

**SIMULATION MODELLING OF COSTS AND OUTCOMES  
FOR A NEW RAPID MALARIA DIAGNOSTIC TEST**



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**A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Science**

**Department of Economics**

**Graduate School**

**Chulalongkorn University**

**1994**

**ISBN: 974-584-705-4**

I16965541

Thesis Title : SIMULATION MODELING OF COSTS AND OUTCOMES FOR A NEW RAPID MALARIA DIAGNOSTIC TEST

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Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment of the Requirements for Master of Science Degree in Health Economics

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\*\* C660343 : MAJOR HEALTH ECONOMICS

KEY WORD: PARASIGHTTEST / RAPID DIAGNOSTIC TEST / MALARIA / SIMULATION MODEL / COST-BENEFIT

NGUYEN THI KIM CHUC : SIMULATION MODELLING OF COST AND OUTCOMES FOR A NEW RAPID MALARIA DIAGNOSTIC TEST. THESIS ADVISOR : PONGSA PORNCHAIWISESKUL, Ph.D. 105 pp. ISBN 974-584-705-4

This study is a design research study for developing simulation modelling to estimate costs and outcomes from introducing a rapid malaria diagnostic test. The study was based on Thai data but is intended to provide a general guide to similar analyses in any country. It was based on analytic methods and tools of health economics research, including cost/benefit analysis, forecasting, linear regression, record analysis, and interview.

Simulation modelling was developed using foxpro software, working on one database file and one program file, from 47 input data, reflecting various activities related to malaria diagnosis and treatment. The program provides output data including costs and their components, benefit and their components, benefit/cost ratio with a defined time frame, defined interest rate, defined population size and growth rate, and a projected rate of decreased malaria incidence.

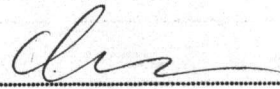
The feasibility of the simulation modelling was tested using Thai Malaria Division data, with a new rapid malariadiagnostic assay (ParaSight) presently under development as a test system. It was demonstrated that the computer modelling program can be a suitable tool for rapid appraisal. In testing the modelling, particular interest focused on the benefit from potential reduction of drug wastage, which was determined to be a substantial contributor to current costs. It was found that a rapid on the spot diagnostic test could reduce markedly this drug wastage (an intermediate outcome). This could have consequent effects on drug usage policy and perhaps on malaria drug resistance patterns: these are final outcome beyond the present analysis.

While there are limitations to the simulation modelling as presently formulated, the study demonstrates the general usefulness of this approach in providing a more complete approach to benefit/cost analysis of malaria diagnostic tests.

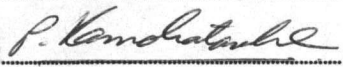
ภาควิชา..... Economics

สาขาวิชา..... Health Economics

ปีการศึกษา..... 2536

ลายมือชื่อผู้คิด..... 

ลายมือชื่ออาจารย์ที่ปรึกษา..... 

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... 



## ACKNOWLEDGEMENTS

I should acknowledge those who have help me and contributed to the successful completion of this study.

**Advisor and Co-advisor:** Dr. Pongsa Pornchaiwiseskul and Prof. Pirom Kamolratanakul, who supervised me with whole heart and gave valuable advice to me.

**Teachers and staff of Center of Health Economics:** Prof. Somkid Kaewsonthi, Director of the Programme, who with her colleagues, including Dr. Alan Harding; Dr. Chev Kidson; Asst. Prof. Kaemthong Indaratna; Asso. Prof. Wattana Janjaroen; Dr. Siripen Supakankunti not only provided me with new interesting knowledge on health economics, which assisted the construction of this study but also were freely available for consultation during it's evolution. Ms. Nongluck Jirachaisopit; Ms. Patchance Rodsampao, Secretaries of The Center of Health Economics, who helped me carrying out the formalities for implementing the study and defending the proposal and the thesis.

**Staff of Malaria Division:** Dr. Surang Tanpradist, Director of the Malaria Division; Mrs Saowanit Vijaykadga, Chief of the Division's Epidemiological Branch; Mr. William Rooney, Technical officer of WHO; Ms Phairoh, Head laboratory section; Mr. Pongwit Bualombai: they provided necessary data about the malaria situation of Thailand as well as highly valuable experience of relevance to the study.

**Funding organization:** I also would like to express my sincere thanks to the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), who supported me in funding for the course of Master Science of Health Economics.

Nguyen Thi Kim Chuc

April 1994



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