

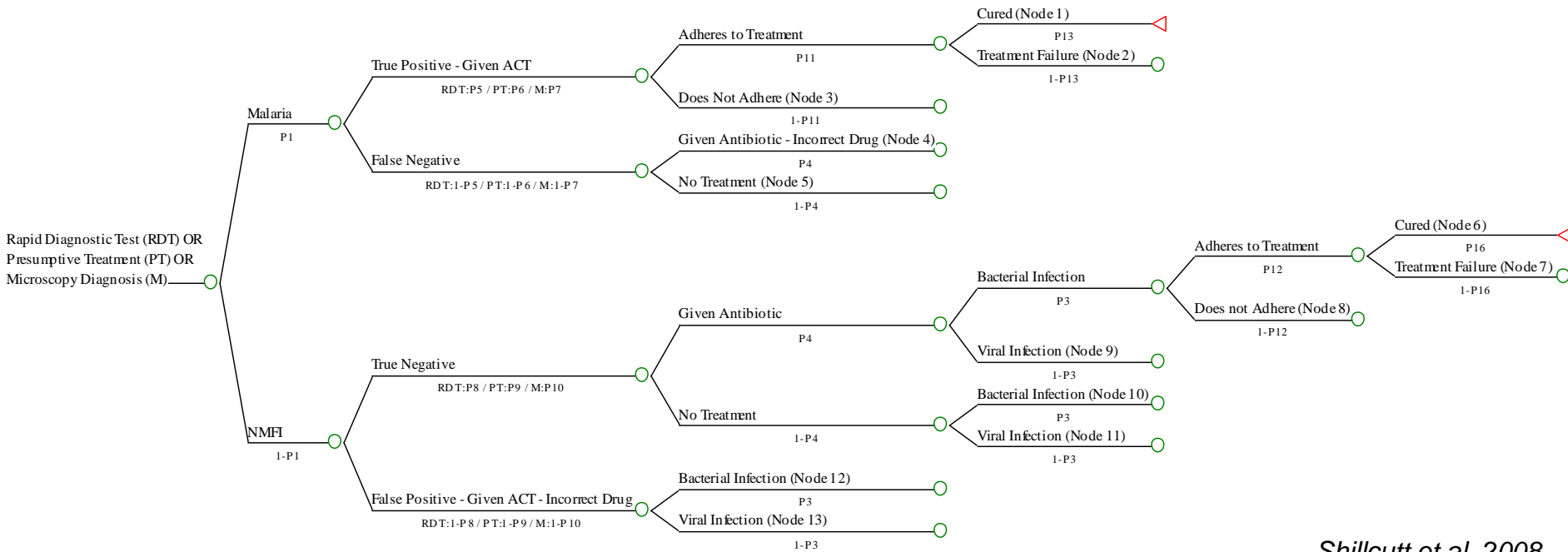
# Modelling the cost-effectiveness of introducing malaria rapid diagnostic tests in the private retail sector in sub-Saharan Africa

Entebbe, Uganda  
20-21 October 2015

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# Our modelling approach



*Shillcutt et al, 2008*

# Our modelling approach



Febrile Illness	Seek Treatment	Diagnosis	Test Accuracy	Test Result	Treatment	Treatment Adherence	Treatment Efficacy	Disease Progression	Further Care	Final Health Outcome
- Pf malaria - NMFI – AB - NMFI – not AB - Co-infection	- Public facility - Private facility - CHW Pharmacy Drug shop Traditional Other	None Presumptive Microscopy - RDT	- Sensitivity - Specificity	- Positive - Negative - No test	- ACT - Other antimalarial - Antibiotic - ACT + antibiotic - Other antimalarial - Other / None	- Adherent - Adherent + antibiotics - Not adherent - Fails	- Uncomplicated - Severe	- Inpatient - Outpatient - None	Recover Neuro seq Death	

- Two transmission settings modelled – Low (0%-10% parasite positivity) and Medium/High (10%-90% parasite positivity)

# Private retail sector intervention

## *Baseline*

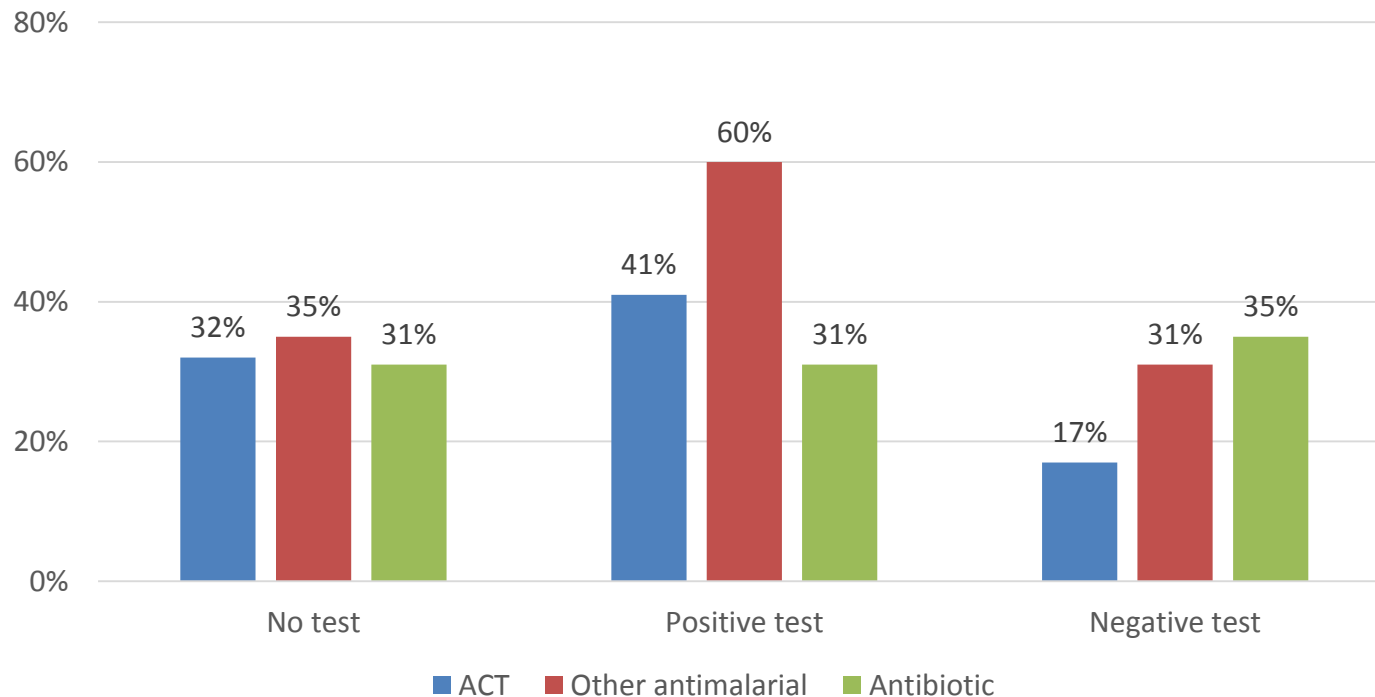
- ACTs subsidised in the private retail sector (~85% of manufacturer price)
- No testing in drug shops or pharmacies

## *Intervention*

- Introduction of RDTs in pharmacies and drug shops (~40% uptake)
- RDT subsidy (~50% of manufacturer price)
- Continued ACT subsidy
- 3-4 day workshop training
- Monitoring of providers

# Initial treatment – parameter estimates

- Based on Cohen et al, 2015 – drug shops study in 6 districts in eastern Uganda (March 2011 – April 2012)
- Treatment in the intervention arm by test result



*Cohen et al, 2015*

- Assumed baseline treatment is the same as ‘no test’

# Results

- Preliminary findings only



# Effects and Costs - eg of 50% parasite positivity

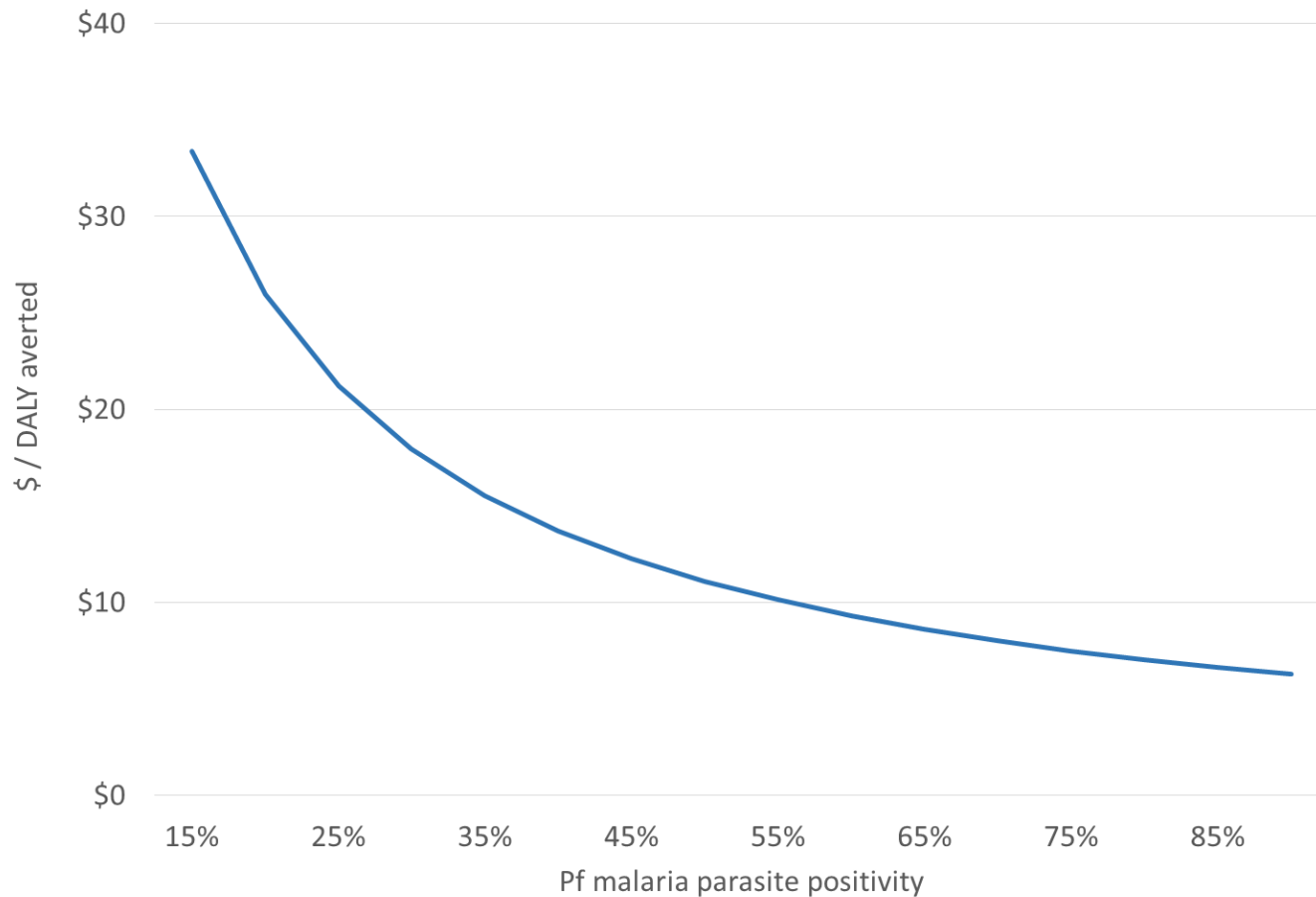
Febrile Illness	Deaths / 100,000 cases		
	Baseline	Intervention	Deaths averted
Pf malaria	567	483	83
NMFI (AB treatable)	163	161	2
Co-infection	128	125	3
<b>Total</b>	<b>857</b>	<b>769</b>	<b>88</b>

- Incremental provider costs per febrile case presenting at a retail outlet (assuming 5 cases per day) = \$0.26, comprising:
  - Programme costs: \$0.22
  - RDT subsidy: \$0.12
  - Reduced ACT subsidy: (\$0.01)
  - Reduced further care costs: (\$0.06)

*Costs adapted from sources including Mbonye et al 2015, Hansen et al unpublished, Shillcutt et al 2008, Global Fund AMFm database*

# Cost-effectiveness

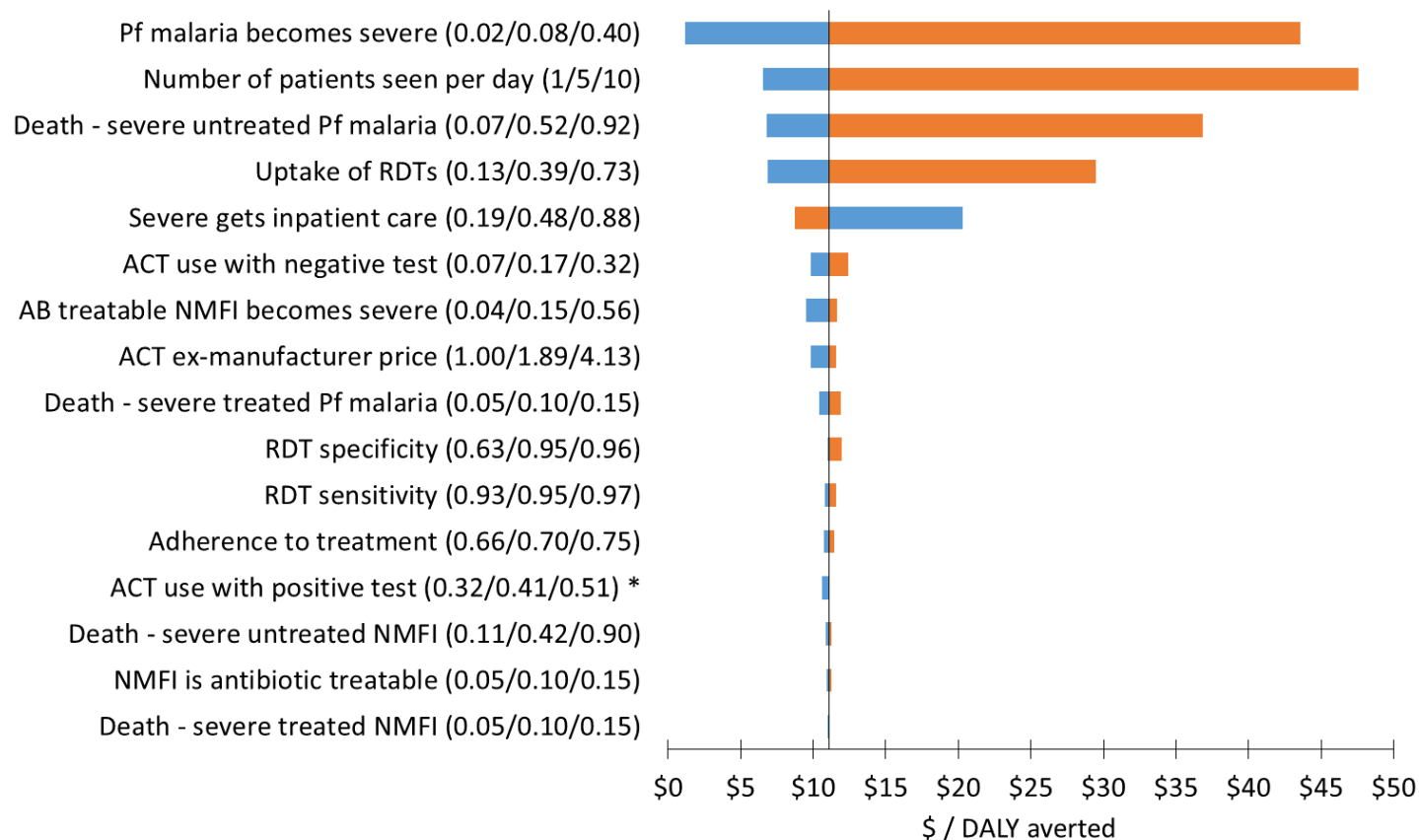
## Medium / high transmission setting (provider perspective)





# Deterministic sensitivity analysis

## One-way sensitivity – 50% parasite positivity



\* ACT use with positive test: minimum value not shown as Baseline dominates.

## Next steps

- Improve parameter estimates with data from programmes underway
- Enhanced modelling of uncertainty – probabilistic sensitivity analysis (PSA)
- Explore impact of changes in treatment seeking behaviour
- Other interventions

## Acknowledgements

Funded by the Bill and Melinda Gates Foundation, through a grant to the ACT Consortium