Chapter 5

Economic Evaluation of Social Care and Informal Care Interventions in Low- and Middle-Income Countries

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1. Introduction

Low- and middle-income countries (LMICs) are increasingly using economic evaluation to inform decisions about which health care interventions might be funded publicly, given public sector finance and resource constraints (Shillcutt *et al.*, 2009). Typically, economic evaluation has been used to evaluate health care interventions under the driving force of health technology assessment (HTA) programmes (Oortwijn *et al.*, 2010). This is similar to the pattern in high-income countries (HICs), where the use of economic evaluation for HTA is almost the norm (<http://www.hinnovic.org/health-technology-assessment-across-the-world/>).

In parallel with increasing interest in the economic evaluation of health care interventions, interest in the economic evaluation of social care interventions is increasing. In the UK, for example, the National Institute for Health and Care Excellence (NICE, 2015) recently extended economic evaluation methods guidance to interventions with a social care focus. In

contrast to health care interventions, where the perspective on costs comprises health care and personal social services, in social care interventions, a wider perspective is supported. This includes consideration of the costs falling on the public sector and the societal costs where appropriate, hence informal care costs which fall on the private sphere might be included (NICE, 2015). In terms of outcomes, the guideline recommends that for social care interventions, effects on people for whom services are delivered (users, carers) might be included when relevant. In summary, the guideline acknowledges the potential contribution of informal carers without prescribing methods for the measurement and valuation of informal care.

In LMICs, social care is almost completely the responsibility of the family and there are few publicly funded social care services. In dementia, for example, in LMICs direct social care costs are small, and informal care provision, that is care provided by social networks like the family, extended family and other social structures predominate. By contrast, in high income countries (HICs), informal care and formal social care account for the majority of costs (45% and 40%, respectively), and a much lower proportion of the costs are direct medical costs (15%) (WHO, 2012). Given the scale of informal care input in LMICs that comes with this type of health care need, the interface between health care interventions and informal care is, it can be argued, much more important in LMICs than in HICs. The very use of health care interventions can promote the need for social care and informal care. Whilst in HICs, the links with, and even integration of health and social care systems is becoming more prominent, the interface between health care interventions and informal care is potentially much more significant in LMICs.

With the family playing a very important role in providing social care in LMICs and with little public spending on social care, it might be expected that LMICs are unlikely to evaluate social care interventions. On the other hand, the unmet demand for health and social care, together with the role of family in providing care in LMICs, makes the evaluation of social care alongside health care interventions as potentially informative and useful in decision-making. When choosing between different services to fund, governments and donors make difficult decisions about which benefits to value most and which benefits to forgo. More investment in HIV/AIDS treatment, for example, may come at the expense of less

investment in end-of-life care. Furthermore, the contribution of family networks to the care of ill and vulnerable individuals could be recognized and accounted for. Relevant examples of social care interventions linked to health care interventions include those forms of health care with community outreach, such as maternity services, HIV care and care of senior citizens. The evaluation of such health care interventions could therefore consider how much informal input is required from the family to make them effective. It is noteworthy whether such health care interventions are designed in a way that mobilizes more informal care than otherwise might be the case. The suggestion therefore is that guidelines for evaluating such interventions might pay more attention to the contribution of social care and informal carers in LMICs, compared to HICs.

This chapter explores the use of economic evaluation to evaluate social care interventions, particularly those linked to health care interventions in LMICs. Furthermore, it aims to explore and describe the availability of methods guideline to facilitate undertaking evaluations generally within LMICs, and the availability of social care-specific methodological guideline. Additionally, it explores if and how informal care is incorporated in the economic evaluation of interventions.

To explore the use of economic evaluation methods guideline in LMICs across all health and social care interventions, an online survey was undertaken. To illustrate the LMIC experience in more detail, five within-country case studies were produced. Section 2 describes the methods used to undertake the online survey and the case studies. Section 3 presents the main results from the survey and the case studies, and Section 4 discusses the case studies. Section 5 discusses the implications of these findings for the economic evaluation of social care interventions and informal care in LMICs, including recommendations for future research.

2. Methods

2.1. Study sample

All countries were categorized as low-income countries (LICs), lower middle-income countries (l-MICs) and upper middle-income countries

(u-MICs) according to the World Bank national income definitions (<http://data.worldbank.org/about/countries-and-lending-groups>). There are 135 LMICs in total. The aim was that the online survey be completed by all LMICs that had official HTA or Pharmacoeconomic studies (PES) guideline; however, it is not known how many LMICs offer this guidance.

To obtain contacts for the online survey, LMIC HTA networks were accessed based on the HTAi registry. HTA networks comprised HTAsiaLink; INAHTA and RedETSA. Key individuals in the LMIC HTA networks were identified from network-member directories (www.inahta.org/our-members/members/; www.vortal.htai.org; www.ispor.org/htadirectory, viewed in June 2015). This search revealed that among LMICS there were 31 registrations with a HTA network, representing 19 countries. Some countries, such as South Africa, had more than one HTA organization registered on the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) list. Over time, registrations with the HTA network are increasing and recently Egypt has been added to the list (January 2016), taking the total to 20 LMICSSs. Added to this, it is not known how many LMICs have some form of HTA which is not registered with an HTA network, therefore informal links with LMICs were also utilized.

2.2. Survey design

A survey was designed (RF, AM, HW) to collect information (see Appendix 2 for the survey) on whether cost-effectiveness studies of social care interventions were undertaken to inform public sector decision-making and if so, the availability of methods guidance specific to social care. Additionally, information was obtained on whether and how informal care was incorporated in economic evaluation studies.

The survey had three components. First, participants were asked for their contact details, the name of the organization and country they worked in, the availability of official within-country guidelines for conducting HTA or PES and further details as available (perspective for costs, type of costs included, preferred measure of outcomes), the type of interventions evaluated by the organization (drugs, medical devices,

diagnostic tests, surgical procedures, public health interventions and social care interventions) and whether social services were available and publicly funded. The second part of the survey focused on social care interventions and was to be completed only if social care interventions were evaluated by the organization. It asked whether the organization had ever evaluated a social care intervention, details of the evaluation if so and whether the official guidelines provided specific methods guidance for the economic evaluation of the interventions. The third part focused on informal care to explore whether the official guidelines provided guidance on the inclusion of informal care in HTA and, if so, details on the recommended methodology.

2.3. Survey implementation

An introductory text was sent to key individuals in the LMIC HTA networks and our informal network, inviting them to participate in the research and to circulate to other network members, specifying the aims and objectives of the survey, as well as providing a link to the survey. Using this strategy, the aim was to ensure that all regions were represented. The survey was administered using Qualtrics survey software www.qualtrics.com/. Through the online survey (see Appendix 2), individuals from HTA agencies in LMICs summarized their country's or agency's general economic evaluation methods guideline and the available health and social care interventions methods guidance, including informal care.

None of the survey questions were set as mandatory and therefore participants were not required to provide an answer to all prior questions in order to progress. Survey routing was used whereby participants' answers determined the appropriate follow-up questions, thus avoiding irrelevant questions. By displaying only relevant questions, it was hoped that participants would be more likely to answer all of the questions presented to them. Two reminder emails were sent to all contacts while the survey was live. These methods were selected to enhance the number of fully completed survey responses. Participants were asked to provide their name and contact details in case there were any follow-up questions.

2.4. Case studies

To obtain a more detailed picture of the economic evaluation methods guideline for health and social care interventions, six individuals working for five HTA organizations were identified from the contacts held by Centre for Health Economics (CHE) and the co-authors, comprising Colombia, Malawi, Thailand, Uganda and Zambia. These individuals were invited to produce short case studies of approximately 500 words describing their agency's or country's economic evaluation methods guidelines and practices in social care and informal care. In contributing case studies, all authors were given co-author status in the final report as recognition of their contribution. No financial reimbursement was offered for producing the case studies.

The case studies aimed to provide a detailed context and an LMIC perspective on the use of economic evaluation within health and social care and informal care. Contributors were asked to describe their country's experience of the funding, evaluation and decision-making for social care interventions and whether and how informal care was considered in HTA. Contributors were asked whether social care interventions were publicly funded, whether social care interventions were formally evaluated in terms of costs and benefits and how such evaluation was conducted. They were also asked to consider describing evaluation of informal care.

2.5. Definition of social care interventions and informal care

In the online survey and for the case studies, social care interventions were defined as services which help people with their daily activities and meet their non-medical, personal needs. These interventions assist people to live independently and safely when they cannot do so on their own. Such interventions, and often health care interventions too, can impact on the use of informal care.

Informal care refers to the help provided to people from family and friends (van den Berg *et al.*, 2004). Tasks might include personal care, as well as organizing personal affairs. Such care might also be provided by formal, paid carers too. Examples of social care interventions are provided in Box 1. For the purposes of this research, the terms social care and long term care were used interchangeably.

Box 1. Examples of social care and formal and informal carer interventions

Interventions	Definition and examples
Personal care	In which people receive assistance from carers with activities of daily living, such as washing, using the toilet, eating, dressing and moving around.
Organizing personal affairs	Assistance from carers with managing transport for medical appointments, medicines management, managing finances and keeping the house clean.
Provision of special equipment	Specialist equipment includes personal alarms, stair rails, stair lifts, walking frames. Also includes e.g. telehealth to help monitor users' health in their own homes, and telecare such as personal alarms to alert others when something is wrong.
Befriending services	Where people with loneliness issues are assigned to a befriender who provides friendly conversation and companionship on a regular basis over a long period of time.

3. Results

The main survey ran from 5 June 2015 to 28 August 2015. Twelve out of the 19 LMICS registered with an HTA network were contacted, including Armenia, Brazil, China, Colombia, Costa Rica, Ecuador, Malaysia, Mexico, Peru, Philippines, South Africa and Thailand. The remaining seven countries, comprising Belarus, Bosnia and Herzegovnia, Bulgaria, Cuba, Georgia, Nicaragua and Turkey were not contacted owing to a lack of access to accurate contact details. Responses were obtained from 11 out of the 12 LMICs contacted. Responses from a further nine LMICs were obtained as part of our informal LMIC network, taking the total to 20 responses (see Table 1). Completed contributions were obtained from individuals working in 20 out of the 135 LMICs (15%) including 11 responses from the 53 u-MICs (21%), six from the 51 l-MICs (12%) and three from the 31 LICs (10%). It is not known how many LMICs in total have HTA- or PES-type guidance, therefore the level of survey coverage

Table 1. Participating countries ($n = 20$).

Country	Region	GNI per capita (Atlas method)*	Income band	Participating organization	Registered with HTA network ^a	Operate official HTA/ PES guidelines
1. Armenia	Europe	\$3,930	l-MIC	Yerevan State Medical University	✓	
2. Bhutan	Asia	\$2,340	l-MIC	Essential Medicines and Technology Division	✓	✓
3. Brazil	Latin America	\$12,310	u-MIC	DECIT SCTIE Ministry of Health (Brazil)	✓	✓
4. China	Asia	\$6,710	u-MIC	China National Health Development Research Center	✓	✓
5. Colombia	Latin America	\$7,770	u-MIC	Instituto de Evaluación Tecnológica en Salud	✓	✓
6. Costa Rica	Latin America	\$9,780	u-MIC	Caja Costarricense de Seguro Social	✓	
7. Ecuador	Latin America	\$5,810	u-MIC	Ministry of Health (Ecuador)	✓	
8. Guyana	Africa	\$3,940	l-MIC	Ministry of Public Health (Guyana)		
9. India	Asia	\$1,530	l-MIC	National Health Systems Research Centre		✓
10. Indonesia	Asia	\$3,740	l-MIC	Center for Health Economics & Policy Studies		✓
11. Kazakhstan	Europe	\$11,560	u-MIC	Republican Center for Health Development		✓
12. Malawi	Africa	\$280	LIC	University of Malawi		
13. Malaysia	Asia	\$10,850	u-MIC	Malaysian HTA Section Ministry of Health (Malaysia)	✓	✓

14. Mexico	Latin America	\$9,720	u-MIC	CENETEC-Salud	✓	✓
15. Nepal	Asia	\$730	LIC	Details not provided		
16. Peru	Latin America	\$6,230	u-MIC	Ministry of Health (Peru)	✓	
17. Philippines	Asia	\$3,340	l-MIC	Department of Health (Philippines)	✓	
18. South Africa	Africa	\$7,410	u-MIC	PRICELESS, University of the Witwatersrand	✓	✓
19. Thailand	Asia	\$5,840	u-MIC	Health Intervention & Technology Assessment Program	✓	✓
20. Uganda	Africa	\$630	LIC	Medical Research Council/ Uganda Virus Research Institute		

Notes: *2013 data (Information sourced from the World Bank: www.data.worldbank.org/indicator/NY.GNP.PCAP.CD).

^a ISPOR HTA directory, INAHTA, HTAsiaLink.

is not clear. Organizations undertaking economic evaluations comprised ministries of health, university-based institutions and HTA agencies. Organizations in the following regions of the world were represented; Africa, Asia, Europe and Latin America.

3.1. Availability of official HTA and PES guidelines by national income category (n = 20)

Based on the survey findings, 11 out of the 20 participating LMICs produced official HTAs or PES guidelines. Of those, the majority (8) were u-MIC. None of the participating LICs and three of the l-MIC countries reported that there are official HTA and PES guidelines available.

Of the 11 countries which produced official guidelines, nine were reported to offer economic evaluation methods guidelines. The stated perspective for the type of costs that were included in economic evaluations were health care costs only (4), health and social care costs (4), a societal perspective on costs (1). In the remaining countries, no methods guideline was provided for recommending a specific cost perspective. The country which recommended a societal perspective on costs (Thailand) stated that the costs comprised health care, private out-of-pocket (OOP) costs and informal care costs.

3.2. Health outcome measures preferred by countries with official HTA and PES guidelines (n = 8)

In LMICs which had official guidelines for conducting HTA or PES, the preferred measure of outcomes were health related. Eight out of the 11 countries offering official guidelines focused on health outcomes, and all stated that they recommended the quality-adjusted life years (QALYs) approach to quantify health care outcomes. Other health outcomes that were also recommended included: life years (5), the disability-adjusted life years (DALYs) (4) and other unstated measures of health (4). The remaining three countries stated that their official guidelines did not specify a preferred measure of outcome.

3.3. Use of informal care in official guidelines

Of the 11 countries that reported having official guidelines, seven reported that no recommendation was made on methods for evaluating informal care. Of the three countries with recommendations, one participant reported that in their country, although the official guideline referred to informal care (Brazil), it did not specify how to measure and value this care. Two participants stated that their official guidelines included informal care and provided specific advice on how to evaluate it (India and Thailand) (Figure 1). In both cases, the participants reported that researchers were advised to quantify informal care either by monetizing informal care by measuring the time spent on informal care and assigning a unit cost, or by including the informal care burden within the health outcome, for example as a QALYs decrement or an increased DALYs burden.

3.4. Interventions evaluated using economic evaluation

When asked about the types of interventions evaluated by their organizations, the most commonly selected types were drugs (19), diagnostic tests or techniques (15), medical devices such as hearing aids (13) and health promotion activities e.g. stop smoking interventions (11)

Figure 1. Use of informal care in official guideline (n = 18).

Figure 2. Interventions evaluated using economic evaluation ($n = 20$).

(Figure 2). These figures are consistent with the most commonly quantified costs reported above. Health care costs were identified as the most common cost to quantify within economic evaluations. Representatives from the seven participating countries reported that their organizations had undertaken economic evaluations of social care interventions which help people with their daily activities. Thirteen out of 20 participants stated that social care services were funded by the public sector.

4. Case Studies

Colombia

In Colombia, social and informal care is mainly provided by families. The Colombian mandatory health benefit package includes explicit reference to health-related activities only. However, within the government-funded programmes to alleviate poverty, individuals may receive some degree of social care. Poverty-alleviation programmes include *De cero a siempre* and *UNIDOS*, among others. *De cero a siempre* (www.deceroasiempre.gov.co) aims to protect the rights of poorer children under five years of age. *UNIDOS* (www.anspe.gov.co/es/anspe/estrategia-unidos) aims to coordinate local, regional and national policies to ensure that the poorest families in Colombia obtain preferential access services offered by the government. These programmes identify individuals at need and signpost them to existing services. The publicly funded

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services are mainly related with health care, public health and nutrition support, although some local charities may provide social care.

HTA in Colombia is to inform decisions about the inclusion of drugs, procedures and devices in the health benefit package include assessment of effectiveness, safety, budget impact and in a few cases by cost-effectiveness analysis. Formal assessment of social and informal care interventions has not been undertaken. The perspective for costs is health. Social and informal care costs are generally not included, as these costs usually fall outside the remit of the Ministry of Health.

Malawi

Formal provision of social care in Malawi hardly exists and this gap is filled by family, friends and sometimes volunteers that are organized as support groups and community-based organizations (CBOs). Most of the individuals who are in need of long-term care such as people with disabilities and people living with HIV and AIDS (PLHIV) depend on family and friends in the form of informal care.

Malawi does not have formal guidelines for conducting economic evaluations, although decision-making on new programmes and interventions are guided by results of economic evaluations. To that effect, economic evaluation studies have been conducted to inform different decisions in general as well as in HIV/AIDS (for example, Orlando *et al.*, 2010; Fasawe *et al.*, 2013; Rutstein *et al.*, 2014).

The existing economic evaluations are not on informal care and they do not include the costs of informal care. In the past few years, there have been attempts to measure and value informal care and include them in economic evaluations of treatments for HIV. One such study is the Lablite Project (lablite.org), which aims to establish the cost-effectiveness of decentralization of treatment. The work recognizes the information and methodological gaps, and makes attempts to provide options for measuring and valuing informal care. A related study and more relevant to economic evaluation of social care, is a study that is assessing the effectiveness of

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facility-based peer support and community-based peer support in providing prevention of mother to child transmission (PMTCT) under Option B plus (Rosenberg *et al.*, 2014). A secondary analysis in this research is to assess the cost-effectiveness of facility-based peer support to women that are on PMTCT under option B plus and using community-based support to mothers on PMTCT under option B plus. The work will establish the cost-effectiveness of the different types of carers (facility-based peer support and community-based peer support) to retain women in care. The utilization of the results from this cost-effectiveness study will depend on the findings of the clinical trial in parallel with this study. If the clinical trial results show that the interventions improve health outcomes, the Ministry of Health will use the findings from the cost-effectiveness study to inform decision-making.

Thailand

In Thailand, social care for people with disabilities and the elderly is typically provided by their families and relatives as this fits with the cultural norms and the traditional mindset (Jongudomsuk *et al.*, 2015). However, around 9% of the elderly live alone (National Statistical Office, 2014). Social care interventions such as temporary or long-term personal assistants, and home repairs or improvements for the elderly who face difficulties are available through the public sector. Informal care tends to be provided through community-based volunteer workers and peer groups through the Senior Citizen Centres in the communities (Jitapunkul and Wivatvanit, 2009, Jongudomsuk *et al.*, 2015). The Thai government has issued a monthly allowance for the elderly (฿600–1,000) and people with disabilities (฿500) through a universal tax-financed scheme. The amount of money that is offered through these schemes is insufficient to fully meet needs, based on the current prices (2014–2015).

With the increased demand for social care due to an aging population, private for-profit paid caregivers and nursing homes have become popular to supplement the supply provided by the public and voluntary sectors. Therefore, some families need to pay OOP to cover these services. Only 0.75%

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of the Thai elderly have paid caregivers as their main caregivers (National Statistical Office, 2014), as the cost is prohibitive to poorer families.

Economic evaluation can play a major role in assisting decision-makers when tackling the issue of social care interventions. However, having searched the Thai HTA database,¹ of the 177 economic evaluation studies undertaken, there has been no economic evaluation of social care interventions (the search covered the entire database up until 30 July 2015). This may be due to the fact that what counts as social care interventions are often burden provided by families rather than the public sector.

From the Thai HTA guideline, informal care cost is recommended for inclusion as a form of direct non-medical costs when conducting cost-effectiveness analysis using a societal perspective (Riewpaiboon, 2014). The informal care cost used the time conversion derived from the Gross National Income (GNI) per capita per hour. This HTA guideline set the standard for all economic evaluation studies aimed at policy-decision-making in Thailand, especially for the development of the Universal Coverage Benefit Package (Mohara *et al.*, 2012) and the National List of Essential Medicines (Teerawattananon *et al.*, 2014). It is noteworthy that there is no explicit system to utilize cost-effectiveness analysis for the development of social care benefit packages under the responsible agency, the Ministry of Social Development and Human Security.

Uganda

In Uganda, social care is mainly provided by families, friends and community members. Some private organizations like Hospice and the AIDS Support Organization (TASO) provide social care in selected communities.

The Ministry of Health in Uganda, through the national minimum health care package, has focused its health care service provision on preventive, curative and maternal and child health services (www.health.go.ug/National_Health.pdf). This may include, but on a very limited scale, some plans for social care including household follow-up of HIV infected persons,

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¹A database that contains economic evaluation studies related to the Thai context published in either Thai or English through <http://db.hitap.net/>.

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pregnant mothers and new borns, and is mainly carried out by volunteer community health workers in Uganda, called village health teams (VHTs).

There is a lack of a comprehensive social security system in Uganda. The national social security fund (www.nssfug.org) works as a saving scheme and is only available to people in private formal employment. The Ministry of Gender, Labour and Social Development, is piloting the Expanding Social Protection Program (ESPP) (www.socialprotection.go.ug/) in a few districts. This initiative was approved by the parliament in 2010 to provide social protection and improve social care and support services for the elderly, orphans and other vulnerable groups. Through direct cash transfers, approximately US\$8 a month is given to individuals over 65 years of age under the senior citizens grants and to families with old people, people with disabilities and orphans. It is expected that this amount would cover both direct costs of health care-seeking and indirect costs such as transport and would be used as compensation for those out of a job. Currently, there are ongoing discussions about a national roll out of these grants. There are plans to do a cost-effectiveness study by ESPP: www.opml.co.uk/sites/default/files/OPM_Uganda%20Report_web_FINAL.pdf.

Health care in Uganda is “free for all” at the government facilities. Free services include consultation and treatment for selected services as specified in the minimum health care package, but do not include re-imbursement for laboratory supplies and drugs purchased by patients due to stock-outs, income loss due to illness, home care support, transport to and from facilities and catering and laundry services for in-patients.

The key health policy document is the Health Sector Strategic and Investment Plan (HSSIP). A costing of the HSSIP 2010/11–2014/15 was done (Chapter 9 of the HSSIP). The costing only considered direct costs in the production, and delivery of health care and was done from the provider perspective, which means the costs to the user and any other indirect costs were not included.

There is a proposed national health insurance scheme that has not yet been approved by the parliament: www.parliament.go.ug/new/index.php/about-parliament/parliamentary-news/477-national-health-insurance-scheme-bill-in-the-offing. A costing of the proposed scheme estimates that an 8% salary contribution from all employees in the formal sector will avail adequate funding for the scheme. However, this proposed scheme only covers direct provider costs of health care and not indirect costs.

Zambia

Zambia is a land-locked country located in the Southern Africa. Its population is around 14 million. Health care is provided by the government, church organizations, private sector and alternative providers, funded through a mix of public, donor and private contributions. There is little formal provision of social care.

The Central Province is one of the 10 Zambian provinces and can illustrate the experience of health and social care in Zambia. The Central Province has 1.3 million people. Life expectancy at birth is 53 years, similar to the average in the country. Approximately two-thirds of the population lives in poverty. Access to health care is poor, particularly in rural hard-to-reach areas.

The Kabwe diocese covers the Central Province of Zambia. It runs five rural health centres, 30 home-based care centres, and five orphanages, where it cares for the health and education of over 3,000 children who are either orphan or vulnerable. Until recently, funding for the education of orphans and vulnerable children was donor-funded. Although education is officially free, in reality children are required to pay fees to be allowed to attend school. Fees are between £5 and £70 per year, depending on the education level, which is unaffordable for many orphans and vulnerable children. There has since been a change in priorities toward HIV/AIDS medication in detriment to other care services. As a result, more than 3,000 children have now limited access to education. This is an example of how prioritizing health may have adverse consequences in other important areas, such as education.

5. Discussion

A growing number of LMICs use economic evaluation alongside HTA to inform decisions on public funding of health care interventions. This trend reflects the idea that decisions on which interventions to publicly fund should be made on the basis of transparent evidence, informed by rigorous analysis (Glassman and Chalkidou, 2012; Chalkidou *et al.*, 2014). Most countries that responded to the online survey have methods guidelines for economic evaluation. These are generally health-focused: the perspective on costs is health or health and social care, the outcomes

include the impact of the intervention on health, and two countries offer guidance on methods for evaluating informal care. In taking this approach, cross-sector impacts beyond health are typically omitted. The exceptions are Thailand, which accepts a societal perspective and whose methods guidelines, along with those for India, recommend that informal care is measured and valued, and guidance is provided as to how to undertake this analysis.

In LMICs, economic evaluation is seldom used in social care. For at least some of the LMICs, the lack of evaluation of social care interventions reflects that it is largely provided by family and friends in the private sphere and that social care is typically not publicly funded. Across the five countries covered in the case studies, there is little public provision of social care and clarity is required on what constitutes social care. Social care may be a small component of poverty reduction programmes (e.g. Colombia) or take the form of direct cash transfers (e.g. Uganda, Thailand), and such programmes might stimulate use of social care. If cash transfers were seen as an essential component of a programme, this could perhaps be subjected to economic evaluation.

It is relevant to consider the social context of LMICs. Whereas in Europe the number of individuals living alone is around 21–58%, the percentage is much lower in LMICs, e.g. 9% in Thailand. Some cultures, such as the Asian culture, are more likely to see as the norm that people's offspring should care for relatives (whether parents, grandparents or the broader family network). Given that public finances do not typically fund social care, economic evaluation research tends to focus on health care interventions. In the future, however, if the demand for social care increases, state-level solutions may become more relevant. As LMICs become richer, there may be more public resources to devote to health as well as social care.

Given the significant contribution of informal care in LMICs, at a minimum, it would be useful to measure the physical quantities of informal care required by some health care interventions. The quantification of informal carer input could be used to highlight this contribution and, where it occurs, to examine the impact of implementing those health care interventions with cross-sector impact, including possible cost-shifting consequences. Consideration of the value of

informal carer input is a step further and is likely to be a lot more difficult, particularly in subsistence economies. The opportunity cost of some family member's time would be very small (e.g. the grandmother who probably has to stay in the house anyway), whereas that of others (e.g. someone who has to give up working in the fields) could be quite high. These valuation issues are also faced in HICs too when, for examples, people retire.

Economic evaluation across health and social care raises methodological challenges, which are common to HICs and LMICs. In economic evaluation, the benefits of interventions are compared to their opportunity costs, which are the benefits forgone or activities displaced in order to invest in the chosen intervention/s. In the Zambia case study, for example, education for vulnerable or orphan children may not have been funded in order to increase the resources available to fund HIV/AIDS interventions. Therefore, the benefits of educating these children may have been forgone in order to achieve the benefits of treating more people, or fewer people with more (costly) intervention in the HIV/AIDS community. If funding decisions are made across sectors, including health, social care and other sectors, use of a common measure of benefit is helpful to compare across different interventions. The challenge is to develop a measure that is both sensitive and reliable to quantify the impact of a wide range of interventions across sectors.

The use of economic evaluation requires the availability of trained professionals to conduct the analyses and country-specific data, as well as funding and political recognition that investment in economic evaluation to inform decision-making is good value for money. Oortwijn *et al.* (2010) have suggested that HTA might be developed further in MICs by promoting understanding of the concept of HTA through sharing expertise and experiences in MICs among professionals, policymakers, academia, industry, health insurance sector, patients, consumer organizations and people in general. In addition, they suggest that another priority is capacity-building since most countries lack the capacity of trained and experienced personnel to carry out, interpret and use the results of HTA. These capacity issues have also been discussed in Tantivess *et al.* (2009). A recent review of HTA tools in sub-Saharan Africa showed a gap in HTA methodology used in poor resource

countries. There is a need to develop appropriate methods and approaches further (Kriza *et al.*, 2014). In those LMICs which offer methods guidelines for the economic evaluation of social care interventions, it would be useful to explore the incentives for undertaking such evaluations locally, to undertake locally relevant evaluations to examine the experience of conducting such evaluations and to follow through to explore findings in terms of the impact on practice.

To our knowledge, this is the first study on the methods and practice of economic evaluation of social care interventions in LMICs. It emphasizes the link between health, social care and informal care and the different implications in LMICs as compared to HICs. It adds to the knowledge base on the conduct of economic evaluation for decision-making in LMICs and notes some challenges faced. The survey provides a snapshot of the methods and practice of economic evaluation in health and social care in LMICs. Over half (12/19) of the LMICs registered within the ISPOR HTA network responded. Feedback on the survey and case studies suggests that there are differences in interpretation of what constitutes social care. The distinction between health and social care and poverty-reducing cash transfers may sometimes be unhelpful. Arguably, if all these interventions share a common public budget, decisions on their funding could be informed by economic evaluations comparing their costs and benefits. To achieve this, however, more research and guidance is needed on the appropriate costs and outcomes for inclusion in the analysis, as well as methods for measuring and valuing informal care and the appropriate threshold value.

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