

**BUDGET IMPACT ANALYSIS  
INTRODUCTION OF MALARIA RDTS IN THE  
SOLOMON ISLANDS  
FEBRUARY 2008**

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# ACKNOWLEDGMENTS

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- ✘ This study was supported by funding from the World Health Organization (WHO), Solomon Islands' Office, Western Pacific Region.
- ✘ The assistance of Dr Jeffrey Hii (WHO) and staff of the Solomon Islands Vector Borne Disease Control Program and the assistance of Helen Powell, mathematics consultant, in the development of the scenario model is acknowledged.

# STUDY OBJECTIVES

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- ✘ Estimate the financial implications of alternate diagnostic tests – PT, RDTs, and community microscopy (CM);
- ✘ Determine the drug treatment cost savings from using RDTs or CM compared to PT;
- ✘ Determine the impact on the budget of the combined cost of drug treatment and diagnostic tests for PT versus RDTs, and CM;
- ✘ Undertake a scenario analysis to determine the sensitivity of results to changes in key parameters.

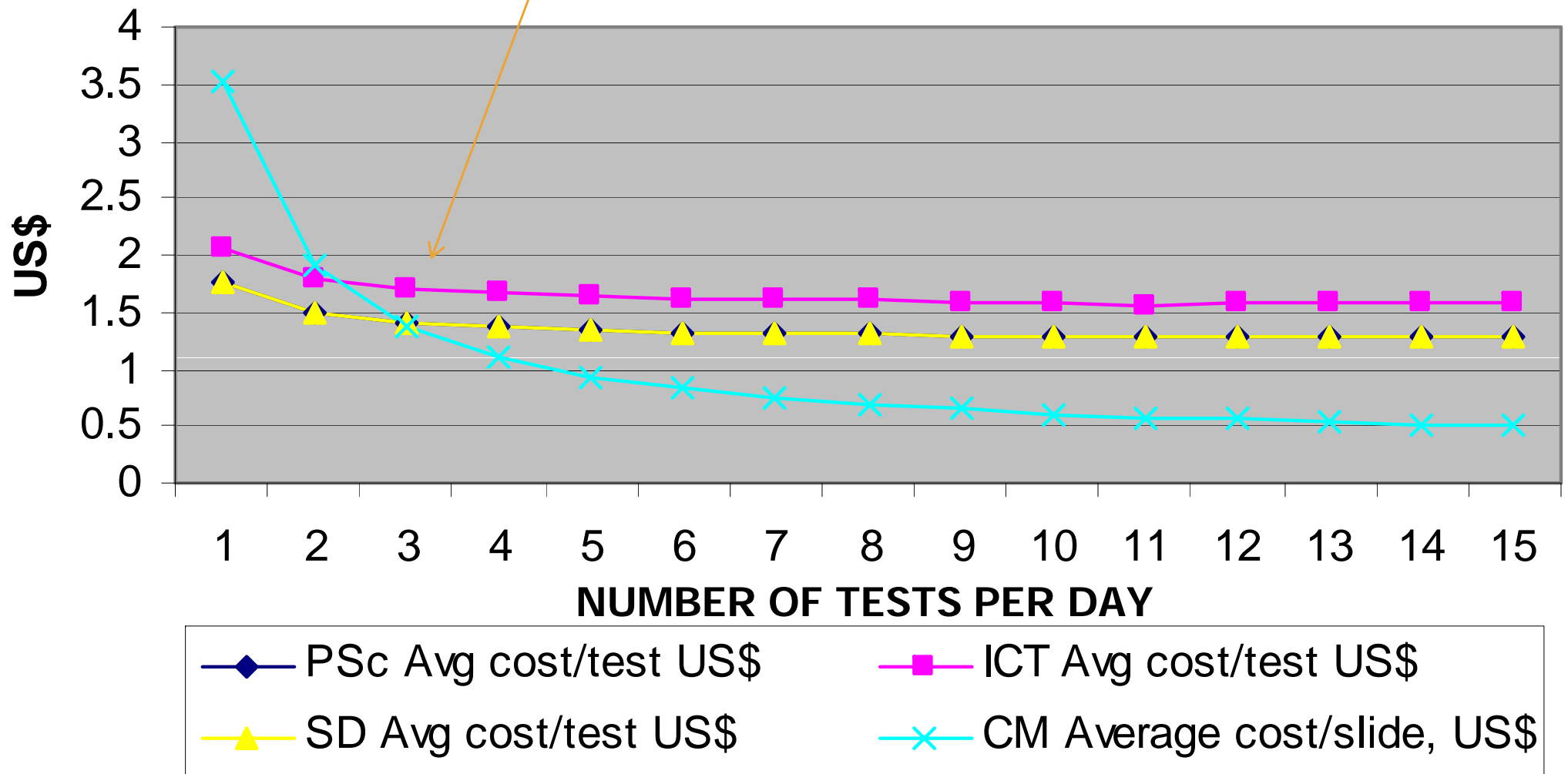
# FINANCIAL ANALYSIS - 4 RDTs

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A cost analysis of RDTs versus microscopy was undertaken in the Solomon Islands in 2002. The 2007 cost analysis\* was based on the 2002 methodology with adjustments.

When the number of tests per day is close to 2 (just over 2) then RDT ICT is higher cost than community microscopy. When tests are, on average, 3 per day then community microscopy is less cost than RDTs.

\* Graves P et al Cost Analysis RDTs (unpublished) ASTMH Denver 12 2002.



**When tests are, on average, 3 per day then community microscopy is less cost than RDTs.**

# COSTS ANALYSED

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- ✘ community microscopists,
  - + trained and supported by government, or
  - + paid fee/slide by patient or the community council
- ✘ RDTs performed by nurses: assumed no extra cost for salaries for nurses - RDTs modelled<sup>3</sup>: ICT (US\$C1.512) combo cassette and Parascreen Rapid Test Kit for diagnostic of malaria (all, Falciparum) pLDH, HRP2 cassette, Whole blood test (US\$ 1.215) Standard Diagnostics Malaria Ag Device (25T) (US\$1.215).
- ✘ Equipment (including solar panels and batteries for community microscopy )
- ✘ Consumables
- ✘ Training microscopy and use of RDTs
- ✘ Quality Assurance : RDTs (product quality)
- ✘ Quality Assurance: diagnostic skill

# **BUDGET IMPACT ANALYSIS - BIA**

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The sample population for the study comprised all persons in the catchment area of the 139 NAPs without CM services in 2007 in Guadalcanal Province.

The time horizon for the study was 1 year. The perspective of the study is that of the Ministry of Health and Medical Services (MHMS) and donor decision makers.

# BUDGET IMPACT ANALYSIS - BIA

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A decision tree representing ambulatory patients presenting to nursing aid posts (NAPs) with fever and then referred on to hospital if required was developed to calculate the **utilisation/cost of drugs and diagnostic tests** for clinical diagnosis of malaria (presumptively treating all patients with anti-malarial drugs (PT) compared to RDTs and CM for identification of malaria parasites.

# **BUDGET IMPACT ANALYSIS - BIA**

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For the BIA a Base Model utilizing best estimate for input parameters was developed.

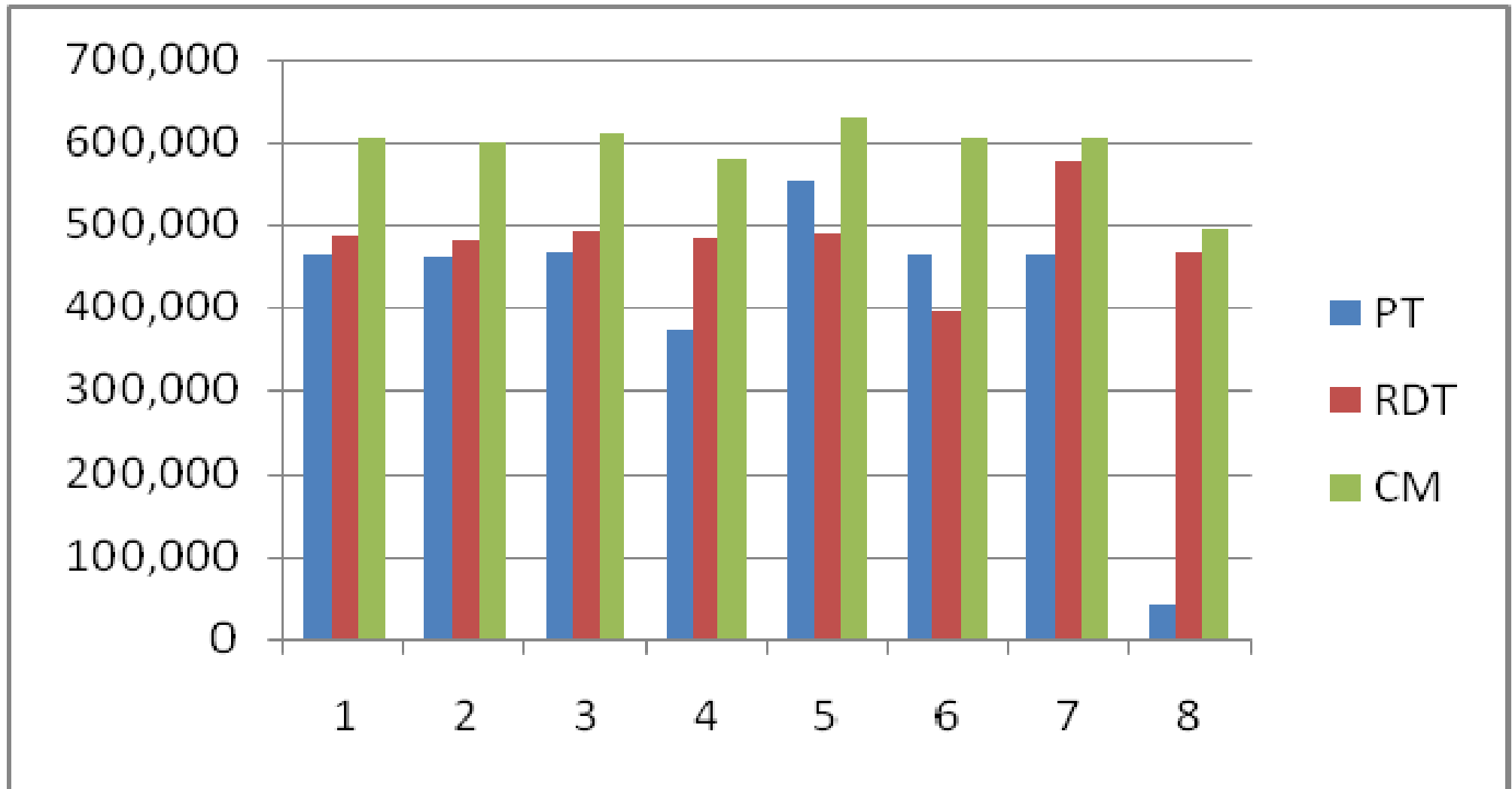
A Scenario Analysis was undertaken to explore the potential impact of changes in key data inputs on the results of the study.

# THE BIA SCENARIO ANALYSIS

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- ✘ Scenario 1 - Base Model: best estimates – informed by clinical decision tree and financial analysis of costs of diagnosis and cost of treatment
- ✘ Scenario 2 - incidence rate: low estimate (minus 20%)
- ✘ Scenario 3 - incidence rate: high estimate (plus 20%)
- ✘ Scenario 4 - first line malaria treatment ACT (Coartem): low estimate (minus 20%)
- ✘ Scenario 5 - first line malaria treatment ACT (Coartem): high estimate (plus 20%)
- ✘ Scenario 6 - cost of RDT: low estimate (minus 20%)
- ✘ Scenario 7 - cost of RDT: high estimate (plus 20%)
- ✘ Scenario 8 - cost first line malaria treatment chloroquine/sulfadoxine instead of ACTs.

# BUDGET IMPACT: PT, CM AND RDTs - COMBINED IMPACT OF DIAGNOSTICS AND TREATMENT (ACTS)



# POTENTIAL INTERNAL FACTORS THAT WILL INFLUENCE THE COST OF RDTs INCLUDE

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changes in cost of Quality Assurance (QA) program (product QA and quality use of RDTs);

changes in cost of training program; and

changing spoilage rate of RDTs

# POTENTIAL FACTORS THAT WILL INFLUENCE THE COST OF CM

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- If current CMs walk away from the job and more have to be retrained – a common occurrence.
- If housing has to be provided by the government for community microscopists.
- If solar panels or batteries are stolen or fail and need to be replaced.
- If government has to fund community microscopists as opposed to their receiving a fee for service from the patient (or are paid fee by the community council).
- If the cost of quality assurance programs changes.

## HOW DID THIS HELP DECISION-MAKING

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- ✘ Demonstrated the many factors besides the cost of buying RDTs that influence overall cost and thus budget impact – *such as drugs wasted*
- ✘ The financial impact of RDTs versus PM or CM not what many expected
- ✘ For many CM seems cheap – just \$2 a test (and not paid for by government) and some microscopes – high CM set up costs, high maintenance costs and low performance.
- ✘ The cost of inputs can and do vary – changes in the exchange rate make a difference to cost of consumables and equipment and internal costs fluctuate

## HOW DID THIS HELP DECISION-MAKING

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- ✘ Senior nurses I spoke to were worried RDTs were just too expensive to use but now they understand costs for PT/CM/RDT they are happy to use RDTs and they prefer them at the community clinic level and for emergency situations in hospitals (emergency includes no microscopist available).
- ✘ For managers when you know what the key cost items are you are in a better position to take action to control those costs.

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**THANK YOU**