

## RTS,S MEDICAL AND SCIENTIFIC QUESTIONS & ANSWERS

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### Disclaimer

The primary focus of this resource is to be an internal training tool for RTS,S malaria vaccine candidate, containing related data in the format of a Q&A for Medical Affairs personnel. Information presented here is not for external distribution.

Whilst this document can be inspirational for reactive responses to experts or medical enquiries, local regulations, the GSK Code of Practice, scientific engagement principles and/or medical information processes should be followed appropriately.

### Please Note

- For media enquiries, please refer to the specific reactive Q&A for Media Enquiries and notify the Global Pipeline Communications team before you respond to a request for an interview so that they can help you to prepare (contact person: Aoife Pauley at [aoife.x.pauley@gsk.com](mailto:aoife.x.pauley@gsk.com)).
- The vaccine RTS,S/AS01 has completed phase 3 clinical program and positive regulatory assessment from the European Medicines Agency, but is not yet authorized for marketing in any country. The RTS,S vaccine is being developed in Public Private Partnership with PATH-MVI, as an additional tool to be added to the currently available malaria preventive interventions and for implementation through the national immunization programs in malaria endemic regions in sub-Saharan African countries.
- When referencing clinical data on RTS,S any statements should be prefaced by "In this study...", to make it clear that it is too early to make any general statement on the vaccine profile outside the context of the ongoing clinical trials.
- Have you found what you were looking for? If you have any suggestions for information which should be included in this tool please contact us at the following address: Carys Calvert at [carys.calvert@gsk.com](mailto:carys.calvert@gsk.com).

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#### **What does partial or moderate efficacy mean in real terms?**

Partial or moderate efficacy means that a vaccine is effective less than 100 percent of the time, and does not prevent all cases of the disease. Taking into account the important disease burden of malaria mainly in African children under five years of age <sup>(c)</sup>, even a vaccine with moderate efficacy could still provide considerable public health benefit.

The importance of considering public health impact estimates is clearly illustrated by the example of the rotavirus vaccine trial in Malawi and South Africa<sup>(a)</sup>. Despite the higher efficacy of the vaccine in South-Africa (77% vs. 49% in Malawi), more severe rotavirus gastroenteritis cases are prevented in Malawi (67 episodes/1,000 person years at risk vs. 42 in South-Africa), and this due to the much higher disease burden in Malawi (131 episodes/1,000 infants/year vs. 54 in South-Africa).

RTS,S reduces the chance of a child to develop clinical malaria by 50%. This reduction can be either all-or-nothing, (ie 50% of children are fully protected) or partial, ie everyone is protected to 50%. The results from our clinical trials indicate that the latter is the mechanism of the RTS,S malaria vaccine candidate. This is not overly surprising given that even people living in malaria endemic regions develop only partial immunity against malaria, despite being exposed regularly to infection by the malaria parasites.

In the case of the Phase III efficacy trial, RTS,S reduces the chance of a child to develop clinical malaria by half in children and by a third in infants over the first year after primary vaccination. In terms of public health impact, this translates into for every thousand vaccinees, an average of over 500 clinical malaria cases was prevented in infants and over 1000 in children over the 3-4 years of the study. Impact was further enhanced by a 4<sup>th</sup> dose preventing over 3000 and 6000 cases in infants and children living in areas of high malaria transmission <sup>(b)</sup>.

a. Madhi S. et al. NEJM 2010; 362: 289-98.

b. RTS,S Clinical Trial Partnership. The Lancet, 2015. [dx.doi.org/10.1016/S0140-6736\(15\)60721-8](https://doi.org/10.1016/S0140-6736(15)60721-8)

c. Malaria Fact sheet n°94, WHO 2015 (<http://www.who.int/mediacentre/factsheets/fs094/en/>)