The number of parasites $P_t$ at time $t$ depends on:

- Initial parasite number $P_0$
- Parasite growth rate $a$
- Effect of patient immunity $f(I)$
- Number of drugs $r$
- Effect of drug $f(C)^*$

Parasite resistance:
- Decreased drug sensitivity

Adherence:
- Delayed or missed dose(s)
- Food intake

Patient's random age and corresponding region-specific weight:
- Weight- or regional age-based dosing regimen

PK component: Drug concentration-time curve
- Depends on:
  - Volume of distribution
  - Elimination rate
  - Dose intake time
  - Dose
  - Absorption rate*
  - Conversion rate*

Partner drug:
- Artemisinin and DHA*

PD component: Drug concentration-effect curve
- Depends on:
  - $IC_{50}$
  - Slope factor
  - Maximal parasite killing

PK/PD model: Treatment outcome based on parasite numbers

$$P_t = P_0 e^{(r - f(I))t} \prod_{d=1}^{r} e^{-\int (C_u) dt}$$