



# Response plan to *pfhrp2* gene deletions





# Response plan to *pfhrp2* gene deletions





# Table of contents



<b>Acknowledgements</b>	<b>v</b>
<b>1. Introduction and objectives</b>	<b>1</b>
<b>2. Defining the issue</b>	<b>2</b>
2.1 RDTs in malaria control	2
2.2 How RDTs work	4
2.3 Quality assurance	6
2.4 Evolution of <i>pfhrp2/3</i> deletion mutants	6
<b>3. Response to the diagnostic threat</b>	<b>9</b>
3.1 Pragmatic action by national malaria programmes	9
3.2 Strengthened laboratory networks	16
3.3 New research	21
3.4 Diagnostics research and development	23
3.5 Coordination of response	25
<b>4. Conclusions</b>	<b>27</b>
<b>5. References</b>	<b>28</b>

## TABLES

<b>Table 1.</b>	Plasmodium antigens targeted by antibodies used in malaria RDTs	5
<b>Table 2.</b>	WHO Malaria RDT Product Testing: Rounds 5–8: Performance of RDTs not based exclusively on HRP2 for the detection of low density HRP2-expressing and non-expressing <i>P. falciparum</i> malaria	15
<b>Table 3.</b>	Causes of false-negative RDT results and investigative actions	17
<b>Table 4.</b>	Estimated numbers of samples from patients with falciparum malaria to be screened for false-negative HRP2 RDT results and numbers with suspected <i>prhrp2</i> deletion mutations, requiring molecular analysis, in all countries in which these mutations have been reported and in neighbouring malaria-endemic countries	19

## FIGURES

<b>Figure 1.</b>	Data from manufacturers and national malaria control programmes on the volume and types of RDTs delivered worldwide, 2010–2017	3
<b>Figure 2.</b>	Immunological reaction on a positive RDT strip (example: <i>P. vivax</i> infection)	4
<b>Figure 3.</b>	Highest percentage of <i>pfhrp2</i> deletions reported amongst <i>P. falciparum</i> cases tested	7
<b>Figure 4.</b>	Projected malaria RDT demand by product type (2017–2021)	25

## BOXES

<b>Box 1.</b>	Quality assurance for malaria RDTs	2
<b>Box 2.</b>	Standardized protocol for assessing national prevalence of <i>pfhrp2/3</i> deletion mutants among patients with falciparum malaria	4
<b>Box 3.</b>	Factors affecting the performance of pf-LDH combination RDTs against <i>pfhrp2/3</i> deleted parasites	14

## ACKNOWLEDGEMENTS

We wish to acknowledge the contributions of Dr Mark Perkins, who drafted the document, Ms Rebecca Thomson and members of the Malaria Policy Advisory Committee (MPAC) whose inputs informed the final version. On behalf of the WHO Global Malaria Programme, the publication of the *Response plan to pfhrp2 gene deletions* was coordinated by Jane Cunningham with significant contributions from Andrea Bosman.

Funding for the production of this report was gratefully received from the Bill & Melinda Gates Foundation.



预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_25189](https://www.yunbaogao.cn/report/index/report?reportId=5_25189)

