	3 tab stat then 8hr later	3 tab Q12H	3 tab Q12H	
>34kg	4 tab stat then 8hr later	4 tab Q12H	4 tab Q12H	
Take immediately after a meal or drink containing at least 1.2g fat to enhance lumefantrine absorption.				
Add primaquine 0.75mg base salt/kg single dose if gametocyte is present at any time during treatment.				

TREATMENT OF MALARIA BY P.VIVAX, P.OVALE OR P.MALARIAE [5]

CHLOROQUINE (150 mg base/tab) 25 mg base/kg divided over 3 days			PRIMAQUINE (7.5 mg base/tab)
Day 1	Day 2	Day 3	➢ **Start concurrently** with **CHLOROQUINE** 0.5 mg base/kg Q24H for 2 weeks ➢ Take with food ➢ Check G6PD status before start primaquine ➢ In mild-to-moderate G6PD deficiency, primaquine 0.75 mg base/kg body weight given once a week for 8 weeks. ➢ In severe G6PD deficiency, primaquine is contraindicated and should not be used.
10mg base/kg stat, then 5mg base/kg	5mg base/kg Q24H	5mg base/ kg Q24H	
1 tab of chloroquine phosphate 250mg equivalent to 150mg base. Calculation of dose for chloroquine is based on BASE, not SALT form. 1 tab of primaquine phosphate contains 7.5mg base.			



APMEN Media release: Malaysia vows to achieve 2020 malaria elimination date at VcWG meeting

The Ministry of Health has reaffirmed its strong commitment to eliminate malaria in Malaysia by the year 2020, as part of a regional vision of a malaria-free Asia Pacific by 2030.

Speaking on Wednesday (21 January 2015) at a meeting of the Asia Pacific Malaria Elimination Network (APMEN) Vector Control Working Group, Malaysia's Deputy Health Minister Datuk Seri Dr Hilmi Yahaya said well concerted efforts by the national Malaria Control Programme were contributing to declining malaria cases in the country, and achieving zero local malaria cases is the next step.

"For year 2015, we are targeting all states in Peninsular Malaysia and Labuan will not have any locally transmitted malaria cases," Dr Yahaya said.

"For Sabah and Sarawak, a similar achievement of zero locally transmitted malaria cases is targeted by end of 2017 and Malaysia will receive WHO certification of malaria elimination by 2020, if all goes according to plan."

Malaysia has embarked on implementing the National Strategic Plan for the Elimination of Malaria (NSPEM) 2011 – 2020, and is backed by strong political leadership and regional collaboration.

When asked if the Ministry of Health believes elimination of malaria in Malaysia is possible, Deputy Director-General for Public Health, Datuk Dr Lokman Sulaiman said, "Yes, it is achievable."

Malaysia's Prime Minister Najib Razak was among the 18 leaders at the 9th East Asia Summit, hosted by Myanmar in November 2014, to declare a regional goal of "*an Asia Pacific free of Malaria by 2030*".

As the 2015 Chair of the Association of Southeast Asian Nations (ASEAN), Malaysia has the key role of hosting the 10th East Asia Summit in December when a roadmap to achieve malaria elimination in the Asia Pacific by 2030 will be agreed upon by the region's leader

The current Malaria Control Programme in Malaysia aims to maintain robust case-based surveillance and response for malaria, including a focus of efforts on providing surveillance, diagnosis and treatment for hard-to-reach and mobile populations.

In areas where the Malaria Control Programme has already been successful in getting zero transmission of malaria cases, funding and resource commitments are needed to prevent reintroduction of the disease. The partnership with private sector plantations is one way that Malaysia has ensured services to these at risk populations.

The successful collaboration with private sector plantations for surveillance and vector control is highlighted in a case study on Malaysia's elimination programme, *Progress toward Elimination in Malaysia*, which was developed by the Ministry of Health Malaysia, the University of California, San Francisco (UCSF) Global Health Group and the World Health Organization Global Malaria Programme.

The Malaysian case study aims to share the experience and lessons learned from Malaysia for other countries considering or embarking upon elimination, in particular the countries of the Asia Pacific, for which the goal is regional malaria elimination by 2030.

According to the recent World Malaria Report 2014, Malaysia has reduced the number of cases of malaria by 70% since 2000.

Source: Asia Pacific Malaria Elimination Network. APMEN Media release: Malaysia vows to achieve 2020 malaria elimination date at VcWG meeting. http://apmen.org/news/2015/1/22/apmen-media-release-malaysia-vows-to-achieve-2020-malaria-el.html (accessed 15 May 2015)

Scientists have been warning of the potentially devastating effects of the drug-resistant malaria reaching India and Africa.

The mosquito-transmitted disease malaria might be tackled due to the invention of Luke Alphey, who was selected as a finalist for the 2015 European Inventor Award for creating a technology that promotes a sustainable control of the disease-carrying insects.

Alphey, a non-executive director of Oxford-based bio-tech company Oxitec, came up with the idea of modifying the DNA of disease-carrying male insects that seek to mate with female insects in the wild. As a result of the modification, any offspring would not survive until adulthood with a consequent decline of the population of that species.

Oxitec has already implemented its new technology on the Aedes aegypti, a mosquito that carries the Dengue fever, a viral infection on the rise worldwide.

"So far, we've had successful field trials targeting the Dengue mosquito in several countries such as Malaysia and Brazil, and it's going very well," Alphey told **IBTimes UK**. "We have achieved over 90% suppression of the target mosquito population in every trial. That sort of degree of suppression is what you need to control the epidemic."

Alphey explained Oxitec started its trials with the Dengue mosquito as there is only one key species transmitting this disease around the world. "Malaria is more complicated as there are quite a number of different species in Africa, in the Americas and in Asia," he said.

"However, in the spectrum of species and interventions for malaria, there are places where this technology would be very useful.

"It may well be that our technology might be an important part of an integrated control programme that can deal with some malaria mosquitoes – such as the outdoor biting ones – that are hard to control with existing methods. It's perfectly doable and we demonstrated we can get the technology to work."

Source: International Business Times. World Malaria Day 2015: Male mosquito DNA modification 'could halt transmission'. http://www.ibtimes.co.uk/world-malaria-day-2015-male-mosquito-dna-modification-could-halt-transmission-1497814 (accessed 15 May 2015)

25 April 2015

Invest in the future, defeat malaria

"As we celebrate World Malaria Day on April 25, we must recognize the urgent need to expand prevention measures and quality-assured diagnostic testing and treatment to reduce the human suffering caused by malaria," says Dr Hiroki Nakatani, WHO Assistant Director-General for HIV/AIDS, Tuberculosis, Malaria and Neglected Tropical Diseases. [6]

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E-Cigarette use triplets among middle and high school students in just one year

Current e-cigarette use among middle and high school students tripled from 2013 to 2014, according to data published by the Centers for Disease Control and Prevention and the U.S. Food and Drug Administration's Center for Tobacco Products (CTP) in today's Morbidity and Mortality Weekly Report (MMWR). Findings from the 2014 National Youth Tobacco Survey show that current e-cigarette use (use on at least 1 day in the past 30 days) among high school students increased from 4.5 percent in 2013 to 13.4 percent in 2014, rising from approximately 660,000 to 2 million students. Among middle school students, current e-cigarette use more than tripled from 1.1 percent in 2013 to 3.9 percent in 2014—an increase from approximately 120,000 to 450,000 students.

This is the first time since the survey started collecting data on e-cigarettes in 2011 that current e-cigarette use has surpassed current use of every other tobacco product overall, including conventional cigarettes. E-cigarettes were the most used tobacco product for non-Hispanic whites, Hispanics, and non-Hispanic other race while cigars were the most commonly used product among non-Hispanic blacks.

"We want parents to know that nicotine is dangerous for kids at any age, whether it's an e-cigarette, hookah, cigarette or cigar," said CDC Director Tom Frieden, M.D., M.P.H. "Adolescence is a critical time for brain development. Nicotine exposure at a young age may cause lasting harm to brain development, promote addiction, and lead to sustained tobacco use."

Hookah smoking roughly doubled for middle and high school students, while cigarette use declined among high school students and remained unchanged for middle school students. Among high school students, current hookah use rose from 5.2 percent in 2013 (about 770,000 students) to 9.4 percent in 2014 (about 1.3 million students). Among middle school students, current hookah use rose from 1.1 percent in 2013 (120,000 students) to 2.5 percent in 2014 (280,000 students).

The increases in e-cigarette and hookah use offset declines in use of more traditional products such as cigarettes and cigars. There was no decline in overall tobacco use between 2011 and 2014. Overall rates of any tobacco product use were 24.6 percent for high school students and 7.7 percent for middle school students in 2014.

In 2014, the products most commonly used by high school students were e-cigarettes (13.4 percent), hookah (9.4 percent), cigarettes (9.2 percent), cigars (8.2 percent), smokeless tobacco (5.5 percent), snus (1.9 percent) and pipes (1.5 percent). Use of multiple tobacco products was common; nearly half of all middle and high school students who were current tobacco users used two or more types of tobacco products. The products most commonly used by middle school students were e-cigarettes (3.9 percent), hookah (2.5 percent), cigarettes (2.5 percent), cigars (1.9 percent), smokeless tobacco (1.6 percent), and pipes (0.6 percent).

Cigarettes, cigarette tobacco, roll-your-own tobacco and smokeless tobacco are currently subject to FDA's tobacco control authority. The agency currently is finalizing the rule to bring additional tobacco products such as e-cigarettes, hookahs and some or all cigars under that same authority. Several states have passed laws establishing a minimum age for purchase of e-cigarettes or extending smoke-free laws to include e-cigarettes, both of which could help further prevent youth use and initiation.

"In today's rapidly evolving tobacco marketplace, the surge in youth use of novel products like e-cigarettes forces us to confront the reality that the progress we have made in reducing youth cigarette smoking rates is being threatened," said Mitch Zeller, J.D., director of FDA's Center for Tobacco Products. "These staggering increases in such a short time underscore why FDA intends to regulate these additional products to protect public health."

Today's report concludes that further reducing youth tobacco use and initiation is achievable through regulation of the manufacturing, distribution, and marketing of tobacco products coupled with proven strategies. These strategies included funding tobacco control programs at CDC-recommended levels, increasing prices of tobacco products, implementing and enforcing comprehensive smoke-free laws, and sustaining hard-hitting media campaigns. The report also concludes that because the use of e-cigarettes and hookahs is on the rise among high and middle school students, it is critical that comprehensive tobacco control and prevention strategies for youth focus on all tobacco products, and not just cigarettes.

The National Youth Tobacco Survey (NYTS) is a school-based, self-administered questionnaire given annually to middle and high-school students in both public and private schools. NYTS, which surveyed 22,000 students in 2014, is a nationally representative survey.

The 2012 Surgeon General's Report found that about 90 percent of all smokers first tried cigarettes as teens; and that about three of every four teen smokers continue into adulthood. To learn more about quitting and preventing children from using tobacco, visit www.BeTobaccoFree.gov

Taken from: CDC Newsroom Release. Thursday, April 2016. Centres for Disease Control and Prevention.

ADR REPORTED FROM APRIL TO JUNE

No	DATE	MEDICATIONS	ADR
1	6.4.2015	Insuman Comb	Swelling (upper and lower limb)
2	8.4.2015	Freeze Dried Glutamate BCG Vaccine	Swelling over left axilla
3	24.5.2015	Carbimazole 5mg Tab (Thymazole) (MAL 19950155AZ)	Swelling of eyes with itchiness and watery eyes after consuming Thymazole. Patient can tolerate with Carmazole (MAL19860195AZ)
4	1.6.2015	Sy Amoxicillin	Rashes over upper lip and periorbital swelling and also rashes over both right and left upper limb.
5	3.6.2015	Sy Amoxicillin	Periorbital swelling

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