

Swiss TPH



Swiss Tropical and Public Health Institute
Schweizerisches Tropen- und Public Health-Institut
Institut Tropical et de Santé Publique Suisse

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Malaria

A short introduction

Sao Paulo, November 13th 2014

Why did Jeremy nominate me to give this talk ?

- Because of the 12 year long work relationship our group has with MMV ?
- Or because my hair gets more and more grey ?

Whatever the answer is...

I will certainly do my best to bring those «up to speed», who do not work in the malaria field.

Brazil: Many, many researchers are working on malaria

One scientist who immediately came into my mind:

Prof. Carlos Morel



Carlos Morel

- Long list of activities
- Participated in the creation of several global programs of research and development for neglected diseases: Global Forum for Health Research, Medicines for Malaria Venture, Global Alliance for TB Drug Development, becoming this Organization's first Chairman of the Board, and Drugs for Neglected Diseases *initiative*.
- Director of the Center for Technological Development in Health (CDTS) and a Senior Researcher at the Oswaldo Cruz Foundation (Fiocruz)
- On top of that he is...

- Chair of external review board at Swiss TPH !



1943: Created as Swiss Tropical Institute (STI)

10 FACTS ON MALARIA

(by WHO)



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CDC/James Gathany

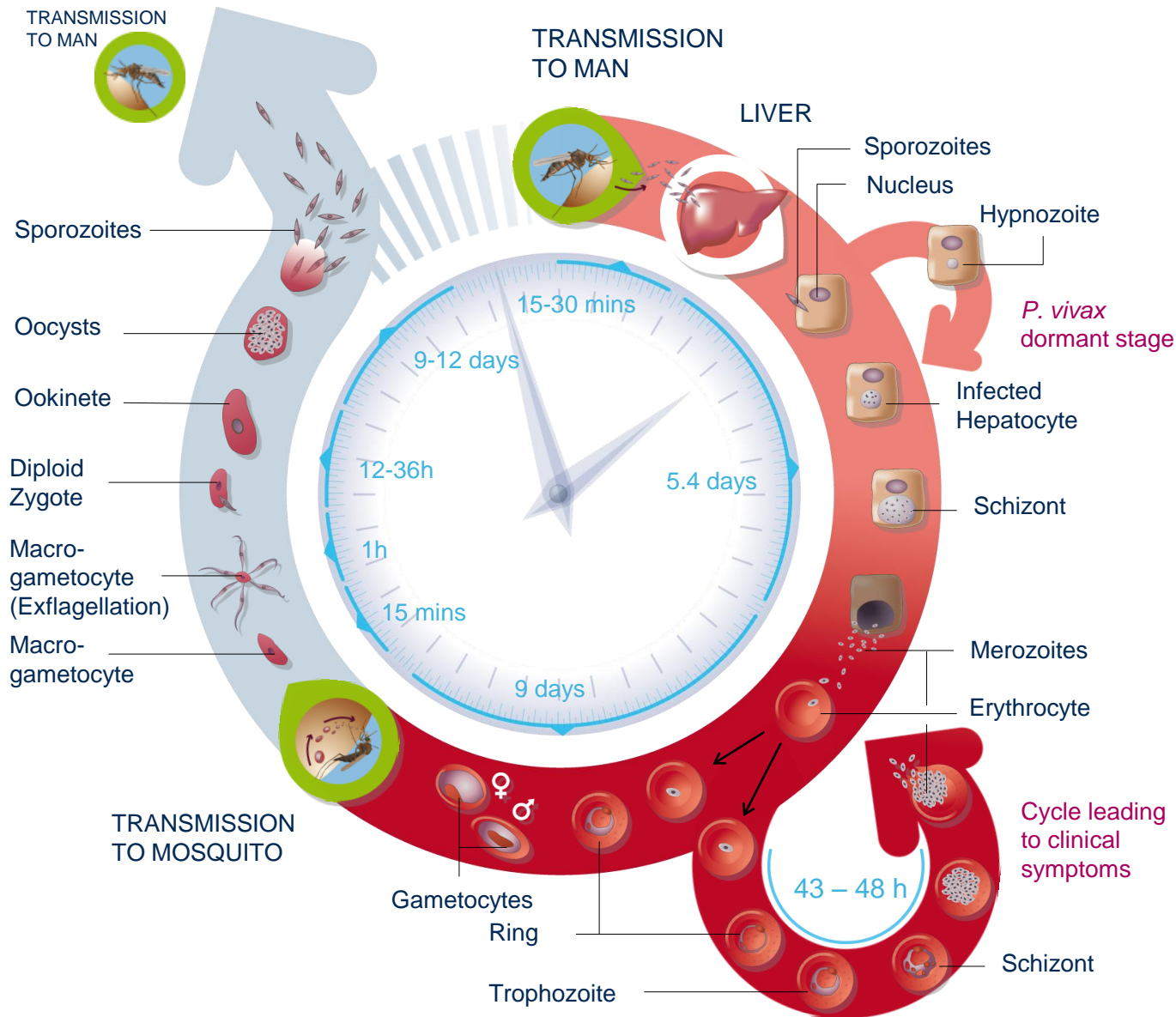
Malaria is caused by parasites that are transmitted to people through the bites of infected mosquitoes

Malaria is caused by *Plasmodium* parasites that are spread to people through the bites of infected *Anopheles* mosquito vectors. Of the five parasite species that cause malaria in humans, *Plasmodium falciparum* is the most deadly.

Five different *Plasmodium* species that cause malaria in humans: (*P. malariae*, *P. ovale*, *P. knowlesi*, *P. vivax* and *P. falciparum*)



Animated lifecycle of the malaria parasite



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WHO/S. Hollyman

Half of the world's population is at risk of malaria

Every year, 3.4 billion people are at risk of malaria. This leads to about 207 million malaria cases (with an uncertainty range of 135 million to 287 million) and an estimated 627 000 malaria deaths (with an uncertainty range of 473 000 to 789 000). People living in the poorest countries are the most vulnerable.



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Every minute, a child dies from malaria

In 2012, 90% of the world's malaria deaths occurred in Africa and about 460 000 African children died before their fifth birthdays.

WHO/S. Hollman

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WHO/S. Hollyman

Emerging artemisinin resistance is a major concern

Parasite resistance to artemisinin, the core compound in WHO-recommended combination treatments for uncomplicated malaria, has been detected in 4 countries of south east Asia: Cambodia, Myanmar, Thailand and Viet Nam. However, artemisinin-based combination therapies remain highly effective in almost all settings, as long as the partner drug in the combination is locally effective.

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Sleeping under long-lasting insecticidal nets protects against malaria

These nets provide personal protection against mosquito bites. They can be used as protection for people most at risk of malaria, such as young children and pregnant women in high malaria transmission areas. The nets are effective for three to five years, depending on the model and conditions of use. According to the World malaria report 2013, 86% of people with access to a net use it.

WHO/S. Hollyman



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Pregnant women are particularly at risk of malaria

Pregnant women are at high risk of dying from the complications of severe malaria. Malaria is also a cause of spontaneous abortion, premature delivery, stillbirth and severe maternal anaemia, and is responsible for about one third of preventable low-birth-weight babies. WHO recommends intermittent preventive treatment for pregnant women living in areas of high malaria transmission.

WHO /S. Hollyman

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Malaria causes significant economic losses in high-burden countries

In high-burden settings, malaria can trap families and communities in a downward spiral of poverty, disproportionately affecting marginalized and poor people who cannot afford treatment or who have limited access to health care.

WHO/V. Buj



Thank you !



Backup slides

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Malaria mortality rates are falling

Increased malaria prevention and control measures are dramatically reducing the malaria burden in many places. Malaria mortality rates have fallen by 42% globally since 2000 and by 49% in the WHO African Region.

UNICEF/P. Holtz

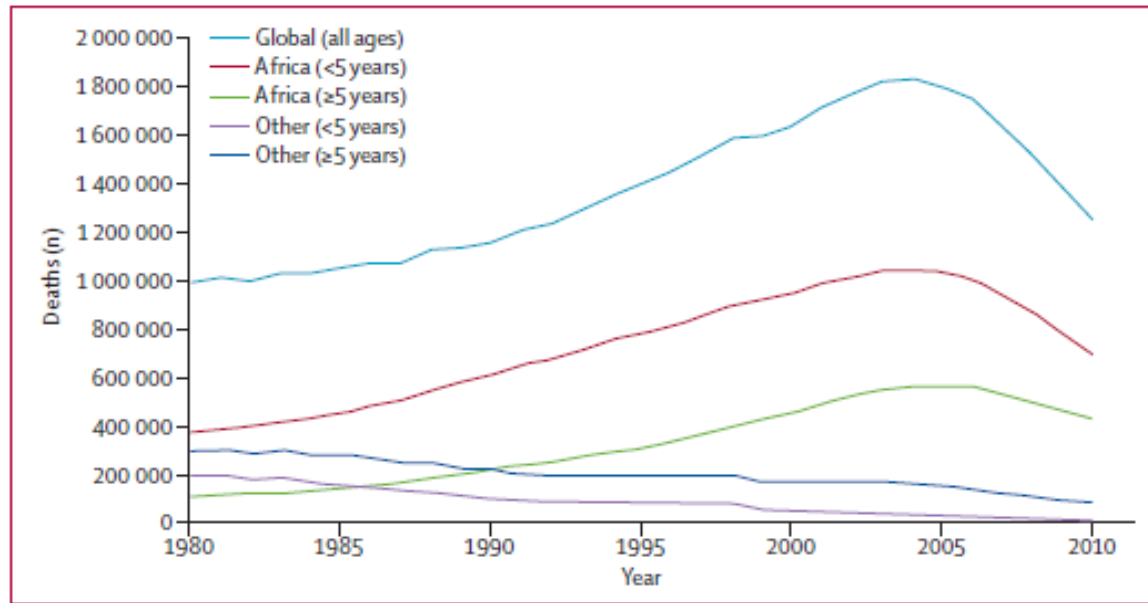


Figure 2: Trends in global malaria deaths by age and geographical region, 1980 to 2010

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Early diagnosis and prompt treatment of malaria prevents deaths

Early diagnosis and treatment of malaria reduces disease and prevents deaths. It also contributes to reducing malaria transmission. Access to diagnostic testing and treatment should be seen not only as a component of malaria control but as a fundamental right of all populations at risk.

WHO/S. Hollyman

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Indoor residual spraying is the most effective way to rapidly reduce malaria transmission

The full potential of indoor residual spraying is obtained when at least 80% of houses in targeted areas are sprayed. Indoor spraying with insecticides kills the mosquito vector and is effective for 3–6 months, depending on the insecticide used and the type of surface on which it is sprayed. Longer-lasting forms of insecticides are under development.

WHO/V. Buj

South America is world famous for its fight against malaria

Manuel Patarroyo

- Made in 1987 the world's first attempt to create a synthetic malaria vaccine (SPf66)
- In 2009, a comprehensive Cochrane review assessed the SPf66 as being not efficacious in Africa and Asia, and as having a statistically significant **efficacy of 28% in South America**

