



**World Health
Organization**



HIV Modelling
Consortium



Centre For Health Economics

**Workshop between the World Health Organization
'Value for Money' theme, the HIV Modelling
Consortium, and the Centre for Health Economics,
University of York**

4 March 2016 – Geneva, Switzerland

SUMMARY REPORT

Produced by CHE, University of York

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Background

University of York External Engagement Award

This workshop was made possible thanks to funding received by the Centre for Health Economics (CHE) from the University of York through its External Engagement Award.

The Fund is awarded to University of York departments to support engagement projects to increase the number and depth of interactions between University departments and external partners. The funding is used to assist academic departments to plan strategic impact activities beyond those of individual projects.

CHE was awarded funding from the External Engagement Award in order to conduct a project involving a number of engagement activities, including a workshop with the World Health Organization's (WHO) CHOosing Interventions that are Cost Effective (CHOICE) Department and the HIV Modelling Consortium (HIVMC). This workshop provided a platform on which current research and future collaboration activities could be discussed between the WHO, HIVMC and CHE.

WHO – CHE workshop

There were six main objectives:

1. To explore the policy challenges facing WHO and WHO-CHOICE in terms of the use of economic evaluation to guide resource allocation at the international and nation levels.
2. To discuss the results from the recently completed WHO-CHOICE full sectoral analyses.
3. To provide an overview of the most recent methods developments in economic evaluation undertaken by CHE, and discuss how these may be used to support the WHO in its resource allocation guidance.
4. To discuss topics of significant importance to WHO-CHOICE, such as discount rates and tiered pricing.
5. For CHE to better understand the WHO governance and departmental structure.
6. To identify research areas of shared interest to both the WHO, HIVMC and CHE, and discuss future collaboration opportunities.

Main discussion topics

WHO-CHOICE full sectoral analyses results compared to CHE cost-effectiveness threshold research

- Representatives from the WHO Department of Health Systems Governance & Financing presented the initial results from their recent full sectoral analyses. This process involved comparing the costs and health effects of implementing a range of healthcare interventions against an underlying *null position*, in which no interventions are provided in the healthcare system. Interventions are then recommended going first from interventions offering lowest cost-per-DALY-averted to progressively higher cost-per-DALY-averted interventions, until the budget is exhausted.
- Attendees were in general agreement that the approach used by WHO-CHOICE in their full sectoral analyses is conceptually similar to that typically used by CHE (i.e. *incremental cost-effectiveness analysis*). Representatives from WHO agreed with the CHE attendees regarding the importance of considering *health opportunity costs* (i.e. the marginal productivity of the healthcare system) rather than focussing upon aspirational thresholds or one reflecting some optimal allocation of resources.

WHO-CHOICE policy challenges and solutions

- Representatives from WHO-CHOICE presented on the context in which they operate and the resultant challenges they face when providing guidance on resource allocation.
- CHOICE was originally established to support resource allocation, and as such its primary dilemma is determining how to accommodate both its international and national level focuses. There is a need to develop economic analysis approaches which can work across a wide range of countries with differing healthcare budgets and available healthcare expenditure data, but which also take account the unique context in each country.

A secondary policy challenge is determining which elements of a developing country's healthcare system are valuable to its population and should be retained; this is often decided using *marginal decision analysis*. However, CHOICE cannot be constrained by a country's *inherited choices* and required to support policymakers making improvements at the margin.

- The primary technical tool used by CHOICE is *cost-effectiveness analysis* (CEA). A constrained optimization framework was presented in which interventions are evaluated against a *blank canvas* ('*null*') *scenario*. CHOICE attendees argued that this approach does not necessarily require a *cost-effectiveness threshold* (CET).
- Representatives from CHE agreed the approach was conceptually sound but raised concerns that a blank canvas scenario may unrealistically assume away the implications of investments that have already been made and the existing infrastructures of the healthcare system. It is valuable in practice to work with the healthcare system choices and expenses that have already been made. They felt the use of CETs can enable more in depth exploration of real decision problems, and their inherent uncertainties.

WHO attendees suggested that the blank canvas approach is a response to the need for WHO to offer a generalised approach which can be applied to all member states; a country's specific healthcare system issues may be inserted into the blank canvas scenario at a later stage of analysis.

Thresholds/opportunity costs

- CHE attendees presented on the use of *CETs* as representing *opportunity costs* in CEA. It was stated that in order to assess the value-for-money of a proposed investment, the additional health benefits and costs of an intervention must be identified as well as the health opportunity costs result from required resources being unavailable for the delivery of other healthcare interventions. This is the notion of the *supply-side* and the CET is important to understanding this approach.

- However, the CHE attendees also advocated the use of the terminology *opportunity costs* over *thresholds* owing to the importance of understanding the health forgone of a particular healthcare intervention and the potential confusion caused by the term thresholds. It was argued that thresholds are not fixed and are subject to change, and it is important to make it clear to national policymakers that a non-marginal change in healthcare delivery affects the appropriate measure of opportunity costs and, in turn, the supply-side cost-effectiveness threshold.

Discount rates

- CHE attendees presented on the methods for discounting health. It was proposed that resources invested today do not equate to the same amount in the future and, therefore, it is important to determine investment *opportunity costs* in order to reflect the health forgone through resources being invested rather than spent.
- Attendees discussed whether health can be traded over time in the same way as resources are traded, by tying them up in capital. The CHE presenters stated that if healthcare system resources can be discounted, it is also viable to discount health. In addition, it was argued that even if future health is valued more, any discount applied to QALYs should be made using present day rates to account for the opportunity costs estimated between the stream of resources over time.
- Discounting methods to accommodate an increasing threshold or consumption value were explored by the attendees, and CHE presenters proposed that presenting the flow of net health benefits by period of time was transparent and less subject to confusion than altering *incremental cost effect ratios* (ICER) to the present day based upon differential discount rates.
- There were concerns raised by the WHO representatives that other stakeholder communities had different views on discounting, and that it might be useful to bring a number of such groups together with health economist to work through issues of terminology and concepts, much as had been done earlier in the meeting in comparing incremental and generalized CEA and discovering an underlying complementarity. This was an issue that WHO would continue to explore. CHE presenters argued that whatever the conceptual approach used, it was nevertheless essential to consider the opportunity costs of capital gained overtime.

Non-health constraints

- CHE presenters used examples of human resource constraints to explore how to manage constraints if the cost of overcoming constraints is not adequately reflected in the unit cost. Constraints may be budgetary (e.g. budget silos) as well as 'real' (e.g. human resources, infrastructures). They revealed that an excess of a resource can be as much of a constraint as having too little of it.
- Attendees explored how constraints associated with different levels of opportunity costs can be reflected when determining whether an intervention is cost-effective by using mathematical programming or through altering the unit costs/CETs using incremental CEA approaches.
- Recent research¹ exploring the impact of setting budgets regionally or nationally showed that *hard budgets* do not allow for flexibility in estimates and consequently have a detrimental impact upon health i.e. health effects are lower than expected. It was proposed by the CHE presenters that calculating cost-effectiveness when there are hard budgets involves overestimating the health benefits of an intervention in the face of uncertainty.
- The WHO representatives stated that budgets are often used as planning tools and do not necessarily match the corresponding expenditures; often low- and middle-income countries do not execute a full budget.

¹ Woods, B, et al (2016) *forthcoming*

Multicriteria Decision Analysis (MCDA)

- It was agreed among the majority of the attendees that cost-effectiveness and health improvements are not the sole considerations for resource allocation decisions, and it was recognised that there is a growing importance being placed upon *MCDA* around the world; e.g. the approach is used by Pharmaceutical companies in the UK to demonstrate how their products have a wider impact than improving the health of the individual, and countries in Latin America are increasingly using MCDA to develop their health benefit packages.
- CHE presenters argued that in principle, the QALY is a form of MCDA that can be used generally. They raised concerns over the use of MCDA by organisations such as Evidem and how cost-effectiveness thresholds and constraints are not always reflected accurately. There were also concerns regarding the use of weighting in these approaches to MCDA, and the presenters questioned how proper weights are achieved.
- Alternative approaches to MCDA were discussed. *Analysis supported deliberation*, whereby health is primarily focussed upon and the net population health effect of incorporating additional criteria is determined, was considered a more suitable approach.

Lessons to be learned from Industrial Organization literature

- Attendees discussed how themes from *Industrial Organization* (IO) theory can help to address issues affecting global health. Presenters from CHE suggested that the *vertical chain of implementation*, as described in IO literature, can provide a framework on which global health issues may be addressed, although it was recognised that this framework would need to be developed for specific application to this area.
- It was acknowledged that although global health operates in a context which is affected by particular and unique issues, the IO perspective of the vertical implementation chain - markets and contracts, and integration and joint venture - can offer a coherent approach to addressing these concerns.
- One of the main challenges recognised as being of particular importance to global health is the diverse nature of the multiple actors involved in the vertical chain, and the pressure from external factors such as changes in the political scope. As these actors operate across multiple jurisdictions, CHE presenters stressed the importance of agency when making resource allocation decisions i.e. decision made by actors lower down the implementation chain (e.g. purchasers) must also be acceptable for those higher up the chain (e.g. product developers).

A particular problem identified that likely limits the availability of suitable products being available at reasonable prices to countries is the *hold-up issue* experienced in vertical implementation chain contexts, whereby a contract is not fully accepted and acted upon by all actors throughout the chain. CHE presenters argued that achieving long-term commitment for a contract or decision is important to ensuring successful implementation.

- The importance of addressing the generic weakness of the vertical chain was discussed by attendees and CHE presenters warned against focussing upon individual links in the chain, particularly if these links are already strong. Weak links were also recognised as being context specific.

Tiered pricing

- Presenters from CHE discussed the advantages of *tiered pricing* in the global health context. It was argued that tiered pricing supports manufacturers who are able to supply a greater number of countries in markets operating tiered pricing than in those which are not, as previously, low- and middle-income countries may have been priced out of purchasing products. This also allows manufacturers to maximise on the benefits of a product patent.

Tiered pricing also offers low- and middle-income countries the opportunity to contribute towards discussions about the dynamics of the markets, rather than these discussions being dominated primarily by high-income countries.

- The disadvantages of tiered pricing were also discussed: it was acknowledged that tiered pricing risks introducing problematic competition among patent holders, and that establishing a system and mechanism for operating tiered pricing would be complex e.g. avoiding parallel trade.
- Representatives from the Global Fund raised concerns over whether tiered pricing would be accepted by NGOs owing to negative association of the *standard price for all*. WHO attendees considered it an important issue for international donors, and questioned who are the key players to involve in discussions about tiered pricing and what would be the next step towards this discussion.

Future research by the HIV Modelling Consortium (HIVMC)

- Representatives from the HIVMC discussed their plans for future research, including engagement with low- and middle-income country policymakers on topics discussed at the workshop². Attendees also briefly discussed the use and value of models in within-country resource allocation decisions, as well as the challenges faced when applying and developing working mathematical models.

Future actions

- All attendees agreed that WHO-CHOICE and incremental CEA vs threshold approaches can be complementary in informing decision-making. Both parties indicated willingness to write a joint paper to this effect. CHE has expressed an interest in drafting the paper and would welcome the input and co-authorship of WHO-CHOICE members.
- Representatives from WHO were keen to conduct more detailed discussions on discounting and discount rates in the future, and CHE attendees expressed interest in participating in these future discussions.

CHE proposes to produce an explanatory paper detailing the key aspects of discounting and discount rates in support of the topic, for use in on-going discussions with various parties about the value of discounting.
- WHO expressed interest in continuing to explore the recent research into the impact and consideration of non-health constraints with CHE. Attendees from CHE were supportive of future discussions on this topic.
- The representatives from WHO were interested to continue to discuss the role of Industrial Organization (IO) in global health resource allocation and cost-effectiveness analysis. This was identified as being an area of interest to other departments and teams within the WHO cost-effectiveness and strategic planning theme.

CHE will produce a summary think piece on this topic for use by and circulation among WHO-CHOICE and the wider 'Value for Money' theme.
- Tiered pricing is a topic of particular interest to the WHO Vaccines Team and Health Technology Assessment Department, and representatives from the Team were very keen to continue the discussion about tiered pricing with representatives from CHE. CHE would also be supportive of future discussions on this topic.
- All attendees expressed interest in working with the HIVMC on its future research agenda both within its current funding period and beyond.

² http://www.hivmodelling.org/sites/default/files/publications/WP%2020_Allocative%20Efficiency%20Tools%20Wshop%20Meeting%20Report_Final_0.pdf

Appendix 1: Workshop agenda

TIME	SESSION	SPEAKERS
08:30	Arrival	
09:00 – 09:15	<ul style="list-style-type: none"> • Introduction from WHO • Introduction from CHE 	<ul style="list-style-type: none"> • Jeremy Lauer • Mark Sculpher
09:15 – 10:30	Session 1 - The policy challenges facing WHO-CHOICE: economic evaluation to guide resource allocation at both international and national levels <ul style="list-style-type: none"> • Policy demands placed on WHO-CHOICE and recent developments in WHO-CHOICE methods • Reference Group: Impact Models and Resource Allocation • Discussion 	<ul style="list-style-type: none"> • <i>Chair:</i> Paul Revill • Jeremy Lauer • Timothy Hallett
10:30 – 11:00	Mid-morning refreshment break	
11:00 – 12:30	Session 2 – WHO-CHOICE full sectoral analyses <ul style="list-style-type: none"> • Presentations on full sector analyses • Presentation on HIV sector analysis • Discussion 	<ul style="list-style-type: none"> • <i>Chair:</i> Alex Rollinger • Melanie Bertram • Jeremy Lauer
12:30 – 13:30	Lunch	
13:30 – 15:30	Session 3 – Recent methods developments in economic evaluation <ul style="list-style-type: none"> • An overview of methods research priorities in economic evaluation • Opportunity costs and discount rates • Multiple criteria and perspectives • Non-health constraints • Discussion 	<ul style="list-style-type: none"> • <i>Chair:</i> Jeremy Lauer • Paul Revill • Karl Claxton • Mark Sculpher • Beth Woods
15:30 – 16:00	Mid-afternoon refreshment break	
16:00 – 17:30	Session 4 – Economic evaluation and pricing <ul style="list-style-type: none"> • Tiered pricing • Insights from Industrial Organization: principal agent issues • Discussion 	<ul style="list-style-type: none"> • <i>Chair:</i> Melanie Bertram • Karl Claxton • Martin Chalkley
17:30	Close	

Appendix 2: WHO Health System departmental structure