



Towards the future: medicines and the elimination of malaria

Defeating Malaria Together

Timothy N.C. Wells PhD ScD
Chief Scientific Officer MMV

Malaria: Leading cause of child mortality

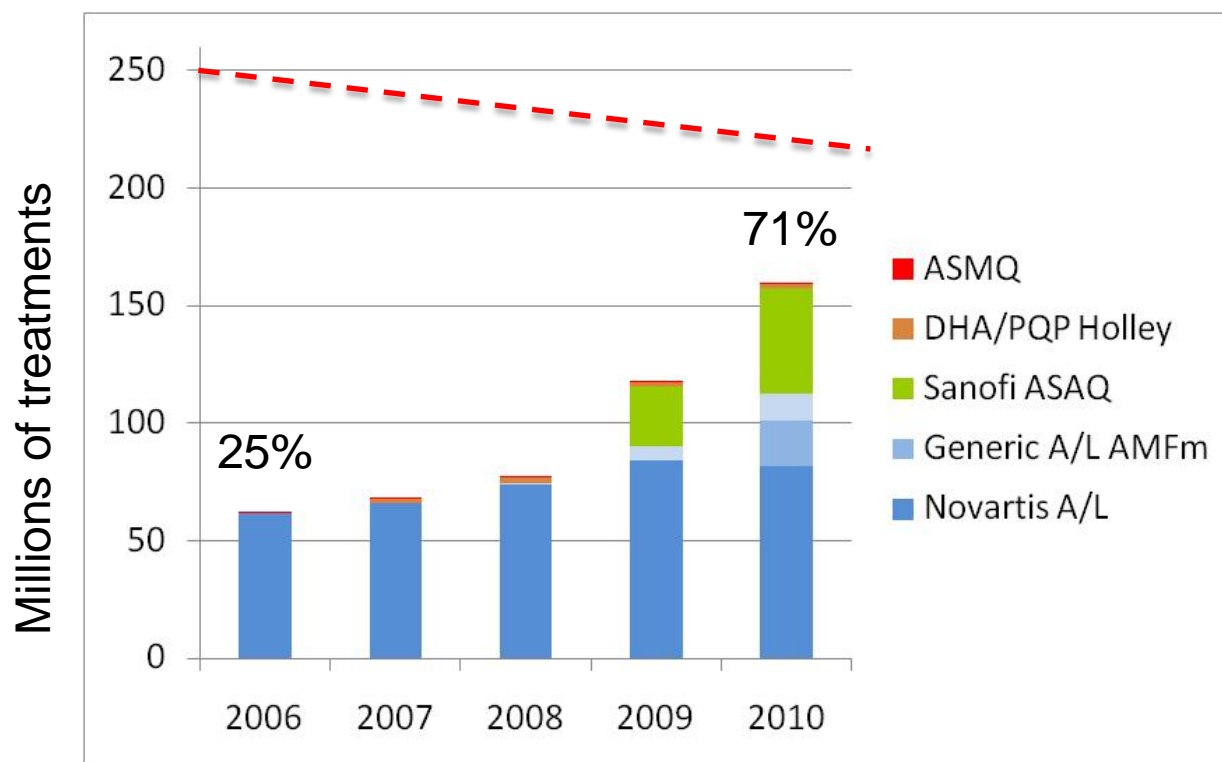


- 800,000 deaths: 85% in children under five
- Selectively targets pregnant women
- 225 million cases per year
- Half the world's population at risk

MMV at a glance

- Non-profit 'product development partnership' established 1999 in Geneva
- Mission: Discover, Develop and Deliver safe and effective antimalarials
- Two products launched, two products submitted
- Largest-ever pipeline of antimalarial drugs with over 50 projects from Discovery to Registration
- Funded by Foundations, Governments, Companies, Individuals

Changing the landscape: ACTs available to all



Coartem-D (Novartis) has treated 65 million children so far
150 million treatments of fixed dose ACTs delivered in
2010

Adult medicines for un-complicated malaria

- Resistance is a fact of life
- Not all medicines work in all populations
- Different risk-benefit profiles – allows choice
- DHA-piperaquine (sigma-tau)
 - EMA decision expected August 2011
- Pyronaridine-artesunate (Shin-Poong)
 - EMA decision expected 1Q'2012



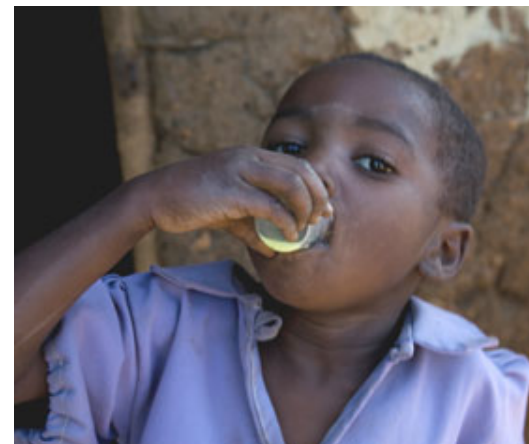
Draft



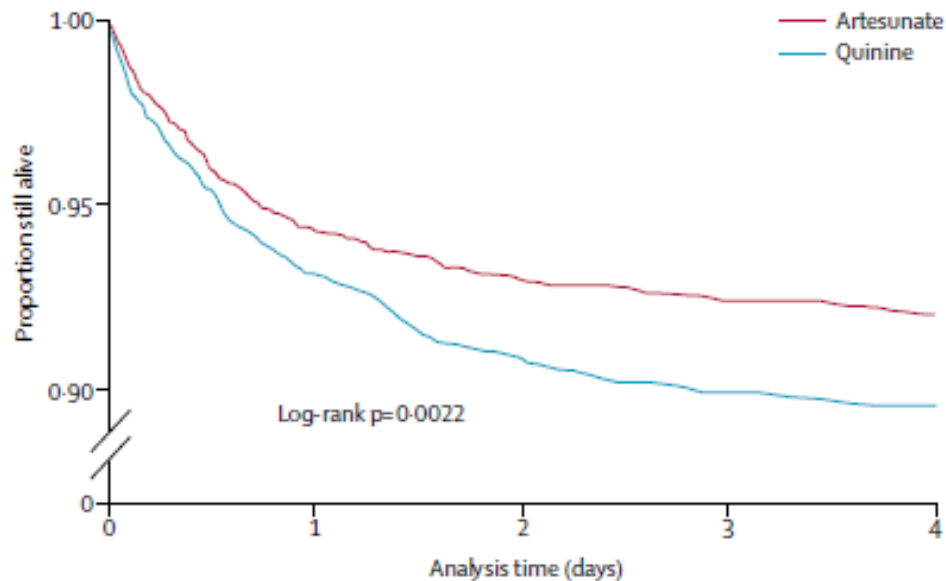
Draft

New child friendly medicines

- Pyronaridine-artesunate granule formulation – submission early 2012
- DHA-piperaquine: taste-masked dispersible formulation - submission late 2012
- Coartem-D: child-friendly formulation: extend to available < 5kg babies



Severe Malaria



- Aquamat artesunate superior to quinine: 5000 patient study
- Guilin first prequalified (Dec 2010) with MMV's support
- Only Chinese manufacturer with WHO approval
- Cost: approximately \$1 per vial

Protecting expectant mothers

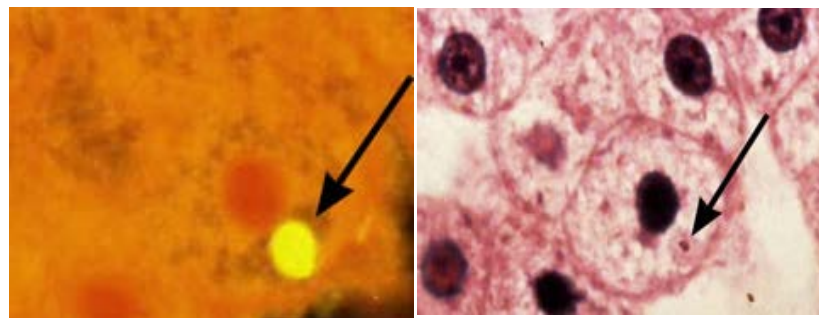
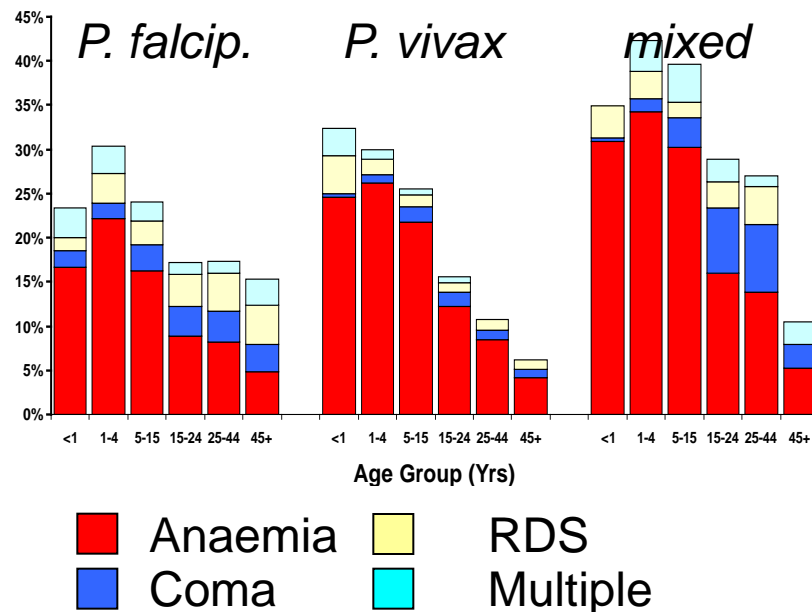
- Neither azithromycin nor chloroquine are optimal on their own
- Synergy: azithromycin blocks chloroquine resistance clinically
- 60% of mothers have bacterial infections (STI): impact on peri-natal mortality
- Both drugs treat both diseases
- New fixed dose formulation (Pfizer)



Stopping the relapses from *P vivax*

- 100 million patients annually
- Hypnozoites: relapse without reinfection
- Gold standard: Primaquine 14 days, G6PD liability
- Tafenoquine (WRAIR, GlaxoSmithKline)
- Pivotal Phase II/III starts 2Q 2011
- Single dose
 - Efficacy
 - Safety

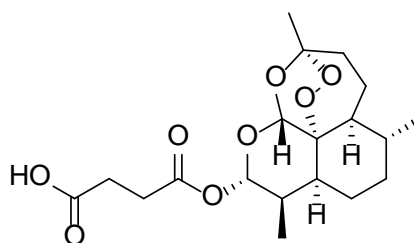
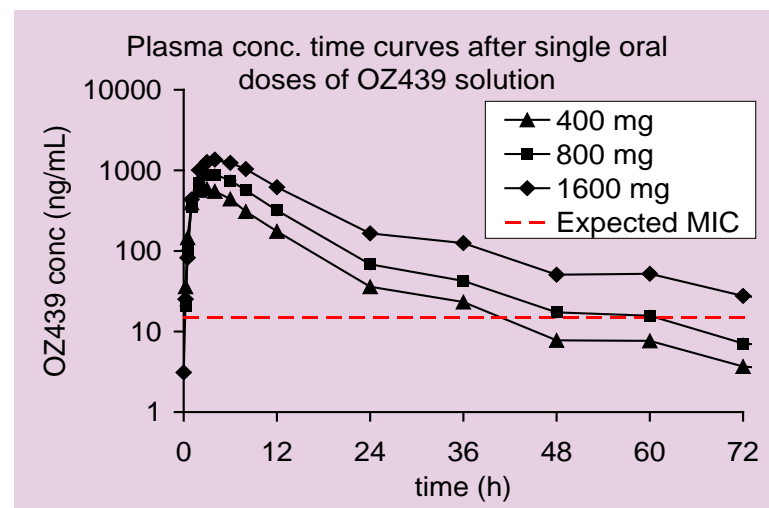
Proportion of Patients with Severe Malaria



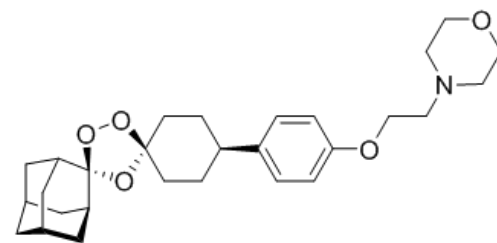
Thanks to Ric Price

Powering the single dose cure: OZ439

- OZ439 collaboration: MMV, Monash, Basel and Nebraska
- Same warhead, different scaffold
- High plasma concentration 48–72 h
- Active in ‘resistant malaria’?
- Currently being tested in patients (phase IIa)



artesunate



OZ-439

New medicines driving eradication

- Efficacy: No cross resistance or resistance induction, fast killing
- Safe: High therapeutic margin; no serious toxicity
- Long time above the IC_{90} in plasma
- Low predicted human dose

- Transmission-blocking
- Relapse- blocking
- Chemoprevention



Thanks to all our colleagues and partners – but especially to the children and their families who make the next generation of malaria therapy a reality

