

MUHTA

“Report of Mahidol University’s Impact for
the International Decision Support Initiative (iDSI)



Monitoring & Evaluation



Mahidol University



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I. Introduction of the MUHTA Program

A. History

A Memorandum of Understanding (MOU) between the National Institute for Health and Care Excellence (NICE) and Mahidol University (MU) was established last July 17, 2015 under the auspice of the International Decisions Support Initiative (iDSI). **Clinical Professor Dr. Udom Kachintorn, President of Mahidol University, Thailand**, and **Sir Andrew Dillon, Chief Executive of the National Institute for Health and Care Excellence (NICE), United Kingdom**, signed the MOU for collaboration to support capacity building in low- and middle-income countries (LMICs) for priority setting to achieve universal health coverage (UHC).



Prof. Udom Kachintorn (left) and Sir Andrew Dillon (right) during the MOU signing in July 2015

This collaboration paved the way for the establishment of the **“Mahidol University Health Technology Assessment Program”** or **MUHTA** graduate program. This collaboration initiated provision of scholarships to candidates from HTA-related organizations in LMICs such as Vietnam, Malaysia, Indonesia, Philippines, Bangladesh, India, and Thailand.

B. MUHTA Graduate Program

The MUHTA program was approved by Mahidol University Council since 15 July 2016. The first semester started in January 2017. It is a joint collaboration of 6 faculties and 1 institute, namely:

- (1) Faculty of Medicine Ramathibodi Hospital;
- (2) Faculty of Medicine Siriraj Hospital;
- (3) Faculty of Pharmacy;
- (4) Faculty of Public Health;
- (5) Faculty of Social Sciences and Humanities;
- (6) Institute for Population and Social Research; and,
- (7) Faculty of Graduate Studies.



Aside from the collaboration within MU, the program is linked with the Ministry of Public Health (MoPH), Health Intervention and Technology Assessment Program (HITAP) and academic institutions in Thailand. This program also receives support from national and international networks and committees (see Table 1).

Table 1. National and International Advisory Committee members supporting the MUHTA Graduate Program

Committee	Name	Position and Organization
National Advisory Committee	Prof. Dr. Banchong Mahaisavariya	<i>Acting President, MU</i>
	Prof. Dr. Vicharn Panich	<i>Past Chairman, MU Council</i>
	Dr. Suwit Wibulpolprasert	<i>Senior Adviser on Disease Control, MoPH</i>
	Assoc. Prof. Dr. Churnrurtai Kanchanachitra	<i>Past Director, MU Global Health</i>
	Dr. Yot Teerawattananon	<i>Secretary General of the HITAP Foundation</i>
	Prof. Dr. Patcharee Lertrit	<i>Dean, Faculty of Graduate Studies, MU</i>
	Prof. Dr. Piyamitr Sritara	<i>Dean, Faculty of Medicine Ramathibodi Hospital, MU</i>
	Prof. Dr. Prasit Watanapa	<i>Dean, Faculty of Medicine Siriraj Hospital, MU</i>
	Assoc. Prof. Dr. Chanuantong Tanasugarn	<i>Dean, Faculty of Public Health, MU</i>
	Assoc. Prof. Dr. Suvatna Chulavatnatol	<i>Dean, Faculty of Pharmacy, MU</i>
International Advisory Committee	Assoc. Prof. Dr. Rossarin Gray	<i>Director, Institute for Population and Social Research, MU</i>
	Assoc. Prof. Dr. Luechai Sirgernyuang	<i>Dean, Faculty of Social Science and Humanities, MU</i>
	Prof. Dr. John Cairns	<i>Professor of Health Economics, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine (LSHTM), UK</i>
	Prof. Dr. Kalipso Chalkidou	<i>Director of Global Health Policy and Professor of Practice in Global Health, Imperial College London, UK</i>
	Prof. Dr. Mark Sculpher	<i>Professor of Health Economics, Center of Health Economics (CHE), University of York, UK</i>



Committee	Name	Position and Organization
	Prof. Dr. Olivia Wu	<i>Director, Health Economics and Health Technology Assessment (HEHTA), Institute of Health & Wellbeing, University of Glasgow, UK</i>
	Prof. Dr. Peter C. Smith	<i>Emeritus Professor, Centre for Health Policy in the Institute of Global Health Innovation, Imperial College, UK</i>
	Prof. Dr. Rob Baltussen	<i>Professor of Global Health Economics, Radboud University, the Netherlands</i>
	Prof. Dr. Tony J. Culyer	<i>Emeritus Professor of Economics, Center for Health Economics, University of York, UK</i>
	Assoc. Prof. Dr. Karen Hofman	<i>Director, Priority Cost Effective lessons for Systems Strengthening (PRICELESS), School of Public Health, University of Witwatersrand, South Africa</i>

Since 2016, MUHTA program received financial support from International Decision Support Initiative (iDSI) of 150,000 USD per year with a matching fund from Mahidol University of 5 Million Baht per year. We have a collaborative network with the following organizations i.e., HITAP, HEHTA, LSHTM, CHE, PRICELESS, NICE, and HTAsiaLink.

C. Vision

To be a world-class graduate program in HTA for LMICs

D. Mission

To build up social and intellectual capital on HTA for LMICs to support priority setting in achieving UHC

E. Objectives

The objectives of the program are:

1. to provide graduates with a critical understanding of the entire process of HTA using multidisciplinary fields
2. to produce graduates who are able to evaluate the social, economic, organizational and ethical impact of a health intervention, health policy or health technology and its role in support priority setting and universal health coverage especially in LMICs
3. to provide students with real-world knowledge and research skills relevant to the principles and techniques needed by those involved in HTA, especially for priority setting in LMICs (designing, commissioning, and critical appraisal of HTA study).

To achieve these objectives, the program organized a Curriculum Management Committee who are experts in their respective fields of experience (see *Table 2*). We also have devised the following teaching and learning strategies to achieve our objectives:

1. Experiential learning and hands-on experience using real-world examples
2. Experiences exchanged through seminars and discussions guided by international experts as visiting professors
3. Using real world examples emphasizing LMIC case studies, compared with HIC lessons;
4. Thesis and dissertation topics, which address current policy questions concerning resource allocation in LMICs.

Table 2. Curriculum Management Committee members of the MUHTA Graduate Program

Name (Position)	Organization
Assoc. Prof. Dr. Usa Chaikledkaew (Director for MSc/PhD Programs)	<i>Faculty of Pharmacy</i>
Prof. Dr. Ammarin Thakkinstian (Co-Director for PhD Program)	<i>Faculty of Medicine Ramathibodi Hospital</i>
Assoc. Prof. Dr. Montarat Thavorncharoensap (Co-Director for MSc Program)	<i>Faculty of Pharmacy</i>
Assist. Prof. Borwornsom Leerapan (Committee)	<i>Faculty of Medicine Ramathibodi Hospital</i>
Assist. Prof. Thunyarat Anothaisintawee (Committee)	<i>Faculty of Medicine Ramathibodi Hospital</i>
Assoc. Prof. Varalak Srinonprasert (Committee)	<i>Faculty of Medicine Siriraj Hospital</i>
Assist. Prof. Pattarawalai Talungchit (Committee and Secretariat)	<i>Faculty of Medicine Siriraj Hospital</i>
Assist. Prof. Sitaporn Youngkong (Committee)	<i>Faculty of Pharmacy</i>
Assoc. Prof. Aronrug Cooper Meeyai (Committee)	<i>Faculty of Public Health</i>
Assoc. Prof. Nithat Sirichotiratana (Committee)	<i>Faculty of Public Health</i>
Assoc. Prof. Sukhontha Kongsin (Committee)	<i>Faculty of Public Health</i>
Dr. Suthee U-sathaporn (Committee)	<i>Faculty of Public Health</i>
Assist. Prof. Natthani Meemon (Committee)	<i>Faculty of Social Sciences and Humanities</i>
Assist. Prof. Pojana Hunchangsith (Committee)	<i>Institute for Population and Social Research</i>

F. Expected Outcomes of the MUHTA Graduate Program

The MUHTA Graduate Program has been designed to produce:

1. technically-competent graduates, with an adequate understanding of policy development processes, who can apply knowledge and skills in the context of LMICs
2. relevant research studies necessary to inform policies in LMICs (including development partners' policy)
3. collaborative projects for HTA training and research.

G. Curriculum, Study Plan and Course Requirements

The program focuses on a range of areas including economic evaluation for HTA, evidence-based medicine, health policy and health systems, health technology and social impact, and effectiveness and efficiency of health technology. The course requirements, study plan and curriculum for both MSc and PhD degree of the MUHTA Graduate Program are summarized in the table below (see *Tables 3, 4 and 5*).

Table 3. Course requirements for the MUHTA Graduate Program

Program	PhD			MSc (2 years)
	Plan 1 from MSc (3 years)	Plan 2.1 from MSc (3 years)	Plan 2.2 from BSc (4 years)	
Core Courses	---	7	18	12
Elective Courses	---	5	6	12
Thesis	48	36	48	12
Total	48	48	72	36

Table 4. Curriculum for the MUHTA Graduate Program

Course ID	Course	Credit	Course Director
GRHA 620	Economic Evaluation for HTA	3	Assoc. Prof. Sukhontha
GRHA 621	Research Methodology for HTA	2	Assoc. Prof. Varalak Assist. Prof. Pattarawalai
GRHA 622	Statistic Method and Evidence-Based Medicine for HTA	2	Assist. Prof. Thunyarat
GRHA 623	Principle and Concept of HTA*	2	Assoc. Prof. Montarat
GRHA 624	Principle and Concept of Health Policy and Health Systems	2	Assist. Prof. Borwornsom
GRHA 625	Seminar in HTA I	1	Assist. Prof. Sitaporn
GRHA 675	Health Technology and Social Impact	3	Assist. Prof. Sitaporn
GRHA 676	Effectiveness and Efficiency of Health Technology**	3	Assoc. Prof. Usa
GRHA 677	Seminar in HTA II	1	Assoc. Prof. Usa
GRHA 628	Principle of Economic for HTA	2	Assoc. Prof. Sukhontha
GRHA 626	Priority Setting in Universal Health Coverage	2	Assist. Prof. Sitaporn
PYPY 679	Cost Analysis in Health Care	3	Assoc. Prof. Arthorn
PYPY 683	Cost-effectiveness Modelling in Health	3	Assoc. Prof. Usa
RACE 618	Systematic Reviews & Meta-analysis	3	Prof. Ammarin

*Study visit at HTA-related institutions in international countries
**Research experience at HTA-related institutions in international countries

Table 5A. Study Plan for the MUHTA Graduate Program (MSc Program)

Year	Semester I	Semester 2	Summer
1	GRHA 622 2(2-0-4)*	GRHA 620 3(3-0-6)*	RACE 618 2(1-2-3)**
	GRHA 623 2(2-0-4)*	GRHA 621 2(2-0-4)*	
	GRHA 624 2(2-0-4)*	GRHA 677 1(1-0-2)*	
	GRHA 626 2(2-0-4)**	PYPY 679 3(2-2-5)**	
	GRHA 628 2(2-0-4)**	PYPY 683 3(3-0-6)**	
	Total 10 credits	Total 12 credits	Total 2 credits
2	GRHA 698 6(0-18-0)	GRHA 698 6(0-18-0)	-
	Total 6 credits	Total 6 credits	

*Required courses
**Elective courses

Table 5B. Study Plan for the MUHTA Graduate Program (PhD Program)

Year	Semester I	Semester 2	Summer
1	GRHA 622 2(2-0-4)*	GRHA 620 3(3-0-6)*	GRHA 675 3(3-0-6)*
	GRHA 623 2(2-0-4)*	GRHA 621 2(2-0-4)*	GRHA 676 3(3-0-6)*
	GRHA 624 2(2-0-4)*	GRHA 677 1(1-0-2)*	RACE 618 2(1-2-3)**
	GRHA 626 2(2-0-4)**	PYPY 679 3(2-2-5)**	
	GRHA 628 2(2-0-4)**	PYPY 683 3(3-0-6)**	
	Total 10 credits	Total 12 credits	Total 8 credits
2	Qualifying Examination	GRHA 699 9(0-27-0)	-
	GRHA 699 9(0-27-0)		
	Total 9 credits	Total 9 credits	
3	GRHA 699 9(0-27-0)	GRHA 699 9(0-27-0)	-
	Total 9 credits	Total 9 credits	

*Required courses
**Elective courses

H: Facilities

Our office is physically established on the 4th floor of Prudit Hutangkura Research Building, Faculty of Pharmacy, Mahidol University. We currently have facilities such as students' study room, meeting room, academic staff's room and visiting professor's room. Our conference room is well equipped with video conference system to facilitate teaching and discussion with the international experts. Computers and required software are also available for students at the computer room.



MUHTA office located on the 4th floor of Pradit Hutangkura Research Building



Left Photo: Study room for MUHTA students; Right photo: Small meeting room

II. Our Activities

A. Offering MUHTA Graduate Program

Fifteen students from different countries – Vietnam, Malaysia, Indonesia, Philippines, Bangladesh, India, and Thailand – have been taking the MUHTA graduate program since establishment. The profiles of all MSc/PhD students accepted in the program and their status are summarized at Table 6.

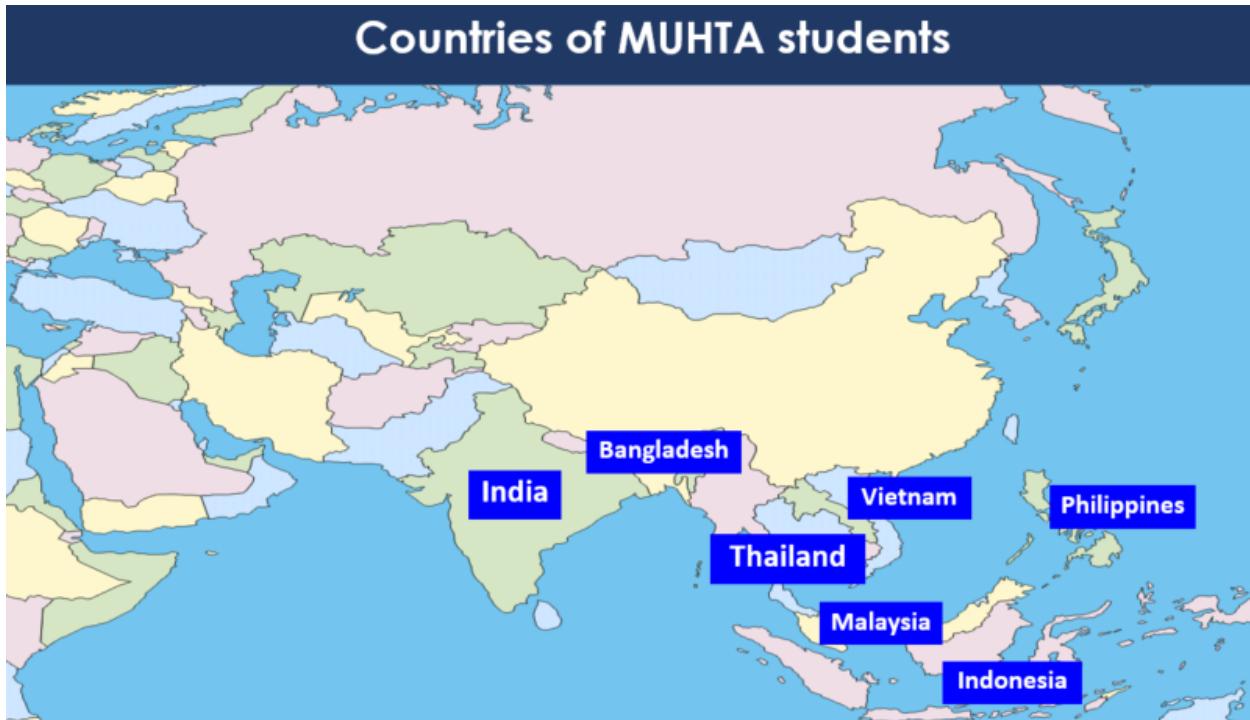
Table 6. Profile of MSc/PhD students and their status

Program	Name	Country	Current Work	Background	Status
Batch 1 (2016)					
PhD	Mohammad Sabbir Haider*	Bangladesh	Deputy director, Health economics unit, MoH and Family welfare	Public Health	Dissertation - Developing Proposal
PhD	Ong The Due*	Vietnam	Researcher, Health System Policy Institute, MOH	Medicine	Dissertation - Data collection
PhD	Auttakiat Karnjanapiboonwoong*	Thailand	Deputy Director, Center of Policy and Strategy Development for NCDs, Department of Disease Control, MoPH	Medicine	Dissertation - Proposal defense
MSc	Ully Adhie Mulyani#	Indonesia	Assistant Deputy for Pharmacy and Medical Devices Research and Development, MoPH	Pharmacy	Thesis - Proposal Defense
MSc	Anne Julienne M. Genuino*	Philippines	Senior Health Program Officer, DOH	Pharmacy	Thesis - Defense
MSc	Ana Fizalinda Binti Abdullah Sani*	Malaysia	Senior Principal Assistant, Malaysian HTA Section	Medicine	Thesis - Developing Proposal
Batch 2 (2017)					
PhD	Phung Lam Toi*	Vietnam	Researcher, Health System Policy Institute, MOH	Medicine	Thesis - Developing Proposal
PhD	Prapaporn Noparatayaporn*	Thailand	Pharmacist, Siriraj Hospital	Pharmacy	Thesis - Developing Proposal
PhD	Montira Assanatham*	Thailand	Doctor, Ramathibodi Hospital	Medicine	Thesis - Developing Proposal
MSc	Jamaica Roanne V. Briones*	Philippines	Junior Policy Research Associate, DOH	Pharmacy	Thesis - Proposal Defense
MSc	Bhavani Shankara Bagepally**	India	Scientist, Indian Council of Medical Research	Medicine	Thesis - Proposal Defense



Program	Name	Country	Current Work	Background	Status
MSc	Yogesh Gurav**	India	Deputy Director, Indian Council of Medical Research-National Institute of Virology	Medicine	Thesis - Proposal Defense
Batch 3 (2018)					
MSc	Duong Ngoc Cong Khanh*	Vietnam	Pharmacist, Hoan My Sai Gon General Hospital	Pharmacy	Course work
PhD	Rini Noviyani*	Indonesia	Lecturer, Udayana University, School of Pharmacy	Pharmacy	Course work
PhD	Mac Ardy Junio Gloria*	Philippines	Assistant Professor, University of the Philippines, Manila	Pharmacy	Course work

*Scholarships provided by MU-iDSI, **iDSI, or #HITAP



Home countries of MUHTA students

B. Capacity Building Activities with Partner Academic Institutions: Short-course Trainings and Curriculum Development

Since the establishment of the MUHTA Graduate Program, Mahidol University has continuously provided support to academic institutions and HTA-related organizations. The goals of which are to conduct trainings toward HTA strengthening and to help develop the academic institution's curriculum which integrates concepts and applications on HTA. Notably, the trainings provided by MU aimed to capacitate more people in conducting assessments of health technologies. To build capacity, some of the topics included in the training events are: (1) principles and concepts on HTA, (2) evidence retrieval and appraisal, and, (3) methods for economic evaluations – among others. In the last two years, short-course trainings and support for curriculum development were implemented and facilitated by the MUHTA faculty members among LMIC academic partners namely – the University of the Philippines, University of Indonesia and Hanoi University of Pharmacy.

University of the Philippines

Last February 19 to 21, 2018, MUHTA conducted a training workshop in the University of the Philippines Manila, College of Pharmacy (UPCP). This training workshop aimed to introduce the concepts and principles on HTA, as well as describe methods for conducting economic evaluations. The training workshop was attended by 35 various stakeholders in different practice settings (e.g. hospital, public health). After the training workshop, MU discussed future collaborations with UPCP in terms of providing more workshops and developing curriculum with course subjects relevant to HTA. The overview of the program is presented below:

Date	Topics	Lecturer
February 19, 2018	Introduction to Health Technology Assessment (HTA) and Economic Evaluation	Dr. Sitaporn Youngkong
	HTA in the Philippines	Dr. Beverly Ho (DOH Philippines)
	Cost analysis	Dr. Sitaporn Youngkong
	Outcomes assessment: Efficacy and Effectiveness	Dr. Montarat Thavorncharoensap
	Outcomes assessment: Quality of life	Dr. Montarat Thavorncharoensap
February 20, 2018	Health economic evaluation methods and results	Dr. Usa Chaikledkaew
	Introduction to cost-effectiveness modelling exercise	Dr. Usa Chaikledkaew



Date	Topics	Lecturer
	Workshop on cost-effectiveness modelling (decision tree model and markov model)	Dr. Usa Chaikledkaew Dr. Montarat Thavorncharoensap Dr. Sitaporn Youngkong Ms. Anne Julienne M. Genuino
February 21, 2018	Probabilistic modelling	Dr. Usa Chaikledkaew
	Workshop on cost-effectiveness modelling (Monte Carlo Simulation and CE acceptability curve)	Dr. Usa Chaikledkaew Dr. Montarat Thavorncharoensap Dr. Sitaporn Youngkong Ms. Anne Julienne M. Genuino
	Meeting on collaborative activities between HTA program, Mahidol University and Faculty of Pharmacy, University of the Philippines, Manila	Mahidol University and UP Manila College of Pharmacy



MUHTA trainers, UPCP partners and workshop attendees



Assoc. Prof. Thavorncharoensap delivers a lecture on Outcome Assessment in HTA

The following capacity building activities under the partnership between MUHTA and UPCP were also proposed:

- UPCP shall send faculty members to Thailand to do sit-in and observe in classes to learn how the graduate program runs, and how lectures and activities are delivered
- MUHTA to oversee HTA research project/s of UPCP:
UPCP shall select research project/s to be overseen by MUHTA based on their agreed list of medicines for review under their partnership with the Department of Health Philippines
- Development of HTA syllabus for undergraduate and post-graduate programs:
UP Pharmacy shall deliver the HTA subject for undergraduates on year 2022, as the new curriculum shall take off this coming Aug 2018
HTA for post-graduates shall be incorporated in the Social and Administrative Pharmacy Program, with no final year of roll out yet
- MUHTA faculty to serve as panel members for undergraduate and/or post-graduate thesis of UPCP students

University of Indonesia

Under the capacity building partnership activities between MUHTA and UI, for a training visit of a University of Indonesia (UI) faculty member to MU, and a training workshop in Indonesia facilitated by the MUHTA faculty members had been undertaken in 2016 and 2017.

During 7-8 November 2016, the staffs from Mahidol University (UI) were invited by the School of Pharmacy, University of Indonesia (UI) to provide HTA training workshop for healthcare professionals and graduate students in Indonesia. The objectives of the workshop are to train and educate pharmacists, healthcare personnel as well as policy makers in healthcare facilities (pharmacy, primary healthcare, and hospital), and other institutions (academic, government, etc). At the first day of the workshop, overview of HTA, basic of health economic evaluation, cost measurement, systematic review and meta-analysis, and quality of life measurement were taught by MU staff. At the second day, economic evaluation modelling along with practice on modelling and result presentation were also provided to the audiences. Below is the HTA training workshop schedule.

Time	Programme	Speaker
November, 7 th 2016		
08.30-09.30	Opening speech	Prof. Fuad Afdhal, MSc., Apt. (ISPOR Chairman of Indonesia)
09.30-10.30	Topic 1: Health Technology Assessment (HTA) and Basic of Pharmacoeconomic Methods	Dr. Sitaporn Youngkong (Faculty of Pharmacy, Mahidol University)

Time	Programme	Speaker
10.30-11.00	Coffee break	
11.00-12.00	Topic 2: Cost Measurement	Dr. Sitaporn Youngkong (Faculty of Pharmacy, Mahidol University)
12.00-13.30	Lunch	
13.30-14.30	Topic 3: Systematic Review and Meta-analysis	Assist. Prof. Dr. Montarat Thavorncharoensap (Faculty of Pharmacy, Mahidol University)
14.30-15.00	Coffee break	
15.00-16.00	Quality of Life Measurement	Assist. Prof. Dr. Montarat Thavorncharoensap (Faculty of Pharmacy, Mahidol University)
16.00-16.15	Closing Day 1	
November, 8th 2016		
08.30-09.30	Topic 5: Pharmacoeconomics Modelling	Assoc. Prof. Dr. Usa Chaikledkaew (Faculty of Pharmacy, Mahidol University)
09.30-10.30	Topic 5: Pharmacoeconomics Result Presentation	Assoc. Prof. Dr. Usa Chaikledkaew (Faculty of Pharmacy, Mahidol University)
10.30-11.00	Coffee break	
11.00-12.00	Pharmacoeconomics Modelling Practice on Decision Tree Model	Assoc. Prof. Dr. Usa, Assist. Prof. Dr. Montarat, Dr. Sitaporn
12.00-13.00	Lunch	
13.00-13.30	Pharmacoeconomics Modelling Practice Markov Model	Assoc. Prof. Dr. Usa, Assist. Prof. Dr. Montarat, Dr. Sitaporn
13.30-14.30	Topic 4: Role of Pharmacoeconomy in National Formulary: Cost & Quality Control in National Health Insurance Implementation in Indonesia	Dr. Agusdini S. Banun, MARS., Apt. (Secretary of General Director of Pharmacy and Health Devices, Ministry of Health Indonesia)
14.30-15.00	Coffee break	
15.00-16.00	Topic 5: Pharmacoeconomic approach to cover consumer rights in community pharmacy services	Dr. Firzawati Hamadah, MKM., Apt. (Bekasi Area Health Department, Ministry of Health)
16.00-16.15	Closing Day 2	

In November 2016, our MUHTA staff provided background of the HTA program at MU to colleagues at the Faculty of Pharmacy, University of Indonesia (UI). Then we discussed about the potential collaboration on Health Technology Assessment (HTA) capacity building with the UI. During the meeting, Prof. Mahdi Jufri, Dean of Faculty of Pharmacy, UI expressed his willingness to collaborate with MU regarding the partnership which MU would assist in the development of curricula in HTA for Universal Coverage. The following activities were proposed during the meeting. First, UI plans to offer the postgraduate program in HTA with academic support (i.e. curriculum development, training, and teaching materials) from MU.



MUHTA workshop trainers with the attendees in 2016



MUHTA and UI discuss about the MUHTA support for curricula development at UI in 2016

In November 2017, under financial support from MUHTA, UI sent Ms. Septiara Putri, a lecturer from the Faculty of Public Health of IU to Mahidol University, to sit-in and observe in the classes of the MUHTA program with the objective of learning how the program runs and delivers its course work and other activities through different teaching methods. This visit is useful in support of the development of the

post-graduate program of Master of Public Health that aims to incorporate and implement HTA unit courses within its course work plan. She attended the following classes of the first and second batches: (1) Seminar in HTA; (2) Health Technology and Social Impact; (3) Effectiveness and Efficiency of Health technology; (4) Principle of Economic Evaluation; (5) Cost-effectiveness and Dynamic modelling. In her month-long stay, she was also able to learn by participating in class activities and discussions with the MUHTA professors and students. She was also able to build professional and research network among the MUHTA students she took classes with. Below is the HTA training schedule at MU.

Date	Time	Activity	Place	Responsible person
1 Nov	9.00-9.15	Meeting with Ms Ruchda Malisorn, a Administrative Officer of HTA program for administrative issues	Graduate Study Office, 1st Fl, Thepparat Bldg.	Ms Ruchda Malisorn
	9.15-10.00	Welcoming & Faculty Tour by Mr. Amporn Songkasiri, Head of International and Public Relations Department,	International and Public Relations Department Office, 1st Fl, Thepparat Bldg.	Ms. Ruchda will accompany you to the room.
	10.00-11.00	Welcoming by Assoc. Prof. Pramote Tragulpiankit, Head of Department of Pharmacy, Faculty of Pharmacy, Mahidol University	Department of Pharmacy Office, 3rd Fl., Ratcharat Bldg	Ms. Ruchda will accompany you to the room.
2 Nov	9.00-10.00	<ul style="list-style-type: none"> Welcoming by Dr. Sitaporn Youngkong, Associate Dean for Student Affairs and HTA academic staff Attending Seminar Course in HTA (GRHA625) Topic: Drafting proposal 	Room 409, 4th Fl., Ratcharat Bldg.	Ms. Ruchda will accompany you to the room.
	10.00-10.30	Welcoming by Assoc. Prof. Naeti Suksomboon, Assistant Dean for Graduate Study	Office of Assistant Dean for Graduate Studies 1st Fl., Thepparat Bldg.	Ms. Ruchda will accompany you to the room.
	10.30-13.00	Attending course "Seminar in HTA (GRHA625)" Topic: Drafting proposal	Room 409, 4th Fl., Ratcharat Bldg.	Dr. Sitaporn (Course director)
	13.00-16.00	Attending course "Priority Setting in Healthcare" (GRHA626)" Topic: Students' projects presentation	Room 411, 4th Fl., Ratcharat Bldg.	Dr. Sitaporn (Course director)
3-5 Nov		Field trip on Health Technology and Social Impact (GRHA675)	Chonburi-Rayong	Dr. Sitaporn (Course director) & Uilly
6 Nov	6.30	Meeting in front of Thepparat Bldg and Going to Salaya Campus	Faculty of Pharmacy	Assoc. Prof. Usa
	8.00-13.00	<ul style="list-style-type: none"> Meeting with the President of Mahidol University Visiting Salaya Campus Welcome lunch 	Office of President, Mahidol University, Salaya Campus	Assoc. Prof. Usa

Date	Time	Activity	Place	Responsible person
	14.00-16.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: HTA and the threshold: what is the purpose of HTA and what characterizes a well-chosen threshold ICER? by Prof. Anthony J Culyer	Room 409, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
7 Nov	13.00-15.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Efficiency and equity: what are they, do they conflict, which is more important? by Prof. Anthony J Culyer	Room 409, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
8 Nov	10.00-12.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Market and state in healthcare finance and provision. Does each have a useful role? by Prof. Anthony J Culyer	Room 409, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
9 Nov	10.00-12.00	Attending special lecture Topic: "HTA, do we really have to do it? by Prof. Anthony J Culyer	Room 606, 6 Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
	13.00-15.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: HTA and a Reference Case. Is the Gates/iDSI Reference Case a good model? by Prof. Anthony J Culyer	Room 409, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
10 Nov	13.00-15.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Judging systems: what characterizes a 'good' health care system and how can these characteristics be created and maintained? by Prof. Anthony J Culyer	Room 409, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Couse director)
14 Nov	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)" Topic: Introduction to Microeconomics and Macroeconomics by Assoc. Prof. Sukhontha	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Couse director)
15 Nov	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)"	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Couse director)



Date	Time	Activity	Place	Responsible person
		Topic: Demand, Supply and equilibrium in a market economy by Assoc. Prof. Sukhontha		
16 Nov	9.00-12.00	Attending course "Seminar Course in HTA (GRHA625)" Topic: Revised final proposal presentation	Room 409, 4th Fl., Ratcharat Bldg.	Dr. Sitaporn (Course director)
	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)" Topic: Consumer behavior and decision by Dr. Suthira	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Course director)
21 Nov	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)" Topic: Market (monopoly, oligopoly and competitive markets) and Competition by Dr. Suthira	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Course director)
22 Nov	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)" Topic: Labor Markets by Dr. Suthira	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Course director)
23 Nov	13.00-16.00	Attending course "Principle of Economic Evaluation (GRHA628)" Topic: Financial and Capital Markets by Assist. Prof. Nipit	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Course director)
27 Nov	9.30-12.30	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Dynamic model for evaluating effectiveness and efficiency of health technology I by Assoc. Prof. Aronrag	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Course director)
28 Nov	9.30-12.30	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Dynamic model for evaluating effectiveness and efficiency of health technology II Assoc. Prof. Aronrag	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Course director)
29 Nov	9.30-12.30	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)" Topic: Dynamic model for evaluating effectiveness and efficiency of health technology III Assoc. Prof. Aronrag	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Course director)
30 Nov	9.00-12.00	<ul style="list-style-type: none">Exit Presentation by Septiara Putri to the HTA Administrative Curriculum CommitteeFarewell lunch	Room 309, 3rd Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Course director)
	13.00-16.00	Attending course "Effectiveness and Efficiency of Health Technology (GRHA676)"	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Usa (Course director)



Date	Time	Activity	Place	Responsible person
		Topic: Dynamic model for evaluating effectiveness and efficiency of health technology (Presentation) Assoc. Prof. Aronrag		
1 Dec	13.00-16.00	Attending course “Principle of Economic Evaluation (GRHA628)” Topic: Application and wrap up by Assoc. Prof. Sukhontha	Room 411, 4th Fl., Ratcharat Bldg.	Assoc. Prof. Sukhontha (Course director)

Another capacity building event organized by UI is a training workshop facilitated by selected MUHTA faculty members at Aston Priority Simantupang Hotel and Conference Center, Indonesia last October 31 to November 2, 2017. As the training focused on hospital-based HTA methods, the event was well-attended by 31 representatives from different hospital institutions in Indonesia. Below is an overview program of the topics delivered by MUHTA faculty members.

Date	Topics	Lecturer
31 October 2017 (Pre-Conference Workshop): Hospital-Based Health Technology Assessment Venue: Aston Priority Simatupang Hotel & Conference Center	Any policy or regulation related to hospital based-HTA	Directorate of Referral Health Services, MOH Indonesia
	Hospital: sharing practices about hospital-based HTA in Cipto Hospital	CEEBM Cipto Mangunkusumo Hospital
	Concept and practices of hospital based-HTA in Thailand	Dr. Usa Chaikledkaew Mahidol University
	Economic evaluation in hospital based HTA	Dr. Usa Chaikledkaew Mahidol University
	Retrieve & Critical Appraisal of Economic Evaluation Studies related to hospital based HTA	Sitaporn Youngkong Mahidol University
	Workshop: Retrieve & Critical Appraisal of Economic Evaluation Studies related to hospital based HTA	Dr. Usa Chaikledkaew Sitaporn Youngkong Mahidol University
1 November 2017 (Symposium): Hospital-Based Health Technology Assessment Venue: Aston Priority Simatupang Hotel & Conference Center	Curriculum at the Faculty of Public Health, UI	Dr. Maridiati Nadjib University of Indonesia
	Social, Economic, and Administrative Pharmacy (SEAP) Curriculum at MU	Dr. Arthorn Riewpaiboon Mahidol University
	HTA Curriculum at MU	Dr. Usa Chaikledkaew Mahidol University



Date	Topics	Lecturer
2 November 2017: Training for UI academic staff Venue: Aston Priority Simatupang Hotel & Conference Center	· Discussion about curriculum · Drafted contents of health economics study program and economic evaluation subject	All
	Future plan for collaboration	All
	· Hospital based HTA: Lesson Learnt from Thailand (20 mins) · 2 presentations (40 mins) and Q&A (30 mins)	Dr. Usa Chaikledkaew Mahidol University
	· Hospital based HTA-Costing Methods · Cost analysis of medical services · Cost analysis of illness	Dr. Arthorn Riewpaiboon Mahidol University



MUHTA workshop trainers with the attendees



MUHTA and UI discuss about the MUHTA support for curricula development at UI

Under the MUHTA-UI partnership, the following future collaborative activities were planned for implementation:

- UI to send faculty members to Thailand to sit-in and observe in the classes to learn how the program runs and lectures and activities are actually delivered
- UI to send their students (or staffs) to attend some courses at MUHTA.
 - MUHTA will provide academic calendar to UI so UI graduate students can select which block to sit in.
 - UI will select students to sit in the class and students will pay for their own accommodation and living expenses and MUHTA will waive for registration fee.
- MUHTA to provide one scholarship for PhD study to UI staff in coming semester in 2018
 - UI will select the candidate for a scholarship and send to MUHTA.
- Development of HTA syllabus for post graduate programs
- MUHTA faculty to serve as panel members for post-graduate thesis

In December 2017, three UI staff visited MU to discuss the development of the curricula at UI and observe and learn more about the current HTA curricula at MU. The objective of this visit is to participate the HTA module courses/training. The courses are as follows: GRHA625 Seminar in HTA I, GRHA677 Seminar in HTA II, GRHA675 Health Technology and Social Impact, GRHA676 Effectiveness and Efficiency of Health Technology, GRHA628 Principle of Economic for HTA.



Assoc. Prof. Suvatna Chulavatnatol, Dean of the Faculty of Pharmacy, welcomes Prof. Mardiaty Nadjib and colleagues from UI

Hanoi University of Pharmacy

A three-day meeting and workshop was held at Hanoi University of Pharmacy (HUP) last April 18-20, 2018. Assoc. Prof. Dinh Thi Thanh Hai, Vice Rector of HUP, warmly received the MUHTA delegates last April 18, 2018. The event was attended by 39 representatives from undergraduate and graduate students as well as academic staff from the Department of Pharmaceutical administration and Pharmacoeconomics. The following topics were discussed in the three-day long workshop:

Date	Topics	Lecturer
April 18, 2018	Application of HTA and PE for policy decision making in Thailand	Assoc. Prof. Usa Chaikledkaew
	HTA and PE in Vietnam	Assoc. Prof. Arthorn Riewpaiboon
	Cost analysis of healthcare program II	Assoc. Prof. Arthorn Riewpaiboon
	Outcomes assessment: Efficacy and Effectiveness	Assoc. Prof. Montarat Thavorncharoensap,
April 19, 2018	Meta-analysis-Direct and Indirect comparison	Assoc. Prof. Montarat Thavorncharoensap,
	Outcomes assessment: Quality of life	Assoc. Prof. Montarat Thavorncharoensap,
	Health economic evaluation methods and results presentation	Assoc. Prof. Usa Chaikledkaew
	Cost-effectiveness modelling	Assoc. Prof. Usa Chaikledkaew
April 20, 2018	Probabilistic modelling	Assoc. Prof. Usa Chaikledkaew
	Budget impact analysis	Assoc. Prof. Usa Chaikledkaew

Date	Topics	Lecturer



MUHTA trainers and workshop attendees from HUP



Assoc. Prof. Chaikledkaew delivers her lecture on economic evaluation methods

A meeting was also held in the afternoon of the last day of the workshop. During this, they discussed on possible assistance of MUHTA to revise the current curriculum at HUP. An agreement was also made that 5-10 post-graduates at HUP would undergo a student exchange program at MUHTA. Also, MU has agreed to train HUP's lecturers to facilitate transfer the knowledge to Vietnamese students for good methodological research on health policy making. MU and HUP agreed as well to collaborate in co-supervising students in their researches.

C. Collaborative Research Project

Research project undertaken by faculty members and student

In 2017, a team of selected MUHTA faculty members and student conducted a systematic review on health economic and disease modelling studies related to all preventive measures for rabies, under a project of the World Health Organization - Strategic Advisory Group of Experts on Immunization (SAGE). Such undertaking was part of WHO SAGE's overarching initiative to review WHO's policy on rabies vaccines and immunoglobulins in view of new scientific evidence, aiming to improve programmatic feasibility and clinical practice in the control of rabies especially among endemic countries. In response to this, the study aimed to assess the quantity and appraise the quality of the individual rabies models from previous published studies that might provide the overview of current models and useful information on the effectiveness of the control strategies.

The project was successfully undertaken which generated two manuscripts and were published in December 2018 in *Vaccine* journal.

1. T. Anothaisintawee, A. Julienne Genuino, M. Thavorncharoensap et al., Cost-effectiveness modelling studies of all preventive measures against rabies: A systematic review, *Vaccine*, <https://doi.org/10.1016/j.vaccine.2018.11.071>
2. W. Rattanavipapong, M. Thavorncharoensap, S. Youngkong et al., The impact of transmission dynamics of rabies control: Systematic review, *Vaccine*, <https://doi.org/10.1016/j.vaccine.2018.11.035>

D. Special/Public Lectures

The MUHTA program also organized special lectures by renowned experts in HTA to the public including researchers, policy makers, and academia from both private and public organizations. These were arranged by the program involving researchers, policy makers, and academia from both private and public organizations. Some of the special lectures are detailed below:

PROFESSOR WANRUDEE ISARANUWATCHAI, PHD
UNIVERSITY OF TORONTO, CANADA

Prof. Wanrudee Isaranuwatchai, a Visiting Professor, Director at the Centre for Excellence in Economic Analysis Research (CLEAR), St. Michael's Hospital, and Assistant Professor at the University of Toronto - Institute of Health Policy, Management and Evaluation, delivered a series of lectures among the first batch

of HTA students themed “Approach to efficiency assessment of health technology” last July 17 to 27, 2017. Prof Isaranuwatchai is the current Director of the Centre for Excellence in Economic Analysis Research at St. Michael’s Hospital and also works as a health economist at the Canadian Centre for Applied Research in Cancer Control. Under the course work GRHA 676: Effectiveness and Efficiency of Health Technology, her lecture series centered on the methods for estimation and uncertainty of cost-effectiveness statistics using person-level data. She focused on techniques to create and explain economic information from person-level data (e.g., from a clinical trial or an administrative dataset). In the lectures, she introduced regression techniques, its application to a health economics analysis and use in the estimation of incremental cost-effectiveness ratio and incremental net benefit. The lecture also illustrated the concepts and potential roles of person-level data in health technology assessment.

The learning objectives of her lecture series were as follows:

1. To use regression as a technique for creating cost-effectiveness estimates using person-level data and understand their strengths and limitations,
2. To explore techniques for characterizing the uncertainty in person-level cost-effectiveness analysis,
3. To understand how to conduct cost-effectiveness analysis using person-level data, and
4. To explain the results of person-level cost-effectiveness analyses in a way that improves the chances of them being understood

Below are the covered lecture series:

Date	Topic
17 July 2017	Overview and introduction
20 July 2017	Cost-effectiveness estimates using person-level data
21 July 2017	Application - Potential role of HTA in creating real-world evidence
24 July 2017	Uncertainty - parametric and non-parametric methods I
27 July 2017	Uncertainty - parametric and non-parametric methods II

Apart from her class lectures in the MUHTA program, Prof. Isaranuwatchai also delivered a public lecture entitled “Approach to Efficiency Assessment of Health Technology: Potential Roles of HTA in Canada” among more than 40 Mahidol University faculty and students, and external stakeholders on 21 July 2017.



Prof. Isaranuwatchai with selected faculty members and post-graduate students from the MUHTA program, and the Social, Economic and Administrative Pharmacy (SEAP) Program



Left photo: Prof. Isaranuwatchai with selected faculty members and post-graduate students from the HTA program, and the Social, Economic and Administrative Pharmacy Program

Right photo: Assoc. Prof. Suvatna Chulavatnatol, Dean of the Faculty of Pharmacy, welcomes Prof. Isaranuwatchai



**MAHIDOL UNIVERSITY CORDIALLY INVITES YOU TO
ATTEND A SPECIAL LECTURE ENTITLED**



**Approach to Efficiency Assessment of
Health Technology : Potential Roles of
HTA in Canada**

Date & Time: 21 July 2017 at 10.00 AM - 12.00 PM
(with coffee break)

Venue: Room 409, 4th Floor, Rajcharan Bldg., Faculty of
Pharmacy, Mahidol University

*Please reserve seats at Khun Ruchda
02-354-3747 or 1131 Email: ruchda.ma@mahidol.ac.th*

Assist. Prof. Wanrudee Isaranuwatchai, Ph.D.
• Interim Director – Centre for Excellence in Economic
Analysis Research (CLEAR), the HUB, Li Ka Shing
Knowledge Institute,
St. Michael's Hospital
• Assistant Professor – Institute of Health Policy,



*Please register online via the
website using the QR code.*

Public lecture by Prof. Isaranuwatchai

PROFESSOR ANTHONY JOHN (TONY) CULYER, CBE, BA, HON DECON, HON FRCP, FRSA, FMedSci
UNIVERSITY OF YORK, UK AND UNIVERSITY OF TORONTO, CANADA



*Photo above: Faculty members of Mahidol University officially welcomes Prof. Culyer
Photo below: Prof. Culyer with selected faculty members and post-graduate students from the MUHTA program, and the SEAP Program*

Prof. Anthony Culyer, a world-renowned expert on health economics and health policy, was our visiting professor from the University of York - Centre for Health Economics. He is also affiliated with the Institute of Health Policy, Management and Evaluation of the University of Toronto - Faculty of Medicine. With the theme "Ideas and arguments in Health Economics", he delivered a short course among the first and second batches of the MUHTA program under the course work GRHA 625: Seminar in HTA last November 6 to 10, 2017. The learning objectives for his short course were:

1. To understand and be able to explain to other people some of the fundamentals of health economics
2. To detect bad arguments, special pleading, careless theory, bad empirics
3. To evaluate evidence for its technical quality, completeness and relevance
4. To integrate empirical evidence with value judgments and other kinds of judgment
5. To summarize the principal issues entailed in a debate
6. To define key concepts with rigour
7. To understand key theories thoroughly
8. To give an even-handed account of the pros and cons of a 'case'

9. To reach conclusions (including the conclusion that there is no conclusion)
 10. To the organizational and managerial implications of a debated issue and develop a ‘can do’ approach to implementing ideas.

Prof. Culyer delivered his lectures using the “socratic” method, where he led the first two seminars, while the students led the last three seminars. Advanced reading materials relevant to the seminar topics were also provided as preparatory work for the students before the start of the short course. The seminar topics conducted during the visit are as follows:

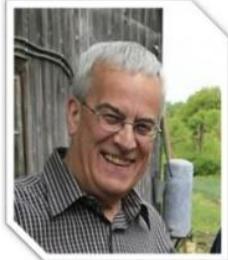
Date	Topic
6 Nov 2017	HTA and the threshold: what is the purpose of HTA and what characterizes a well-chosen threshold ICER
7 Nov 2017	Efficiency and equity: what are they, do they conflict, which is more important?
8 Nov 2017	Market and state in healthcare finance and provision. Does each have a useful role?
9 Nov 2017	HTA and a Reference Case. Is the Gates/iDSI Reference Case a good model?
10 Nov 2017	Judging systems: what characterizes a ‘good’ healthcare system and how can these characteristics be created and maintained?

During his visit, he also delivered public lecture entitled “Health Technology Assessment: Do we really have to do it?” where more than 60 faculty members and students of Mahidol University, as well as with external stakeholders, were in attendance.



Prof. Culyer during the seminar with selected faculty members and post-graduate students from the MUHTA program, and the SEAP Program

Mahidol University cordially invite you to join a special lecture entitled



Health Technology Assessment – Do we really have to do it?

Thursday 9 November 2017 at 10.00 AM – 12.00 PM
(with coffee break)

Room 606, 6th Floor, Rajcharat Bldg., Faculty of Pharmacy,
Mahidol University

Prof. Anthony J. Culyer

Emeritus Professor of Health Economics, University of York, UK
Founding Vice Chair of the National Institute for Health & Clinical Excellence (NICE)
Founding Editor of the Journal of Health Economics

*Please reserve seats at Khun Ruchda; Tel: 02-354-3747 or 1131
Email: ruchda.mal@mahidol.ac.th or register online using the QR Code.*



Please register online via the website using the QR code.

Public lecture by Prof. Culyer

PROFESSOR OLIVIA WU, PHD
UNIVERSITY OF GLASGOW, UK



Prof. Wu delivers a public lecture on “Current Challenges in Health Technology Assessment: a Researcher/ Decision-Maker Perspective”

Prof. Olivia Wu was our visiting professor for a short course on Evidence Synthesis. She currently serves as the Director of the Health Economics and Health Technology Assessment (HEHTA) Unit of the University of Glasgow. She held ten sessions on the principles and methods of conducting evidence synthesis among the first and second batches of MUHTA students from January 29 to February 9, 2018. During these sessions, the students also presented their research topics for comments. The lectures she conducted are as follows:

Date	Topic
29 Jan 2018	Students Research Presentation Basic Principles of Evidence Synthesis
30 Jan 2018	The process of Systematic Review
31 Jan 2018	Measures of Effect and Pooling Data
1 Feb 2018	Critical Appraisal of Evidence
2 Feb 2018	Dealing with Heterogeneity
5 Feb 2018	Introduction to Network Meta-Analysis (NMA)
6 Feb 2018	Dealing with Heterogeneity Presentation of Results and Underlying Assumptions
7 Feb 2018	Practical Exercise on NMA
8 Feb 2018	Practical Exercise on NMA
9 Feb 2018	Evidence Synthesis to inform Health Benefit Package

Her last session held last 9 February 2018 at 1:00-3:00 pm was a public lecture entitled “Current Challenges in Health Technology Assessment: a Researcher/ Decision-Maker Perspective” which were opened to all of 70 students, faculties, and external stakeholders such as the Ministry of Health and the pharmaceutical industry.



Photo above: Prof. Wu delivers her special lecture on “Current Challenges in Health Technology Assessment: a Researcher/ Decision-Maker Perspective”

Photo below: Prof. Wu with selected faculty members and post-graduate students from the MUHTA program, and the Social, Economic and Administrative Pharmacy Program



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Mahidol University cordially invites you to attend a special lecture entitled



Evidence Synthesis to Inform Health Benefits Package

Friday 9th February 2018 at 1-3 PM (with coffee break)
Room 606, 6th fl., Rajcharat Bldg.,
Faculty of Pharmacy, Mahidol University

PROF. OLIVIA WU

BSc(Pharm), MSc (Clinical Pharmacology), PhD (Public Health and Health Economics)
Director, Health Economics and Health Technology Assessment (HEHTA) Unit,
the University of Glasgow, UK

Please reserve seats by [free registration](#) using the QR Code or contact directly to

Khun Ruchida; Tel:02-354-3747 ext.1131 Email: ruchida.mai@mahidol.ac.th or

Khun Thakathaeew; Tel:02-354-3747 ext. 1115 Email: thakathaeew.piw@mahidol.ac.th



Please register online via the website using the QR code.

Public lecture by Prof. Wu

PROFESSOR JEAN MACQ, PHD

UNIVERSITY OF LEUVEN, BELGIUM



Left photo: Prof. Macq (left) and Asst. Prof. Leerapan (right) shares a hearty laughter to end the workshop on agent-based modelling

Right photo: Asst. Prof. Leerapan (left) welcomes Prof. Macq (right) in his two-day seminar

A two-day seminar on health system science in the ongoing health system reform was held last July 25 and 26, 2018 by Prof. Macq from the Faculty of Public Health and Institute for Health Research and Society of Catholic University of Leuven, Belgium.

The program highlighted on the comparison of the reforms of people-centered and integrated health care systems in Belgium and Thailand. A workshop on agent-based and dynamic modelling and on systems thinking was also held during this seminar. The program was moderated by Asst. Prof. Bornwornsom Leerapan from the Faculty of Medicine, Ramathibodi Hospital.

Attendees from the seminar were faculty members, private practitioners and students from various programs of the University – Health Technology Assessment, Data Science and Social Economic and Administrative Pharmacy.



Attendees during the workshop for agent-based modeling

มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

**The Reforms of People-centered,
Integrated Health Care Systems
in Belgium and Thailand**

**Wednesday
25 July 2018**
09.00 am-12.00 pm

Venue: Meeting Room 1
Research Center

Presented by
Prof. Jean Macq, MD, PhD
Moderated by
Asst. Prof. Borwornsom Leerapan, MD, PhD

Theme: A seminar on applying health systems science
in the ongoing health systems reforms

Contact information : MS. Mookdaluk Boonthrong Tel. 02-201-2416

มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

**Applying Systems Thinking
in Personalized Medicine:**

From Clinical Trials and
Comparative Effectiveness Research
to Systems Modeling

**Thursday
26 July 2018**
01.00-04.00 PM

Venue: Meeting Room 1
Research Center

Presented by
Prof. Jean Macq, MD, PhD
Moderated by
Asst. Prof. Borwornsom Leerapan, MD, PhD

Theme: A dialogue on potential research collaborations
between Ramathibodi/Mahidol and IRSS/UCL

Contact information : MS. Mookdaluk Boonthrong Tel. 02-201-2416

Public lecture by Prof. Macq

PROFESSOR DEAN JAMISON, PhD
UNIVERSITY OF WASHINGTON, USA



Prof. Jamison together with Mahidol University officials and faculty members

Prof. Jamison, a Principal Investigator of Disease Control Priorities Network, discussed on their group's findings from the Disease Control Priorities (DCP) project essential for developing health benefits packages for Universal Health Coverage (UHC) last September 18, 2018,. During the discussion, Prof. Jamison conducted the following: (1) narrated the evolution of the DCP project towards UHC; (2)

enumerated the roles of health-related sectors, including intersectoral policies, towards UHC; and, (3) described cost-effective measures towards social and financial risk protection. Fundamentally, the recent DCP 3rd edition (DCP3) consists of nine volumes that define a model concept of essential universal health coverage (EUHC) with 218 interventions that provides a starting point for country-specific analysis of priorities.



Prof. Jamison together with the Faculty and Students of Mahidol University and relevant HTA stakeholders at the public lecture



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Mahidol University cordially invites you to attend a series of seminar entitled



Prof. Dean T. Jamison

Emeritus Professor in the Institute for Global Health Sciences at the University of California, San Francisco.
Visiting Professor in UCLA and the University of Washington and Harvard Kennedy School and the Harvard School of Public Health (2006-2008).

***“Health Benefits Packages for UHC:
Findings from the Disease Control
Priorities Project”***

Tuesday 18th September 2018 at 2 – 4 PM (with coffee break)

Room 606, 6th fl., Rajcharat Bldg.,

Faculty of Pharmacy, Mahidol University



Please register online via the website using the QR code.

Please reserve seats by **free registration** using the QR Code or contact directly to
Khun Ruchda, Tel:03-354-3747 ext.1131 Email: ruchda.mai@mahidol.ac.th or
Khun Thakatkaew, Tel:03-354-3747 ext. 1115 Email: thakatkaew.pw@mahidol.ac.th

Public lecture by Prof. Jamison

E. Study Visit

Last October 30 to November 1 2018, HTA graduate students and experts from Mahidol University, Bangkok, Thailand went to Taipei, Taiwan for a study visit. Graduate students came from India, Thailand, Philippines, Indonesia, Malaysia, Vietnam, and Bangladesh. Experts were from various faculties, such as Faculty of Medicine Ramathibodi Hospital, Faculty of Medicine Siriraj Hospital, Faculty of Pharmacy, Faculty of Public Health and Institute for Population and Social Research. This study visit is a part of GRHA623: Principle and concept of HTA course. The study visit involved: (1) research and academic discussions in HTA; (2) industry and patient experiences in HTA in Taiwan; (3) Taiwan's National Health Insurance (NHI) system; (4) Taiwan's Center for Drug Evaluation (CDE), which is responsible for conducting HTA; and, (5) Taiwan's National Hepatitis C Program experiences. Furthermore, the role and impact of HTA were emphasized. Evidently, HTA guides the development of healthcare-related policies, strategies and interventions, and health benefit packages and coverage decisions. Ultimately, it contributes to strengthening the healthcare system to maximize healthcare outcomes in the context of increasing number of new health technologies and increasing expenditures for health. Through this study visit, all were able to see how the different key stakeholders (e.g., academic institutions, industry, national drug authority, NHI, CDE, patient groups) are interrelated with each other, and what their significant responsibilities are in relation to HTA. The process and role of HTA in Taiwan was also discussed.



The faculty members and graduate students of the MUHTA Program in their study visit in National Taiwan University



The faculty members and graduate students of the MUHTA Program in their study visit at Taiwan - National Health Insurance and Hepatitis C Program



The faculty members and graduate students of the MUHTA Program in their study visit at Center for Drug Evaluation (CDE), Taiwan

Moreover, two students presented their research studies during the Taiwan study visit held last October 29 to November 1, 2018.

Name of presenters	Title of Presentation/s	Venue/ Audience
Anne Julianne Genuino	Cost-utility analysis of adjuvant trastuzumab therapy for HER2-positive early breast cancer in the Philippines	National Taiwan University attended by academic institutions in Taiwan
Ong The Due	Cost-utility analysis of direct acting antivirals for treatment of chronic hepatitis C genotype 1 and 6 in Vietnam	National Health Insurance Administration

F. Networking: HTA Participation in Regional Networks

The MUHTA program has been engaging as well in the regional level networks on HTA through its participation in the annual conference of the HTAsiaLink.

SINGAPORE (2016)

Selected faculty members attended the 6th Annual HTAsiaLink Conference held last May 3-6 2016 in Singapore. Promotional activities were conducted in the conference in anticipation of the opening of the program in January 2017.



Dr. Thavorncharoensap and Dr. Chaikledkaew of the MUHTA faculty attend the 6th HTAsiaLink Annual Conference in Singapore

VIETNAM (2017)



The MUHTA delegation for the 6th HTAsiaLink Annual Conference composed of selected faculty and the first batch students

A delegation from MUHTA Graduate program composed of some faculty members and students from the first batch attended the 6th HTAsiaLink annual conference themed “Health Technology Assessment in designing and implementing Benefit Package for Universal Health Coverage (UHC)” last April 17-19, 2017 in Hanoi, Vietnam. The delegation attended the pre-conference sessions on Multi-Criteria Decision Analysis (MCDA) and its role in priority settings for UHC. The main conference plenary sessions focused on designing, implementing, and monitoring and evaluation benefit packages. Several cases both from developed and developing countries shared their relevant country experiences on the topics. The students were then tasked to report their learning experience from the conference in the class under the course work GHRA 626: Priority Setting for UHC.

THAILAND (2018)



The Faculty members and graduate students of the MUHTA Program during the awarding session of the HTAsiaLink 2018



Dr. Ong The Due won third place for best presenter award.

The 7th annual HTAsiaLink conference was held in Chiang Mai, Thailand last May 8-11. 2018. Themed “Testing Treatments: Strengthening HTA for better healthcare”, the conference revolved on two tracks for presentations – Economic Evaluation and Health System Research track.

Of the 59 abstracts accepted for presentation during the conference, all six students from the first batch of the program who applied had their abstracts accepted. Moreover, three students were able to attend and present their researches, as follows:



Name of MUHTA students	Title of Presentation
Ong The Due	Sustained virological response and safety of direct-acting antivirals for hepatitis C genotype 5 and 6: A systematic review & meta-analysis
Sabbir Haider	The cost-effectiveness analysis of rotavirus vaccine in low- and low-middle income countries: a systematic review and meta-analysis
	Cost-effectiveness of dengue vaccine introduction in Dhaka city, Bangladesh
Auttakiat Karnjanapiboonwong	Effectiveness of salt reduction intervention for large-scale population: systematic reviews and meta-analysis

One of the students, Dr. Ong The Due, won third place for best presenter award with his topic, *“Sustained virological response and safety of direct-acting antivirals for hepatitis C genotype 5 and 6: A systematic review & meta-analysis”* under the Economic Evaluation track.

Delegates from the MUHTA program gained exposure in presenting in an international conference and learn through the discussion with the expert and colleagues from different countries. Notable experts from the field gave outstanding plenary sessions to share their expertise and knowledge. Dr. Daphne Khoo from the Ministry of Health, Singapore, shared about their country's experience of using unsafe or ineffective health interventions and technologies. Mr. Damian Walker from the Bill and Melinda Gates Foundation talked about the current efforts and challenges in assessing unproven practices. To end the conference, the last plenary by Prof. Anthony Culyer from University of York challenged everyone on potential solutions and actions and future commitment needed to overcome issues in HTA. More than 240 participants from the Asia-Pacific, the UK, Australia, and South Africa were present during the conference. Networking with other colleagues from different organization was also developed.

III. Publications and Presentations of MSc/PhD Students

Beside the coursework, our students are encouraged to disseminate their research project through presentation and publication. The list of presentations and publications of our MSc/PhD students are listed below:

Publications

1. Anothaisintawee T, **Genuino AJ**, Thavorncharoensap M, Youngkong S, Rattanavipapong W, Meeyai A, Chaikledkaew U. Cost-effectiveness modelling studies of all preventive measures against rabies: A systematic review. 2018, **Vaccine**. pii: S0264-410X(18)31634-7. (published)
2. Rattanavipapong W, Thavorncharoensap M, Youngkong S, **Genuino AJ**, Anothaisintawee T, Chaikledkaew U, Meeyai A. The impact of transmission dynamics of rabies control: Systematic review. 2018. **Vaccine**. pii: S0264-410X(18)31558-5. (published)
3. **Haider S**, Chaikledkaew U, Thavorncharoensap M, Youngkong S, Islam A, Thakkinstian A. Systematic review and meta-analysis of cost-effectiveness of rotavirus vaccine in low and low-middle income countries. 2018. **Open Forum Infectious Diseases** (in revision)
4. **Genuino AJ, Ong TD**, Chaikledkaew U, Reungwetwattana T, Thakkinstian A. Adjuvant trastuzumab regimen for HER2-positive early stage breast cancer: A systematic review and meta-analysis. 2018. **Scientific Reports**. (in revision)
5. **Karnjanapiboonwong A**, Thakkinstian A, Anothaisintawee T, Chaikledkaew U. Diagnostic performances of clinic and home blood pressure measurements comparing with ambulatory blood pressure measurements: a systematic review and meta-analysis. 2018. (in draft) **Toi P**, Anothaisintawee T, Chaikledkaew U, Briones J, Thakkinstian A. The role of lifestyle modification in prevention for type 2 Diabetes Mellitus: an umbrella review. 2018. **JAMA** (in revision)
6. **Ong TD**, Chaikledkaew U, **Genuino AJ**, Sobhonslidsuk A, Thakkinstian A. Efficacy and safety of direct-acting antivirals for hepatitis C genotype 5 and 6: A systematic review and meta-analysis. 2018. (in draft)
7. **Bagepally BS, Gurav Y**, Anothaisintawee T, Youngkong S, Chaikledkaew U, Thakkinstian A. Cost effectiveness of sodium-glucose cotransporter 2 inhibitors in the treatment of metformin monotherapy failed type 2 diabetes patients: a systematic review and meta-analysis of cost utility analyses. 2018. (in draft)
8. **Toi PL**, Anothaisintawee T, Chaikledkaew U, Briones JR, Thakkinstian A. The role of lifestyle modification in prevention for Type 2 Diabetes Mellitus – an umbrella review. 2018 (in draft)

Presentations

1. **Ong TD**, Chaikledkaew U, **Genuino AJ**, Sobhonslidsuk A, Thakkinstian A. Sustained Virological Response and Safety of Direct-Acting Antivirals for Hepatitis C Genotype 5 and 6: A Systematic Review And Meta-analysis. 8-11 May 2018, 7th HTAsiaLink Conference, Chiang Mai, Thailand. (Oral presentation)
2. **Haider S**, Chaikledkaew U, Thavorncharoensap M, Youngkong S, Islam A, Thakkinstian A. The cost-effectiveness analysis of rotavirus vaccine in low- and low-middle income countries: a systematic

review and meta-analysis. 8 – 10 May, 2018, 7th HTAsiaLink Conference, Chiang Mai, Thailand. (Oral presentation)

3. **Karnjanapiboonwong A**, Thavorncharoensap M, Chaikledkaew U, Ingsathit A, Thakkinstian A. Effectiveness of salt reduction intervention for large-scale population: Systematic reviews and meta-analysis. 8 – 10 May, 2018, 7th HTAsiaLink Conference, Chiang Mai, Thailand. (Oral presentation)

The table below summarizes the on-going and proposed publications and presentations of MSc/PhD students throughout their MUHTA Graduate program (*Table 7*). All topics were chosen based on prioritized research areas in their countries which are aiming to guide coverage decisions of a particular health technology that addresses a relevant disease burden in their countries.

Table 7. Proposed publications and presentations of MSc/PhD Students

Name of student	Topic
Batch 1 (2016) – PhD	
Ong The Due	Sustained virological response and safety of direct-acting antivirals for Hepatitis C Genotype 5 and 6: A systematic review and meta-analysis
	Cost-utility analysis of direct acting antivirals for treatment of chronic Hepatitis C genotype 1 and 6 in Vietnam
	Cost of illness of chronic Hepatitis C infection in Vietnam
	Health-related Quality of Life in patients in different health stages of Chronic Hepatitis C Infection in Vietnam
Auttakiat Karnjanapiboonwong	Diagnostic performances of clinic and home blood pressure measurements comparing with ambulatory blood pressure measurements: a systematic review and meta-analysis
	Cost-effectiveness of applying home blood pressure monitoring (HBPM) and conventional blood pressure monitoring (CBPM) for screening and diagnosis of hypertension
Mohammad Sabbir Haider	Priority setting criteria for the vaccine introduction in Bangladesh
	Multi Criteria Decision Analysis (MCDA) for priority setting on vaccines for introduction in Bangladesh
Batch 1 (2016) – MSc	
Anne Julienne Genuino	Systematic review and meta-analysis of the efficacy and safety of adjuvant Trastuzumab therapy for HER2-positive early stage breast cancer
	Systematic review of economic evaluations on adjuvant Trastuzumab therapy for HER2-positive early stage breast cancer
	Cost-utility analysis of adjuvant Trastuzumab therapy for HER2-positive early stage breast cancer in the Philippines
Uilly Adhie Mulyani	Systematic review and network-meta analysis of catheter associated urinary tract infection in elective abdominal surgery patients
Ana Fizalinda Binti Abdullah Sani	Systematic review of triage system in overcrowding emergency departments: A network meta-analysis
Batch 2 (2017) – PhD	
Montira Assanatham	Cost-utility analysis of Sevelamer on chronic kidney disease patients in Thailand
	A systematic review of cost-effectiveness analysis of Sevelamer on chronic kidney disease patients
Prapaporn Noparatayaporn	Cost-utility analysis of laparoscopic bariatric surgery for obese patients with Type II diabetes

	Bariatric surgery: Budget impact analysis and feasibility for policy implementation in Thailand
Batch 2 (2017) – PhD	
Phung Lam Toi	The role of lifestyle modification intervention in prevention for type 2 diabetes: An umbrella review
	Efficacy of lifestyle modification intervention in prevention for type 2 diabetes: A network meta-analysis
	Economic evaluation of screening for Type 2 Diabetes: A systematic review of existing model-based study
	Quality of life among diabetic patients in Vietnam: A cross-sectional survey
	Cost-utility analysis of screening for Type 2 Diabetes in Vietnam
Batch 2 (2017) – MSc	
Bhavani Shankara Bagepally	Cost effectiveness of sodium-glucose cotransporter 2 (SGLT-2) inhibitors in treatment of type 2 diabetes patients who failed with metformin monotherapy: A systematic review and meta-analysis of economic evaluation studies
	Cost effectiveness of glucagon-like peptide 1 (GLP-1) agonists in treatment of type 2 diabetes patients who failed with metformin monotherapy: A systematic review and meta-analysis of economic evaluation studies
Yogesh Gurav	Cost-effectiveness analysis of hepatitis A vaccination in Kerala State, India
Jamaica Roanne Briones	Economic evaluation of carbetocin as prophylaxis against postpartum hemorrhage in the Philippines
	Postpartum Health Related Quality of Life of Thai women by mode of delivery
Batch 3 (2018) – PhD	
Mac Ardy Junio Gloria	Development of a cost-effectiveness threshold for healthcare: Systematic review
	Development of a cost-effectiveness threshold in the Philippine setting
Rini Noviyani	Long term use of Ticagrelor for acute coronary syndrome patients: A systematic review and Meta-analysis
	Cost effectiveness of long term use of Ticagrelor for acute coronary syndrome patients : A Markov Simulation
Batch 3 (2018) – MSc	
Duong Ngoc Cong Khanh	Economic evaluation of contact investigation of tuberculosis in Vietnam



IV. Evaluation of the Impact of MUHTA Graduate Program by Various Stakeholders

A. Among HTA Organizations in LMICs in View of Policy-makers

Policy-makers from the home country institutions of selected students working in relevant government agencies were interviewed in relation to the impact of the MUHTA program on the HTA capacity building of their countries. They have consistently highlighted the current recognition of the significance of HTA in their countries to achieve UHC and expressed their gratitude to the program and iDSI for the support to train their staff who are expected to contribute in the institutionalization and operationalization of HTA in their countries.

ANNA MELISSA GUERRERO, MD, MPH (HTA)

CHIEF, PHARMACEUTICAL DIVISION

DEPARTMENT OF HEALTH PHILIPPINES

"This partnership to build country capacity on HTA is timely and important for the Philippines especially now that the government is aiming to provide Universal Health Coverage for all Filipinos. Our country has been trying to build and sustain capacity on HTA since the 1990s to make sure the treatments and health interventions are cost-effective, equitable, affordable and sustainable for the health system. We are thankful to the iDSI and Mahidol University for contributing to our agenda on Universal Health Coverage through the scholarships provided to our young researchers. Their education will certainly have a huge impact on how future decisions on coverage are made by the government so that they rely on the best available evidence."

TRAN THI MAI OANH, MD, PhD

DIRECTOR, HEALTH STRATEGY AND POLICY INSTITUTE

MINISTRY OF HEALTH VIETNAM

"Thank you Mahidol University and iDSI for supporting our HSPI staff to be trained in the area of health technology assessment. I expect to send our staff to study in this area because health technology assessment is one of the priority areas of research of HSPI in the coming years. In the recent years, there is high demand of evidence for development of health service package for health insurance and reimbursement because I think it is not only for Viet Nam, but also in other countries, especially in the context of limited resources. We need to have the HTA evidence for setting priorities. What is the impact of our students and our staff when they come back to Viet Nam. I am sure that they can provide valuable contribution for the policy development in our country because at the moment, HSPI is one of the members of national health insurance council. Also, we are a member of the drug bidding committee. I am sure that

when they come back, they will conduct the HTA research to provide evidence to inform for health policy development. Thank you very much!"

B. Among Academic Institutions in LMICs (HTA Training and Curriculum Development to the Academe)

MONET M. LOQUIAS, MHPED, PHD

PROFESSOR AND DEAN

COLLEGE OF PHARMACY, UNIVERSITY OF THE PHILIPPINES MANILA

"The HTA Training Workshop held last February 19 to 21, 2018 by Mahidol University proved to be a very successful event. Our participants gave very positive feedback about the event. They said that it is very useful to them. It gave them very good foundation about health technology assessment. I would like to specially mention that we received very good feedback from the faculty members that we invited to join in the said activity because health technology assessment is part of the pharmacy curriculum here in the Philippines. This gave them the idea on how to teach health technology assessment to students very effectively. They even said that this event or this kind of activity should be continuously implemented, We have been receiving various requests for us to hold another training workshop. This training workshop also served as a start for a collaborative activity between the University of the Philippines and Mahidol University. We, at the University of the Philippines College of Pharmacy, look forward to more collaborative activities with Mahidol University. Again, thank you!"

The table below shows the summary evaluation of the HTA training workshop conducted by UP Manila College of Pharmacy and Mahidol University. The evaluation was divided into four parts, namely: (1) content and delivery; (2) resource persons/ lecturers; (3) overall assessment of the training workshop; and, (4) the continuity of the training workshop. Overall, all participants agreed that the training workshop was informative and they had better knowledge and understanding of HTA. They also thought that the resource persons/ lecturers were well-prepared and knowledgeable on HTA. They perceived that the training workshop is excellent. It should also be continuously implemented to build and strengthen capacity on understanding and eventually conducting HTA.

Criteria for Evaluation	Mean Score	Median Score
Content and Delivery (Strongly Disagree = 0; Disagree = 1; Agree = 2; Strongly Agree = 3)		
1. The objectives of the training workshop were clearly defined and met.	2.81	3.00
2. The topics covered were relevant and useful.	2.96	3.00
3. The training methodologies used were appropriate.	2.85	3.00
4. There was sufficient opportunity for interactive discussion and participation.	2.65	3.00
5. The schedule for the training workshop provided adequate time to cover all the proposed lectures and activities.	2.65	3.00
6. The resource materials were available, adequate and appropriate.	2.73	3.00
7. After the workshop, I have a better knowledge and understanding of HTA.	2.88	3.00
8. After the workshop, I feel confident in applying methods to conduct HTA.	2.54	3.00



Criteria for Evaluation	Mean Score	Median Score
9. If given an opportunity, I will participate to or initiate activities that relate to HTA.	2.88	3.00
Resource Persons/ Lecturers (Strongly Disagree = 0; Disagree = 1; Agree = 2; Strongly Agree = 3)		
1. They were well-prepared and knowledgeable on the topic.	3.00	3.00
2. They were able to draw and sustain interest of the participants.	2.81	3.00
3. They sufficiently answered relevant questions on HTA.	2.77	3.00
4. They adequately utilized a variety of training methods.	2.85	3.00
Overall, I consider this workshop to be: (Excellent = 3; Very Satisfactory = 2; Satisfactory = 1; Poor = 0)	2.65	3.00
Overall, I think that this training workshop should be continuously implemented (Yes = 1; No = 0)	1.00	1.00

PROF. MARDIATI NADJIB

FACULTY OF PUBLIC HEALTH

UNIVERSITAS INDONESIA, INDONESIA

"The benefits we get from Mahidol University's support on HTA mainly involves capacity collaboration. Moreover, several activities have been done in collaboration between UI and Mahidol University. Examples are: (1) three UI staffs have participated the courses in Mahidol University on HTA (Septiara, Vetty and Mardiati), discuss curriculum development for UI and how UI could start from the current condition. Under FPH UI one majoring on health economics has been initiated for more than 5 years, and now becoming stronger with additional staffs with background on health economics. Some university staffs involve in HTA activities under HTA committee-MOH coordination. Collaboration with Mahidol will strengthen our capacity not only on doing the economic evaluation, but also capacity building for other universities; (2) workshops on HTA in Jakarta; (3) workshop on curriculum development and TS on HTA and cost to charge method: lesson learned from Thai; (4) one Faculty of Pharmacy UI staff will join the course on HTA (Ms Santi), this process is very useful not only for her (as she is PhD student in FPH UI), but also strengthen our capacity. We have a plan to develop our HTA program for students (collaboration with faculties: Faculty of Public Health, Faculty of Medicine, Faculty of Pharmacy , and Faculty of Economics.. but this need to be assessed and further discussion with relevant stakeholders). These benefits could contribute to our university and country's health system, in terms of strengthening our capacity to conduct HTA, jointly publishing researches and building competence on HTA internally and externally, involving other universities."

SEPTIARA PUTRI

**CENTER FOR HEALTH ECONOMICS AND POLICY STUDIES (CHEPS), FACULTY OF PUBLIC HEALTH,
UNIVERSITAS INDONESIA, INDONESIA**

"First of all, I would like to thank to Mahidol University for the training opportunity. As junior staff and researcher in Universitas Indonesia, I was fortunately-received one-month HTA training in Mahidol University during November-December 2017. I have learnt a lot about the curriculums, class management, as well as course materials. As leading university for HTA degree in Asia, Mahidol University delivered well-conducted class activity, specific courses sequence for HTA competency, and sufficient ratio between lecturer/supervisor. Personally, my favourite section was the discussion activities in the class, including guest lecturers and weekly report on research progress'. All lecturers were very committed and consistently provided valuable input to students. We do not have HTA degree in UI, however, we have graduate program in public health with health economics major. The interests of HTA topics was increasing in the past few years, while the challenges of our faculty remain exist such as: integration between course and department as well as limited credits in our degree Program. We have limited knowledge and experience to provide the structured course that can accommodate the demand of HTA topic. During the Program, Mahidol University indeed provided me substantial input for HTA curriculum in UI, the training has provided beneficial insight and capacity, and also generated potential input for further curriculum development. Several substantial topics also have been considered in our sections in health economics and economic evaluation class."

XUAN THANG, BPHARM

**DEPARTMENT OF PHARMACEUTICAL MANAGEMENT AND PHARMACOECONOMICS
HANOI UNIVERSITY OF PHARMACY, VIETNAM**

"As a lecturer at Hanoi University at Pharmacy, we would like to thank Professor Usa and Professor Arthorn, as well as the iDSI organization for supporting the training course on HTA as well as helping us to design and evaluate our curriculum of Pharmacoeconomics at my university. We are now designing the curriculum of Pharmacoeconomics and HTA teaching for our undergraduate and graduate students at the Hanoi University of Pharmacy. So, the support from the experts at Mahidol are valuable for us, and we highly appreciate their support. We hope that in the future we will have close collaboration, between my university – Hanoi University of Pharmacy and Mahidol – and we will receive more support from the experts from Mahidol in teaching and doing research. Hopefully, the iDSI will support for both Mahidol and us in the future. Thank you so much for your support!"

PHẠM NỮ HẠNH VÂN, MSc, LECTURER

HANOI UNIVERSITY OF PHARMACY, VIETNAM

"Hello, my name is Van. I am from Hanoi University of Pharmacy. I am very happy today to be interviewed, and talk about how Mahidol University supports us in HTA training and curriculums in Hanoi University of Pharmacy. All the students and lecturers agreed that the result of the course helped them a lot to review

the knowledge. Also, they increase the need to have more knowledge in the future of the HTA. They want to have more knowledge on the HTA training. Above all, I think all the activities from the support from Mahidol University helped a lot in both training and also in curriculum building. We really hope that in the future we have more support from University of Pharmacy of Mahidol to give more courses in HTA for Hanoi University of Pharmacy. And also about the curriculum, we hope that in the future, we have more time and more chance to build, to have time and to have to face-to-face with Mahidol University to build new curriculum in HTA for Hanoi University of Pharmacy. We need a lot of support and advice from Mahidol. We really like and we really want to have more support from them in the future to help us build new curriculum. In conclusion, I am very happy as a lecturer in Hanoi University of Pharmacy to get support from University of Mahidol on HTA training and curriculum building. Thank you very much!"

C. Among Visiting Professors



PROFESSOR OLIVIA WU, PHD
DIRECTOR, HEALTH ECONOMICS AND HEALTH TECHNOLOGY ASSESSMENT (HEHTA)
UNIT, UNIVERSITY OF GLASGOW, UK

"I would like to congratulate Assoc Prof Chaikledkaew and her colleagues on delivering a very successful HTA Graduate Program. The MUHTA Program is well-structured, providing teachings on underlying principles and technical skills relevant to HTA. During my visit in 2018, I had the opportunity to teach the students as a group and to discuss their research proposals on a one-to-one basis. Overall, I was impressed by the knowledge the students have already gained through the Program. In particular, the quality of the research proposals were very good - all students presented clear justification of the research questions and proposed methodological approaches; this is a clear reflection on the quality of the teaching. Currently, the MUHTA programme is on its third cohort, and is already proving to be a successful and important initiative for HTA capacity building in the region."

ASSISTANT PROFESSOR WANRUDEE ISARANUWATCHAI, PHD
DIRECTOR, CENTER FOR EXCELLENCE IN ECONOMIC ANALYSIS RESEARCH (CLEAR), ST.
MICHAEL'S HOSPITAL, UNIVERSITY OF TORONTO, CANADA



"I had the opportunity to join the MUHTA graduate program as a visiting professor in 2017. In my opinion, this program represents one of the most successful HTA graduate programs in the region. It is building capacity on HTA skills and experiences which can assist decision- and policy-makers in their real-world current challenges (such as sustainability and universal health coverage). The program offers a wide range of opportunities for learning using various formats (e.g., seminars, lectures, and group activities) from reputable faculty members. The students (from various background and specialty) were very engaged and brought to the discussion real-world scenarios of where HTA could contribute. The program certainly equips graduates with skills and experiences to apply HTA in the real world. It has been a great experience being a part of the program, a part of this HTA community which the MUHTA graduate program has helped to create."

D. Among HTA Students

Quantitative (through student survey)

Surveys provide a medium of dialogue among the students and the administrators to understand needs and expectations of students. Accordingly, students were asked to answer a survey to measure the effectiveness of the program. The questions focused on evaluating impact of the graduate program among the students. A likert scale was used for the rating, setting the reference values at 1-2 (very low), 3-4 (low), 5-6 (neutral/ medium), 7-8 (high), and 9-10 (very high). The survey consisted of six domains with 15 respondents, summary of which is detailed below.

I. Knowledge

Notably, students perceived their knowledge on HTA to be low before attending the program. But after taking their course subjects, they rated their knowledge gained as high. The students' perception on their knowledge increased significantly after taking the course, in terms of (1) the roles and processes of HTA, (2) economic evaluations, (3) effectiveness and safety in HTA, and (4) social and ethical aspects.



Question	Mean	SD	Median
1. Rate your knowledge on HTA before coming to the course.	3.47	1.60	3
2. Rate your knowledge in roles and processes of HTA after taking the course.	8.40	1.84	9
3. Rate your knowledge in economic evaluation after taking the course.	7.93	2.09	8
4. Rate your knowledge in effectiveness and safety aspects of HTA after taking the course.	8.00	1.69	8
5. Rate your knowledge in the social/ethical aspects of HTA after taking the course.	7.67	1.68	8

When asked on the specific knowledge they have gained through the program, their responses centered on:

1. concepts of HTA in the context of health system;
2. priority setting such as multi-criteria decision analysis;
3. economic evaluation studies using modelling, threshold analysis, budget impact analysis;
4. economic concepts (i.e., making choices and decisions within scarce resources, efficiency, equity, elasticity of demand, costing production, marginal analysis, and opportunity cost);
5. evidence-based medicine such as critical appraisals and data analyses;
6. systematic review and meta-analysis

II. Attitude

In this domain, survey results showed that students perceived HTA to be very important in various health system processes in their countries, such as achieving universal health coverage, contributing to capacity-building in the country, and implementing evidence-based policy- and decision-making in the country.

Question	Mean	SD	Median
1. How important is HTA on the development of Universal Health Care (UHC) in your country?	9.20	1.01	10
2. How important is HTA in contributing to capacity building in your country?	9.07	0.96	9
3. How likely is HTA implemented in policy decision making in your country in the near future?	9.07	1.58	10

III. Impact

It is very important for the program administrators of MUHTA to know that what they are imparting to the students would have a direct influence in their futures. Results of the survey showed that the students would have high likelihood of applying the knowledge that they gained from the program to their workplace, based from the mean scores of their responses from the questions below. It can also be said that the students are confident that they are skilled enough to perform the HTA duties in their respective countries.



Question	Mean	SD	Median
1. How likely will you apply the knowledge you gained in role and processes of HTA in its implementation in your country?	9.27	0.96	10
2. How likely will you apply the knowledge you gained in economic evaluation to HTA implementation in your country?	9.00	1.13	9
3. How likely will you apply the knowledge you gained in assessing effectiveness and safety to HTA implementation in your country?	8.87	1.13	9
4. How likely will you apply the knowledge you gained in social/ethical aspect of HTA in its HTA implementation in your country?	8.60	1.18	9
5. Please rate how much can you contribute to impact HTA implementation in your country after taking this course.	8.27	1.87	9
6. How likely that the HTA course in Mahidol University can contribute to your work in the future?	9.40	0.91	10

IV. Training needs

There are always points of improvement, especially for a program in its beginning phase. Training needs of the students were scored on an average of 8.13 – which could mean that the students have highly met their expectations for their training needs.

Question	Mean	SD	Median
1. Please rate how much your training needs were met	8.13	1.73	8

Further, we also asked for the opinion of the students on what specific trainings are needed for their countries to help build country capacity on HTA. For researchers, the identified trainings were:

1. training to build the needed datasets such as a national standard costing list, EQ-5D;
2. research methods to set the country cost-effectiveness threshold;
3. health economics and pharmacoeconomics;
4. conducting studies to determine real-world and relative effectiveness;
5. policy advocacy;
6. working with stakeholders; and,
7. patient involvement

For policy-makers/ implementers, the following proposed training topics are needed:

1. interpreting HTA results and translating them to policy;
2. practical training of how to integrate HTA into policy making process and how to advocate for the use of HTA in policy making; and,
3. Policy advocacy

V. Satisfaction on the program

Students were also asked on their satisfaction on the overall structure of the program. While responses have scored agreeably - having high and very high satisfaction responses from the questions for this domain - survey results suggest that the sequence and combination of courses had the lowest scores in this category. This has been taken into account by the program.

Question	Mean	SD	Median
1. Relevance of courses to the overall program goals	9.07	0.80	9
2. Relevance with current situation	9.13	0.83	9
3. Pacing of the course	8.53	1.13	8
4. Length of the course/ number of sessions	8.07	1.49	8
5. Usefulness of course materials	8.73	0.96	9
6. Sequence and combination of courses	7.80	0.77	8
7. Block type format of the courses	8.53	1.25	9
8. Visiting Professors	9.13	0.92	9
9. Study visits/attending conference	9.27	0.59	9
10. Facilitation of administration staff	8.53	1.36	9

Overall, the students commented that the program is well-organized and comprehensive. However, the following suggestions were proposed to increase the effectiveness of learning:

1. provision of textbooks, modules study manuals for the course
2. pacing and sequence could be improved
3. having an access to STATA
4. having personal facilities such as individual work station
5. providing more examples of modelling to understand complex modelling patterns/situations; and
6. pre-lecture and post-lecture assessment by objective

VI. Lecturers

MUHTA program takes pride on the lecturers involved in the program. The students have high regard with their professors too, citing them as “*well prepared, interactive and communicative.*” They also think that their lecturers enable critical thinking and initiate students to observe views from different perspectives. These responses were also well-reflected on their ratings with the questions from below.

Question	Mean	SD	Median
1. Knowledge of subject	9.33	0.62	9
2. Ability to transfer knowledge	8.67	0.62	9
3. Ability to stimulate analytical and critical thinking	8.80	0.94	9
4. Appropriate and effectively uses a variety of teaching.	8.47	0.92	9

On other comments with the lecturers, the students cited the following:

1. If possible, more exercises and learning-by-doing session should be provided; and,
2. Journal clubs or discussion/presentation by the student may be encouraged so that student will attend the lecture with well preparation.

Qualitative (through student survey)

On their responses with their perceived impact in the future of HTA capacity building in their home countries in relation to:

1. Acquired expertise

The students from the program are from countries where HTA is mostly in the beginning phase of institutionalization. Students cited the following for their perceived contribution to their home countries after the program:

1. involvement in initiating an HTA agency that could be the focal point of HTA researches
2. contribute to capacity building
3. perform HTA-related researches to evaluate health technology
4. provide helpful evidence for policy making such as recommendations for reimbursement of intervention in national health insurance systems
5. contribute to HTA methodological guidelines
6. publish of HTA-related researches

2. Networks built

MUHTA program also puts high regard on building networks for sharing platforms. The following were identified relevant networks built that could definitely help for future research collaborations:

1. lecturers, professors and faculty from Mahidol University
2. colleagues in the program, which mostly come from HTA institutes and academia in their home countries



3. HITAP, Thailand
4. experts from different countries
5. HTAsiaLink participation (Vietnam 2017, and Thailand 2018)
6. field visit to Taiwan's National Health Insurance Administration and Center for Drug Evaluation
7. With these networks, this gave grounds for interaction with other researchers in various countries where the students could explore the possibility of working with the organization of these respective countries. These would be highly beneficial for countries where HTA field is emerging.

3. Future plans

The students were also asked where they would likely work after the program. Most of their responses centered on:

1. Working on the policy area, making decision or aid to decision making in the government
2. Health insurance offices in their countries
3. Department of Health Research
4. HTA offices in hospitals

E. Summary

The stakeholder perception altogether on the overall implementation of the MUHTA program strongly reflects how it is recognized to significantly contribute to the HTA capacity building of LMICs. This is immensely expressed by: (1) the policy-makers from selected HTA agencies in LMICs who have underlined the importance of the educational support provided to their staff who are expected to contribute in the HTA institutionalization and implementation in their home countries; (2) our partner academic institutions in LMICs who have indicated how our technical support mechanisms have been strengthening their perceived role to breed expertise and foster scientific excellence in support of the HTA capacity building of their countries; (3) our visiting professors' satisfactory teaching experience and positive impression to our students in their class participation and research work which is a validation of the quality of the program implementation; and, (4) our MUHTA students who have consistently conveyed their overall satisfaction in the program implementation and how their acquired knowledge and skill sets, as well as networks built, shall strongly enable them in their future role as leaders and contributors in the HTA capacity building in their countries.

V. Evaluation of the Impact of MUHTA Program in the HTA Capacity Building in Students' Home Countries

In this chapter, selected students were interviewed to discuss the impact of the MUHTA program in the HTA capacity building in their home countries. In summary, all the students expressed the significant impact of the knowledge and skills they acquired from the program. They expressed that the skills they have gained would contribute to the institutionalization and operationalization of HTA efforts in their countries, as a priority agenda for achieving UHC. Below are their video transcript responses:

A. HTA Capacity Building

AUTTAKIAT KARNJANAPIBOONWONG MD, FETP, MPH M (PHD STUDENT BATCH 1, 2016)

DEPUTY DIRECTOR, CENTER OF POLICY AND STRATEGY, DEPARTMENT OF DISEASE CONTROL MINISTRY OF PUBLIC HEALTH, THAILAND

"Sawasdee krab, I am Auttakiat Karnjanapiboonwong from Thailand. I am a PhD student in the HTA program and also working for department of disease control in Ministry of public Health. I am a medical doctor, by background, and I specialized on preventive medicine. Previously, my work always involves with finding the cause and determinants of health problems, and synthesizes the recommendations for those particular events. However, several times they came up with common recommendations or the lists of recommendation. I started question to myself that "What should be recommendations or intervention which will be most fit or effective to Thailand situations either in short term or long run?" With complex system of health care, health promotion and disease control under limit of budget, what should be the intervention in priority? Beside of that, although we have multi-sectoral mechanism to consider those issues, but the evidence to support/advocate decision process still lacks. Those are the things which brought me to be here, HTA program, Mahidol University. The HTA program not only helps me to open the window of new knowledge, but also clarify and enhance comprehension on the principle of health system and equity. The most important things are the integration of knowledge and experience with the skill of system and systematic thinking. My view, HTA is such a very comprehensive science, because you have to understand that particular health issue very well and integrate all science before evidence synthesis such as medical, pharmacy, evidence-based medicine, epidemiology, public health, social science, statistics and economics, etc. In the future, because my area is focusing on non-communicable disease control, of course using HTA on NCD control program will be more addressed. The picture of whole health system and relationship between health and economics are clearer. It will support me to find more evidence which will be input for decision process. Furthermore, those knowledge will be added to workforce capacity development program in order to make them deeper understand on health system management to achieve the goal of population health. Lastly, I'd like to thank the HTA program, all advisors for providing me the great opportunities on HTA experience. There still be the large gap which still need HTA in Thailand, I would like to invite you to join to the program."

MOHAMMAD SABBIR HAIDER, MD, MBBS, MPH(EPID), MPS, MHE, DHE (PHD STUDENT BATCH 1, 2016)

DEPUTY DIRECTOR, HEALTH ECONOMICS UNIT, MINISTRY OF HEALTH AND FAMILY WELFARE, BANGLADESH

“My name is Mohammad Sabbir Haider. I am part of the first batch of students of Health Technology Assessment course in Mahidol University. I am taking the PhD program. I am from Bangladesh, where I worked in the government services in Ministry of health and family welfare. Bangladesh is a lower middle-income country where the resource is limited. We live more than 160 million people in the country in a small piece of land. Despite many limitations, economy of our country is improving. HTA is a multi-disciplinary course and I gain a lot of knowledge from this course. This knowledge will bring benefits to public and society. After completion my course, I will return to my government service in Bangladesh, where I will apply the knowledge what I gain from the course. I will also work to establish Health Technology Assessment unit in the country. The knowledge will be applied on selecting appropriate topics, raising awareness, ensure evidence based medicine, proper resource allocation in a fair and equitably, in scientific way. I will disseminate my knowledge to the researchers, clinicians, academicians, policy makers. Will also train to new researchers the knowledge I gain, so that they can apply in their field. Will also feed policy makers with evidence-based information, which will aid decision makers to take proper decision on prioritize areas or interventions. I will utilize my knowledge on the way to take better decisions, which will improve care, improve the health of the country, benefiting both the society and improve the economy. This will help to achieve the sustainable development goals and to achieve the goal of universal health coverage in Bangladesh.”

ANNE JULIENNE M. GENUINO, RPh (MSc STUDENT BATCH 1, 2016)

SENIOR HEALTH PROGRAM OFFICER, PHARMACEUTICAL DIVISION, DEPARTMENT OF HEALTH, PHILIPPINES

“Hi, my name is Anne Julianne Genuino from the Philippines. I work for the Pharmaceutical Access and Management Office of the Department of Health Philippines. I belong to the 1st batch of Mahidol HTA program and I am now about to reach the end of my 2nd year as a master student. I believe that all the knowledge and skills I have learned and acquired in this multi-disciplinary program will definitely have a huge impact in the HTA capacity building of my country. From all the coursework lectures and discussions, research presentations, skills I have learned from hands on experience on conducting research thru coursework requirements and thesis, real world learning from the recent trip to Taiwan – all of these different learning methods provided by the program will definitely equip me as I return back home as I assume my new post to as a researcher in the new HTA Office of the DOH PHL that will be created upon the signing of our UHC Bill within the year. I am looking forward to lead the evidence generation unit of this new HTA office and be able to share my knowledge and skills to my colleagues. Through this program I was able to build good international links through my classmates which gave me an opportunity to build a network for future research collaboration. So with that, thank you iDSI and Mahidol University for this scholarship support. I commit to pay it forward by contributing to the achievement of UHC through HTA.”

ULLY ADHIE MULYANI, RPH (MSc STUDENT BATCH 1, 2016)

ASSISTANT DEPUTY FOR PHARMACY & MEDICAL DEVICES RESEARCH AND DEVELOPMENT, MINISTRY OF PUBLIC HEALTH, INDONESIA

"I am Ulliy Adhie Mulyani. I am a Master Student in the Health Technology Assessment International Program Mahidol University. I work for the Indonesia Agency of Health Research and Development, Ministry of Health Republic of Indonesia.

I entered the Program in 2017. As the first batch, I feel honored to be accepted to this program because, to my view, this program is well arranged and mostly important the broad supportive network that also well known Internationally HTA institution. My motivation in studying in this program is first I want to study HTA in the context of a low middle-income country setting, which have similarities in terms of health care setting, challenges and experiences with my country, Indonesia.

Second I want to build an international networking with other HTA institutions, governments and academias from different countries. This networking is important in order to learn from each other and exchange knowledge and experience to established and improved Indonesia health policy and technology assessment. After graduate from this Program, I will be back to the Ministry of health. Have a role as the Researcher and Health Policy Analyst where the knowledge that I have received from this program is beneficial to the establishment and institutionalization of HTA in Indonesia. And also to support and assist the Indonesia HTA committee in supporting the reimbursement system in the National Health Insurance in the Republic of Indonesia."

PHUNG LAM Toi, MD (PHD STUDENT BATCH 2, 2017)

RESEARCHER, HEALTH STRATEGY AND POLICY INSTITUTE, MINISTRY OF HEALTH, VIETNAM

"Hi, my name is Phung Lam Toi. I am a PhD student in HTA program, Mahidol University. I am also a researcher at Health Strategy and Policy Institute under Ministry of Health, Vietnam. Similar to other low-and middle-income countries, Vietnam is facing with budget constraints and limited resource for healthcare. Therefore, having the technical capabilities on how to provide evidences to policy makers on how to be efficient in resource allocation are crucial. Recognizing the important of Health Technology Assessment to the country, Vietnamese MOH has assigned HSPI to be the focal point for HTA activities in Vietnam. As a student in the HTA program, I have opportunities to learn from many courses in different faculties in Mahidol University. I found that all of them are interesting and useful for my future work. For example, I can apply the knowledge that I've learned for assessing clinical efficacy and effectiveness of interventions and other technologies. Also, I am currently trained to provide technical assistance in conducting economic evaluation for future researches in my own country. I also found that the social, ethical and legal issues of HTA are very important and I will apply the knowledge for my work later on. The most interesting thing that I found in this program is that I can learn from other countries' experience about HTA. During the course, we have learned a lot from Thailand's experience provided by lecturers. We also share our own country experiences so that we can learn from each other. After finishing this program, I will come back to Vietnam and contribute to HTA work in the country. With the knowledge and skill that I have learned, I am sure that I can conduct HTA researches for informing policy in Vietnam. Also, with the network with professors and friends during this program, we can collaborate in the future for HTA.

Together, we can help country to achieve the Universal Health Coverage and Sustainable Development Goals.

ONG THE DUE, MD (PHD STUDENT BATCH 1, 2016)

RESEARCHER, HEALTH STRATEGY AND POLICY INSTITUTE, MINISTRY OF HEALTH, VIETNAM

"I am currently a PhD student of HTA international program, Mahidol University. In my country - Vietnam, I work as a researcher of the Health Strategy and Policy Institute (HSPI), Vietnam's Ministry of Health. HSPI has been conducting HTA researches in Vietnam since 2014, when HTA was officially introduced to Vietnam's Ministry of Health. Being part of the HSPI, I have been assigned by the Health Minister as the focal point of doing and coordinating HTA researches in Vietnam. So far, our group has conducted several HTA researches and coordinated with organizations in Vietnam, including leading universities (Hanoi Medical University, Hanoi University of Pharmacy, Hanoi University of Public Health, Ho Chi Minh City Medicine and Pharmacy University), professional associations (Vietnam Health Economics Association), hospitals, and Departments/ Administrations in Vietnam's Ministry of Health. We have also been receiving and helpful technical supports from international organizations such as NICE (UK) or HITAP (Thailand).

I have been involved in doing HTA researches since its beginning. According to the capacity building strategy of HSPI, I have been assigned to specialize in HTA researches. As I finish my PhD program and return to Vietnam, I will be responsible for running a new department in HSPI, named "Department of Pharmacy and Medical Devices Policy", which would mainly focus on HTA researches. This department will be the first unit in the Vietnam's Ministry of Health that has full-time HTA researchers, who specialize in HTA researches, and has legal function in providing HTA evidence for policy-making. Currently, I have come back to Vietnam to collect primary data for my PhD thesis. During my time in Vietnam, thanks to the knowledge and practical experience gained from HTA program in Mahidol University, I have made several initial contributions for HTA development in the country.

First, my PhD thesis proposal, which aims to assess the cost-effectiveness of direct-acting antivirals (DAAs) in treatment of Hepatitis C patients in Vietnam, has been consulted and received positive supports from various stakeholders, including policy-makers, academia, and clinician. All stakeholders agreed that results of my thesis will provide helpful evidence for policy-making in Vietnam. In particular, DAAs have been proposed by many provincial departments of health and hospitals for inclusion in the revised health insurance drug list. However, according to the Decision 2701/QD-BYT issued in 22 June 2017 by the Health Minister, to be considered for inclusion in the drug list, the proposed new drugs are required to have the evidence of their cost-effectiveness and impact on budget. Therefore, to respond to policy and treatment demand, my study will be conducted to generate such evidence, thereby providing scientific information to help policy-makers to make decision whether to include these new regimens in the revised health insurance drug list. Second, as assigned by the Vice Minister of Health, the HSPI is developing the HTA methodological guideline for Vietnam. I have been assigned to write a chapter in the guideline, and to conduct peer-review several chapters written by the others. Currently, the first draft of the guideline has been completed, and we are in the peer-reviewing stage. The guideline is expected to be accomplished at the end of 2018, and will be issued by the Vietnam's Ministry of Health in the form of a legal document.

Third, I was assigned by the HSPI's Director to develop the statute and development plan of the "Department of Pharmacy and Medical Devices Policy", which is expected to be operated when I finish the PhD program and come back Vietnam. The first draft of the statute has been completed and submitted to the Director for further review. All in all, HTA has been increasingly received attention from various stakeholders in Vietnam and gradually played an important role in policy making. HTA capacity-building is very crucial for Vietnam at this beginning stage, and Mahidol University has been providing invaluable opportunities, knowledge, and experience, in both long-term and short-term training, to help them to fulfill this need."

BHAVANI BAGEPALLY, PHD (MSc STUDENT BATCH 2, 2017)
SCIENTIST, INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR), INDIA

"Currently two of scientists from Indian council of Medical Research (ICMR) are getting trained in various Health Technology Assessment topics under MUHTA master's program. They are working on research topics such as Economic modelling in Hepatitis A infection in India and systematic review and meta-analysis of economic studies on pharmacotherapy of Type 2 diabetes with sodium glucose co-transport inhibitors & Glucagon like peptide inhibitors for their Master Thesis. This program gives an opportunity to interact and learn the HTA methods and experiences of experts from Thailand as well as from other part of the country through lectures, seminars, workshops and attending the study tours as well as in International conferences during the MU-HTA program. In future MU-HTA program creates a strong bonding between the budding HTA researchers/trainees from lower economic countries for collaboration and future opportunity for sharing of HTA information across these countries as well as with the HTA experts from Thailand. These collaborations will also build opportunities for collaborative HTA research as well as future HTA training with man-power development with a positive impact on HTA implementation process in India."

B. Routine Generation of High quality, Relevant and Appropriate Evidence-Informed Products at National and International Level

Individual case studies about how a specific HTA report then had a policy impact in their home country

The students are highly encouraged to undertake HTA studies as a part of MSc / PhD studies which will be relevant to their countries. Details of their HTA reports and the potential policy impact is cited below:

ANNE JULIENNE M. GENUINO, RPh (MSC STUDENT BATCH 1, 2016)

SENIOR HEALTH PROGRAM OFFICER, PHARMACEUTICAL DIVISION, DEPARTMENT OF HEALTH, PHILIPPINES

Ms. Genuino returned to her home country, the Philippines, to work on her thesis entitled the “Cost-Utility Analysis of Adjuvant Trastuzumab Therapy for HER2-Positive Early Breast Cancer in the Philippines”. Her research work overall was able to generate evidence on the health and economic impact of adjuvant trastuzumab therapy to guide DOH in its coverage decision. This was the first study in the Philippines to evaluate the value for money of trastuzumab, a high cost drug that has been listed in the national formulary but was not being covered by the government.

In summary, her economic evaluation concluded that one year of adjuvant trastuzumab therapy, at its current cost, in addition to the standard chemotherapy for HER2-positive EBC, is not cost-effective in the Philippines, at the current PHL CE threshold. As the findings provided evidence that contradicts the recent government decision to cover trastuzumab therapy in a pilot scale which occurred during the course of the study completion, the report gave crucial points for consideration of the decision-makers to re-evaluate such coverage decision. Several possible courses of action for DOH following the results of her research were recommended such as: to delist trastuzumab from the national formulary and end its procurement and coverage implementation on the basis of value for money alone; to retain its national formulary listing and still opt for national coverage of trastuzumab but with strategies to reduce its cost to the government by considering price negotiation, co-payment schemes, or the market entry of less expensive biosimilar products towards a competitive market; to consider benefit maximization through targeted coverage for the worst prognosis subtype or high risk subgroups (i.e., hormone receptor negative HER2-positive patients) who will benefit the most from trastuzumab therapy. As her research findings was able to generate the cost-effective price of trastuzumab, she was able to recommend evidence that the DOH can use for price negotiation with the manufacturer which then led to a special price offer for consideration of DOH.

Through her research, she was able to build strong linkages between her representing office, the Department of Health (DOH) Philippines – Pharmaceutical Division and its partner offices for the DOH Breast Cancer Medicine Access Program (DOH BCMAP), the DOH Breast Cancer Control Program, the multidisciplinary clinical societies involved, and other relevant partner agencies such as the Philippine

Cancer Society. This research project also prompted the DOH Breast Cancer Control Program to call for a review update of its program implementing guidelines and clinical recommendations, and pushed for a more organized and efficient data collection of patient outcomes that are enrolled under the DOH BCMAP as they understood the impact of how their data feeds to relevant research activities.

ONG THE DUE, MD (PHD STUDENT BATCH 1, 2016)

RESEARCHER, HEALTH STRATEGY AND POLICY INSTITUTE, MINISTRY OF HEALTH, VIETNAM

Since 2014, the HSPI has conducted several HTA researches to provide evidence for health policy-making in Vietnam. One example is the application of the research entitled, “Cost-effectiveness analysis of Peg-Interferon in chronic Hepatitis C treatment in Vietnam,” in the revision of the health insurance drug list, which was the Circular 31/2012/TT-BYT at that time.

In the health insurance drug list in the Circular 31/2012/TT-BYT, Peg-Interferon was classified as drugs with limited prescription, which is required clinical expert consultation before every prescription, only available at hospitals at higher level, and only be reimbursed if prescription based on national guideline. At that time, the Vietnam Social Security (i.e. the national payer) proposed to exclude Peg-Interferon from the health insurance drug list, due to its high cost and limited evidence of cost-effectiveness. Therefore, HSPI, as assigned by the Ministry leaders, conducted the research entitled “Cost-effectiveness analysis of Peg-Interferon in chronic Hepatitis C treatment in Vietnam”, which aimed to assess the cost-effectiveness of Peg-Interferon 2a and 2b compared with palliative care in chronic Hepatitis C treatment in Vietnam. The research results showed that Peg-Interferon was cost-saving compared with palliative care (i.e. lower cost and higher quality of life), and HSPI recommended the Ministry of Health to maintain Peg-Interferon in the health insurance drug list. Later on, policy makers adopted this recommendation and issued the revised health insurance drug list in Circular 40/2014/TT-BYT, which still included the Peg-Interferon for chronic Hepatitis C treatment.

MOHAMMAD SABBIR HAIDER, MD, MBBS, MPH(EPID), MPS, MHE, DHE (PHD STUDENT BATCH 1, 2016)

DEPUTY DIRECTOR, HEALTH ECONOMICS UNIT, MINISTRY OF HEALTH AND FAMILY WELFARE, BANGLADESH

The financing for vaccines provided under the government program in Bangladesh is mainly supported by international organisations. Bangladesh's economy status is growing moderately that may be no longer eligible for those donors within few years. The country is then interested in prioritising vaccines for introduction. Thus, his thesis entitled “Multi-Criteria Decision Analysis (MCDA) for priority setting on vaccines for introduction in Bangladesh” will provide the decision makers a scientific evidence and systematic accountable priority setting process, as it will incorporate multiple criteria involving related key stakeholders. In addition, the findings of his study can explicate difficulties to select appropriate vaccines for introduction in Bangladesh.

JAMAICA ROANNE BRIONES, RPh (MSC STUDENT BATCH 2, 2017)

JUNIOR POLICY RESEARCH ASSOCIATE, DEPARTMENT OF HEALTH, PHILIPPINES

Her thesis will examine the potential of carbetocin – an alternative uterotonic drug – versus oxytocin, in the prevention of postpartum hemorrhage caused by uterine atony. She will evaluate the cost-effectiveness of carbetocin since it has been included in the priority list for review for inclusion to the Philippine National Formulary (PNF). The evidence that would be generated could guide policy makers on a recommendation whether it should be considered for inclusion. In addition, results of her study could serve as a reference in price negotiations if procured by a government hospital in the Philippines.

YOGESH GURAV, MD (MSC STUDENT BATCH 2, 2017)

DEPUTY DIRECTOR, INDIAN COUNCIL OF MEDICAL RESEARCH-NATIONAL INSTITUTE OF VIROLOGY, INDIA

India is currently experiencing epidemiological transition of hepatitis A and introduction of hepatitis A vaccines to population in certain states are demanded by scientific Community and social media in India. However at present, no cost effectiveness study on Hepatitis A vaccines is being done in India. The study currently being undertaken by Dr. Gurav aims to determine the cost effectiveness of hepatitis A vaccines in Indian population. This will generate evidence that will guide policy makers to take decisions related to hepatitis A vaccines introduction in immunization schedule. If the vaccine proved to be cost effective, it would help the National Technical Advisor Group on Immunization (NTAGI), Government of India in decision-making per the results of the study.

PRAPAPORN NOPARATAYAPORN, MSc (PHD STUDENT BATCH 2, 2017)

PHARMACIST, SIRIRAJ HOSPITAL, THAILAND

The topic of her study on the assessment *Laparoscopic Bariatric Surgery for Obese Patients with Type II Diabetes* has been prioritized by the Universal Health Coverage Benefit Package of Thailand (UCBP) in 2017. The results of her study will be an evidence for policy consideration to include such treatment into the benefits package.

C. Strengthened Network of Suppliers and Users of Evidence-Informed Products and Policy

An indication of where alumni specifically ended up and networks formed / joined in and out of the country

As some students are currently affiliated with their home institutions, they have cited below where they would be going after the program. In the next part, they also detailed on the networks they formed and joined in through the program including their colleagues, faculty members, visiting professors, HTA organizations, and international experts.

ANNE JULIENNE M. GENUINO, RPh (MSc STUDENT BATCH 1, 2016)

SENIOR HEALTH PROGRAM OFFICER, PHARMACEUTICAL DIVISION, DEPARTMENT OF HEALTH, PHILIPPINES

The MUHTA program provided Ms. Genuino the opportunity to build strong network with Thailand HITAP and other countries such as Vietnam, Malaysia, Indonesia, Bangladesh and India through her program colleagues who also work in the government sector. This network will enable the transferability of HTA knowledge and will pave the way for future collaborative regional HTA projects and capacity building activities. Through this program, she was also able to contribute in the recent partnership between the MUHTA program and her undergraduate alma mater the University of the Philippines College of Pharmacy. Selected MUHTA faculty members conducted an HTA training workshop among selected universities in the Philippines last 19-21 January 2018 hosted by the University of the Philippines College of Pharmacy, where she served as one of the group work facilitators. Following this initial training, future collaborative projects and capacity building activities where she will continue to participate are expected to set forth from this partnership.

Ms. Genuino is expected to work in the new HTA office that will be institutionalized by the DOH Philippines upon the passing of the UHC Law, either as a head of its policy and planning unit or the evidence generation unit. As a pharmacist herself, she also plans to involve herself in the pharmacy academe, most especially that the newly-approved pharmacy curriculum in the Philippines requires HTA units. She will continue to be a member of the HTAsiaLink as a Philippine representative with a goal of reviving the participation of her country in the network.

YOGESH GURAV, MD (MSc STUDENT BATCH 2, 2017)

DEPUTY DIRECTOR, INDIAN COUNCIL OF MEDICAL RESEARCH-NATIONAL INSTITUTE OF VIROLOGY, INDIA

Dr. Gurav will work for Indian Council of Medical Research (ICMR) from the ICMR-National Institute of Virology, Pune, Maharashtra State. In India, work of HTA is being carried out by HTA under department of Health Research. He will work for them whenever needed as his workplace is one of the technical partner

of HTA. Hence, he will be proposing research projects based on requirement of policy makers for the population.

BHAVANI SHANKARA BAGEPALLY, PHD (MSc STUDENT BATCH 2, 2017)

SCIENTIST, INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR), INDIA

Dr. Bagepally will go back and rejoin his institute since he is a regular employee as Scientist D of ICMR-National Institute of Epidemiology, a government research institute in India, he will go back and rejoin his institute.

ONG THE DUE, MD (PHD STUDENT BATCH 1, 2016)

RESEARCHER, HEALTH STRATEGY AND POLICY INSTITUTE, MINISTRY OF HEALTH, VIETNAM

After finishing the PhD program in HTA of Mahidol University, Mr. Due will come back to Vietnam and continue working for the Health Strategy and Policy Institute (HSPI), Vietnam's Ministry of Health, where he has been working since 2012. In Vietnam, HSPI has been assigned by the Health Minister as the focal point of coordinating HTA researches in Vietnam. So far, they have coordinated with several leading organizations in doing HTA throughout the country, including universities (Hanoi Medical University, Hanoi University of Pharmacy, Hanoi University of Public Health, Ho Chi Minh City Medicine and Pharmacy University), a professional association (Vietnam Health Economics Association), hospitals, and Departments/ Administrations in Vietnam's Ministry of Health. This is the only HTA-related formal network in Vietnam at this moment. In the international scope, HSPI actively participate in both regional network like HTAsiaLink and international network like HTAi. In 2017, HSPI successfully hosted the 6th HTAsiaLink in Hanoi, Vietnam.

MOHAMMAD SABBIR HAIDER, MD, MBBS, MPH(EPID), MPS, MHE, DHE (PHD STUDENT BATCH 1, 2016)

DEPUTY DIRECTOR, HEALTH ECONOMICS UNIT, MINISTRY OF HEALTH AND FAMILY WELFARE, BANGLADESH

After completion of the course, Dr. Haider will join the government service. He will work in the policy level at the ministry and provide support to take evidence based decision in the country. There can be an alumni association or network of the HTA students, where we can continuously share our experience from each other and the alumni network of different countries in South-east Asia. All of the present students are from different countries from South-east Asia. Status of the Health Technology Assessment of these countries are also in various stages. HTA in some countries are in very high ranking and in some countries, it just started. Present students will join the HTA agencies of respective countries and their expertise will be exchanged continuously, which not only help their own country but also help the region as a whole.

MUHTA provides many opportunities to establish network among the peer group. In HTAsiaLink conference there is a scope to meet with global experts of the relevant subjects. Presenting abstract in the conference boost our confidence on presentation. Feedback from the experts and other participants was useful. Listening to others sharing of knowledge between different countries helps to know many aspects of HTA.

Dr. Haider also participated in the Bergen Summer Research School (BSRS) in Bergen, Norway in the 'Fair Priority Setting in Global Health' module. In this course, he learned the fairness and equity in respect of Health and what criteria we have to consider if we want to prioritize any intervention for health. In the course, PhD students are from all around the world, where they exchange our works, views and expertise on the fair priority setting of health. Experts in the field of priority setting and equity were in this summer school, he has an opportunity to learn from the experts on equity analysis in health sector. He also builds a network among the post-graduate students especially from Asian region.

MAC ARDY GLORIA, MSc (PHD STUDENT BATCH 3, 2018)

ASSISTANT PROFESSOR, UNIVERSITY OF THE PHILIPPINES, MANILA, PHILIPPINES

Mr. Gloria plans to go back to the academe once he finishes his PhD. He is aiming to contribute in strengthening the capacity of academic institutions in conducting health technology assessment. Also, he will help in supporting institutions in developing course subjects, or curricula relevant to HTA. This, in turn, would help students understand and appreciate HTA, and its significance and applications, which would then create a sustainable source of competent and qualified HTA workforce. He also plans to partner with other HTA-related agencies and institutions in and out of the country through research and capacity-building.

VI. Lessons Learned, Challenges and Future Plans

A. Summary of Key Achievement

Since the MOU signing agreement in July 2015 until December 2018, we consider that we continuously accomplish our mission - to build up social and intellectual capital on HTA for LMICs to support priority setting in achieving UHC in a satisfactory level. As shown in the table below, we currently have a total of 15 graduate students. Most of them are either from HTA agencies or from academic institutes in their home countries. With the financial support from iDSI and Mahidol University, we are able to provide scholarship support for at least 3 students from LMICs each year. With regard to capacity building activities with partner academic institutions, we have conducted HTA workshop and curriculum development in collaboration with three LMIC universities namely University of Indonesia, University of the Philippines and Hanoi University of Pharmacy. During the past two years of the program implementation, our students published two journal publications while three manuscripts are in the revision process. Further, our students delivered three oral presentations at international conferences. The impact of our students' work on national policy decision-making reflects our key achievement in the MUHTA program. Since the establishment of the program in January 2017, eight research works have been conducted to support policy decision-making. These studies are as follows:

1. Cost-utility analysis of adjuvant trastuzumab therapy for HER2-positive early breast cancer in the Philippines
2. Cost-effectiveness analysis of peg-Interferon in chronic hepatitis C treatment in Vietnam
3. Cost-effectiveness analysis of carbetocin versus oxytocin, in the prevention of postpartum hemorrhage caused by uterine atony
4. Cost-effectiveness of hepatitis A vaccines in Indian population
5. Cost-effectiveness of Laparoscopic Bariatric Surgery for Obese Patients with Type II Diabetes
6. Multi Criteria Decision Analysis (MCDA) for priority setting on vaccines for introduction in Bangladesh
7. Cost-utility analysis of screening for Type 2 Diabetes in Vietnam
8. Cost-effectiveness of applying home blood pressure monitoring (HBPM) and conventional blood pressure monitoring (CBPM) for screening and diagnosis of hypertension

The results of the first two research projects were disseminated to the national policy makers and had impact on health policy in Philippines and Vietnam (details on chapter V). The others are in the work in progress, which expect to disseminate the findings to the policy maker in the near future (details on chapter V).

In terms of building up academic and research collaboration, MUHTA has provided many opportunities to establish network among the peer group. Strong collaboration among classmates who work in HTA organizations and academe from different countries as well as among students and faculty members and international experts were developed throughout the class and activities. This network serves as an important key for the conduct of collaborative HTA works or for sharing of resources for HTA in the future.



Mission	To build up social and intellectual capital on HTA for LMICs to support priority setting in achieving UHC		
Expected outcome	Indicator	Accomplishment	
Technically-competent graduates, with an adequate understanding of policy development processes, who can apply knowledge and skills in the context of LMICs	Number of graduate students each year	6 graduate students from Indonesia, Vietnam, Philippines, Malaysia, Thailand, Bangladesh (Batch 1, 2016) 6 graduate students from India, Thailand, Vietnam, Philippines (Batch 2, 2017) 3 graduate students from Indonesia, Vietnam, and Philippines (Batch 3, 2018) (See Chapter II)	
Capacity building activities with partner academic Institution	Number of workshops provided	4 workshops provided at: University of the Philippines (2018); University of Indonesia (2016 and 2017); Hanoi University of Pharmacy (2018) (See Chapter II)	
	Number of involvement in curricula development	5 involvements in curricula development at: University of the Philippines (2 curriculums); University of Indonesia (1 curriculum); Hanoi University of Pharmacy (2 curriculums) (See Chapter II)	
Relevant research studies necessary to inform policies in LMICs (including development partners' policy)	Number of publication and presentation	2 Publications 3 Publications in revision 4 Oral presentation at 7 th HTAsialink conference (See Chapter III)	
	Number of research conducted to support policy decision making	8 as follows; - Cost-Utility Analysis of Adjuvant Trastuzumab Therapy for HER2-Positive Early Breast Cancer in the Philippines - Cost-effectiveness analysis of Peg-Interferon in chronic Hepatitis C treatment in Vietnam - Cost-effectiveness analysis of carbetocin versus oxytocin, in the prevention of postpartum hemorrhage caused by uterine atony - Cost effectiveness of hepatitis A vaccines in Indian population - Cost effectiveness of Laparoscopic Bariatric Surgery for Obese Patients with Type II Diabetes	

Mission	To build up social and intellectual capital on HTA for LMICs to support priority setting in achieving UHC		
Expected outcome	Indicator	Accomplishment	
		<ul style="list-style-type: none"> - Multi Criteria Decision Analysis (MCDA) for priority setting on vaccines for introduction in Bangladesh - Cost-utility analysis of screening for Type 2 Diabetes in Vietnam - Cost-effectiveness of applying home blood pressure monitoring (HBPM) and conventional blood pressure monitoring (CBPM) for screening and diagnosis of hypertension <p>(See Chapter III & V)</p>	
	Number of research disseminated to policy makers or has impact on government policies, and/or guideline	<p>2 as follows:</p> <ul style="list-style-type: none"> - Cost-Utility Analysis of Adjuvant Trastuzumab Therapy for HER2-Positive Early Breast Cancer in the Philippines - Cost-effectiveness analysis of Peg-Interferon in chronic Hepatitis C treatment in Vietnam <p>(See Chapter V)</p>	
	Collaborative research projects for HTA training and research	The number of collaborative projects	<p>1 collaborative research project: A systematic review on health economic and disease modelling studies related to all preventive measures for rabies, which is under a project of the World Health Organization - Strategic Advisory Group of Experts on Immunization (SAGE)</p> <p>(See Chapter II)</p>
	Academic and research collaboration in HTA development	Number of networks engaged	10 (i.e., HITAP, HEHTA, LSHTM, CHE, PRICELESS, NICE International, Imperial College London, iDSI, and HTAsiaLink)
		List of conferences attended by faculty and students	3 (i.e., HTAsiaLink 2016, 2017, 2018)
		List of study visits	5 (i.e., HITAP, Taiwan National Health Insurance Administration, Center for drug evaluation (Taiwan), National hepatitis C program (Taiwan), National Taiwan University)

Mission	To build up social and intellectual capital on HTA for LMICs to support priority setting in achieving UHC		
Expected outcome	Indicator	Accomplishment	
	List of visiting professors	5 visiting professors i.e., Prof. Dr. Anthony J. Culyer Prof. Dr. Olivia Wu Prof. Dr. Dean Jamison, Prof. Dr. Jean Macq Assoc. Prof. Dr. Wanrudee Isaranuwatchai	

B. Lessons Learned

Gathering and generating HTA evidence is critical to improve health care decision-making in limited-resource countries to support UHC. HTA capacity building can be achieved through graduate program and training such as our MUHTA program. The following lessons have been derived from development and implementation of our program. Six key areas of focus are suggested to maximise the quality of the program, and ultimately the program outcomes;

1. **Curriculum:** HTA curriculum should be properly designed with emphasis on real-world experiences. Case studies and examples which are relevant to the situation and context in LMICs are important for the students. Apart from teaching valid methodology, the best practice of conducting HTA built with inclusiveness through stakeholder consultation and transparency should also be emphasized. The curriculum should be revised regularly to ensure the relevance and suitability with students' needs and concerns. At MUHTA, our program committee meet once a month to address the issues in the curriculum including the sequence and content of the courses as well as to address students' progress and problem.
2. **Teaching method:** A range of teaching and learning methods should be employed. While there is a place for lectures, interactive discussion with the colleagues, experts and policy makers throughout the course or seminar have been proven as an effective method. Our strategy to provide experiences exchanged through seminars is proven to be very effective. As our program is a joint program among six faculties and one institute at Mahidol University, our seminar provides a great opportunity for our students and faculties to learn from each other, who possesses unique expertise. Discussion in the seminar is quite intensive and comprehensive covering every aspect of HTA including social, legal, economic, ethical, and clinical domains. Providing experience exchange through special lectures by international experts was also a very successful component in our program.
3. **Students:** Our strategy to recruit and provide scholarships to students who work under institutes that provide evidence to support policy decision-makers in LMICs is an effective method for HTA capacity building. In this way, students are aware of the HTA evidences needed by policy-makers; hence, facilitate the impact of research on policy. Having students who come from academia is also a good strategy as they can help widely disseminate knowledge on HTA in their own country.

A variety of students from different countries also stimulates learning from diverse experiences as well as different contexts, and also increases the collaboration across countries in the future.

4. **Thesis topic:** Prominently, student's thesis should not be viewed as academic exercise but should address policy maker's question in their own country. Communication and collaboration between institutes that generate evidences for policy makers and students, as well as engagement with the policy makers are encouraged to ensure that the thesis topic is relevant to policy needs and has the potential impact on the country. Experts in their home countries are invited to be co-advisors for students to ensure that the works are conducted according to the countries' context and situation. Finally, the results from thesis could be used for policy decision making.
5. **Internal and external collaboration for the program:** Without strong commitment from the University, and the strong collaboration from the six faculties and one institute at Mahidol University, the MUHTA cannot be established successfully. Moreover, the support and collaboration from many organizations especially HITAP, NICE, and iDSI as well as international HTA experts are crucial in terms of experience sharing and student recruitment.
6. **Financial support:** Financial support is very crucial in the development phase. It enables us to attract promising students from LMICs by scholarships offering; to build up necessary infrastructure such as student rooms, video conference system, and administrative staff; and, to provide capacity building activities such as workshop/training.

C. Strength and Weakness

Strengths of the MUHTA are as follows:

- An HTA program that emphasizes on the multidisciplinary work: Our MUHTA is a joint program among six faculties and one institute. We have expertise in many areas including clinical effectiveness/safety, epidemiology, biostatistics, evidence based medicine, sociology, public health, health economic, legal and ethics.
- Commitment among MUHTA committee members: Our committee meet once a month to address issues about the curriculum, course content, course sequence, student progress, and student difficulties.
- Relevance of students' works which are responsive to the country's need.

Weaknesses of the MUHTA are as follows:

- Lack of expertise in some areas, including economics but this can be solved by inviting the visiting professors (short-term), and acquire staff with this expertise.
- Collaboration across many different faculties creating a complex administrative process
- Some University policy which discourages long-term collaboration across faculties due to additional workload, and difficulty to maintain collaboration among faculties with different missions.

D. Challenges and Future Plans

Our program has resulted in many successes. Still, there are continuing challenges including 1) the sustainability of the program and of the collaboration, and 2) the achievement of our vision as a world-class graduate program for LMICs. The following are our future plans to overcome the challenges and weakness:

- Lack of funding support from both iDSI and Mahidol University may lead to challenges in seeking for research grants as financial support.
- Conduct active recruitment to find competent students and develop a plan to work closely with the international experts on collaborative research.
- Develop more collaborative networks to recruit the right candidates from HTA related organizations.
- Establish effective communication among the Deans of each faculty to reach the same mission, as well as to facilitate and encourage long-term collaboration works.
- Figure out administrative methods that will enable the program to make decisions and manage resources without being encumbered by bureaucracy.
- Monitor long-term impact of the program by tracking the contribution of alumni and students' work in the health care system nationally and internationally.
- Support alumni in terms of capacity-building in their home countries and support alumni to produce accurate and timely HTA evidence to support policy makers. Offer postdoctoral research fellow to alumni and qualified candidates.
- Create advanced knowledge applicable to LMICs.
- Extend network and collaboration in order to share resources and experiences with similar program.
- Advance our program profile and value to the wider HTA community.
- To develop HTA curricula and provide HTA training in LMIC universities in the future, we will collaborate with the universities with strong interest and readiness to develop a new or revised HTA program and indicate their training needs.





MUHTA
Mahidol University Health Technology Assessment

HTA Graduate Program
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