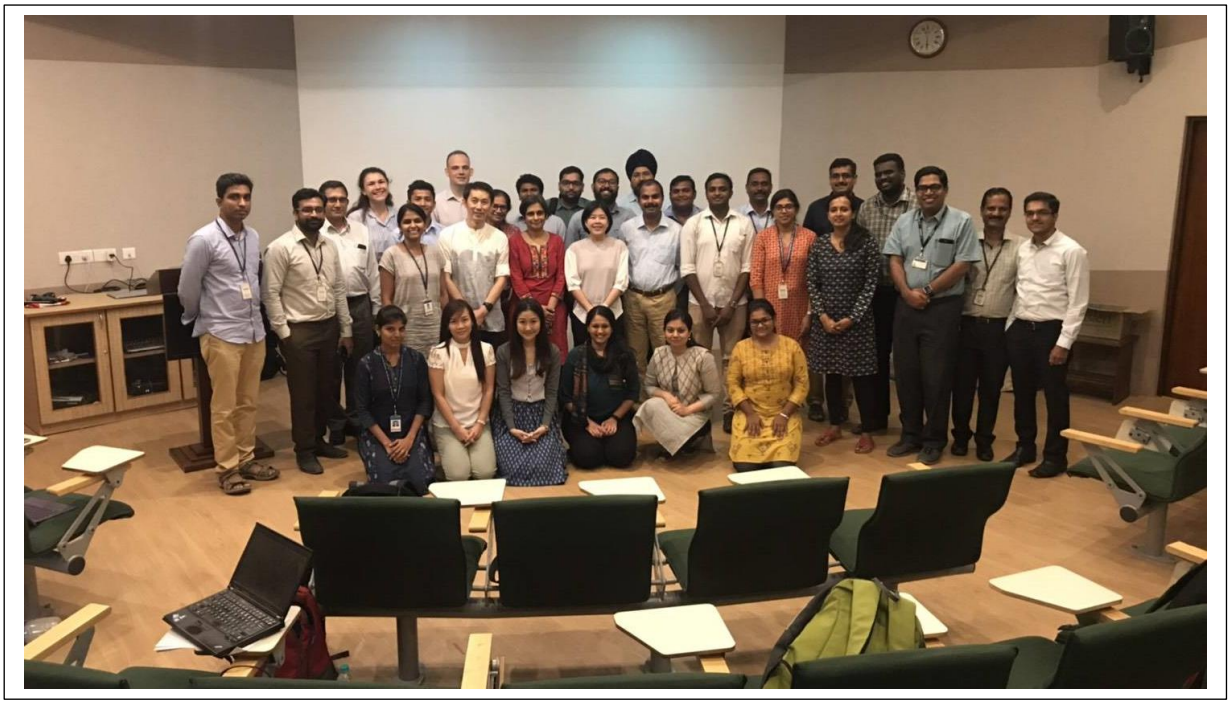
HITAP International Unit



HTA WORKSHOP AND TECHNICAL STUDY SUPPORT AT THE CHRISTIAN MEDICAL COLLEGE (CMC) VELLORE, INDIA
6-9 MAY 2019

Reported by Health Intervention and Technology Assessment Program

Abbreviations

AAR	After Action Review
CHE	Catastrophic Health Expenditure
CMC	Christian Medical College, Vellore
DHR	Department of Health Research
GLM	Generalised Linear Model
HITAP	Health Intervention and Technology Assessment Program
HTA	Health Technology Assessment
ICL	Imperial College London
iDSI	International Decision Support Initiative
IP	Inpatient
JIPMER	Jawaharlal Institute of Postgraduate Medical Education and Research
OOPE	Out-of-pocket Expenditure
OP	Outpatient
PICO	Population, Intervention, Comparator, Outcome
PGIMER	Post-Graduate Institute of Medical Education and Research
QALY	Quality Adjusted Life Year
MoHFW	Ministry of Health and Family Welfare
MORU	Mahidol Oxford Tropical Medicine Research Unit
MU	Mahidol University
NUS	National University of Singapore
SSHSPH	Saw Swee Hock School of Public Health
UHC	Universal Health Coverage

Contents

Executive Summary

In October 2018, three researchers from the Christian Medical College (CMC) Vellore spent a week at the Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand, to learn about health technology assessments and to apply costing analyses on two cost-of-illness studies on rotavirus and enteric fever. Following this visit, discussions turned to increasing the capacity for Health Technology Assessment (HTA) to be incorporated into research at the institution. On this basis, an introductory HTA workshop was organized on 6-8 May 2019 at CMC Vellore, India.

The workshop was hosted by Dr. Gagandeep Kang, Professor and Head of the Wellcome Trust Research Laboratory in the Division of Gastrointestinal Sciences at CMC Vellore. Eight teaching faculty travelled to CMC Vellore to lead the workshop. Faculty were drawn from HITAP, Mahidol University (MU), the Mahidol Oxford Tropical Medicine Research Unit (MORU), Thailand, and the Post-Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. Practical exercises were supported by the CMC research team who had previously visited HITAP.

The event was open to CMC Vellore researchers and students as well as external participants. Approximately 28 participants attended the three-day workshop, 15 of whom were from CMC Vellore. The rest represented a range of research institutes, government and non-governmental organisations.

The workshop content was drawn from similar trainings that HITAP has co-led in the past, tailored to meet specific interests of the CMC Vellore group. Training covered all aspects of HTA, ranging from HTA concepts, evidence identification and modelling to policy formulation. A full day was dedicated to training on costing methods, since cost analysis is a key element of research at CMC Vellore, even when full HTAs are not conducted. The final sessions provided a few participants with the chance to present their research to the group, also addressing questions or challenges they faced; they then received inputs from teaching faculty and fellow participants on these issues.

On 9 May 2019, teaching faculty from HITAP, MU and MORU remained at CMC Vellore and met with the research teams working on the rotavirus and enteric fever costing studies. Discussions were primarily concerned with measures to address some challenges regarding data quality as well as the development of potential options for analysis and presentation of available cost data. The types of analyses to be conducted were prioritized and next steps for collaboration between research teams and HITAP were also identified.

Introduction

The Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand, has collaborated with numerous partners in India on Health Technology Assessment (HTA). In recent years, HITAP has worked closely with Imperial College London (ICL) and partners in India such as HTAIn, Department of Health Research (DHR), Ministry of Health and Family Welfare (MoHFW) under the International Decision Support Initiative (iDSI) to support development of HTA in the country. HITAP engagements have included study visits for researchers and policy makers to Thailand, to learn how the country conducts and uses HTA in pursuit of Universal Health Coverage (UHC). Technical support has also been extended to Indian researchers through internship opportunities, academic support and by establishing collaborations between Indian researchers and policy makers with international HTA networks. These engagements have raised awareness on the need for HTA and facilitated knowledge exchange to strengthen capacity to create and use HTA in India.

In 2018, the Wellcome Trust Research Laboratory in the Division of Gastrointestinal Sciences at Christian Medical College (CMC) Vellore, India, requested HITAP to host three researchers for a research internship. They spent a week at HITAP on 11-18 October 2018, learning about HTA and develop analysis plans for two cost of illness studies on rotavirus and enteric fever, being conducted at CMC Vellore. It was planned that HITAP would provide ongoing technical input and support these two studies via skype, email and in person, when feasible. Following the study visit, CMC Vellore expressed interest in increasing its institutional capacity to undertake HTA, as part of its routine research work. On this basis, an introductory HTA workshop was requested, which was subsequently led by HITAP on 6-8 May 2019 at CMC Vellore. On 9 May 2019, visiting faculty from Thailand met with research teams working on the costing studies. The workshop also served as a venue to build a partnership with the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER).

This report summarises the objectives of the visit, workshop proceedings, technical discussions on the two costing studies, as well as lessons learned from the visit and next steps, including discussions about a potential collaboration with JIPMER. Supporting documents are provided in the Appendix.

Objectives of the visit

The HITAP visit to CMC Vellore on 6-9 May 2019 had two objectives: first, to deliver an introductory HTA training workshop; and second, to provide technical support on two cost of illness studies being undertaken by researchers at the college, in continuation of HITAP support initiated during a study visit in October 2018.

The workshop aimed at introducing participants to the concept of HTA and techniques to effectively conduct one. Sharing the impact of these assessments on population health, when included in policy considerations, was also a significant goal of the workshop.

Objectives of technical support provided to the researchers included supporting them with planning for analysis and presentation of available data, keeping abreast of progress in both studies, as well as identifying useful methods to tackle any unforeseen future challenges. This approach aimed to provide direct support to the studies, while also building institutional capacity for future research.

HTA workshop

Overview

The event was hosted by Dr. Gagandeep Kang, a Professor at CMC Vellore and Head of the Wellcome Trust research laboratory for the Division of Gastrointestinal Sciences. The content of the three-day introductory HTA workshop was structured based on a similar training co-hosted by HITAP and the Saw Swee Hock School of Public Health (SSHSPH) at the National University of Singapore (NUS) on 8-10 January 2019. The agenda covered all aspects of HTA from providing the conceptual foundation on HTA, to discussing evidence identification, modelling, and links to policy. Unlike in the previous workshop, a full day was dedicated to "costing methods", to introduce the Indian costing database developed by the Postgraduate Institute for Medical Education and Research (PGIMER), Chandigarh, and complement the technical skills of the researchers involved in the two costing studies at CMC Vellore. The agenda for the workshop is included in Appendix 1.

Eight teaching faculty from HITAP, Thailand, Mahidol University (MU), Mahidol Oxford Tropical Medicine Research Unit (MORU), Thailand, Mahidol University, Thailand, and PGIMER, Chandigarh, India, travelled to lead the workshop. Practical exercises were supported by the CMC research team who had previously visited HITAP. There were 28 participants who attended the three-day workshop, 15 of whom were students or researchers at CMC Vellore. The other half represented a range of organisations, from leading clinical research institutes as well as governmental and non-governmental organisations working within health program advocacy or implementation.

Summary of sessions

The first day of the workshop opened with a video developed by HITAP titled, "**Power of HTA**", to introduce the concept of and the need for HTA. The video highlighted the importance of HTA, a multi-disciplinary approach which takes scientific, economic, social and ethical considerations into account and provides decision-makers with a tool to determine whether to invest in the intervention being assessed, in a resource constraint world. In the next session, the process of nominating and selecting topics i.e. deciding which intervention to assess was discussed. Thailand's experience was shared, where various stakeholders are involved in the process and select topics based on multiple criteria including disease burden and severity, effectiveness of the intervention, economic impact on households, feasibility, and ethical considerations. Using the example of the study on *"***Thailand's Universal Eye Screening***"*, special emphasis was placed on the importance of including and empowering relevant stakeholders who bring a unique perspective on the same topic and help prioritise and address issues at hand. As a result of this study and national program was launched. Primary school teachers were trained (at a low cost) to diagnose refractive error in children, saving doctor's time (high opportunity cost); any student identified with vision impairment is then examined by an ophthalmologist and provided with glasses. An estimated 260,000 Thai children can now access spectacles they need but may not have otherwise received had it not been for this policy.

Diving into the technical aspects of HTA, the concept of the "PICO framework", which stands for population, intervention, comparator, and outcomes, was introduced as good practice when translating the policy question to a research question as a prior to conducting an economic evaluation. Participants learnt the various types of economic evaluations in the literature; the only distinguishing feature among them is the choice of outcome for example, if the outcomes were being measured in terms of quality-adjusted life years (QALYs), then the study would be a cost-utility

analysis, whereas if unit was time to event such as death or heart attack, then it would be a cost-effectiveness study. The following sessions offered participants an understanding of systematic reviews and meta-analyses, a powerful tool to pool the evidence that is already available, also discussing the concepts and types of biases as well as methods to address them. A central theme of these discussions concerned the use of PICO framework with strict inclusion and exclusion criteria and PRISMA guidelines for methodological rigour as recommended by the **Cochrane Handbook for Systematic Reviews.** In the final session of the day, the participants used their learnings for a hands on group exercise on calculating health outcomes i.e. utility scores using three different methodologies, (i) the visual analogue scale (VAS), (ii) time-tradeoff (TTO), and (iii) EQ-5D-3L using the Thailand utility index values. A key takeaway from this session was that each of these methodologies produced different, requiring that researchers choose the most suitable one for their study based on the feasibility and disease of interest.

The second day of the workshop started with a recap of the previous day focus on the socio-ethical dimensions of the HTA, listing it one of the preliminary considerations alongside safety and efficacy of the intervention. Following this discussion, the day was dedicated to learning about costing methods, from concepts to practice, including an overview of a costing database being developed for India. The first of these sessions focused on the definitions of costing, including the differences between price versus cost, accounting versus economic cost, direct versus non direct costs, sources of cost data, especially managing inputs from private and public sector facilities. Participants were then introduced to the three common adjustments that need to be made to cost data i.e. discounting, exchange rates, and inflation through a practical lecture based on a paper by **Turner et al 2019**[1]. Costing in India was addressed as a separate session, where the Indian costing database, developed by PGIMER was introduced. The audience raised several questions surrounding the nuances of cost variations with inpatient services and defining package rates, as well as addressing challenges such as the use of proxy costs, inputs from handwritten records and data quality.

On the final day, the sessions covered modelling, budget impact analysis, using decision rules to assess results and accounting for social, ethical and cultural factors alongside the results of an economic evaluation in decision-making. Training was delivered through a range of lectures, drawing on theory as well as real life cases from Thailand, India and other countries, as well as a range of practical exercises for participants to apply the techniques taught including a session on decision tree and Markov modelling. It was reiterated that the results from an economic evaluation study can only serve as an input to inform decision making and that economic considerations are not the sole criteria for making decisions. Many examples were presented where an intervention was introduced despite not being cost-effective at the threshold on social and ethical grounds, or when a cost-ineffective intervention was introduced for a rare disease given the low budget impact. The reverse is also true, i.e. an intervention may not be included despite being cost-effective if it has a high budget impact. Results from an economic evaluation can also serve as a tool to negotiate price and volume with industry. Final sessions of the workshop provided participants with an opportunity to present their research and receive inputs on any HTA related questions or challenges they had discussed with the teaching faculty and fellow participants.

[1] Turner et al. "Adjusting for Inflation and Currency Changes Within Health Economic Studies". Value in Health. 2019.

Feedback from participants

Feedback forms were distributed to the participants at the end of the course. Their responses indicate that participants valued the training in terms broadening their understanding of HTA and economic evaluation methodologies. All participants agreed that the workshop was put together in a clear manner, enhancing the conceptual foundation and learnings on the subject. Most participants agreed that the event provided a networking opportunity. The exercises were described as being particularly useful to improving the understanding of the concepts. The enthusiasm, learning environment and ease of question-answer sessions was greatly valued by the participants, with all of them attesting to using the information from this training to guide their future activities. The suggestions for improvement included having more time for discussion after each session, more practical exercises where possible, as well as avenues for more modelling and advanced learning for those who maybe so inclined. Almost all participants indicated that they would participate in another HTA-related workshop in the future if organised. A summary of the responses can be found in Appendix 3.

Technical study support

HITAP has been providing support on two cost of illness studies, one on rotavirus and the other, on enteric fever. On 9 May 2019, staff from HITAP, MU and MORU (hereafter the technical team) met with the research teams of the two studies to learn about the progress, discuss technical aspects and identify next steps. The rotavirus study examines the cost of diarrhoeal illness among under five children and the cost effectiveness of rotavirus vaccines in India, specifically ROTAVAC and was presented by Dr. Nayana Nair, a medical doctor, currently in the second year of her PhD program at CMC Vellore. Dr. Dilesh Kumar presented the second study examining costs associated with enteric fever in India. Some of the main issues that emerged were on valuing indirect costs and care-giver time, addressing data quality, dealing with missing data and presenting facility cost data. The discussions are summarised below.

Rotavirus study

After reviewing the initial progress made in the study, the discussion centred around identifying areas that were previously not considered and could affect the results of the study such as identifying inclusion and exclusion criteria, measuring the impact of mortality on the costs as significant resources are extended to be consumed prior to death. The technical team advised including indirect costs i.e. valuing care giver time by adding questions to measure productivity loss and opportunity cost. Furthermore, the teams discussed strengthening the process for data validation, applying imputation methods or propensity score matching to deal with missing data. The team was advised to summarise the cost data using descriptive statistics to understand the cost determinants and run sub-group analysis.

Given the scope of the study, potential research papers on policy relevant issues were suggested. This included for example. “Cost of the Journey of Diarrhea Patients”, that would utilise a decision tree model going from self-care to self-medication to outpatient (OP) to inpatient (IP) care and analysing the health and economic impact of the choices made. Another potential research could be on “Health Seeking Behaviour for Diarrhea in Vellore”, to identify the drivers of usage at different health facilities. HITAP reviewed the literature and shared relevant reference papers and also analytical methods to perform them.

As a next step, the research team was to incorporate the inputs provided and plan to have monthly discussions with HITAP. It was mutually agreed that the research team would visit HITAP to design and conduct the cost-effectiveness analysis. In terms of the policy relevance of this study, since the vaccine is already introduced in India, the study may be able to support the existing policy by providing evidence of value for money, or by developing quality indicators using dynamic modelling to identify the level of maximum impact. Unfortunately, for personal reasons of the researcher, this study has been put to hold and HITAP has not been able to provide further support.

Enteric fever/typhoid study

For the enteric fever (typhoid) study, similar suggestions were given to mitigate the issues surrounding data validation, missing data, valuation of indirect costs. Measuring the indirect costs seemed to be problematic in this study, and the technical team therefore suggested categorising productivity loss into absenteeism and presenteeism. For absenteeism, the survey could include additional questions to capture the number of days taken off work and the subsequent income loss. If patients are hospitalised, the number of days spent in hospitals may be considered, while if seeking care, assigning half a day was suggested as an estimating. The team can then use the average daily income by sector to estimate the loss due to absenteeism. For presenteeism, a performance evaluation at work on a scale from 1 to 10 was suggested where a score is given per care giver per episode; only the days that were not spent actually giving care should be asked to avoid double counting.

The study seeks to analyse the out of pocket expenditure (OOPE), catastrophic health expenditure (CHE), the sources of financing in CHE, and finally, multivariate analyses of factors associated with OOPE. Upon receiving guidance on the descriptive analyses of the cost data, the technical team suggested using a Generalised Linear Model (GLM) to analyse the data. A list of variables was suggested based on the descriptive analyses including demographics, socioeconomics, insurance, and tier-level, as health facility at the surveillance is being conducted, as predictors of OOPE among typhoid patients. Guidance was provided on how to run the analyses on Stata.

Next steps for studies

As a next step, the team has been asked to share their preliminary findings with HITAP for review. Strong, sustained follow-up plans between HITAP and the researchers were established, with immediate priorities identified as follows:

- HITAP to review literature and share relevant analysis methods for discussion
- Monthly calls between research teams at CMC Vellore and HITAP for cost analysis

Partnerships for HTA in India

Participants from JIPMER, including the Director, Dr. Rakesh Aggarwal, attended the HTA workshop and expressed an interest in building HTA capacity in their institute. An introductory HTA workshop, similar to the one conducted at CMC Vellore, was agreed to be held at JIPMER in October 2019. In addition, HITAP asked CMC Vellore and JIPMER about the possibility of hosting a workshop on

vaccinology in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM) and the National University of Singapore (NUS) in November 2019.

After action review (AAR)

HITAP conducted an after-action review (AAR) to assess the trip on 10 May 2019. Key points of discussion included:

- There was great value in bringing faculty from within country to provide contextual perspective.
- There were many benefits to having experts attend the entire workshop to provide additional details in various sessions.
- Junior presenters from HITAP showed that HITAP supports capacity building even within the team, suggesting that more sessions can be offered to junior faculty, allowing senior faculty in the audience to add further detail as needed, and have time for focused quality teaching.
- More audience engagement would have been beneficial. This can be supported by:
    - Understanding interests of participants
    - Offering frequent chances for involvement to increase their contributions to discussion
    - Allowing questions from the audience; they are good icebreakers
- Need for better organisation in collating slides for presentations as well as sharing slides and exercises electronically in advance to participants.
- HITAP should be available to provide monthly Skype inputs to the two studies, ensuring sustained progress.

Next steps

Technical support

HITAP will continue to support the two studies being conducted at CMC Vellore, sharing notes on technical support to research teams, reviewing literature and arranging for an update call after one month to discuss progress. HITAP also suggested that the teams develop their analysis plans in the upcoming months and share these for review. It was discussed that some team members may benefit from a second study visit to HITAP later in 2019.

Partnership with JIPMER

JIPMER to share a formal request to HITAP for hosting an HTA workshop and a workshop on vaccinology and discuss further on planning for the two events.

Appendix

1. CMC Vellore HTA workshop agenda

Health Technology Assessment Workshop Agenda

Location: Vellore, India
Date: 6-8 May 2019
Objectives:

- To conduct a training on heath technology assessment (HTA) with a focus on costing

Faculty from:

- Christian Medical College (CMC) Vellore
- Health Intervention and Technology Assessment Program (HITAP)
- Mahidol Oxford Tropical Medicine Research Unit (MORU)
- Mahidol University
- Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh

Agenda

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
	Day 1			
9:00 – 9:15	1. Welcome	- Opening remarks - Course overview		CMC Vellore
9:15 – 09:50	2. Introduction to HTA	- HTA definition and justifications - Applying HTA into policy and practice - Course at a glance	25 mins of lecture with 10 mins of Q&A	Ms. Juliet Eames (HITAP)
09:50 – 10:30	3. Identifying (the right) topics for HTA	- Political economy of health resource allocation and HTA - Good practices in getting the right topic for HTA	30 mins of lecture with 10 mins of Q&A	Dr. Yot Teerawattananon (HITAP/NUS)
10:30 – 11:00	*Tea Break*			
11:00 – 11:40	4. Selecting the right approach for HTA	- Translating policy questions to research questions including 'PICO' approach - Selecting the right methodological approach to address	30 mins of lecture with 10 mins of Q&A	Ms. Juliet Eames (HITAP)

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
		policy relevant research questions		
11:40 – 12:30	5. Health economic evaluations	- Different types of health economic evaluations, including pros and cons	35 mins of lecture with 15 mins of Q&A	Mr. Sven Engels (HITAP)
12:30 – 13:30	*Lunch Break*			
13:30 – 14:15	6. Evidence synthesis part 1: Systematic review	- Need for evidence synthesis - Methodological issues in conducting systematic review and meta-analysis - Good practice, e.g. PRISMA - Pros and cons of using synthesised evidence	30 mins of lecture with 15 mins of Q&A	Dr. Thunyarat Anothaisintawee (Mahidol University/ HITAP)
14:15 – 15:15	7. Evidence synthesis part 2: Meta-analysis	- When to use meta-analysis - Principles of conducting meta-analysis	45 mins of lecture with 15 mins of Q&A	Dr. Thunyarat Anothaisintawee (Mahidol University/ HITAP)
15:15 – 15:45	*Tea Break*			
15:45 – 16:30	8. Outcome measures	- Different types of clinical/health outcomes, e.g. immediate, intermediate and final outcomes - Health utility measures, e.g. DALY, QALY - Challenges in measuring and using health utility measures, including common pitfalls - Good practice, e.g. ISPOR good practice for outcome research	30 mins of lecture with 15 mins of Q&A	Ms. Waranya Rattanavipapong (HITAP)
16:30 – 17:15	9. QALY estimation	- Using EQ5D to elicit health state preferences in case scenarios using	45 mins of group exercise	Ms. Juliet Eames (HITAP) Teaching assistants

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
		(comparing) Singapore and Thai value sets		
	Day 2			
8:45 – 9:15	10. Review and summary	- Summary of concepts from previous day - Overview of the day agenda		Dr. Yot Teerawattananon (HITAP/NUS)
9:15-10:15	11. Introduction to costing concepts	- Economic vs Accounting costs - Categories of costs - Perspectives of cost studies - Potential uses of cost data, and related methodologies which best suit a particular objective	45 mins of lecture with 15 mins of Q&A	Mr. Sven Engels (HITAP)
10:15- 11.15	12. Data collection from primary and secondary sources	- Designing primary cost data collection - Cost centre classification - Measuring and valuing resources - Collecting relevant information for dealing with joint costs: time allocation studies - Identifying secondary data sources for cost data	45 mins of lecture with 15 mins of Q&A	Dr. Maninder Pal Singh (PGIMER)
11:15 – 11:30	*Tea Break*			
11.30-12.30	13. Adjusting costs	- Discounting - Adjusting for inflation - Exchange rate adjustment	45 mins of lecture with 15 mins of Q&A	Mr. Sarin KC (HITAP)
12:30-13:30	*Lunch Break*			
13:30- 14:30	14. Costing in India	- Using the India cost database - How the cost database can be used to estimate the relevant costs in vaccine economic burden and cost effectiveness analyses	45 mins of lecture with 15 mins of Q&A	Dr. Maninder Pal Singh (PGIMER)

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
		- Costing studies to inform the package rates under PM-JAY		
14:30-14:45	*Tea break*			
14:45 – 16:00	15. Challenges in costing	- Challenges faced during practical application of cost identification, collection and analysis: CHSI (cost of health services in India) study presentation. - Experiences of costing studies ongoing in 13 states - Practical exercise	40 mins presentation 35 mins group work	Dr. Maninder Pal Singh (PGIMER)
16:00-16:40	16. Costing data presentation and reporting	- Apportioning join and shared costs - Presentation of data and results - Sub-group analysis	30 mins of lecture with 10 mins of Q&A	Dr. Yot Teerawattananon (HITAP/NUS)
16:40-17:00	17. Costing using the GHCC reference case	- Introduction to the reference case - Benefits of using a reference case	15 mins video presentation with 5 mins of Q&A	Dr. Yot Teerawattananon (HITAP/NUS) Ms. Sedona Sweeney (LSHTM)
	Day 3			
8:45 – 9:15	18. Review and summary	- Summary of concepts from previous day - Overview of the day agenda		Dr. Yot Teerawattananon (HITAP/NUS)
9:15 – 9:45	19. Model-based health economic evaluation	- Need for modeling - Different types of modeling techniques, e.g. decision tree, Markov model, dynamic modeling - Good practice e.g. Modeling good research practice of ISPOR	20 mins of lecture with 10 mins of Q&A	Dr. Wirichada Pan-ngum (MORU)
9:45 – 10:30	20. Modeling exercise part	- Simple decision tree and Markov modeling	45 mins Individual, computer-	Dr. Wirichada Pan-ngum (MORU)

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
			based exercise	
10:30-11:00	*Tea break*			
11:00 – 12:00	21. Modeling exercise continued	- Simple decision tree and Markov modeling	Individual, computer-based exercise	Dr. Wirichada Pan-ngum (MORU)
12:00– 13:00	22. Budget impact analysis	- Need for and how to conduct budget impact analysis - Good practices, e.g. ISPOR budget impact analysis good practices	45 mins of lecture with 15 mins of Q&A	Ms. Waranya Rattanavipapong (HITAP)
13:00 – 14:00	*Lunch Break*			
14:00 – 14:45	23. Results presentation and the decision rule	- Need for incremental analysis, i.e. ICER - Decision rules (league table and threshold approaches) and cost-effectiveness threshold	30 mins of lecture with 15 mins of Q&A	Dr. Yot Teerawattananon (HITAP/NUS)
14:45 – 15:10	24. Case studies on using HTA for policy making in Thailand	- Examples from Thailand of HTAs leading to results of interventions being cost-effective or not cost-effective, and policy impact.	15 mins of lecture with 10 mins of Q&A	Ms. Saudamini Dabak (HITAP)
15:10-15.40	25. Presentations on on-going study design and challenges	- One group to present on their study objective, approach, challenges and methods - Group discussion	Presentations and group discussions	HITAP Workshop participants
15:40 – 16:00	*Tea Break*			
16:00 – 17:30	26. Presentations on on-going study design and challenges	- Two groups to present on their study objective, approach, challenges and methods - Group discussion	Presentations and group discussions	HITAP Workshop participants

TIME	AGENDA	KEY CONTENTS	APPROACH	INVITED FACULTY
17:30-17:45	27. Evaluation		Participants to complete forms provided	Workshop participants
End				

2. List of participants

Name (first and last name)	Job title	Organisation/Affiliation(s)
Saravanakumar P K	Trial coordinator	Christian Medical College, Vellore
Dilesh	Research Officer	CMC VELLORE
Varunkumar Thiyagarajan	Statistician	CMC
Ashwini S	Research Assistant	Christian Medical College
Swathi Krishna	Senior Research Officer	Christian Medical College, Vellore
Prasannakumar P	Senior Medical Officer	Dept of Infectious Diseases, CMC, Vellore
Vignesh Kumar Chandiraseharan	Doctor	Christian Medical College, Vellore
Mathew J Valamparampil	Epidemiologist / Assistant Programme Officer	State Tuberculosis Cell Kerala
Monisha	Psychologist	Schizophrenia Research Foundation
Sridhar Vaitheswaran	Consultant Psychiatrist	Schizophrenia Research Foundation (SCARF), India
Samuel Gideon	Grants Manager	Christian Medical College, Vellore
Samarasimha Reddy N	Young Investigator	Christian Medical Collge, Vellore
Gulfam Hashmi	Project Director, Uttar Pradesh	WISH (Wadhwani Initiative for Sustainable Healthcare)
Reshma Raju	Medical Officer	CMC Vellore
Jerin Cherian	Scientist D (Medical)	Department of Health Research
Tarun Shankar Choudhary	Research Scientist	Society for Applied Studies
G Kiruthika	Student	ICMR - National Institute of Epidemiology
Nayana Nair	ICMR Senior Research Fellow	Christian Medical College, Vellore
L.N. Dorairajan	Professor	JIPMER
Sitanshu Kar	Professor	JIPMER
Kadhiravan	Professor	JIPMER
Yuviraj	Senior resident	JIPMER
Santhosh	Research Associate	CMC, Vellore
T.S. VijayaKumar		Nephrology Lab, CMC, Vellore
Varsha Chaudhary	Project Coordinator	CMC, Vellore
Solomon	Project Coordinator	CMC, Vellore

3. Summary of responses from the feedback forms

Number of respondents: 21

Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The aims and objectives of the event were clear and well defined.	12 (57%)	9 (43%)	0	0	0
The content of the event was well prepared.	13 (62%)	7 (33%)	1 (5%)	0	0
The delivery of the event was conducive to increasing my understanding of the topics discussed.	11 (52%)	10 (48%)	0	0	0
This event enhanced my knowledge about the topic.	14 (67%)	7 (33%)	0	0	0
I was able to identify avenues for future collaborations with likeminded individuals/organisations.	6 (29%)	11 (52%)	4 (19%)	0	0
I will apply the knowledge gained from this event in my future activities	14 (67%)	7 (33%)	0	0	0
I found the health outcome estimation exercises useful.	13 (62%)	7 (33%)	1 (5%)	0	0
I found the cost adjusting exercises useful.	11 (52%)	10 (48%)	0	0	0
I found the modelling exercises useful.	12 (57%)	9 (43%)	0	0	0
Question	**Yes**	**No**	**Maybe**		
If HITAP conducted another HTA related workshop or training in the future, would you attend it?	20 (95%)	0	1 (5%)		

Note: Only quantitative responses summarised

4. Blog post on visit

Title: iDSI & India Tighten the Knot with an HTA Workshop and Masala Dosa!
Author: Sarin KC
Link: http://www.globalhitap.net/idsi-india-tighten-the-knot-with-an-hta-workshop-and-masala-dosa/