**Table S1.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Artesunate-Mefloquine | | | Artemether-Lumefantrine | | |
|  | Artesunate | DHA | Mefloquine | Artemether | DHA | Lumefantrine |
| Vd  (l/kg) | 7·1[[3](#_ENREF_3)]  [94[[29](#_ENREF_29)]] | 1·49[[3](#_ENREF_3)]  [48[[30](#_ENREF_30)]] | 20·8[[31](#_ENREF_31)]  [38[[32](#_ENREF_32), [33](#_ENREF_33)]] | 5·21[[2](#_ENREF_2)]  [82[[34](#_ENREF_34)]] | 3·7[[2](#_ENREF_2)]  [48[[30](#_ENREF_30)]] | 21[[35](#_ENREF_35)]  [263[[20](#_ENREF_20), [36](#_ENREF_36)]] |
| x  (/day) | 252[[3](#_ENREF_3)]  [112[[37](#_ENREF_37)]] | - | - | 23·98[[2](#_ENREF_2)]  [68[[5](#_ENREF_5), [34](#_ENREF_34)]] | - | - |
| z  (/day) | 30·96[[3](#_ENREF_3)]  [36·2[[37](#_ENREF_37)]] | - | - | 11·97[[2](#_ENREF_2)]  [65[[5](#_ENREF_5), [34](#_ENREF_34)]] | - | - |
| k  (/day) | - | 25·4[[3](#_ENREF_3)]  [23[[37](#_ENREF_37), [38](#_ENREF_38), [39](#_ENREF_39), [40](#_ENREF_40)]] | 0·053[[41](#_ENREF_41)]  [63[[33](#_ENREF_33)]] | - | 44·15[[2](#_ENREF_2)]  [23[[37](#_ENREF_37), [38](#_ENREF_38), [39](#_ENREF_39), [40](#_ENREF_40)]] | 0·16[[15](#_ENREF_15), [41](#_ENREF_41), [42](#_ENREF_42)]  [5[[39](#_ENREF_39)]] |
| IC50  (mg/l) | 0·0016([2](#_ENREF_2), [18](#_ENREF_18))  [86[[30](#_ENREF_30)]] | 0·009[[30](#_ENREF_30)]  [117[[30](#_ENREF_30)]] | 0·027[[43](#_ENREF_43)]  [78[[30](#_ENREF_30)]] | 0·0023\*  [79[[44](#_ENREF_44)]] | 0·009[[30](#_ENREF_30)]  [117[[30](#_ENREF_30)]] | 0·032[[43](#_ENREF_43), [45](#_ENREF_45)]  [102[[30](#_ENREF_30)]] |
| Vmax | 27·6† | 27·6† | 3·45[[31](#_ENREF_31)] | 27·6† | 27·6† | 3·45[[31](#_ENREF_31)] |
| n | 4[[45](#_ENREF_45)] | 4[[45](#_ENREF_45)] | 5[[45](#_ENREF_45)] | 4‡ | 4[[45](#_ENREF_45)] | 4[[45](#_ENREF_45)] |

Vd: Volume of distribution; x: Absorption rate constant; z: Conversion rate; k: Elimination rate constant; IC50: Concentration producing half the desired effect; Vmax: First order rate constant of parasite killing per day; n: slope factor.

\* Unpublished data from Liverpool School of Tropical Medicine

‡Assumed to be like artesunate

† As described in the Methods of the main manuscript