Report on the course

INTRODUCTION TO HEALTH TECHNOLOGY ASSESSMENT

INTRODUCTION

Health Technology Assessment (HTA) in the current times is a critical appraisal technique required to provide information aimed at decision-makers to address the intended and unintended consequences of vast emerging and existing technologies in the healthcare domain. There was a felt need from many of the researchers on the need for an introductory course to increase understanding of the process and steps involved in conducting a HTA. Towards this, SHARE INDIA, along with New Castle University, Institute of Health & Society and Campbell Collaboration conducted a 5-days course from 16-20 July 2018 at SHARE INDIA, Hyderabad.

The aim of this course was to bring together a group of scientists / health researchers and public health practitioners in India for increasing their knowledge and lay foundation for the use of HTA, evidence synthesis and economic evaluation in their programs or research.

OBJECTIVES

By the end of the course, the participants were able to:

1. Define health technology and health technology assessment
2. Explain relevance, need and use of health technology assessment
3. Describe steps of doing an HTA and apply HTA in different scenarios
4. Access resources to HTA
5. List organization at international level working in HTA

PARTICIPANTS

This was a self-sponsored course for the participants. This methodology of sponsorship was adopted to ensure that only the interested participants in the area of HTA will join the course. There were total 9 participants who attended the course with various backgrounds and work experiences. Organisation from which participants were registered in the course were:

- Regional Technical Resource Centre for HTA, Achutha Menon Centre for Health Sciences Studies, SCTIMST
- National Institute of Epidemiology
- Ministry of Health and Family Welfare
- All India Institute of Medical Sciences
- Population Council
- IQVIA Consulting and Information Services
- SHARE INDIA

FACULTY

Prof. Luke Vale, Newcastle University, UK

Luke Vale has an international reputation in economic evaluation and health technology assessment and has contributed significantly to the growth in the use of systematic reviews and economic modelling in this field. He has over 20 years of health economics experience and is currently the Health Foundation Chair in Health Economics at Newcastle University where he leads the Health Economics Group (http://research.ncl.ac.uk/healtheconomicsgroup/). Prior to joining Newcastle University, he led an independent academic group that conducted appraisals of new and existing diagnostic and therapeutic interventions for the National Institute of Health and Care Excellence

(NICE) in the UK. He is also the Chairman of the joint economic methods group of the international Cochrane and Campbell Collaborations (http://methods.cochrane.org/economics/) which develop the methods and conduct systematic reviews of interventions in healthcare and other policy areas and Co-ordinating Editor for Cochrane Incontinence http://incontinence.cochrane.org/. He has extensive links with policy-makers and researchers throughout UK and internationally. He has been awarded over £100 million in research grants from bodies such as NIHR, MRC, ESRC, Wellcome Trust & EU. This includes a substantial number as a Principal Investigator. In addition, he has a strong publication record with over 200 papers in peer-reviewed journals, 4 books, 15 book chapters and over 100 other significant reports.

Mr. Denny John, Evidence Synthesis Specialist, Campbell Collaboration, New Delhi; Adjunct Scientist, ICMR-National Institute of Medical Statistics, New Delhi

Denny John has over 14 years of experience across various domains; managing hospitals and health projects, economic evaluation, health financing, evidence synthesis, implementation research, teaching and advocacy. He has experience of working with research institutions, development organisations, and consulting companies for conducting economic evaluations, systematic reviews, and health financing projects. He has been the Principal Investigator/Co-Investigator for over 15 research studies conducted across various states in India and have been awarded research and project grants from national and international bodies worth around USD 400,000 till date. He has published over 39 articles in peer-reviewed journals and presented in national and international forums in the field of systematic reviews, public health and health financing. He is an Associate Editor with Cost Effectiveness and Resource Allocation, International Journal of Technology Assessment in Health Care (IJTAHC), and BMC Public Health journals, and Associate Editor-Economic Evaluation with International Development Coordinating Group (IDCG) of Campbell Collaboration. At Campbell Collaboration, since July 2017, he has led/co-led training programs on evidence synthesis for over 250 participants in India, Ghana and Nepal. Currently he mentors over 15 researchers from LMICs for publishing their systematic reviews. He is experienced in the use of Covidence, EPPI Reviewer, R, RevMan, CMA and WinBugs software for conducting systematic reviews, meta-analysis and network meta-analysis projects. He is a Review Advisor for WHO Snakebite Envenoming Working Group; Co-chair for Early Career Network, Health Technology Assessment International (HTAi); Chair-Elect-ISPOR Asia Young Professionals Group; Director-Health Economics & Evidence Synthesis, Guidelines & Economics Network International (GENI); and Advisory Member, Disability Coordinating Group, Campbell Collaboration.

Mr. Stephen Rice, Senior Research Associate, Newcastle University, UK

Steve Rice is a Senior Research Associate within the Health Economics Group and Evidence Synthesis Team within IHS. He has over 13 years' experience in economics. His research interests relate to economic evaluation and evidence synthesis, including both decision-analytical modelling, all forms of meta-analysis, and econometric techniques. He has conducted several systematic reviews, network meta-analyses and economic analyses in areas such as NSAIDS after major surgery, breastfeeding, osteoporosis, acupuncture, ankylosing spondylitis and deep vein thrombosis.

COURSE EXECUTION

The course was conducted at the SHARE INDIA office conference hall located at MediCiti Institute of Medical Sciences (MIMS) campus, Ghanpur village, Hyderabad. This was a residential course with the faculty and participants staying in the campus.

The format of the course included didactic session, group exercises and hands-on exercises.

PROCEEDINGS

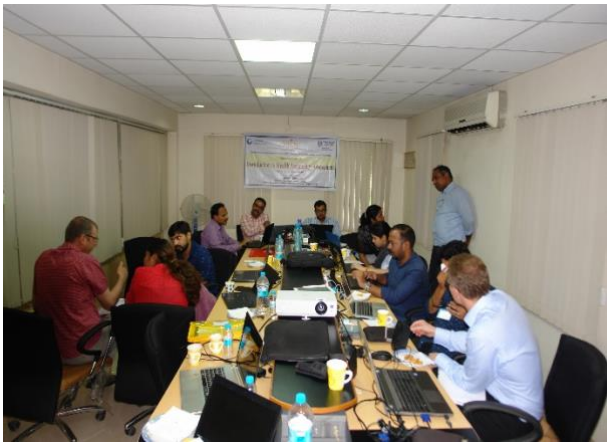
Day 1

The first session focussed on providing an overview and introducing to the concepts of HTA along with some examples of HTA. The session specifically focussed on:

- Introduction to HTA - What is Health Technology
- Relevance and need for HTA
- Environment for requirement of HTA
- HTA in India

With the introduction on HTA, the second session focussed on some best practices of HTA globally. Some of the examples shared during this session were:

- National priority setting: the role of National Institute for Health and Care Excellence (NICE) as an example of HTA
- Swedish HTA process – SBU
- Thailand HTA process – HITAP
- India HTA process – HTAIn



The third session was on evidence synthesis with focus on:

- Setting the review question – PICOS
- Differences in qualitative review of PICo and prevalence review of CoCOPop
- Scope of evidence synthesis with lump vs split reviews
- Systematic reviews, biases in the systematic reviews
- Concepts of gap maps and evidence gap maps (EGM)

The fourth session was on search strategy:

- This was a hands-on session
- Example of PubMed search was provided as a tool
- Groups worked on certain review questions and developed search strategies for them

Day 2

The first session was on introducing meta-analysis and addressing heterogeneity. Concepts related to the following were discussed:

- Traditional narratives and vote counting
- Meta-analysis and forest plots
- Fixed and random effects
- Heterogeneous effects

The second session focussed on critiquing and grading clinical evidence (Risk of bias, GRADE). Following things were covered during this session:

- Risk of bias
- Evidence quality
- Tools for assessing bias like ROB 2.0, ROBINS I, ROBIS were introduced
- As a group, ROB 2.0 checklist was used on a published article and various aspects of the ROB 2.0 checklist were discussed

The third session was on Introduction to Economic Evaluation. This session focussed on:

- What is economic evaluation?

- The decision question, identification of intervention costs, time horizon, identification of potential consequences (study perspective) and measure of benefit
- Cost benefit analysis, cost utility analysis, cost effectiveness analysis and incremental cost effectiveness ratio
- Opportunity costs and multiple interventions costing

The fourth session was on the Introduction to economic modelling. This session provided the participants information on:

- Difference between decision analysis and decision models
- Basic model structures – chance node and its branches
- Decision tree roll back and treatment effects
- Marginal and conditional probabilities
- Markov model with an example of relative risks, time to event data, mortality
- Modelling process and list of softwares available to do modelling

Day 3

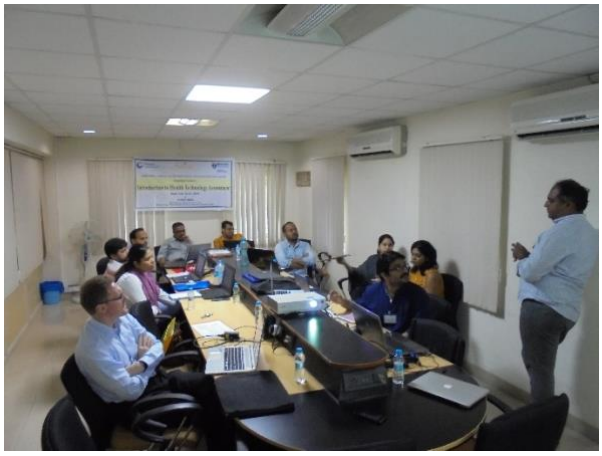
The first session was on Costing methodology. This session introduced the participants to:

- Demand and supply fundamentals
- Budget vs cost
- Different types of costs – Direct medical costs, Direct non-medical costs, Indirect costs
- Program logic model and guidance to use logic models in HTA
- Cost classifications – Capital, variability, traceability, productivity loss, etc.

The second session was a group exercise on costing alongwith identification of cost types.

The third session was on discounting and sensitivity analysis. This session imparted knowledge on:

- Discounting, discounting cogs and benefits
- Relevance of uncertainty, deterministic sensitivity, assumptions
- Tornado diagrams in sensitivity analysis, multiway sensitivity analysis and threshold analysis



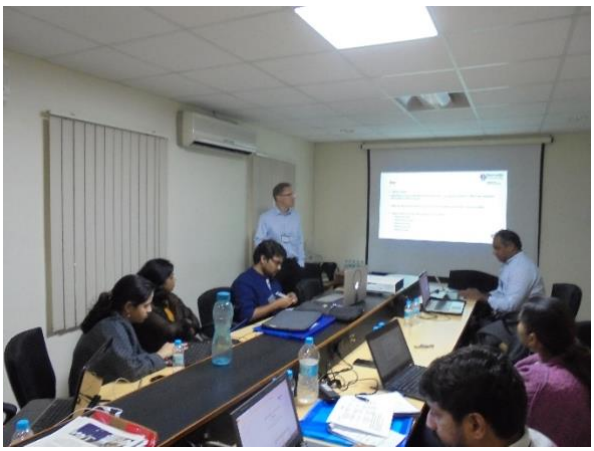
The fourth session was on Critical appraisal and grading the quality of health economic evaluations. This session was a mix of both didactic and group exercise. This session emphasised on:

- Critical appraisal rationale for economic evaluations
- CHEERS checklist
- Exercise on using CHEERS checklist on a published manuscript

Day 4

The first session was on Methodology of cost of illness. This session focussed on:

- Methodology of how to do a cost of illness study (COI)
- Group Exercise on the COI and discussion



The second session was on Measuring and valuing health. This session shed light on:

- What do we mean by 'benefit'?
- Benefit measures for CEA & CUA
- Quality-Adjusted Life Years (QALYs)
  - EQ-5D
  - SF36/SF12 (SF-6D)
  - VAS/SG/TTO
- Alternative to QALY approach:
  - Disability adjusted life years (DALYs)
  - Capability approach

The third session was on Demonstration of modelling in MS Excel.

The fourth session was hands-on exercise on modelling on MS Excel.

Day 5

The first session was on protocol writing. This session gave information to the participants on:

- Getting prepared for writing a protocol, sources of support
- Identifying a question
- Developing the protocol
- What features are focused on by a funding panel?

Later to this session, the participants worked individually or in groups on their respective review question or HTA projects. These protocols were then presented, and feedback was given by the faculty and other participants. This session also was able to identify some of the similarities and synchrony among the participants for mutual benefit. The faculty also emphasised that they will provide mentoring to the participants on their projects for further development.

LIST OF PROTOCOLS

Title:	Costs and Outcomes of Implementing a Technology Enabled Community Health Worker Led Intervention for Detection and Treatment of Hypertension and Diabetes in rural South India
Team Members:	Dr.Jammy Rajesh, Dr. Shailendra. D
Title:	Cost effectiveness of screening and treatment of celiac disease in patients with liver disease: A systematic review and meta-analysis'
Team member:	Dr. Shakira Yoosuf
Title:	Systematic Review for clinical and cost effectiveness of available strategies for screening of oral cancer in India
Team Members:	Dr. Ruchi, Dr. Mayank Sharma

Title:	Systematic Review and Meta-Analysis of the Diagnostic Accuracy of IgM, IgG and NS1 based screening tests for Dengue in South Asia"
Team Members:	Dr. Hisham Moosan, Dr. Antony Stanley
Title:	Cost-effectiveness of skill building intervention on economic empowerment among female sex workers in India
Team member:	Dr. Bidhubhushan Mahapatra
Title:	Healthcare associated infections in India: A systematic review
Team member:	Dr. Karishma Kurup

PARTICIPANTS' FEEDBACK

A structured feedback form was circulated through SurveyMonkey to all the participants. Based on the feedback, below are some of the recommendations as suggested by the participants:

- *"Considering the overall experience, the facilitators could think of bringing out a companion handbook and a compendium of good readings for a person wishing to embark into the arena of HTA."*
- *"But on the whole..... it was a fantastic experience and I hope I will be able to do justice to the efforts put in by the facilitators, by translating the gained knowledge into tangible outputs..."*
- *"By having a follow-up workshop, the modelling especially the simulation (parts of it) went over the head."*
- *"I think it would require more days than 5 to understand all the concepts."*
- *"sharing slides before the sessions so that participants can come prepared!"*
- *"Maybe the facilitators can set up a google group, not a Whatsapp group, including the participants so that we can get good read as and when they come to the notice of the facilitators.... an HTA mailing list of sorts...??"*
- *"its good, not sure of any other improvements. Accommodation can be improved."*

SCHEDULE OF THE COURSE

Day	9.30-11.00	11.30-12.30	1.30-3.00	3.30-5:00
Day 1	Introduction to HTA - What is Health Technology; Relevance and need for HTA; Environment for requirement of HTA HTA in India (Luke, Denny)	Examples of best practices on HTA NICE, SBU, HITAP (Luke, Denny)	Evidence Synthesis in HTA (PICO strategy) (Denny)	Search Strategy Group Exercise (Denny, Luke & Stephen)
Day 2	Introduction to Meta-Analysis, Addressing Heterogeneity (Denny)	Critiquing and grading clinical evidence (Risk of bias, GRADE) Group Exercise (Stephen, Denny, Luke)	Introduction to Economic Evaluation (Stephen)	Introduction to Economic Modelling (Stephen)
Day 3	Costing methodology (hospital services, and programs) (Denny)	Costing exercise (Denny, Luke & Stephen)	Discounting, Sensitivity Analysis, Tornado Diagrams (Stephen)	Critical and grading EE (CHEERS, GRADE) Group Exercise (Luke)
Day 4	Cost of illness methodology (Luke)	Measuring and valuing health (Luke)	TreeAge/MS Excel Demonstration (Stephen)	TreeAge/MS Excel Exercises (Stephen)
Day 5	Writing Protocols for HTA analysis (Luke)	Protocol Writing Group Exercise (Luke, Denny, Stephen)	Protocol Writing Group Exercise (Luke, Denny, Stephen)	Feedback, Group Photo. Certificates