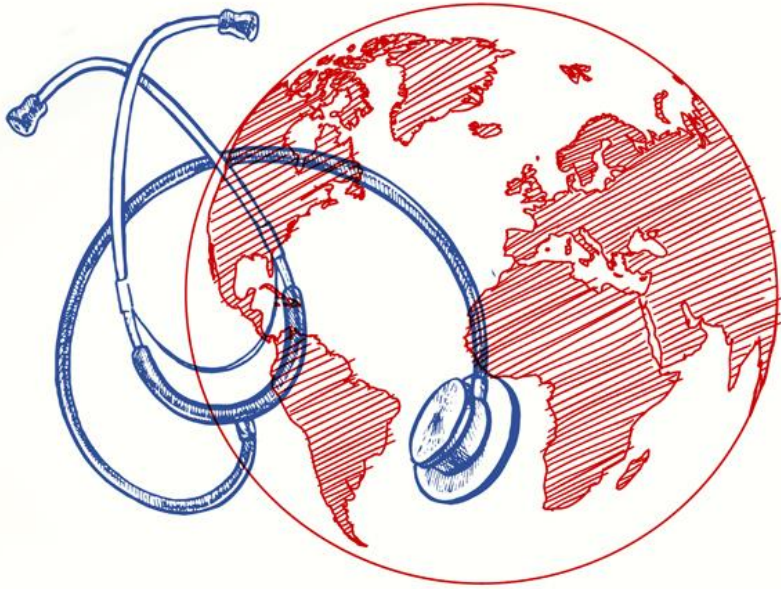


Global Health Cast 59

February 12, 2024



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What we talk about today

- **World Cancer Day: 1 in 5 will have cancer. What can we do?**
- **Microorganisms as causes of cancer**
- **Actions to reduce individual cancer risk**
- **Clinical trial confirms efficacy, safety of 2nd malaria vaccine**
- **Vaccine hesitancy is NOT the norm – high vaccine confidence**
- **China reports woman's death from H3N2-H10N5 flu co-infection**

Mechanisms how microbes may contribute to cancer

1. Microbes may ***directly change genes*** inside cells that control their growth – uninhibited growth results in cancer
2. Chronic infections and long-term inflammation may lead to 1) **changes in the affected cells** and 2) changes in **nearby immune cells**, eventually resulting in uncontrolled growth and cancer.
3. Some microorganisms **suppress the immune system (T-cells)**, which normally kills cancerous cells. Lack of T-cell immunity results in cancer.

Microbes associated with cancer

Viruses

- ▶ **Human papillomaviruses (HPVs)**
- ▶ **Epstein-Barr virus (EBV)**
- ▶ **Hepatitis B virus (HBV)**
- ▶ **Hepatitis C virus (HCV)**
- ▶ **Human immunodeficiency virus (HIV)**
 - ▶ Kaposi sarcoma, cervical cancer, non-Hodgkin lymphoma (especially central nervous system lymphoma, Anal cancer Hodgkin disease, Lung cancer, Cancers of the mouth and throat, some types of skin cancer, liver cancer)
- ▶ **Human herpes virus 8 (HHV-8)**
- ▶ **Human T-lymphotropic virus-1 (HTLV-1)**
- ▶ **Merkel cell polyomavirus (MCV)**
- ▶ Uncertain/Unproven: Simian virus 40 (SV40)

Bacteria

- ▶ ***Helicobacter pylori***
(stomach cancer)
- ▶ ***Chlamydia trachomatis***
(cervical cancer)

Parasites

- ▶ ***Opisthorchis viverrine, Clonorchis sinensis***
(liver flukes; cancer of the bile ducts)
- ▶ ***Schistosoma haematobium***,
(bladder cancer)

Ways to reduce your cancer risk



Do not smoke or use any form of tobacco



Avoid too much sun, use **sun protection**

Make your home **smoke-free**



Reduce indoor and outdoor **air pollution**



Enjoy a **healthy diet**



Be **physically active**



Breastfeeding reduces the mother's cancer risk



Limit alcohol intake



Vaccinate your children against Hepatitis B and HPV



Take part in organized **cancer screening** programmes



Did you know...?

Cancer is the **second** leading cause of death worldwide.

Source: IARC



Did you know...?

More than **1 in 5 people** will be diagnosed with cancer in their lifetime.

Source: IARC



Did you know...?

Up to **50%** of cancer cases can be **prevented** through **lifestyle changes**, such as not smoking, healthy diet and exercise.

Source: IARC

Tobacco use is the single largest preventable cause of cancer and stopping smoking is one of the best things we can do to reduce our risk of cancer.

There are **vaccines against HBV and HPV**, which can help to protect against the infection-related cancers of liver and cervical cancers.

Maintaining a **healthy weight** and making **physical activity** part of your everyday life can help reduce your risk of several cancers.

Alcohol intake is strongly linked with an increased risk of several cancers.

Safety and efficacy of malaria vaccine candidate R21/Matrix-M in African children: a multicentre, double-blind, randomised, phase 3 trial

Mehreen S Dattoo, Alassane Dicko*, Halidou Tinto*, Jean-Bosco Ouédraogo, Mainga Hamaluba†, Ally Olotu†, Emma Beaumont, Fernando Ramos Lopez, Hamtandi Magloire Natama, Sophie Weston, Mwajuma Chemba, Yves Daniel Compaore, Djibrilla Issiaka, Diallo Salou, Athanase M Some, Sharon Omenda, Alison Lawrie, Philip Bejon, Harish Rao, Daniel Chandramohan, Rachel Roberts, Sandesh Bharati, Lisa Stockdale, Sunil Gairola, Brian M Greenwood, Katie J Ewer‡, John Bradley, Prasad S Kulkarni, Umesh Shaligram, Adrian V S Hill, the R21/Matrix-M Phase 3 Trial Group§

R21/Matrix-M was well tolerated and offered high efficacy against clinical malaria in African children. This low-cost, high-efficacy vaccine is already licensed by several African countries, and recently received a WHO policy recommendation and prequalification, offering large-scale supply to help reduce the great burden of malaria in sub-Saharan Africa.

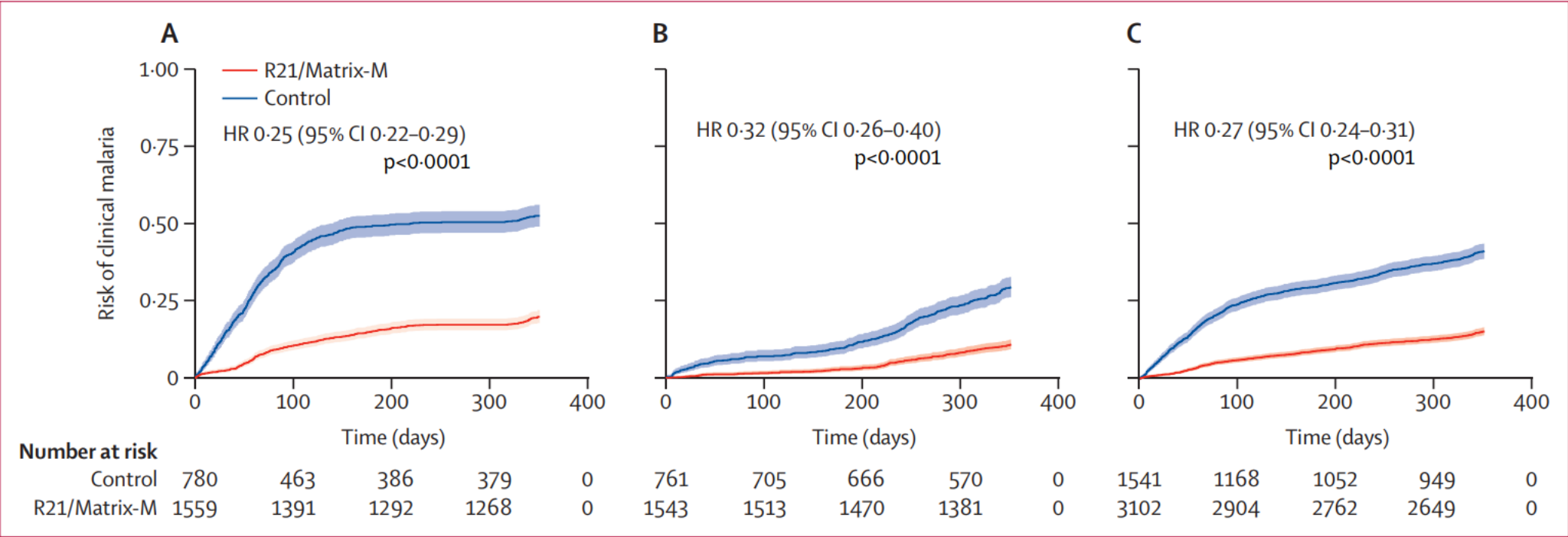
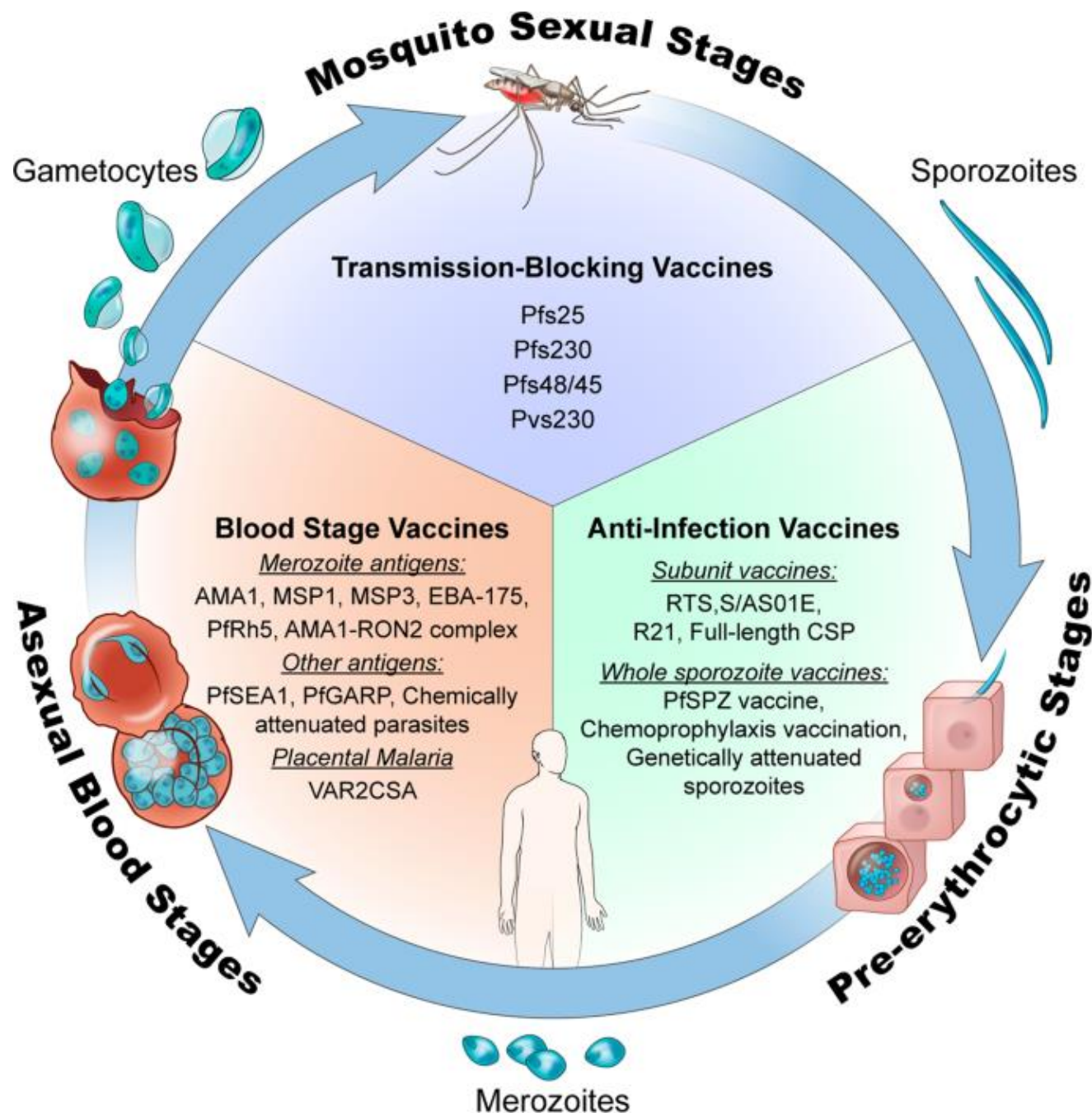
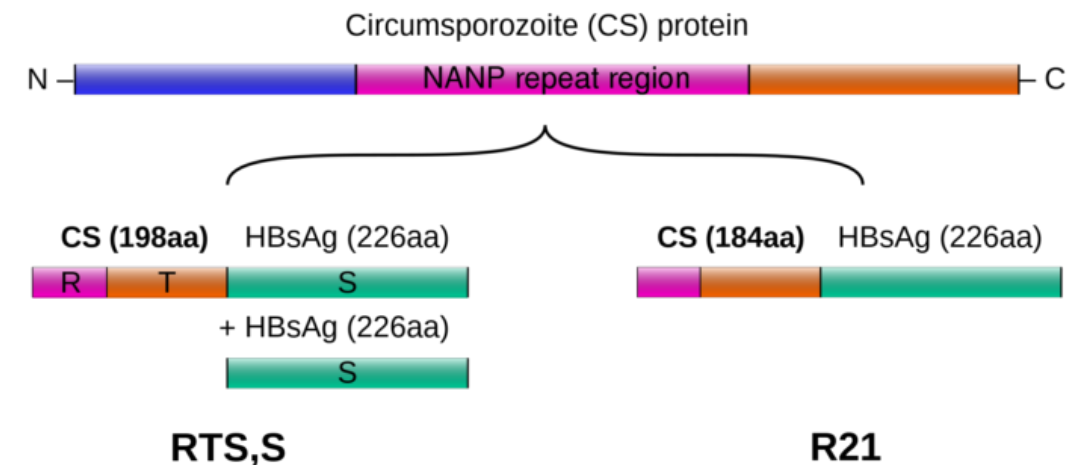


Figure 2: Kaplan-Meier estimates of the time to first episode of clinical malaria in the modified per-protocol population at seasonal sites (A), standard sites (B), and all sites (C)



Both vaccines are made up of a 'scaffold' of a hepatitis B virus surface antigen and a malaria antigen from the *Plasmodium falciparum* parasite.

The two antigens differ in structure — R21 is more potent, with each dose containing five micrograms of the antigen, compared with 25 micrograms in a single dose of RTS,S.





VACCINATION.

Printed by J. I. Smith, Fleet Street, 17, to the Right Hon.

Vaccine hesitancy – the exception as the media-norm?

- ▶ Vaccine Hesitancy is an important health threat since the first smallpox vaccine became available >200 years ago.
 - ▶ Media suggest: parental hesitancy (childhood vaccines) is commonplace.
- ▶ Pediatricians and vaccine-delivery researchers happily report that most parents continue to have positive attitudes about vaccines:
 - ▶ Pew Research Center: 88% of U.S. adults have robust confidence in the value of the childhood vaccine for measles, mumps, and rubella, and there has been essentially no change in recent years
 - ▶ CDC study: 93% of kindergarten students received state-required vaccines.
- ▶ There is harm associated with believing that parental vaccine hesitancy is the norm?
 - ▶ Normalizing vaccine hesitancy has the potential to be a dangerous, self-fulfilling prophecy.
 - ▶ Misperceptions about the prevalence of parental vaccine hesitancy in society can lead to adverse changes in vaccination-related intentions and actions among clinicians, policymakers, and parents.

China reports death of woman from combined H3N2, H10N5 strains of bird flu



People mainly become infected with avian influenza virus through contact with infected birds and poultry (live or dead) or their droppings, or contact with contaminated environments (such as wet markets and live poultry markets).

The 63-year-old woman from Anhui province had underlying health conditions and developed cough, sore throat, fever and other symptoms on November 30 and died on December 16.

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HAPPY CHINESE NEW YEAR 龙 2024 YEAR OF THE DRAGON