

1 **Supplemental Tables and Figures**

2 **Supplemental Table 1.** Piperaquine concentrations providing 99% protection from parasitemia.

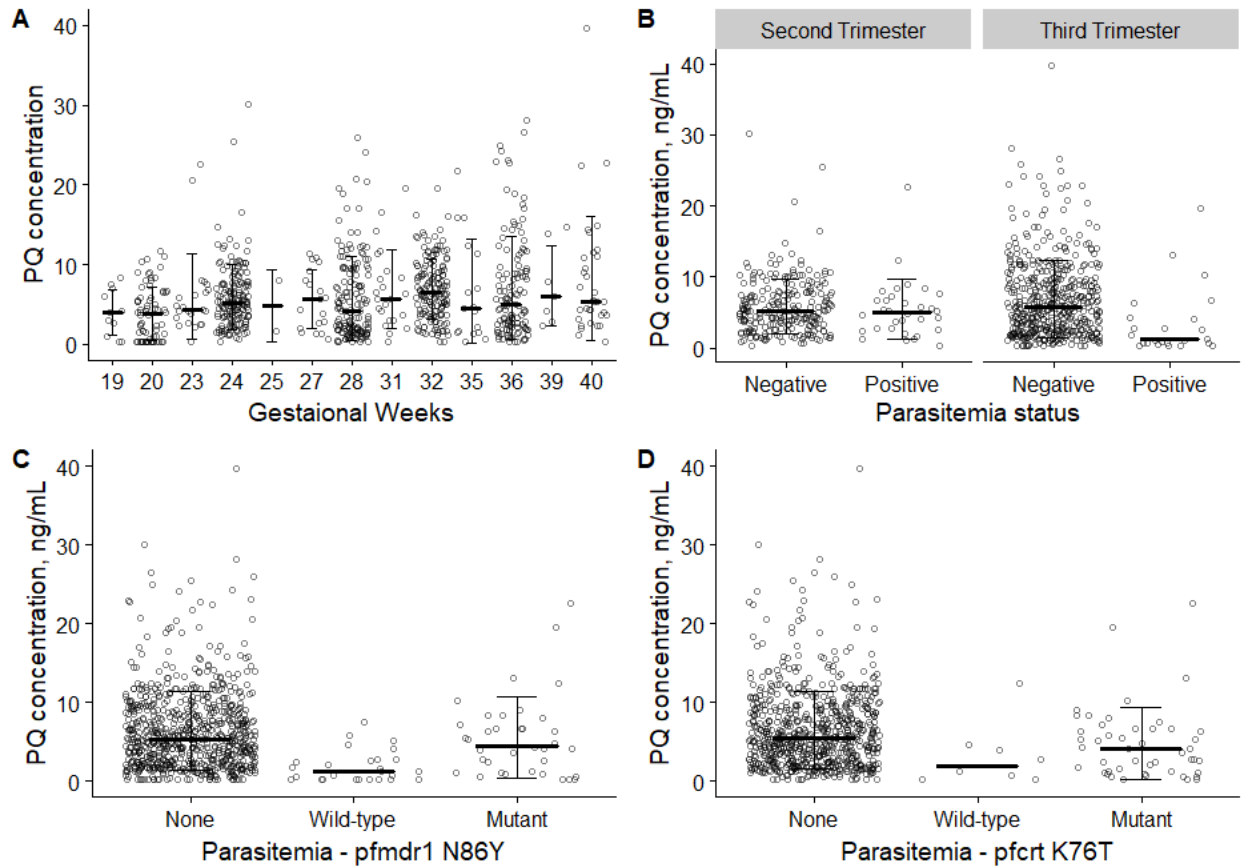
Median PQ concentration for 99% protection from parasitemia

Population	All parasitemia, ng/mL (95% CI)	<i>pfmdr1</i> N86, ng/mL (95% CI)	<i>pfmdr1</i> 86Y, ng/mL (95% CI)	<i>pfcr1</i> K76, ng/mL (95% CI)	<i>pfcr1</i> 76T, ng/mL (95% CI)
Second Trimester	19.6 (13.2-31.6)	9.6 (7.0-12.4)	19.6 (12.9-32.2)	6.5 (4.1-9.3)	19.6 (13.1-32.2)
Third Trimester	12.8 (9.2-19.2)	6.5 (4.9-8.3)	12.4 (8.2-17.8)	3.1 (1.5-5.1)	12.7 (9.1-18.0)

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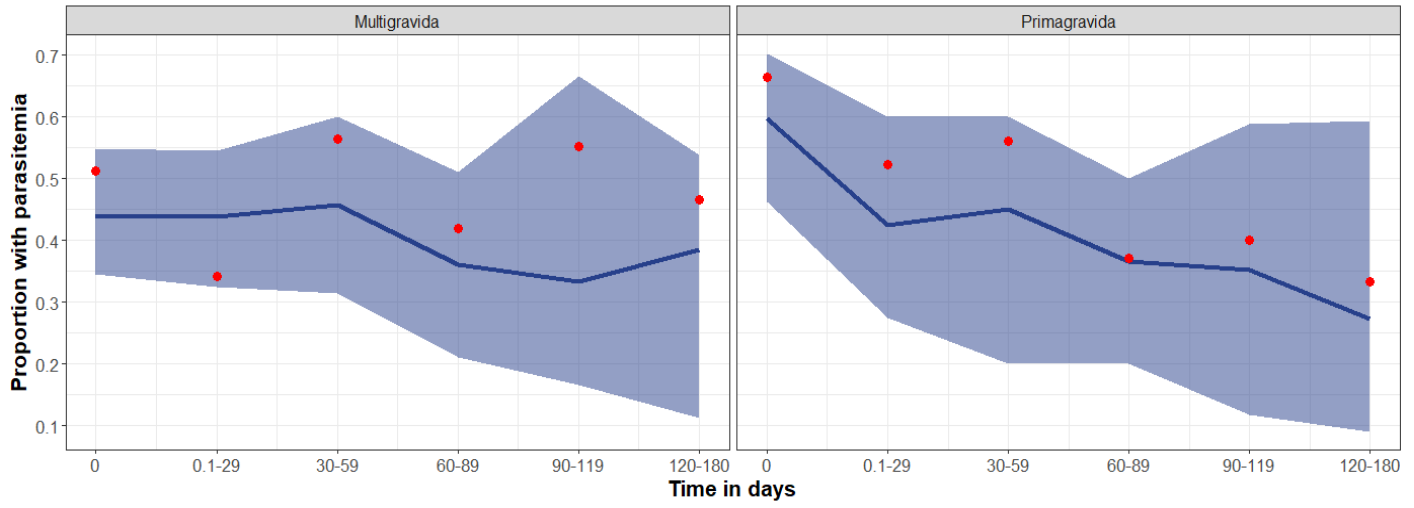


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7 **Supplemental Figure 1. Measured sparse piperaquine concentrations stratified by**
 8 **gestational week (A), trimester and parasitemia status (B) and genotype at *pfmdr1* N86Y**
 9 **(B) or *pfcr1* K76T (C).**

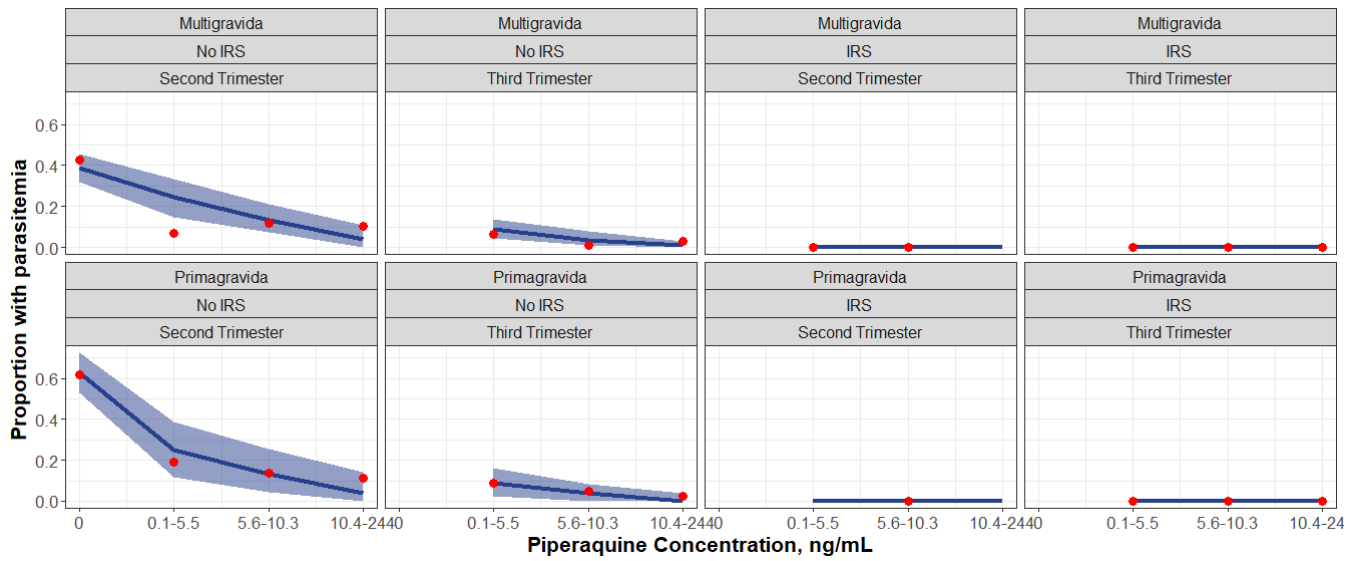
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11 **A.**



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13 **B.**



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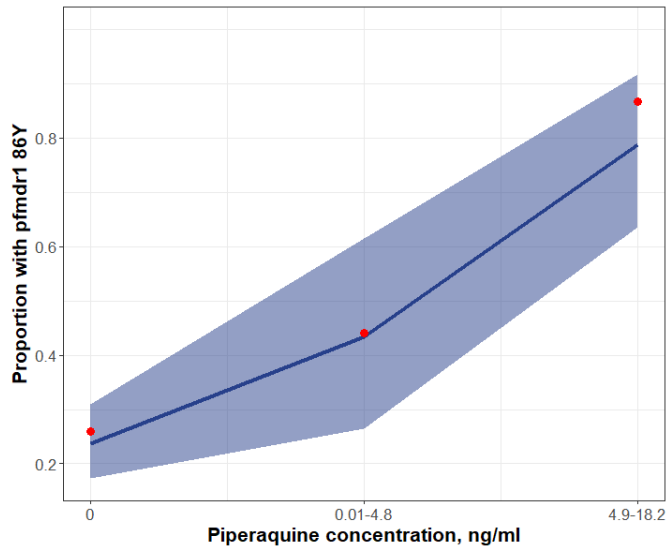
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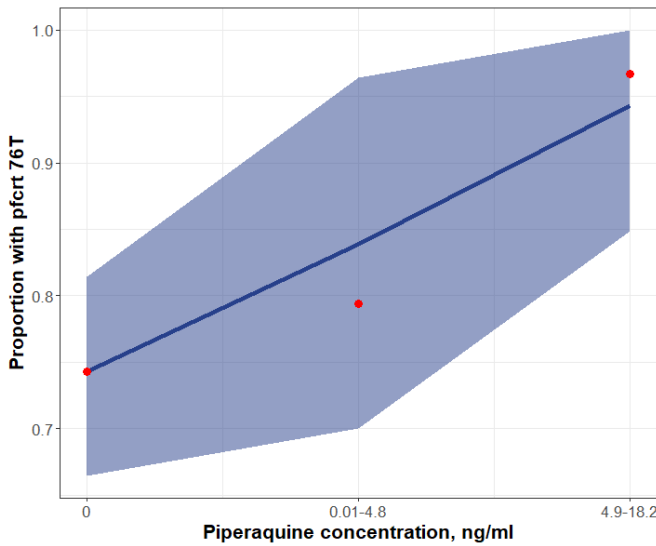
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19 C.



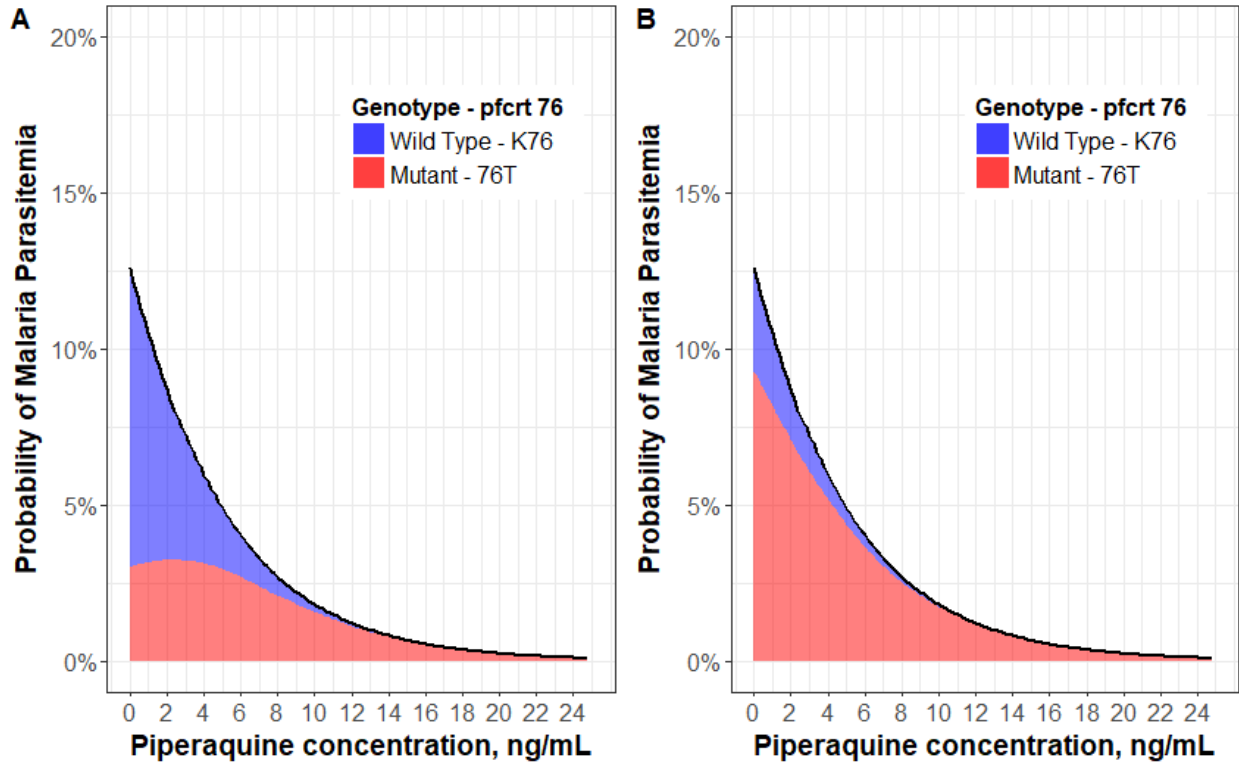
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21 D.



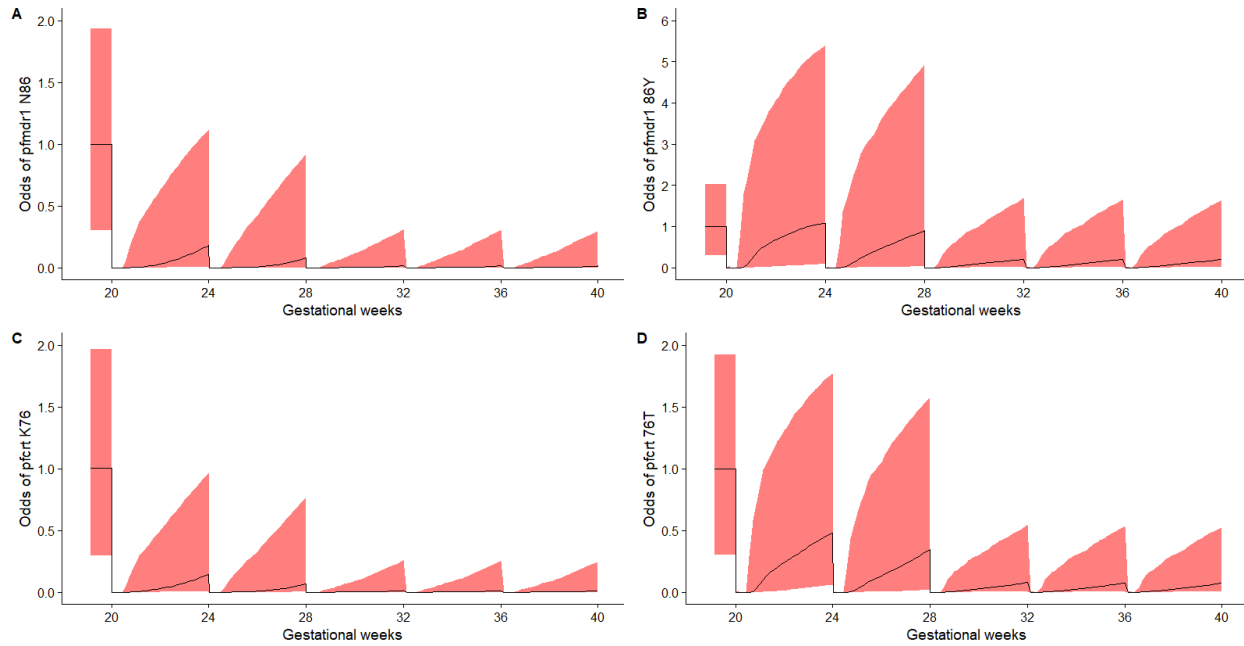
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23 **Supplemental Figure 2. Visual predictive check for PD-parasitemia model for sulfadoxine-**
24 **pyrimethamine (A), PK/PD-parasitemia model for DHA-PQ (B), PK/PD-genotype model**
25 **for *pfmdr1* 86 (C), and PK/PD-genotype model for *pfert* 76 (D).**



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27 **Supplemental Figure 3. Contributions of mutant and wild type genotypes to overall**
 28 **parasitemia probability.** Results for the second trimester are shown in Figure 2. Shown here is
 29 the probability of parasitemia for the third trimester. The black line represents median probability
 30 of all parasitemia, and shaded areas indicate the proportion of the probability attributed to wild
 31 type (blue) and mutant (red) parasites for *pfmdr1 86* (A) and *pfcr7 76* (B).



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33 **Supplemental Figure 4. Odds of parasitemia compared to median pre-chemoprevention**
 34 **baseline by gestational age and stratified by genotype including wildtype *pfmdr1* N86 (A),**
 35 **mutant *pfmdr1* 86Y (B), wildtype *pfcr1* K76 (C), and mutant *pfcr1* 76T (D). Lines indicate**
 36 **median odds, and shaded areas indicate odds of 95% of the population.**