



Social Return on Investment for Emergency Obstetric Care Training in Kenya

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By

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Dedication

“To all those contributing to making the world a better place for women.”

Abstract

Background: Globally, there has been increasing interest to demonstrate value-for-money of interventions using various approaches including social return on investment, which is a form of social cost-benefit analysis. This study pioneered its application in maternal and newborn health. Specifically, the methodology was used to assess the social impact and value-for-money of an emergency obstetric care training intervention for health care providers in Kenya.

Methods: Qualitative methods and literature review were used to identify key stakeholders who were direct beneficiaries of the training; and map, evidence and financially value its outcomes. These qualitative findings were triangulated with quantitative evidence from existing literature and programmatic data, which helped to establish impact. Quantitative methods were also used to account for the financial investment (input) used to implement the intervention and output produced. Both qualitative and quantitative findings were incorporated into the impact map, to estimate the social return on investment ratio. Sensitivity analyses were done to test assumptions and the pay-back period estimated. Stakeholders who were not deemed direct beneficiaries were engaged to establish strengths, weaknesses, opportunities and threats of the intervention.

Results: Multiple numbers of key stakeholders of the training were engaged via 28 focus group discussions, 18 interviews, and three paired interviews. Trained health care providers, women who received care from them and their newborns are training primary beneficiaries. From the thematic analysis, key emerging themes were that training led to positive outcomes including improved knowledge, skills and attitude with patients. However, there were concomitant negative outcomes including increased workload because of new patient expectation and frustration from inability to practise what was learnt. Women had positive opinions concerning the quality of care that they received. They expected positive outcomes including avoiding maternal and newborn morbidity and mortality. However, women affirmed that negative outcomes could occur, attributable to health care providers, themselves or simply due to chance. These outcomes experienced by both health care providers and women who received care from them have been mostly reported in the literature and evidenced from programme data. However, 'increased workload' is reported as increased care provision in the literature and 'increased frustration due to inability to practise what had been learnt following training' had not been directly linked to training previously.

Based on programmatic data, total implementation costs was £1,079,383 for the 2,965 HCPs that were trained across 93 courses. The cost per trained HCP per day was £72.80. The total social impact for one year was valued at £13,747,173.78, with women benefitting the most from the intervention (73%). For beneficiaries, estimation of attribution, duration, and financial value of these outcomes by the beneficiaries was difficult and variable. Though beneficiaries provided insight for subsequent literature search for values. SROI ratio was calculated as £11.02: £1 and net SROI was £10.02: £1. The payback period for the investment was about one month. Based on the multiple one-way sensitivity analyses, the intervention guaranteed VfM in all scenarios except when all the trainers were paid consultancy fees and the least amount of outcomes occurred.

Implications for policy and research: SROI provides critical additional insight when used to assess value-for-money of EmOC training. However, there are methodological improvements required. In implementing and researching EmOC training, consideration needs to be given to both intended positive and unintended negative outcomes of the intervention. Evidently, to achieve the best results from training, other factors such as optimal human resource distribution and availability of equipment need to be addressed. Use of volunteer trainers, particularly those who work locally, to deliver these trainings is a critical driver in achieving value-for-money for investments made.

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Abbreviations

ACAIFI	Atkisson Compass Assessment for Investors
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
AMI	Absolute Maternal Indications
ANC	Antenatal Care
BACO	Best Available Charitable Option
BEmOC	Basic Emergency Obstetric Care
BoP	Base of Pyramid
BSc	Balanced Scorecard
BVA	Blended Value Accounting
CAQDAS	Computer-assisted Qualitative Data Analysis Software
CEmOC	Comprehensive Emergency Obstetric Care
CBA	Cost Benefit Analysis
CEA	Cost-Effectiveness Analysis
CMA	Cost-Minimization Analysis
CMNH	Centre for Maternal Newborn Health
CRT	Cluster Randomised Trials
CSO	Civil Society Organisation
CUA	Cost-Utility Analysis
D&C	Dilatation and Curettage
DALYs	Disability-Adjusted Life Years
DFID	Department for International Development
DH	Department of Health
DHS	Demographic and Health Survey
EmOC	Emergency Obstetric Care
EOC & NC	Essential Obstetric Care and Newborn Care
FANC	Focused Antenatal Care
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GOK	Government of Kenya
GRI	Global Reporting Initiative
GVE	Global Value Exchange
HCPs	Health Care Providers

HEFCE	Higher Education Funding Council for England
HMIS	Health Management Information System
HSSF	Health Sector Services Fund
ICD	International Classification of Diseases
ICP	Integrated Care and Prevention
IDI	In-Depth Interview
IMCI	Integrated management of childhood illness
KDHS	Kenya Demographic and Health Survey
KHSSIP	Kenya Health Sector Strategic and Investment Plan
KII	Key Informant Interview
KNH	Kenyatta National Hospital
KPI	Key Performance Indicator
LADSI	Labour and Delivery Satisfaction Index
LATH	Liverpool Associates in Tropical Health
LEM	Local Economic Multiplier
LMICs	Low and Middle-Income Countries
LSS-EOC&NC	Life Saving Skills – Essential Obstetric Care and Newborn Care
LSTM	Liverpool School of Tropical Medicine
MARP	Most at Risk Population
MDG-Scan	Millennium Development Goal Scan
MICS	Multiple Indicator Cluster Survey
MIF	Measuring Impact Framework
MiH	Making It Happen
MMR	Maternal Mortality Ratio
MMWG	Maternal Morbidity Working Group
MNH	Maternal and Newborn Health
MOH	Ministry of Health
MOMS	Ministry of Medical Services
MOPHS	Ministry of Public Health and Sanitation
MSC	Most Significant Change
MVA	Manual Vacuum Aspiration
NAO	National Audit Office
nef	New Economics Foundation
NGOs	Non-Governmental Organisations

NPV	Net Present Value
NZAID	New Zealand Aid
OASIS	On-going assessment of Social Impacts
OECD	Organisation for Economic Co-operation and Development
OVC	Orphan and Vulnerable Children
PHU	Peripheral Health Units
PLHIV	People Living with Human Immuno-Deficiency Virus
PLHWA	People Living with AIDS
PMTCT	Prevention of Mother to Child Transmission
PSA	Private Sector Assessment
PSIA	Poverty and Social Impact Analysis
PSP4H	Private Sector Innovations Programme for Health
PTO	Person Trade-Off
QALYs	Quality-Adjusted Life Years
QI	Quality Improvement
RCOG	Royal College of Obstetricians and Gynaecologists
RCT	Randomised Controlled Trials
REDF	Roberts Enterprise Development Fund
RF	Roberts Foundation
RH	Reproductive Health
ROI	Return on Investment
SAA	Social Accounting and Auditing
SAMM	Severe Acute Maternal Morbidity
SBA	Skilled Birth Attendant
SC	Stakeholder Consultation
SCBA	Social Costs-Benefits Analysis
SDR	Social Discount Rate
SIA	Social Impact Assessment
SIAA	Social Impact Analysts Association
SRA	Social Return Assessment
SRH	Sexual and Reproductive Health
SROI	Social Return on Investment
SSQ	Six Simple Questions
STIs	Sexually Transmitted Infections

SVA	Stakeholder Value Added
TBL	Triple Bottom Line
THE	Total Health Expenditure
ToC	Theory of Change
TSO	Third Sector Organisation
UK	United Kingdom
UN	United Nations
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
VfM	Value for Money
VSL	Value of a Statistical Life
WB	World Bank
WHO	World Health Organization
WikiVOIS	Wiki Values, Outcomes, Indicators for Stakeholders
WTP	Willingness-To-Pay

**To aid memory, the first use of acronyms is spelt out in full at the beginning of each chapter.*

1 Introduction

1.1 Overview of the chapter

This chapter starts by setting the stage regarding the maternal and newborn health situation globally and particularly in developing countries. The background describes the global quest to demonstrate value-for-money of interventions using various methodologies including social return on investment. The chapter then introduces the social return on investment framework – its definition, history as well as its strengths and weaknesses. Subsequently, the chapter details the rationale for applying the framework to the maternal and newborn health area, as it relates to this study. Finally, the aim and objectives of this research, as well as an overview of the thesis, are provided.

1.2 Preamble

Several interventions have been explored to reduce morbidity and mortality associated with pregnancy and childbirth. There is substantial evidence in the literature showing the effectiveness of some of these interventions (Campbell and Graham, 2006; Mbonye *et al.*, 2007; Kidney *et al.*, 2009). One of such interventions is emergency obstetric care (EmOC), which are made up of a set of essential lifesaving interventions to pregnant women in case of obstetric complications (WHO *et al.*, 2009). Skilled birth attendants (SBAs), described as “*accredited professionals such as midwives, doctors or nurses who has been trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postpartum period and in the identification, management and referral of complications in women and newborns*”, are detailed to provide EmOC to pregnant women (WHO, 2004). EmOC training packages have been shown to be effective in building the capacity of healthcare providers (HCPs) to deliver this essential lifesaving care to pregnant women (Ameh *et al.*, 2012; van Lonkhuijzen *et al.*, 2010; Spitzer *et al.*, 2014).

However, despite these trainings, an estimated 284,000 women still die from preventable pregnancy-related causes. 99% of these deaths occurred in low- and middle-income countries (LMICs), where a wide disparity still exists in the maternal mortality ratio (MMR) (number of maternal deaths per 100,000 live births), with between 280 and 1,000

maternal deaths per 100,000 live births reported (WHO, 2014c). While the rate of global maternal mortality rate decline since 1990 (2.6% per year compared to the 5.5% annual decline required to achieve the millennium development goals (MDGs)) has been of concern, limited available public resources have created a need to account for the value-for-money (VfM) of interventions. This need is aimed at maximising the use of the limited resources, ensure socio-economic efficiency and better-quality resource allocation for the wider good of people (Taylor and Bradbury-Jones, 2011; WHO, 2014c). Traditionally, cost-effectiveness, cost-utility and cost-benefit analyses have been used to assess VfM of interventions (NICE, 2013). However, recently, social return on investment (SROI) has been promoted as a tool for assessing VfM (Nicholls *et al.*, 2012).

1.3 What is social return on investment?

In a previous definition, social return on investment (SROI) was defined as *“a simple financial assessment of socio-economic value. SROI compares a project’s net benefits to the investment required to generate those benefits over a certain period”* (Emerson and Cabaj, 2000).

Over time, there have been modifications to this definition. In the current SROI methodology guidance, SROI is defined as *“a framework for measuring and accounting for the much broader concept of value. It seeks to reduce inequality and environmental degradation and improve wellbeing by incorporating social, environmental and economic costs and benefits, using monetary values to represent them”* (Nicholls *et al.*, 2012). The methodology strives to reduce inequality by engaging people who have benefited from the intervention to account for its value, as such comparisons can be made between groups. The New Economics Foundation (nef), on the other hand, defines SROI as *“an analytic tool for measuring and accounting for a much broader concept of value, taking into account social, economic and environmental factors”* (nef, 2014).

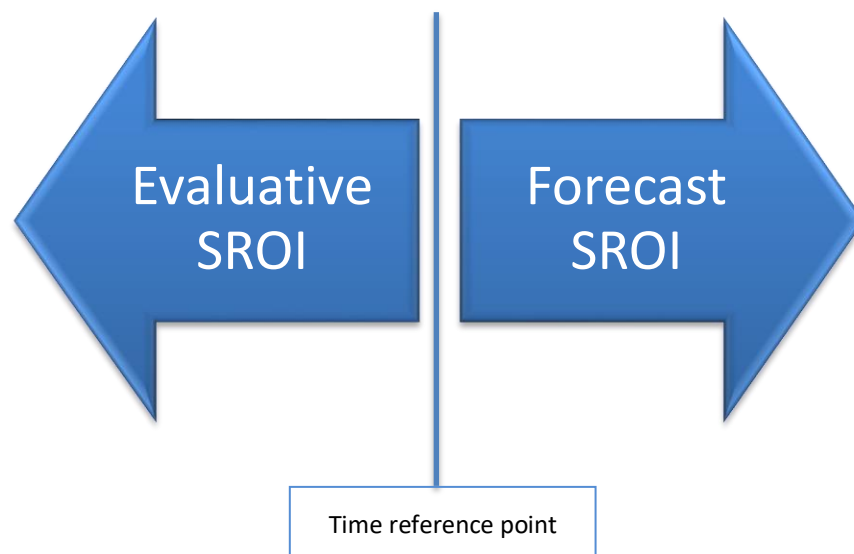
The substance of both definitions is the same. However, in this thesis, the focus was on the broader social outcomes of an intervention. SROI has therefore been defined as a framework that measures broader social change from the perspective of stakeholders who have experienced or contributed to a specific intervention, project, programme or policy.

The collection of data and ensuing analyses allow estimation of a benefits-to-costs ratio. For example, a ratio of 5:1 indicates that an investment of £1 delivers £5 of social value.

There are two different types of SROI, depending on the time reference point selected for analysis (Nicholls *et al.*, 2012) [Figure 1.1]:

- Evaluative (Retrospective) SROI: This retrospectively measures the social impact of outcomes that have occurred already.
- Forecast (Prospective) SROI: This SROI-type estimates how much social impact will be created if the planned activities achieve their intended outcomes.

Figure 1.1: Types of social return on investment



1.4 History of SROI

A review of the development of SROI would aid understanding of the initial considerations of those who developed the tool and the capabilities and potentials of the framework. This historical understanding is critical for this research. It provides the foundation for development and application of the SROI framework in the maternal and newborn health (MNH) area.

The Roberts Foundation (RF) first developed the SROI framework in 1996, presented in a report titled “*New Social Entrepreneurs: The Success, Challenge and Lessons of Non-profit Enterprise Creation*” (REDF, 1996). The purpose of the first SROI report by REDF was to

demonstrate the blend of financial, social and environmental value that all the social enterprises within REDF's funding portfolio were producing compared to the total investment the organisation was making. This first SROI did not attempt to account for all benefits accrued from a programme but estimated the cost savings or revenue contributions that could be attributed to the programme. The framework utilised a modified discounted cash flow analysis for this calculation to demonstrate impact (Emerson and Cabaj, 2000; Emerson, Wachowicz and Chun, 2000).

In 1997, the RF, under its new initiative - Roberts Foundation Enterprise Development Fund (REDF) updated the SROI framework to have the capacity to account for the total organisational social return on investment and adjusted it to be able to account for actual performance that could be continuously monitored. In addition, REDF recognised more limitations in the framework (Emerson, Wachowicz and Chun, 2000). The concepts that underpinned the development of this first framework have been built upon in the subsequent development of the SROI framework over the past two decades (Tuan, 2008). Guidelines for SROI application were produced in 2000 (Emerson and Cabaj, 2000), 2004 (Lingane and Olsen, 2004) and 2006 (Scholten *et al.*, 2006). Subsequently, in 2008, the United Kingdom (UK) Office of the Third Sector (Now referred to as the Office for Civil Society (Civil Society, 2010)) managed social enterprises, charities, and voluntary organisations in the Cabinet Office (UK Government, 2014). The office launched the Measuring Social Value project (Arvidson *et al.*, 2010) and this led to the development of an updated guideline in 2009 (Nicholls *et al.*, 2009) and the production of a further revision three years later (Nicholls *et al.*, 2012).

These revisions have over the years integrated the initial REDF SROI framework, which was primarily a measurement tool for social impact with principles and processes ordinarily used in economic evaluations and financial return on investment, to build a framework that captures social, economic and environmental impacts of interventions (Rotheroe and Richards, 2007). This concept of capturing the broader impact is broadly referred to as the "*triple bottom line*" (Norman and MacDonald, 2004), which is in itself encapsulated within the "*blended value accounting*" theory (Emerson, 2003). Furthermore, through this evolution, a more detailed stakeholder analysis is now included, shorter time frames are used for estimations and a process to adjust the results for outcomes that may be attributable to different organisations or interventions has been incorporated into the calculation of the SROI ratio (Tuan, 2008).

Discussions on how best to structure the framework are on-going and networks such as the European SROI Network (ESROIN), formed in 2004, the SROI Network (International) (SROIN), formed in 2008 and subsequently affiliated networks formed in Sweden, Canada and Australia, are constantly leading and shaping this process. SROI is gradually gaining interest in Africa and Asia too (SROIN, 2014a). The drive to develop SROI has come from within as well as without the third sector, where third sector organisations (TSOs), such as not-for-profit organisations, charities and voluntary organisations, are increasingly getting involved in delivering public services and are viewed as development partners who need to show 'value-for-money' (VfM) (Netten *et al.*, 2010). As such TSOs aimed at becoming better in being accountable and demonstrating the value of their activities to donors. More so, the focus of funding organisations has shifted from "output to impact" and from "charitable giving to accountable giving", through which they can demonstrate that evidence-based processes informed their choice of funded interventions (Leat, 2006).

1.5 Application of the SROI methodology

The application of the SROI framework can vary from measurement of the VfM delivered by an intervention, a project, a programme or indeed an entire organisation (Millar and Hall, 2013).

Although a rapid search of academic databases does not retrieve substantial amounts of research that have used SROI, the framework is very popular within the third sector and has been increasingly embraced by the Office of the Civil Society, donors, commissioners and the public sector (Ainsworth, 2010; Heady, 2010). It has been suggested that wider practice-based use of SROI with the limited application within academia may restrict its development as a methodology (Arvidson *et al.*, 2010; Ebrahim and Rangan, 2010).

Since its first use by REDF in 1996 (Emerson and Cabaj, 2000), SROI has been broadly applied to many organisations and within many industries. Examples of its use across different sectors include agriculture, where it was used to account for the impact of care farming (Leck, 2013); and environmental, where it was used to account for the impact of a natural regeneration project (Weston and Hong, 2012). In addition, SROI has been applied in the energy sector, where it was used to account for impact of energy efficiency of homes in Germany (Kuckshinrichs, Kronenberg and Hansen, 2010); social, where it was

used to account for impact of providing training and employment for blind people (Sital-Singh, 2011); and transport, where it was used to account for social impact of a communal transport service which provided travel access to training, workplace, and childcare in rural Scotland, where no alternate mode of transportation was available (Wright *et al.*, 2009).

In health, where amongst other examples, SROI has been used to account for impact of a community-based paediatric asthma programme and provision of highly nutritious breakfast for school children in Sydney, Australia (Varua and Stenberg, 2009; Bhaumik *et al.*, 2013). Further details regarding SROI application in health are presented in depth in [Chapter 3](#) (*Published output of this thesis* (Banke-Thomas *et al.*, 2015)), which describes a systematic review of SROI application in public health, conducted as part of this thesis. However, it is worth noting, that in 2009, the UK Department of Health (DoH), with the support from the Cabinet Office, commissioned an action research project on which five health-focused social enterprises were supported to conduct SROI analysis (Department of Health, 2010). This research showed the relevance of SROI for demonstrating the VfM of interventions and proved that there were additional benefits of using the framework, as compared to others, particularly within the health sector (Millar and Hall, 2013).

1.6 Difference between SROI and other related analytical tools

SROI has evolved from a combination of social impact assessment tools and economic evaluation tools (Nicholls *et al.*, 2012). It is, therefore, important to understand how SROI differs from these and identify what is innovative about the SROI approach.

For measuring and accounting for social impact, a number of tools have been previously or are currently being used (Emerson, Wachowicz and Chun, 2000; Owen and Swift, 2001; Schaltegger *et al.*, 2004; Clark *et al.*, 2004; Acumen Fund, 2007; Brest and Harvey, 2008; Centre for High Impact Philanthropy, 2008; Maas, 2008; Brest, Harvey and Low, 2009; Maas and Liket, 2011; Maughan, 2012; Nicholls *et al.*, 2012) [[Table 1.1](#)].

[Table 1.1](#) shows the key characteristics of these different social impact measurement tools as described in the literature, identifying: tools that monitor efficiency and effectiveness of outputs using indicators (process), tools that estimate outputs and outcomes, tools that substantiate incremental outcomes above what would have

occurred if the intervention was not implemented (impact) and tools that monetise outcomes by giving them a financial value (monetisation). Finally, the table details the sector(s) in which the method has thus far been applied – non-profit (third sector), for-profit (commercial) or public sector (government).

Table 1.1: Summary table of social impact assessment tools

Tools	Process	Outcome	Impact	Monetisation	Primary application to date		
					Non-Profit	For Profit	Government
Acumen Scorecard	•	•			•	•	
Atkinson Compass Assessment for Investors (ACAFI)	•	•	•			•	
Balanced Scorecard (BSc)		•	•		•		
Benefit-Cost Analysis		•	•	•	•		•
Best Available Charitable Option (BACO)		•	•	•	•		
Base of Pyramid (BoP) Impact Assessment Framework		•	•	•	•	•	
Cost per Impact		•	•		•		•
Expected Return		•					
Global Reporting Initiative		•	•				•
Local Economic Multiplier (LEM)		•			•		•
Measuring Impact Framework (MIF)		•				•	
Millennium Development Goal Scan (MDG-Scan)		•				•	
Most Significant Change		•			•		
Ongoing Assessment of Social Impact (OASIS)	•	•	•		•		
Poverty and Social Impact Analysis		•	•	•	•	•	
Social Accounting and Auditing (SAA)		•	•		•		
Social Costs-Benefits Analysis (SCBA)		•	•	•	•		
Social Return Assessment (SRA)	•	•				•	
Social Return on Investment (SROI)	•	•	•	•	•		
Stakeholder Value Added (SVA)		•				•	
Theory of Change	•	•			•		

Of these social impact measurement tools, SROI appears to have been more highly rated, because of its involvement of all stakeholders, including beneficiaries, who independently define the value they have experienced because of the intervention. This capacity, described as “subjective wellbeing” is an important characteristic desired of social impact assessment tools in the development sector (United Nations General Assembly, 2014). In addition, SROI monetises costs and benefits and also ticks all the boxes of the logical framework, as it accounts for inputs, processes, outputs, outcomes and impact (Arvidson *et al.*, 2010; Nicholls *et al.*, 2012) [Table 1.1]. These were some of the key considerations in selecting the SROI methodology for this thesis.

When compared to economic evaluation tools that compare costs and benefits of one or more alternative interventions/projects/programmes, SROI also provides some form of cost-benefit ratio as an output (Drummond *et al.*, 1997). Economists have described four types of economic evaluation: Cost-minimization analysis (CMA), cost-effectiveness analysis (CEA), cost-benefit analysis (CBA) and cost-utility analysis (CUA). While the definition of cost remains the same, the manner of accounting for the benefits differs across these tools (Drummond *et al.*, 2005). Measurements of benefit for these different types of economic evaluation tools are described below:

- Cost-minimization analysis (CMA): This is often used when there is proven evidence of equivalent effectiveness of the comparators in question. Thus, the more cost-effective option would be the cheaper one (since both options have similar outcome).
- Cost-effectiveness analysis (CEA): Effectiveness is measured in “natural units” such as life-years gained.
- Cost-benefit analysis (CBA): Costs and benefits are monetized, with the cost-effective option being the one that results in a lower monetised ratio.
- Cost-utility analysis (CUA): Outcome is measured in “Quality-adjusted life years (QALYs)” or “Disability-adjusted life years (DALYs)”, which is a composite metric of both length and quality of life.

The social lens of SROI is very similar to that of traditional economic evaluation tools such as CEA or CUA when conducted taking a societal perspective and an extra-welfarist approach (Gyrd-Hansen, 2005; Edwards, Charles and Lloyd-williams, 2013). However, when compared to SROI, whereas a significant focus of economic evaluation tools is on the microeconomic single outcome assessments, SROI accounts for not just economic value of one outcome measure, but for multiple outcomes. As compared to CBA specifically, it has been described as an extension of CBA that incorporates broader socio-economic outcomes with an extra-welfarist approach (Westall, 2011). In addition, SROI focuses on stakeholders, uses financial proxies and can be used as a management tool. SROI involves a co-creation of the intervention's theory of change with those who are beneficiaries. However, comparability of estimated SROI ratios is difficult, unlike CBAs that are designed to be comparable. However, these differences appear to be largely based on *"the style of each approach, rather than the true substance"* (Arvidson *et al.*, 2010; Nicholls *et al.*, 2012).

1.7 Strengths and limitations of SROI recognised in the literature

1.7.1 Strengths of SROI

Some of the perceived key strengths of SROI include:

- The SROI process provides a platform for meaningful stakeholder engagement, and it represents benefits of the intervention for stakeholders in ways that are unique to the stakeholders themselves. This provides a detailed understanding of the "Why?" and ultimately generates a single ratio capturing the broader impact (positive and negative) of an intervention (Millar and Hall, 2013).
- The fact that the 'benefit experience' is being explained from the perspective of the stakeholder is a unique characteristic of SROI, which is often neglected in conventional impact evaluation tools (Rauscher, Schober and Millner, 2012).
- SROI provides a platform for social enterprises to communicate their impact effectively (Mdee, Lyne and Cornelius, 2008).

- The SROI process strengthens accountability and transparency systems of social enterprises (Arvidson *et al.*, 2010).

1.7.2 Limitations of SROI

Limitations of SROI include:

- Methodological limitations that have been raised such as the difficulty of assigning financial values to “soft outcomes” that require subjective evaluation to generate “*financial proxies*” for outcomes (Lingane and Olsen, 2004) such as self-esteem or confidence (Bertotti *et al.*, 2011).

Albeit still in developmental stage, the Global Value Exchange (GVE), formerly Wiki Values, Outcomes and Indicators for Stakeholders (WikiVOIS) database of the SROI Network is an attempt to standardise these outcomes by recommending indicators and values of such outcomes that can be used to account for them (Rauscher, Schober and Millner, 2012). An example of a health-related outcome on WikiVOIS is “change in incidence of abortion”. Contributors to the database have suggested that “cost of medical termination of pregnancy” can be used to value this outcome in Canada (Social Value UK, 2013).

- SROI needs an estimation of “*what would have happened anyway*” to calculate the value that can be attributed to the specific organisation, programme or intervention. However, this counterfactual data is seldom available (Heady, 2010; Cordery, 2013).
- The lack of comparability of SROI ratios across different organisations and interventions is perceived as a limitation (Ryan and Lyne, 2008).
- On a practical note, SROI is adjudged to be cost-intensive as it requires the expertise and know-how of professionals and in some cases training, some of which small organisations cannot afford (Wood and Leighton, 2010).

1.8 Rationale for the study

For most interventions or programmes that aim to address MNH needs, the key stakeholders are the women and their families. There is currently no tool that captures the perspectives of all stakeholders on the impact of any intervention in one summary figure. Critically, MNH interventions or programmes require such tools that may be potentially useful in describing their broader impact and identifying which interventions with the highest social impact and VfM. Some authors have pointed out that such a complete evaluation could lead to the identification of the most culturally appropriate intervention for each local setting and peculiar issues unique to the setting. There have also been calls to move away from tools that solely use indicators such as life years saved or maternal mortality rate, which are only quantitative and do not capture softer outcomes that also demonstrate the impact of an intervention (Pradhan, 2008; McPake and Koblinsky, 2009).

Other authors have opined that MNH programmes desperately need not just a holistic impact measurement tool, but also one that can capture all outcomes, notwithstanding when they occur, especially as MNH outcomes mostly occur over a period (Okonofua, 2005; Canning and Schultz, 2012). SROI lays claim to having the capacity to capture short and long-term effects of any intervention (Arvidson *et al.*, 2010; Nicholls *et al.*, 2012).

Conventional economic evaluation tools such as cost-utility analysis (Windsor *et al.*, 1993; Hu *et al.*, 2007) and cost-benefit analysis (Lappalainen *et al.*, 1995) have all been used to evaluate VfM of MNH interventions. However, they have all posed different challenges to providing a holistic perspective on the impact of such interventions. Applicability of economic evaluation tools, such as CUA and CBA for MNH have also been queried because they are mostly relevant for disease states, focused on the five leading causes of maternal morbidity and mortality (haemorrhage, eclampsia, sepsis, obstructed labour, and abortion). Also, they are difficult to adapt when trying to estimate the benefit of non-diseased state focused interventions like an EmOC training intervention (AbouZahr, 1999). SROI makes a claim to have the capacity to evaluate various interventions, and give monetary valuations of outcomes of such interventions (Arvidson *et al.*, 2010; Nicholls *et al.*, 2012), which are highly demanded in austere periods like the global community presently faces (Taylor and Bradbury-Jones, 2011). SROI captures broader outcomes, and

has the ability to demonstrate VfM of an intervention as well as compute the diverse views of several key stakeholders in a singular SROI ratio (Nicholls *et al.*, 2012).

At the time of developing this study, there were limited studies that attempted to demonstrate the potential impact of EmOC training on women who received care from the trained health care providers (HCPs). Most impact assessments of EmOC trainings used the Kirkpatrick 4-level training evaluation tool [Reaction – Learning – Behaviour – Results] (Kirkpatrick, 1979). A previous systematic review on the effectiveness of EmOC trainings in LMICs, using this framework (van Lonkhuijzen *et al.*, 2010) revealed that most studies included expressed difficulties in attributing effects of the training to outcomes (Level 4), as only three evaluations (O'Rourke, 1995; Orero *et al.*, 2003; Warren and Liambila, 2004) of 38 included EmOC training evaluation studies explored possible impact that the EmOC training had on women who received care from the trained HCPs. Reported level 4 outcomes included 'reduced number of women with prolonged labour', 'fewer number of pregnant women had fits during management', 'improved patient satisfaction' and 'increased number of referrals'. In concluding, authors of the systematic review suggested that level 4 outcomes should describe "*what are the tangible results of the programme in terms of patient outcome, reduced cost, improved quality etc.?*" (van Lonkhuijzen *et al.*, 2010). Subsequently, some authors, using the same 4-level training evaluation framework demonstrated the impact of the training at level 4 based on the increased availability of critical EmOC interventions six months after the training (Ameh, Adegoke, *et al.*, 2012). SROI provides an opportunity to capture the broad impact of an EmOC training intervention on trained HCPs and other beneficiaries. For example, women who received care from the trained HCPs and her community.

All these reasons underscore the need to explore innovative frameworks that can potentially respond to some of these challenges, while also addressing the unique requirements of an MNH VfM assessment tool. Though applicable and relevant, to the best of our knowledge, there is no documented application of SROI within the MNH area in the peer-review literature. This research uses SROI to retrospectively evaluate the social impact and value-for-money of the EmOC training package, which is part of the 'Making it Happen' (MiH) programme in Kenya. Kenya and other low and middle-income countries (LMICs) would potentially benefit from outputs of this research, which could be relevant in providing evidence to demonstrate the holistic impact of such health worker capacity building MNH interventions in similar settings.

1.9 Research questions

Based on the above rationale, five key research questions emerge:

1. Who are the primary beneficiaries of EmOC training and EmOC received after training?
2. What are the outcomes that beneficiaries attribute to EmOC training and EmOC received after training?
3. What financial value do beneficiaries put on outcomes attributed to EmOC training and EmOC received after training?
4. What is the evidence base in the literature and programme data regarding outcomes attributed to EmOC training and EmOC received after training?
5. What is the social return on investment on EmOC training implemented in Kenya?

1.10 Aim and objectives

1.10.1 Aim

This research seeks to apply the social return on investment methodology to evaluate the value-for-money of training health care providers in emergency obstetric care.

1.10.2 Objectives

1. To explore how social return on investment has been used with regard to public health interventions, via a systematic literature review.
2. To identify and map the relationship between key stakeholders of an emergency obstetric care training intervention in Kenya.
3. To assess opinions of key stakeholders on the outcomes and value of emergency obstetric care training in ways that are relevant to them, using qualitative methods.
4. To assess opinions of key stakeholders on the outcomes and value of emergency obstetric care received from trained health care providers in ways that are relevant to them, using qualitative methods.
5. To identify relevant data to demonstrate the theory of change of the emergency obstetric care training from the programme and existing secondary sources.
6. To assess the social return on investment of the emergency obstetric care training, leveraging results from objectives 2, 3, 4 and 5.

1.11 Structure of the thesis

[Chapter 2](#) defines key concepts and theories that are relevant to SROI, and that will aid understanding of subsequent discussions.

[Chapter 3](#) steps back to systematically review the literature on the application of the SROI methodology within the public health domain. This review aims at understanding how the SROI methodology has been used within the health sector to date.

[Chapter 4](#) describes the setting of the research as well as the MiH programme, with a focus on the EmOC training component. A history of the programme, its implementation strategy and the mode of delivery of the training are discussed in this chapter. It then clearly situates the position of the principal researcher within the framework of the research. The chapter then goes on to describe the overall methodology and specific methods used in the conduct of SROI analysis. It continues by describing the epistemological and ontological considerations that underpin the conduct of the research. Then presents a detailed description of the methods used as well as ethical considerations. Finally, the chapter describes the way data was analysed in the research.

[Chapter 5](#) reports the actual findings from the study. The chapter presents results of the stakeholder analysis, the intervention's theory of change based on insights from stakeholders, literature and programmatic evidence, valuation of outcomes and attribution to the intervention, and finally, results of the SROI analysis including sensitivity analysis based on modelling assumptions and payback period calculations.

[Chapter 6](#) draws on all the key results of the research and situates the findings within the wider context of value-for-money assessment in maternal and newborn health. The chapter continues by discussing strengths and limitations of the different research methods used in the research, especially as these affect interpretations of the main findings of the study; then proceeds to propose a framework for the application of the SROI methodology in MNH and discusses implications of the research result.

[Chapter 7](#) sets out the conclusions of the research, lays out stakeholder-specific recommendations and proposes a research agenda going forward.

Key Points

Chapter 1

Introduction

- Social Return on Investment (SROI) is “an analytic tool for measuring and accounting for a much broader concept of value, taking into account social, economic and environmental factors” (nef, 2014).
- There are two types of SROI: Evaluative SROI and Forecast SROI.
- The Roberts Foundation (later known as Roberts Enterprise Development Fund) developed the initial SROI methodology in 1996.
- There have been several updates of the guideline of SROI. The most recent version was published in 2012.
- SROI is different from other social impact evaluation frameworks, as it is the only framework that accounts for process, outcome and impact, while monetising both costs and benefits of interventions.
- Application of SROI has increased globally, as organisations seek for more complete ways to show impact of implemented interventions.
- Though there are recognised limitations of SROI including its challenge in valuing ‘soft outcomes’, establishing counterfactual and comparability of values across interventions, its strengths outweigh these limitations.
- These strengths include its capacity to capture broader values of an intervention in a singular ration, engagement of key stakeholders in its estimation and capacity to strengthen accountability and transparency of programme implementation, monitoring and evaluation processes.
- Though applicable and relevant, to the best of our knowledge, there is no documented application of SROI in maternal and newborn health, published in the peer-review literature.
- This research aims to conduct an evaluative SROI of an Emergency Obstetric Care (EmOC) training intervention in Kenya, where like in many similar countries, maternal and newborn health outcomes are not optimum, despite increasing funding of healthcare including donor contributions.

2 Definition of key concepts relevant to SROI and MNH

2.1 Overview of the chapter

This chapter defines key concepts, terminologies, and theories that are relevant to social return on investment and maternal and newborn health. Defining these terms will be key in aiding understanding of subsequent discussions in this thesis.

2.2 Definitions relevant to social return on investment

2.2.1 Theory of Change

The social return on investment (SROI) framework` requires the establishment of a theory of change (ToC) for its application (Nicholls *et al.*, 2012).

There is no clear consensus as to what the concept of ‘theory of change’ means (Vogel, 2012). Some authors view the ToC as a tool to chart the logical sequence of an intervention, from inputs to outputs and then outcomes (programme logic model) (McLaughlin and Jordan, 1999; Davies, 2004). Others describe the concept as a deeper reflective process amongst stakeholders of an intervention, which reflects on the global perspectives and philosophies of change that underpin underlying suppositions of how and why change may occur because of a particular intervention (Anderson, 2005; Funnell and Rogers, 2011). To resolve this variation, the Department for International Development (DFID) commissioned a review of the use of the construct theory of change in international development. In this review, a unified definition, capturing the thoughts of the two main ideologies previously described, was provided:

Theory of change (ToC) is *“an outcomes-based approach, which applies critical thinking to the design, implementation and evaluation of initiatives and programmes intended to support change in their contexts”* (Vogel, 2012).

A basic ToC details how a series of early and intermediary changes will finally lead to producing long-term goals. These changes are interconnected building blocks, which are also referred to as outcomes, preconditions, accomplishments or results (Anderson, 2005).

It is described as a management tool, which is used for framing solutions to complex societal problems. ToC is a methodology commonly used for planning, monitoring and evaluation in sectors that are focused on promoting social change, including not-for-profit, philanthropy, civil society organisations (CSO), government, research organisations, bilateral and multilateral international agencies. It is also referred to as a pathway of change or change framework (Vogel, 2012). However, there is agreement on the fundamental elements that the ToC methodology must contain. These elements are (Vogel, 2012):

- **Context for the initiative:** including present state of the problem that the intervention is attempting to address, socio-political, economic and environmental conditions within which the initiative will be implemented and stakeholders involved in the change process.
- **Long-term change:** that the intervention is seeking to achieve as well as those that would ultimately benefit from the intervention.
- **Process of change:** anticipated pathway of events that will cause the desired long-term outcome.
- **Assumptions about how the changes might occur:** adding transparency to the process of describing whether the inputs, activities, and outputs will deliver the desired change within the context.
- **Diagram and narrative summary:** that succinctly describes the process.

SROI requires a co-creation of the intervention's ToC with beneficiaries who have experienced the outcomes of the intervention. This may lead to a modification of the ToC based on their input (Nicholls *et al.*, 2012). In SROI, this requires a mix of quantitative and qualitative data, which is very similar to the use of such mixed methods in process evaluations to test hypothesised causal pathways for complex interventions (Moore *et al.*, 2015).

2.2.2 Programme logic models

The SROI methodology uses a type of programme logic model to describe the theory of change (Nicholls *et al.*, 2012). As briefly mentioned above, programme logic models are used to describe the change process across stages. The three most popular variants are (Davies, 2004):

- **Logical framework:** which measures change across four stages ('activities', 'outputs', purpose' 'goal') (Baccarini, 1999).
- **Logic model:** which measures change across five stages namely "inputs or resources, activities, outputs, outcomes and impact" (W.K Kellogg Foundation, 2000).
- **Bennett's hierarchy:** describes change across seven stages "*inputs, activities, people involvement, reactions, KASA (knowledge, attitude, skill, and aspirations) changes, practice change, and end result*" (Bennett, 1975).

The logic model aligns the most to the SROI methodology, which requires the elaboration of the inputs, outputs, outcomes and impact of any intervention (Nicholls *et al.*, 2012). This model will be explained in detail in the subsequent subsection.

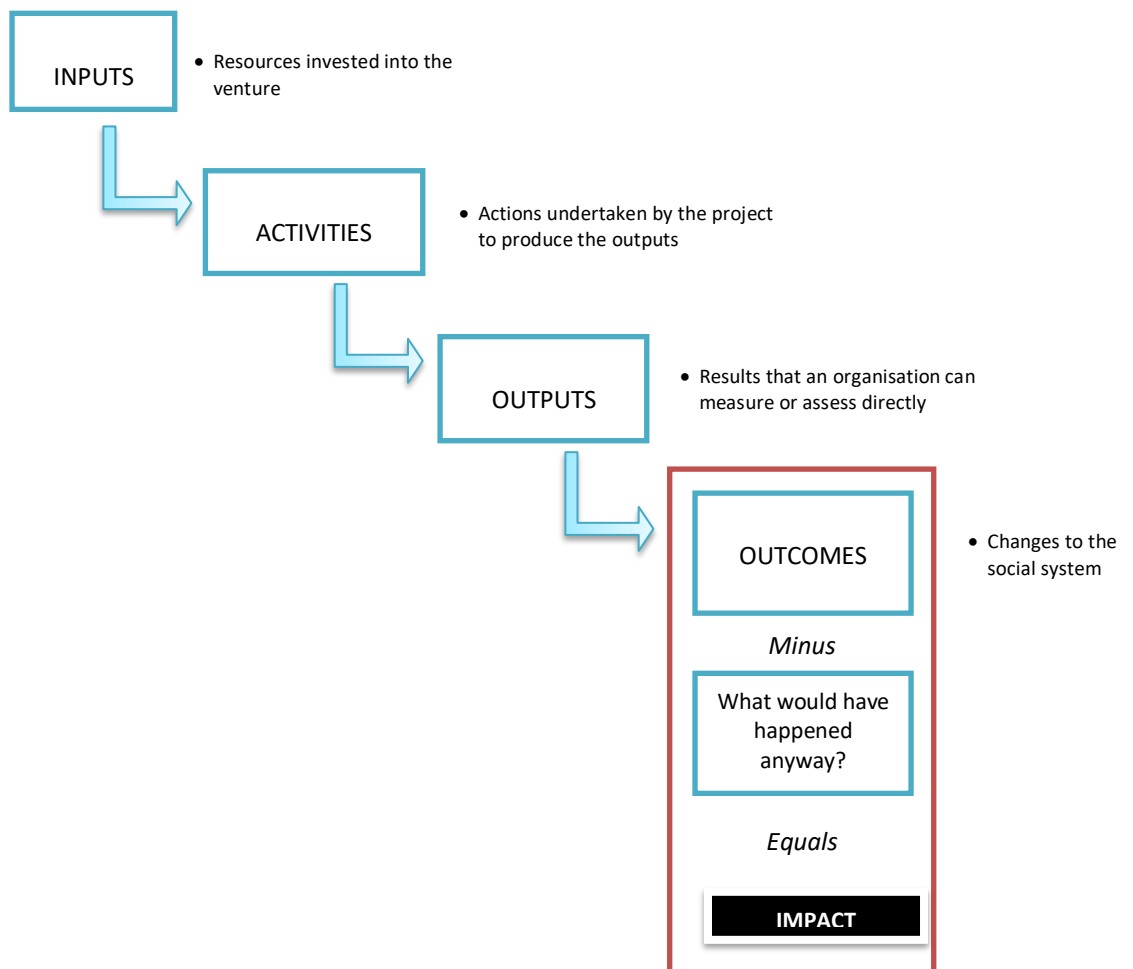
2.2.3 Logic model

Logic model, also known as programme matrix or impact value chain, describes the translation of investments (inputs) to visible results (impact). The logic model describes "*the logical linkages among program resources, activities, outputs and short, intermediate and longer-term outcomes*" (McLaughlin and Jordan, 1999; W.K Kellogg Foundation, 2000) [Figure 2.1]. Several authors have defined these stages of the logic model, and most definitions are very similar. There is consensus on what inputs, activities, outputs, and outcomes are, however, there is no agreement on the definition of "impact". For this thesis, the definitions given by Clarke *et al.* (Clark *et al.*, 2004) will be used, as they align best to the SROI impact model (Nicholls *et al.*, 2012).

- **Inputs** are resources put into the intervention. The intervention/project/programme "consumes" these resources while undertaking the activities. For example, a training programme on emergency obstetric care would require money and people's time as inputs.
- **Activities** are the actions that have to be undertaken as part of the intervention to produce the outputs. The activities may need to be performed over a period. For example, training of the health care providers would be one of the main activities in a training programme on emergency obstetric care.

- **Outputs** are “results that a company, non-profit or project manager can measure or assess directly”. For example, outputs for the training programme on emergency obstetric care could include the number of trained health workers who have successfully completed the training.
- **Outcomes** are “the ultimate changes that one is trying to make in the world”. For the training programme on emergency obstetric care, desired outcomes could include increased confidence of health workers in providing emergency obstetric care or increased number of women utilising health facilities.
- **Impact** is “the portion of the total outcome that happened as a result of the activity of the venture, above and beyond what would have happened anyway” (Clark *et al.*, 2004) [Figure 2.1].

Figure 2.1: Annotation of the logic model (version 1)



Another school of thought, however, defines impact as “*long-term outcomes that follow from the benefits accrued through the intermediate outcomes*” (McLaughlin and Jordan, 1999) [Figure 2.2].

Figure 2.2: Annotation of the logic model (version 2)



While the first definition describes ‘impact’ as a component of the outcome, which only occurred because of the intervention, the second definition describes ‘impact’ as a ‘broader outcome’ and the ‘big picture’ purpose of any intervention.

The World Bank’s Independent Evaluation Group (IEG) recognises this discordance. While the group does not explicitly define impact, it proffers a solution in its description of the purpose of impact evaluation, which is “*an evaluation concerned with establishing the counterfactual, i.e. the difference the project made (how indicators behaved with the project compared to how they would have been without it)*” (White, 2006). This definition provides further justification for the definition of ‘impact’ chosen for this thesis.

2.2.4 Social Impact

The SROI methodology being used in this thesis is focused on demonstrating the social impact of interventions (Nicholls *et al.*, 2012). There are different definitions of social impact available within the literature, with the interpretation of the word slightly different amongst different fields: psychology, business, programme evaluation, policy or social sciences. The term is so widely and diversely used, that a discussion forum of non-profit professionals agreed that there is no consensus regarding the actual meaning of the concept (Clawson, 2009), coupled with the fact that “*social impact*” is often used interchangeably with other terms such as “*social return*” or “*social value*” (Burdge and Vanclay, 1996; Emerson, Wachowicz and Chun, 2000). While some authors have simply used the term ‘Impact’ to refer to the same concept (Clark *et al.*, 2004).

Social impact is:

“The effect of an activity on the social fabric of the community and wellbeing of the individuals and families” (Web Finance Inc., 2014).

“The significant or lasting changes in people’s lives brought about by a given action or series of actions” (Roche, 2005).

“The portion of the total outcome that happened as a result of the activity of the venture, above and beyond what would have happened anyway” (Clark et al., 2004).

“Includes all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society” (Burdge and Vanclay, 1996).

“The great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behaviour, that occur in an individual, human or animal, as a result of real, implied or imagined presence or actions of other individuals” (Latané, 1981).

It appears though that the key message from all definitions described above and therefore would be used as the definition of social impact in this thesis. Social impact is *“the sum positive and negative effects on a population or different populations, which can be specifically attributed to a particular activity, intervention, project, programme or policy, above and beyond what would have happened anyway”*. This definition also closely aligns with the World Bank’s IEG definition of impact that was described in [Section 2.2.3](#).

In this thesis, the aim was to assess the social impact (social return) of the EmOC training intervention.

2.2.5 Social Impact Assessment

SROI is one of the methodologies described in the literature being used for social impact assessment (Arvidson *et al.*, 2010).

Social impact assessment (SIA) comprises:

“The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment” (Vanclay, 2003).

2.2.6 Blended Value Proposition

The Blended Value Proposition (BVP) is the theory that underpins the conduct of SROI research, as the methodology accounts for social, economic and environmental outcomes and engages multiple stakeholders (Ryan and Lyne, 2008; Nicholls, 2009; Westall, 2009).

BVP was first described by Jed Emerson in 2003 as a blend of economic and social outputs and outcomes, which are a direct result of work being implemented by an organisation (Emerson, 2003). The crucial point in the proposition was that organisations would intrinsically create both financial and social value. Contrary to the assumption that organisations who *“make money cannot also be giving money”* (zero-sum battle), both values are interconnected, and an organisation’s focus on social value does not affect the organisation’s financial performance. Emerson proposed that this zero-sum battle make private organisations ignore their broader social impact and conversely reduced incentives for social enterprises to innovate, increase their social impact and transform into competitive entities themselves. This highlights the need to capture the holistic picture of both positive and negative impact of an organisation’s activity (Emerson, 2003).

Different authors have since adopted innovative approaches in systematically accounting for blended value, as the conceptualisation was not prescriptive on how the multiple values of the multiple stakeholders should be captured. There have also been different combinations of methods and practices explored and tested over time (Nicholls, 2009).

2.2.7 Value

The conduct of this thesis would require estimation of 'value' (costs and benefits). Value estimation is integral to the conduct of any SROI study (Nicholls *et al.*, 2012).

The Social Return on Investment Network (SROIN) defines value as:

"The relative importance of changes that occur to stakeholders as a result of an activity" (Nicholls *et al.*, 2012)

The Oxford Advanced Learner's English Dictionary defines value as

"How much something is worth in money or other goods for which it can be exchanged" (Hornby, 2000)

Ivan Alexander in his book titled "To have the mind: A metaphysical reality" asked the question – "How do we measure value?" (Alexander, 1986). He opined that humanity has since surpassed the complexity and sophistication of doing "value-exchange" transactions through the trade by barter system, therefore, the need to use a "third factor" that serves as a go-between or a "medium of exchange". He described main features of this unit of value as "more universally acceptable, to be more easily divisible, recognisable as being itself, transportable, and non-perishable over time". "Money" has all these attributes and therefore fits the bill as a unit for demonstrating value (Ingham, 1996; Ryan, 2014).

For this research, monetary value will be used to provide an estimate of the value of both costs and benefits.

2.2.8 Value-for-money

The SROI methodology demonstrates value-for-money by presenting costs and benefits in monetary terms and relating them to one another (Nicholls *et al.*, 2012). One of the outputs of an SROI analysis is an SROI ratio. So, for example, a ratio of 5:1 indicates that an investment of £1 will deliver £5 of social value.

The term "Value-for-Money" (VfM) is most often used in the Anglo-Saxon world. However, it has most recently gained global interest (Jackson, 2012). There is currently no

consensus definition for VfM within the international community. Some of the varying definitions are presented below.

For the UK Department for International Development (DFID), VfM

“is the best use of resources to achieve intended sustainable outcomes and impact... VfM is about maximising the impact of each pound spent to improve poor people’s lives” (DFID, 2011).

Organisation for Economic Co-operation and Development (OECD) defines VfM as:

“The optimum combination of whole-life cost and quality (or fitness for purpose) to meet the user’s requirement. It can be assessed using the criteria of economy, efficiency and effectiveness” (Jackson, 2012).

New Zealand Aid (NZ Aid) defines VfM as:

“Achieving the best possible development outcomes over the life of an activity relative to the total cost of managing and resourcing that activity and ensuring that resources are used effectively, economically, and without waste” (NZ Aid, 2011).

The most commonly cited definition of VfM is that of the National Audit Office (NAO), which simply describes the concept as:

“the optimal use of resources to achieve the intended outcomes” (National Audit Office, 2014).

Moreover, a more expansive NAO definition is:

“VfM is about obtaining the maximum benefit over time with the resources available. It is about achieving the right local balance between economy, efficiency and effectiveness, or, spending less, spending well and spending wisely to achieve local priorities. VfM is high when there is an optimum balance between all three elements when costs are relatively low;

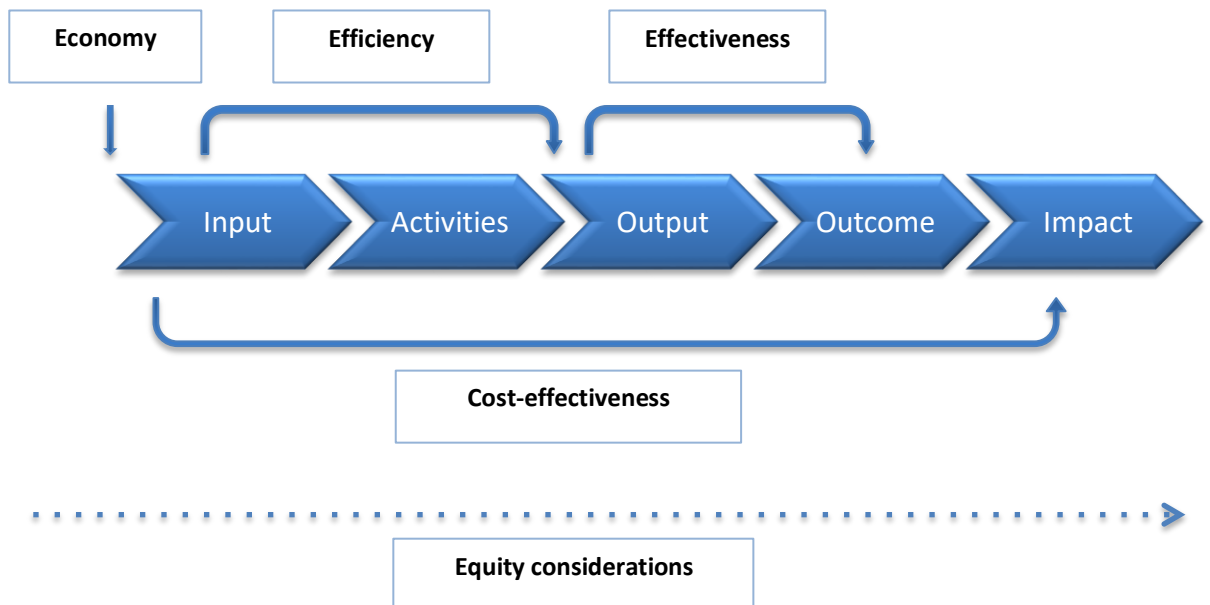
productivity is high and successful outcomes have been achieved” (Barnett et al., 2010)

Specifically, in the health sector, the Global Fund defines VfM as:

“creating and complying with rules or procedures for allocating resources that elicit the production and utilisation of the health maximising mix of health services for the available donor, national and private resources” (Glassman, 2013).

VfM cuts across procurement, programming and delivery of projects. To capture the concept of VfM, NAO proposed the 3Es (Economy, Effectiveness and Efficiency) + CE (Cost-Effectiveness) framework (National Audit Office, 2014). However, DFID added a fourth ‘E’ (Equity) to the 3Es + CE (Cost-Effectiveness) framework to underscore the importance of reaching different groups. This framework is incorporated into the logic model (DFID, 2011) [Figure 2.3].

Figure 2.3: DFID 3Es + CE framework including Equity for Value for Money



Source: DFID’s Approach to Value for Money (VfM), 2011

DFID described these VfM components as responding to the following questions:

- **Economy:** Are implementers or funders buying the inputs (as described in the logic model) of appropriate quality and at the right price?
- **Efficiency:** How well are implementers converting the inputs into outputs?
- **Effectiveness:** How well are the outputs generated from an intervention achieving the desired outcomes?
- **Cost-effectiveness:** How much impact does an intervention achieve relative to the inputs that have been invested?
- **Equity:** How well is the intervention reaching the different groups, including the most vulnerable ones?

The economy is not about the cheapest option but more about purchasing high-quality inputs at the best price. Economy and efficiency are within the direct control of the programme implementers and funders. However, effectiveness is dependent on other external factors, which may not be controllable by the programme implementers or funders. Finally, cost-effectiveness should describe what every input delivers as part of the intended change, as this ultimately improves transparency, accountability and ensures that evidence supports investments in programmes (inputs) such as taxpayer money (DFID, 2011). SROI allows demonstration of these four components of VfM (Nicholls *et al.*, 2012). For equity considerations, this includes making sure our development results are targeted at the poorest and include sufficient targeting of women and girls (DFID, 2011). For the intervention assessed in this thesis, the focus was on women and children and emphasis was placed on areas with the highest mortalities (DFID, 2012).

Globally, the need to ensure that there is proven VfM with interventions, projects, programmes and policies and to demonstrate it in a clear manner has been greatly emphasised by governments and funding agencies (DFID, 2011; Independent Commission for Aid Impact, 2013). Consequently, pre-requisites to be met by implementers from funders have become more demanding and more resource-intensive. Third sector

organisations are mostly required to prove the value they are creating by implementing the intervention and justify the investment made by the funding agencies (Arvidson *et al.*, 2010; Carvalho, 2012). There has now been an increased tendency towards professionalisation of the third sector (Hwang and Powell, 2009), as requirements to obtain funding have become more demanding (Ellis and Gregory, 2008) and not for profit organisation are required not just to show their financial performance, but to clearly showcase the contingent social and environmental impacts of their intervention (Nicholls, 2009).

2.2.9 Impact map

The SROI methodology demonstrates the theory of change and presents the SROI analysis diagrammatically using the “impact map” (Nicholls *et al.*, 2012).

The SROI Network (SROIN) describes an impact map as:

“a table that captures how an activity makes a difference; that is, how it uses its resources to provide activities that then lead to particular outcomes for different stakeholders” (Nicholls *et al.*, 2012).

2.2.10 Social discount rate

SROI requires a social discount rate to be applied to costs and benefits that occur in the future (Nicholls *et al.*, 2012).

A Social Discount Rate (SDR) is defined as:

“the rate of fall of the social value of public sector income or consumption over time”
(Pearce and Ulph, 1995).

The SDR is used in accounting for the value of funds spent on social projects or policies. Discounting converts *“the monetary value of costs and benefits received over different time periods to their present value”*. The term *“discounting”* indicates that £1 received in the future is worth less than £1 received now (Harrison, 2010). The appropriate selection of an SDR is critical for any cost-benefit analysis and has a significant impact on resource

allocations. SDR is used within the SROI methodology, as well as other economic evaluation models, to adjust for the future value of costs and benefits (Nicholls *et al.*, 2012).

The value of future Great Britain Pounds (£) relative to current Great Britain pounds is expressed in terms of what is essentially a time-preference rate or more commonly called a “discount rate”. This rate is expressed as “a percentage rate for a one-year period”. For example, if the discount rate were constant at $\rho\%$ /year, a benefit of B_t Great Britain pounds received in t years has a present value equal to:

$$B_t / (1 + \rho)^t \text{ Great Britain Pounds}$$

For benefits or costs that do have an end, the formula used for the estimate is:

$$(1/\rho)$$

To calculate the net present value (NPV) of a venture, the present values of its costs and benefits are added together over time. The higher the estimated NPV, the more valuable the venture is.

Discussions about the most appropriate discount rate, which should be used for public decisions, have continued for over half a century (Eckstein, 1957; Feldstein, 1964; Gollier and Weitzman, 2010). Baumol described this discourse as permitting economists to exhibit “*very considerable degree of knowledge and very substantial level of ignorance*” (Baumol, 1968).

Specifically, within the use of discounting in economic evaluations of healthcare interventions, practitioners in developed countries have used a range of values from 0% to 7%, with 0%, 3% and 5% being the most commonly used rates. However, developing nations tend to use higher rates, usually between 8 and 15%. Furthermore, while there is a general consensus that both costs and benefits should be discounted at the same rate, there are some practitioners who argue otherwise (Smith and Gravelle, 2001; Zhuang *et al.*, 2007). The appropriate social discount rate should represent the opportunity cost of what else the organisation could accomplish with the same funds (Gruber, 2007).

2.2.11 Materiality

Materiality is a concept borrowed from accounting. A piece of information is material if *“its omission has the potential to affect the readers’ or stakeholders’ decision”* (Nicholls *et al.*, 2012).

2.2.12 Stakeholders

A central concept of the SROI methodology being used in this thesis is a *“stakeholder”*. Identification of who the stakeholders of the intervention are key to defining the impact of the intervention (Nicholls *et al.*, 2012).

The seminal definition of stakeholders is:

“any group or individual who can affect or is affected by the achievement of the organisation’s objectives” (Freeman, 1984).

Another definition describes a stakeholder as

“a person who is affected by the work of an organisation or has contributed to the work” (Phillips, 2010).

In relation to an evaluation process, stakeholders can be defined as:

“individuals, groups, or organisations that can affect or are affected by an evaluation process or its findings” (Bryson and Patton, 2010).

Based on these definitions, a stakeholder in this research will be *“an individual, group, or organisation who can affect or be affected by the EmOC training intervention”*.

One of the principles of SROI is to identify and engage stakeholders related to the intervention in question. There is a need to identify the stakeholders, analyse their interests and classify them (Nicholls *et al.*, 2012).

A previous model classified stakeholders into *“client, project leader’s organisation, outside services and invisible team members”* (whose connection to the project is not

clear, but whose cooperation is critical if the project is to achieve success) (Briner, Hastings and Geddes, 1996). While another author classified stakeholders into “*end users, client organisation, project sponsor and invisible team members, external team members (suppliers and sub-contractors) and community and external independent concerned groups*” (Walker and Hampson, 2008). A health research-policy interphase analysis classified stakeholders into decision makers, providers, scientists and communities (Hyder *et al.*, 2007).

Borrowing from the classification models described above, recognising the peculiar stakeholders involved in MNH interventions, based on insight from the literature (Namazzi *et al.*, 2013) and understanding of the general area of the funding and programme interphase, this research will classify stakeholders into four groups: Beneficiaries, implementers, promoters (supporters) and funders. A brief description of these groups is presented below:

- **Beneficiaries:** are “*the users, those who experience the outcomes of an intervention*”.
- **Implementers:** includes “*project managers, suppliers and subcontractors*”.
- **Promoters:** refers to the group addressed as “*invisible stakeholders*”.
- **Funders:** are “*those who finance the project*”.

2.3 Definitions relevant to maternal and newborn health

2.3.1 Maternal mortality

One of the objectives of the EmOC training intervention being evaluated in this thesis is to save maternal lives and ultimately contribute to a reduction in maternal mortality (CMNH, 2014).

The 10th revision of the International Classification of Diseases (ICD-10) defined maternal mortality as:

"the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any

cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes” (WHO, 2012a).

Concerns have been raised about this definition (AbouZahr, 2003), especially as it relates to the chosen timeline of 42 days, as it is known that some women die beyond this period (Koonin *et al.*, 1988) and secondly, the classification of the cause of death, especially in places where underreporting is common, in both developed and developing countries. However, this definition has withstood the test of time as it is still the most widely acclaimed definition of maternal mortality and is still the operationalized definition being used by the WHO (WHO, 2010b, 2012a).

Though maternal mortality has been declining since the 1990s, the rate of decline is slow, as an estimated 800 women still die daily from preventable pregnancy-related causes. 99% of these maternal deaths have been reported in developing countries (Say *et al.*, 2014; WHO, 2014c).

2.3.2 Maternal morbidity

One of the objectives of the EmOC training intervention is to avert maternal disabilities that lead to maternal morbidity (CMNH, 2014).

There is a lack of consensus on the precise definition of maternal morbidity in the literature and amongst field experts. However, to resolve this challenge and support future programmatic efforts to reduce maternal morbidity, a WHO technical working group, the Maternal Morbidity Working Group (MMWG) has agreed on and proposed a new definition of maternal morbidity to be included in the 11th revision of the International statistical classification of diseases and related health problems (ICD-11).

The MMWG defined maternal morbidity as:

“any health condition attributed to and/or aggravated by pregnancy and childbirth that has a negative impact on the woman’s well-being” (Firoz et al., 2013).

A similar definition of maternal morbidity is

“an overarching term that refers to any physical or mental illness or disability directly related to pregnancy and/or childbirth. These are not necessarily life-threatening but can have a significant impact on the quality of life”
(Koblinsky *et al.*, 2012).

Classification of maternal morbidities also varies, though most classification systems are based on severity and duration. Based on severity, maternal morbidities can range from a non-life threatening condition to a near-miss (See definition in [Section 2.3.3](#)). Based on duration, maternal morbidity can be acute or chronic (Koblinsky *et al.*, 2012; Firoz *et al.*, 2013).

Acute maternal morbidities may include or have been referred to as obstetric complications or maternal complications (AbouZahr, 2003), absolute maternal indications (AMIs) (Belghiti *et al.*, 1998), severe acute maternal morbidities (SAMMs) (Say, Pattinson and Gülmezoglu, 2004), and near-miss (Say, Souza and Pattinson, 2009). All these terms typically describe acute problems that a woman suffers during pregnancy and/or during the 42 days postpartum (Koblinsky *et al.*, 2012).

Chronic maternal morbidities are conditions that occur as a sequel to the birthing process. These conditions are usually not life-threatening but have a substantial impact on the quality of life of the woman after that. Examples include obstetric fistula and uterine prolapse (Koblinsky *et al.*, 2012).

2.3.3 Near miss

Near-miss is related to maternal morbidity. The World Health Organization (WHO) defines near-miss as

“a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy”
(Say, Souza and Pattinson, 2009).

A woman is considered as a near-miss case when she has survived a life-threatening condition (i.e. organ dysfunction) (WHO, 2011a).

2.3.4 Women of reproductive age

Women of reproductive age will seek care from the trained health care providers (HCPs), and the impact this training has on them is the aim of the intervention (CMNH, 2014).

These are “*women between the ages of 15 and 49 years*”. Maternal deaths are the second leading cause of death amongst this population, following Acquired Immune Deficiency Syndrome (AIDS) (WHO, 2013).

2.3.5 Neonatal mortality

One of the objectives of the EmOC training intervention is to avert deaths of newborns (CMNH, 2014). Neonatal mortality refers to “*death within the first 28 days of life*”. Early neonatal mortality refers to a “*death of a live-born baby within the first seven days of life*”, while late neonatal mortality “*refers to a death that occurs after seven days until before 28 days*”. Babies die after birth for various reasons, including because they have a congenital disease, are born very prematurely, have difficulty adapting to extra-uterine life, suffer from obstetric complications before or during the birth process, or because of harmful practices after birth that cause infections (WHO, 2006). An estimated three million babies die within the first four weeks of life (Wright *et al.*, 2014).

2.3.6 Perinatal mortality

One of the objectives of the EmOC training intervention is to avert deaths of newborns, both before and after delivery (CMNH, 2014).

The perinatal period starts at 22 weeks of gestation and ends one week after birth. Perinatal mortality refers to *the stillbirths (in-utero deaths) and deaths (after delivery) in the first week of life (also called early neonatal mortality (Section 2.3.5))*.

Measurement of perinatal mortality has traditionally been seen as a highly adequate epidemiologic tool for evaluating pregnancy outcomes, childbirth and quality of perinatal

care (Richardus *et al.*, 1998). In 2012, there were an estimated 1.2 million stillbirths globally. Amongst the 133 million babies born alive every year, approximately two million babies die in the first week of life, of which an estimated one million died on their first day (Wright *et al.*, 2014). Perinatal and maternal deaths are intricately linked. Patterns of perinatal and maternal mortality are also similar, as most perinatal deaths also occur in developing countries (WHO, 2014b).

2.3.7 Skilled birth attendant

The focus of the EmOC training being evaluated in this thesis is to build the capacity of HCPs and ensure that they are competent enough to be referred to as skilled birth attendants (CMNH, 2014).

The WHO defines a Skilled Birth Attendant (SBA) as:

“an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns” (WHO, 2004).

Though WHO includes only nurses, midwives and doctors in the definition, as stated above, a 2012 survey identified more than 20 different cadres of health care providers (HCPs) who work as SBAs in nine sub-Saharan African countries (Adegoke *et al.*, 2012).

There is evidence to support that there is a correlation between an increased proportion of births attended by SBA and a reduction in maternal mortality ratio (MMR) (Campbell *et al.*, 2005; Adegoke and van den Broek, 2009).

2.3.8 Skilled birth attendance

Skilled Birth Attendance constitutes:

“Skilled Birth Attendants (SBA) working together within an enabling environment” (Adegoke *et al.*, 2011).

Adequate skilled birth attendance during labour, delivery and early postpartum period could prevent as much as 75% or more maternal deaths (Thaddeus and Maine, 1994; Donnay, 2000; Liljestrand, 2000), so much so that percentage of deliveries assisted by an SBA is used as a proxy indicator for reducing maternal mortality (AbouZahr and Wardlaw, 2001).

2.3.9 Maternal and newborn health interventions

The EmOC training intervention being evaluated in this thesis can be classified as a maternal and newborn health (MNH) intervention (CMNH, 2014). MNH programmes “*should include key interventions to improve maternal and newborn health and survival*” (WHO, 2009). The WHO organises key effective MNH interventions in packages across the whole continuum of care, through the periods of pre-pregnancy, pregnancy, childbirth, postpartum, neonatal and childhood. These packages are (WHO, 2010a) family planning, safe abortion care, pregnancy care, childbirth care, postpartum care of the mother, care of the newborn and care during infancy and childhood.

2.3.10 Emergency obstetric care

Part of the pregnancy care package listed above is Emergency Obstetric Care (EmOC), which is the central focus of this research.

EmOC refers to

“care provided in health facilities to treat direct obstetric emergencies that cause the vast majority of maternal deaths during pregnancy, at delivery and during the postpartum period” (Paxton, Bailey and Lobis, 2006).

Based on a pre-defined set of interventions called signal functions, all United Nations (UN) bodies classify this care into two (WHO *et al.*, 2009; UNFPA, 2010) [[Table 2.1](#)]:

- Basic Emergency Obstetric Care (BEmOC)
- Comprehensive Emergency Obstetric Care (CEmOC)

Table 2.1: WHO emergency obstetric care signal functions

Signal functions	
Basic EmOC	Comprehensive EmOC
1) Antibiotics (injectable)	All Basic EmOC functions (1 – 7) plus
2) Oxytocics (injectable)	8) Caesarean
3) Anticonvulsants (injectable)	9) Blood transfusion
4) Manual removal of placenta	
5) Removal of retained products	
6) Assisted vaginal delivery	
7) Basic neonatal resuscitation	
<i>A BEmOC facility is one in which all functions 1-7 are performed.</i>	
<i>A CEmOC facility is one in which all functions 1 – 9 are performed.</i>	

Source: *Monitoring emergency obstetric care: a handbook, 2009*

Approximately 70% of maternal deaths are due to obstetric emergencies - ante- or post-partum haemorrhage, eclampsia, sepsis, prolonged or obstructed labour, ectopic pregnancy, ruptured uterus and complications of abortion (Khan *et al.*, 2006). When women present at facilities with any of these conditions, it is essential that they receive care from health professionals, who are sufficiently knowledgeable and adequately skilled in emergency obstetric care service delivery (Harvey *et al.*, 2007).

Training of HCPs has long been highlighted as a key strategy for improving service delivery and bridging the competency gap. The anticipated outcome is that training will increase the chances of survival of women and ultimately reduce maternal mortality (Harvey *et al.*, 2004; Adegoke and van den Broek, 2009).

This research is focused on measuring the SROI of an EmOC training intervention.

Key Points

Chapter 2

Definition of key concepts

- This chapter provided definition for key concepts related to SROI. These were:
 - Theory of Change
 - Programme logic models
 - Logic model
 - Social Impact
 - Social Impact Assessment
 - Blended Value Proposition
 - Value
 - Value for money
 - Impact map
 - Materiality
 - Social discount rate
 - Stakeholders

- Then provided definitions for key concepts relevant to MNH. These were:
 - Maternal mortality
 - Maternal morbidity
 - Near miss
 - Women of reproductive age group
 - Neonatal mortality
 - Perinatal mortality
 - Skilled Birth Attendant
 - Skilled Birth Attendance
 - Maternal and newborn health interventions
 - Emergency Obstetric and Newborn Care

3 Systematic literature review of SROI application in public health

3.1 Overview of the chapter

This chapter steps back to systematically review the literature on the application of SROI within the broader public health area. This review is aimed at understanding how SROI has been used within the public health area till date with the view of learning best practices that can be applied to this study.

3.2 Introduction

This is a systematic review of the literature, exploring both peer-reviewed and grey literature on the application of social return on investment (SROI) in public health.

3.3 Rationale

There have been previous narrative reviews that critiqued SROI, putting forward its strengths and weaknesses; those that compared SROI with other social impact measurement and economic evaluation tools (Emerson and Cabaj, 2000; Zappalà and Lyons, 2009; Arvidson *et al.*, 2010, 2013; Millar and Hall, 2013) as well as one that systematically reviews guidance on economic evaluation of public health interventions including guidance on SROI (Edwards, Charles and Lloyd-williams, 2013). There is also a review that explores the application of SROI generally across different sectors (Krlev, Münscher and Mülbert, 2013). However, there is none that focuses on its application in the public health area.

This review is critical for this research as it helps to identify best practices in the conduct of SROI that can be applied within this study and in proposing a framework and evidence-based guidelines for subsequent application of the methodology in any area of public health.

Beyond this research, as this is a pioneering review, this review can potentially support the future development and absorption of SROI amongst researchers, especially in maternal and newborn health (MNH) and in the broader public health domain. As though the SROI Network has proposed principles for the use of the methodology (Nicholls *et al.*, 2012), there are critical diverging paths in its practical application left to user discretion, which could

potentially limit its generalizability, reliability and comparability. Also, there is a need to map the application of SROI, identify aspects of public health within which it has been applied and capture lessons learnt from these applications. This information would be essential to help researchers and practitioners in maximising the potentials of SROI.

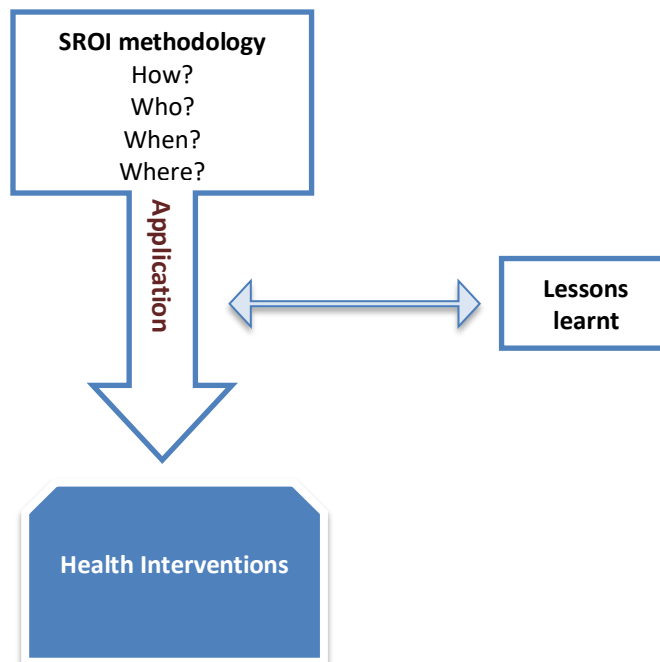
3.4 Objective of the review

This review systematically identifies articles that describe the application of SROI in public health. This review provides a clear overview of areas of public health in which the methodology has been applied, where it has been applied and how it was applied. The review also captures lessons learnt from previous applications of the methodology within the area.

3.5 Conceptual framework underpinning systematic review

As proposed by some authors, it is good practice to develop a conceptual framework that underpins the conduct of a systematic review (Gough, Oliver and Thomas, 2012).

Figure 3.1: Schematic representation of the conceptual framework underpinning the review



The conceptual framework for this review [Figure 3.1] describes the process of identification and description of how? Where? Who? When? SROI has been applied to evaluate public health interventions. Lessons learnt through this process will be captured, and these will

feedback into the application of SROI on public health interventions. By capturing lessons learnt, this would potentially improve the process and ensure that best practices are reinforced.

3.6 Review questions and specific review questions

3.6.1 Review questions

1. How has SROI been applied on health interventions?
2. Where has SROI been applied on health interventions?

3.6.2 Specific questions

1. What is the geographical range of documented SROI use in health?
2. What areas of public health has SROI been applied?
3. Who were the stakeholders engaged in public health SROI studies?
4. How were costs and benefits accounted for SROI studies in public health?
5. What lessons have been learnt through its application in public health?

3.7 Search strategy

A preliminary search was conducted in September 2013 to scope the literature for similar studies that described SROI methodology. This preliminary search helped to test proposed search terms, explore other potential search terms and identify the potential contribution that the review could have in the wider research and operational communities.

Search strategy for peer review database search and grey literature search are presented in [Appendix 1](#).

3.7.1 Search terms

Initial search terms used for the preliminary search were “social return on investment” and “SROI”. From the other studies reviewed during the preliminary reading, more search terms were explored. These were: “blended value accounting”, “return on investment”, “ROI”, “economic return on investment”, “social rates of return on investment”, “social value” and “social impact”.

The preliminary search revealed the inadequacies of some of the proposed search terms. “SROI” was not specific for social return on investment, as the acronym also meant “sustainable return on investment”, “spontaneous reduction of intussusception”, “student rating of instruction”, “scalable return on investment”, “seed regions” (Neurology) and “segmented region of interest”. Secondly, the search revealed that “blended value accounting” was the theory that framed the social return on investment and thus a relevant search term to include. Also, the use of the terms “return on investment”, “ROI”, “economic return on investment” and “social rates of return on investment” was not sensitive for social return on investment, which was the interest of the review. Moreover, finally, “social value” and “social impact” were broadly related to social return on investment and were seldom used to mean social return on investment. Following this exploration, the decision was made to use the search terms “social return on investment”, “SROI” and “blended value accounting” which were combined with “health” OR “public health” within peer reviewed databases.

For grey literature, SROI studies were identified via review of their titles, abstract or executive summary and/or full-text review from the databases and where possible, SROI studies were identified with the same final search terms described above.

3.7.2 Databases consulted

To find useful databases that could potentially contain relevant publications, the University of Liverpool’s Discovery platform (which includes several journal databases, journals, e-books, theses and historical collections) was used. This action was taken to give direction to the most relevant databases. As SROI has been used across a range of sectors, it was essential to widen search beyond only public health-focused databases. Thus, databases that archived articles from management and social sciences were also explored. Also, articles that were archived within the database of the Social Return on Investment Network (SROIN) were included. A preliminary reading showed that some students had attempted SROI studies in their Masters and doctoral theses, Proquest was thus included as this database archives previous theses.

In the final analysis, we searched PubMed, Scopus, Google Scholar, as well as the SROIN and New Economics Foundation (nef) databases for articles. These databases (with relevant time

periods covered in the search outlined below) were searched, and details of the search strategies, as well as the search terms, used [[Appendix 1](#)].

All databases were searched from January 1993 to August 2017. This time frame was chosen because the first recorded SROI report was published in 1996. An extra three years was included retrospectively to allow capture of any potential pre-commissioning applications of SROI in health. An attempt to identify any articles published before this date yielded null.

The search was complemented by hand searching the content pages of journal issues and reports as well as reference list checking of identified articles. Direct emails to request SROI studies from practitioners, whose contact details were available in executive summaries or websites that made any reference to conduct of a public health SROI study were sent, and a public request was made to relevant SROI interest online groups to ensure that all public health SROI studies were captured.

3.7.3 Search and inclusion process

3.7.3.1 Peer review database search and inclusion process

The search terms described above (SROI and health related) [[Section 3.7.1](#)] were combined for peer review databases, with limits of time and language applied. All retrieved articles were included for consideration.

3.7.3.2 Grey literature search and inclusion process

A 3-step approach (title – abstract or executive summary – full text) was used. Most SROI studies include some reference to “*social return on investment*” in the title. It was thus usually clear from the title that the article had applied SROI. However, it was essential to read through the abstract or executive summary of articles within the grey literature to confirm that the article detailed the process of conducting the SROI study. Articles that only mentioned that an SROI study was carried out without further details were removed at this stage.

For articles without abstracts or executive summaries, a brief examination of the content to verify if a primary SROI study was conducted and if outcomes being

reported were mostly health related was conducted before a decision on inclusion or exclusion was made. Each article had to be read in entirety, as most grey literature sourced documents did not have abstracts, and only some had executive summaries that captured all the information needed to make inclusion/exclusion decision based on the inclusion and exclusion criteria.

For articles, whose full content could not be retrieved or in which there were specific details required, but not available, attempts were made to find and communicate with the author(s).

Once all the bibliographic details were retrieved, they were exported automatically or manually into the citation software, Mendeley. Duplicates from the results retrieved from all databases were identified and removed at this stage. The search was independently conducted by a second researcher following the same search strategy and reviewed all retrieved records. An agreement was reached regarding the final eligibility of articles. In the case that an agreement for inclusion or inclusion could not be reached, the opinion of a third reviewer was requested.

The PRISMA flow chart (Moher *et al.*, 2009) was used to present the inclusion process diagrammatically. The comprehensive search was repeated severally until August 2017 using the same strategy to ensure that the results remained up to date.

3.7.4 Inclusion and exclusion criteria

3.7.4.1 Inclusion criteria

- SROI articles from both peer-reviewed and grey literature sources published from 1993 onwards.
- Articles that described the actual conduct of a social return on investment study and reported an SROI ratio.
- The search included articles in published in English language.

3.7.4.2 Exclusion criteria

- Reviews, commentaries and short reports of already retrieved longer reports.
- Articles that measured social impact using other approaches than SROI.
- Articles that only mentioned that an SROI study was conducted without explaining the details about the conduct of research.
- Articles that have been published in a different format previously. For example, published as a report and then subsequently published as a peer-review article.

3.8 Data extraction and synthesis

Following the search, individual articles were given unique identifiers to provide an audit trail and to facilitate the review between the two reviewers. The data extraction process involved reading through the full-text of included studies.

A pre-developed summary table was used to capture year of publication, type of SROI study, country of organisation conducting or commissioning the SROI study, type of commissioning organisation, country where study was conducted, public health area in which SROI was conducted, stakeholders included in study, stakeholder classification, discount rate used in the study, SROI ratio obtained, time horizon of analysis (Intervention-Measurement) and reported lessons learnt [\[Appendix 2\]](#). Initial extraction was done separately, and then both reviewers compared their data extraction and resolved disagreements. Missing or unclear information was obtained by contacting the author(s) of the SROI article directly, wherever possible.

Thematic summaries were used to configure and compare information gathered. Findings retrieved from the studies were summarised to map patterns in the application of the SROI methodology in public health. To analyse information on lessons learnt regarding limitations and strengths of the SROI methodology, the deductive approach of framework synthesis was used (Gough, Oliver and Thomas, 2012). Findings are presented as emerging themes, ensuring that all evolving knowledge on experiences of research that applied SROI methodology on health interventions was captured.

Using information from the summary table [[Appendix 2](#)], maps and charts were used to present synthesised summaries of highlighted variables of interest.

3.9 Key definitions relevant for this review

For the purpose of this review, a stakeholder was defined as “a person who is affected by the work of an organisation or has contributed to the work” (Phillips, 2010). Borrowing from previous stakeholder classification frameworks (Briner, Hastings and Geddes, 1996; Hyder *et al.*, 2007; Walker and Hampson, 2008), we classified stakeholders into:

- i. *Beneficiaries*: users, those who experience the outcomes of an intervention.
- ii. *Implementers*: includes project management, suppliers and subcontractors.
- iii. *Promoters*: those who provide support and a conducive environment for implementation of the intervention.
- iv. *Funders*: those who finance the project.

3.10 Quality assessment

Quality assessment is defined as the “process of carefully and systematically examining research to judge its trustworthiness, and its value and relevance in a particular context” (Burls, 2009). This process allows judgement of whether the study is fit for purpose. While most reviews are keen to review the epistemic components of research, which focus on the way the research is designed and methods used in the research conduct, it is essential to recognise other dimensions of quality (Gough, Oliver and Thomas, 2012).

The SROI Network has its internal quality assessment framework, which is not available for non-members. This framework lays emphasis on stakeholders involvement, illustration of the theory of change, use of robust indicators and financial proxies, materiality of changes included in the analysis, avoidance of over-claiming, transparency and verification of results through stakeholder communication (SROIN, 2014a). However, a 12-point quality assessment framework, developed by Krlev *et al.*, was used to assess the quality of included SROI studies (Krlev, Münscher and Mülbart, 2013). This quality assessment framework proposed five quality dimensions: Transparency about why SROI was chosen, documentation of the analysis, study design (approximation of ‘dead-weight’), precision of the analysis and

reflection of the results (Krlev, Münscher and Mülbert, 2013) [Table 3.1]. This quality assessment framework has been chosen because it ensures reproducibility of the review, in particular for non-members of SROIN, should in case this review is to be updated in the future. Secondly, the framework incorporates critical and sound research insights, such as how SROI papers account for what would happen without the intervention (counterfactual or deadweight), which can potentially increase research quality.

Table 3.1: Krlev et al. 12-point quality assessment framework

S/No.	Dimension	S/No.	Quality criteria
I	Transparency about why SROI was chosen	1	Linked to context discussion?
II	Documentation of the analysis	2	Analysis well documented?
		3	Impact map used?
III	Study design (approximation of 'dead-weight')	4	Control group setup applied?
		5	Ex-ante - ex-post observations performed?
IV	Precision of the analysis	6	Indicators valid & comprehensive?
		7	Proxies valid & comprehensive?
		8	Social effects captured? (Qualitatively)
		9	Social effects captured? (Quantitatively)
V	Reflection of the results	10	Limitations discussed?
		11	SROI ratio interpreted?
		12	Sensitivity analysis performed?

Using Gough et al.'s proposed tool for assessment of fitness-for-purpose of new or adopted quality assessment frameworks (Gough, Oliver and Thomas, 2012), the 12-point quality assessment framework was tested and the tool was passed fit for purpose. In addition, the framework was shared with two SROI practitioners and impact evaluation practitioners for their expert opinion. Both opined that the framework is simple, relevant and will aid judgement of critical areas of quality of SROI studies.

An award of 1 point was given to each criterion that was adjudged "*present*" and 0 if the item was "*missing*" or "*could not be ascertained*". The framework allows for individual assessment of SROI papers across the five dimensions (described above) and a cumulative quality score. We used the 70% benchmark, which Krlev et al. describe as a "*good score*", classifying papers into high quality if the study scored a cumulative score $\geq 70\%$ and low quality, if the study

scored < 70% (Krlev, Münscher and Mülbert, 2013). The authors recognised that there might be flaws in this simplistic approach of the scoring system, including the fact that there is no differentiation in the score of a missing item or items that were present to a minimal degree and equal weights are applied to all 12 questions. However, the authors were quick to suggest that the framework is open for discourse and feedback from other researchers that use it (Krlev, Münscher and Mülbert, 2013). The value of such a simple approach cannot be undermined, as it can be easily reproduced.

3.11 Results

Results of this systematic review have been previously published as an output of this research in June 2015 (Banke-Thomas *et al.*, 2015). This section presents an updated version of the review.

3.11.1 Summary of search results

In summary, 1,734 records were retrieved after duplicates were removed. A breakdown of the search results is presented below and summarised in the form of a PRISMA diagram [Figure 3.2].

- Pubmed (1st January 1993 to 30th September 2017): Articles were limited to English language and health. The search retrieved 74 records.
- Scopus (1st January 1993 to 30th September 2017): Articles were limited to English language and health. The search retrieved 213 records.
- Proquest (1st January 1993 to 30th September 2017): Articles were limited to English language. The search retrieved 527 records.
- Google Scholar (1st January 1993 to 30th September 2017): Articles were limited to English language. The search retrieved 4,740 records.
- Social Return on Investment Network database (2007 to 2017): Articles were limited to English language. The search retrieved 254 records.
- Nef database (2007 to 2017): Articles were limited to English language. There were no duplicates. The search retrieved 11 records.
- Additional hand searching retrieved 12 records.

After application of the exclusion criteria, 48 articles were included for review [Figure 3.2].

Figure 3.2: PRISMA flow diagram summarising the search process

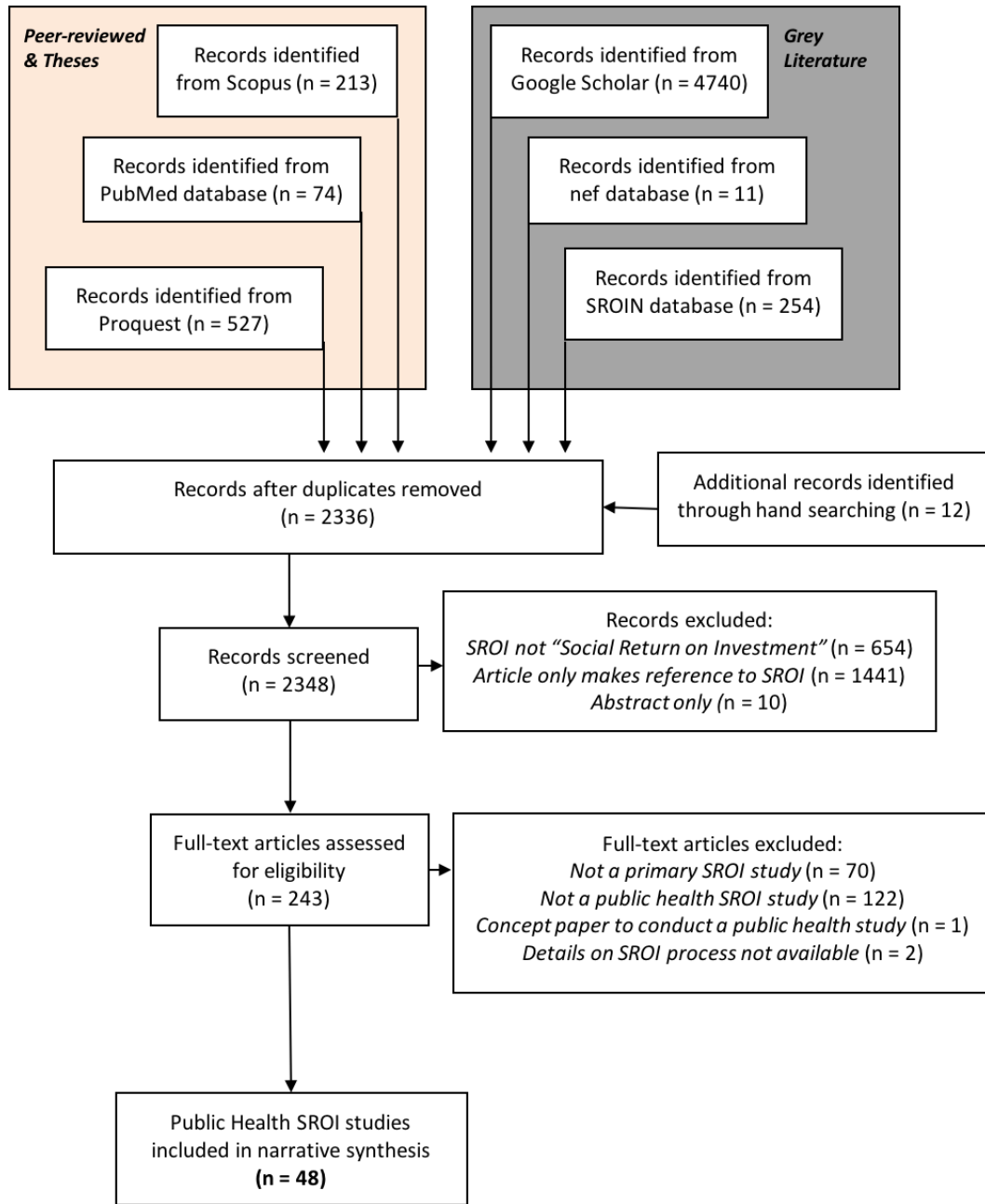


Table 3.2: Sources of retrieved SROI studies

Source	Number	%
Grey literature	40	83.33
Thesis (BSc)	1	2.08
Thesis (MSc)	1	2.08
Thesis (PhD)	1	2.08
Peer reviewed journal	5	10.42
All sources	48	100.00

83% were retrieved from grey literature, while 10% were from peer-reviewed journals. The remaining 7% were sourced from online repositories of theses (Bachelors, Masters or Doctorate) [Table 3.2].

3.11.2 Quality assessment of SROI studies in health

Table 3.3 summarises the quality assessment of public health SROI publications that were included for review.

Table 3.3: Criterion quality scores of health SROI studies across the five dimensions

Quality Dimension	S/No.	Quality criterion	Number of studies achieving criterion	Percentage of studies achieving criterion (%)
Transparency about why SROI was chosen	1	Linked to context discussion?	48	100.0
Documentation of the analysis	2	Analysis well documented?	41	85.4
	3	Impact map used?	39	81.3
Study design (approximation of 'dead-weight')	4	Control group setup applied?	9	18.8
	5	Ex ante - ex post observations performed?	11	22.9
Precision of the analysis	6	Indicators valid & comprehensive?	45	93.8
	7	Proxies valid & comprehensive?	42	87.5
	8	Social effects captured? (Qualitatively)	43	89.6
	9	Social effects captured? (Quantitatively)	45	93.8
Reflection of the results	10	Limitations discussed?	26	54.2
	11	SROI ratio interpreted?	48	100.0
	12	Sensitivity analysis performed?	39	81.3

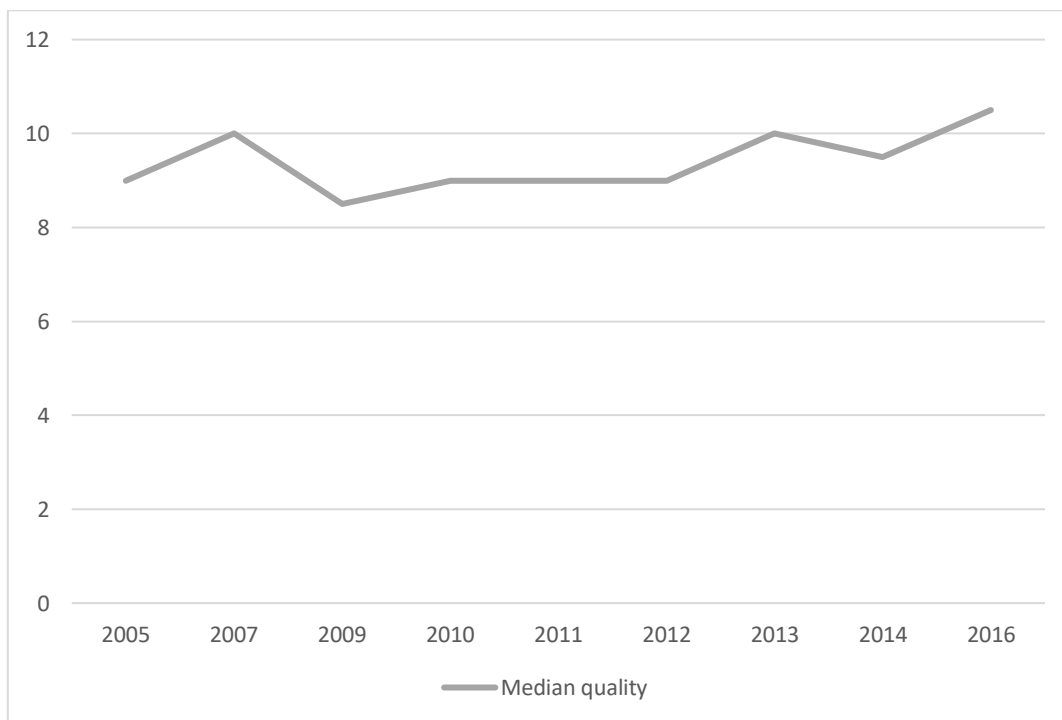
Of the 48 included SROI studies, between 81 and 100% were awarded "1 point" for the presence of the specific quality criteria across three quality dimensions: transparency about why SROI was chosen, documentation of the analysis and precision of the analysis. However, with the remaining two quality dimensions (study design (approximation of dead weight) and reflections of the result), percentages of studies with the presence of specific criteria ranged

from 18% to 54%. Most the included studies did meet the criteria ‘SROI ratio interpreted’ (100%) and ‘sensitivity analysis performed’ (81%) [Table 3.3].

For quality criterion ‘study design (approximation of dead weight)’, nine studies used control groups to establish what would have happened without the intervention, while another 11 studies used a before-and-after study design. The remainder of the studies based the estimation on what would have happened without the intervention, on assumptions, or on opinions of the stakeholders that were engaged in the study [Table 3.3]. For the criterion ‘reflection of the result’, 26 studies discussed the limitations of the study. Nine studies did not conduct sensitivity analysis to test the robustness of assumptions used in the conduct of the study. Though, all studies calculated and interpreted the resultant SROI ratio [Table 3.3].

Overall, quality scores ranged from 3 to 12, with a maximum score of 12. The median quality score was 9.5. There were 14 public health SROI studies adjudged to be of low quality while the remaining 34 SROI studies were classified high quality [Appendix 2]. In the years when multiple SROI studies in public health were published, a median quality score of SROI studies in the area has steadily increased from 8.5 in 2009 to 10.5 in 2016 [Figure 3.3].

Figure 3.3: Annual median quality scores of public health SROI studies

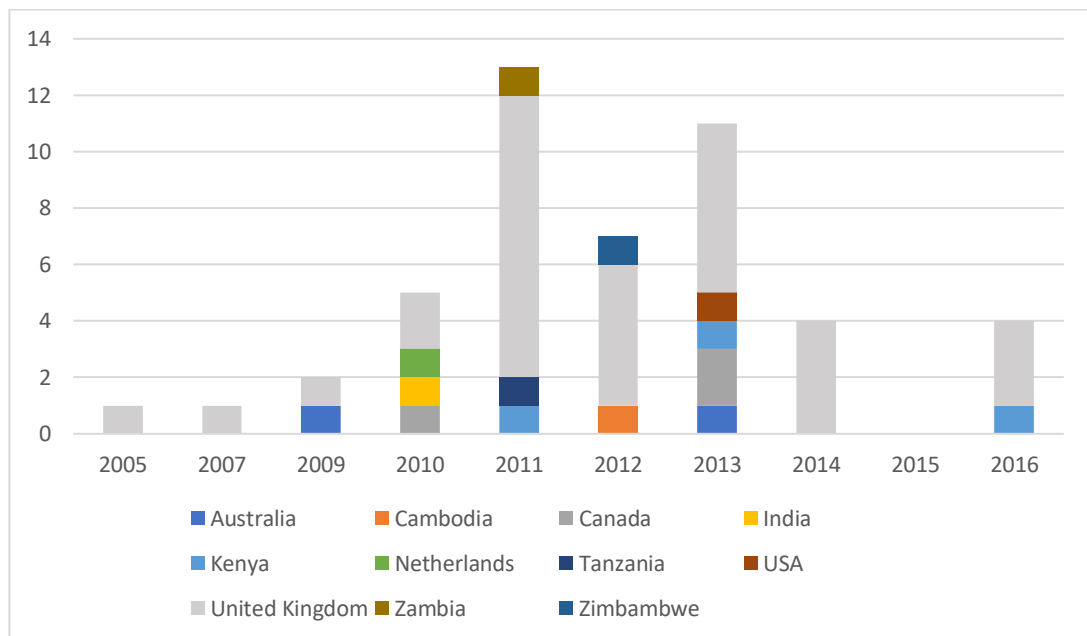


It appears however that quality is neither time-dependent ($p=0.89$) nor the source of SROI study dependent ($p=0.67$) nor assurance dependent ($p=0.25$) but it seems that quality is analyst or analyst’s organisation dependent ($p<0.01$), as public health focused SROI studies from specific organisations and individuals consistently scored high-quality scores.

3.11.3 Application of the SROI in public health

The application of the SROI methodology steeply increased since its first use in 2005 (Somers, 2005) until 2011, after which there was a dip in 2012. There was another peak in 2013 followed by another decline [Figure 3.4].

Figure 3.4: Published public health SROI studies by year, with country of application



A breakdown of SROI publications per country per year showed that apart from the United Kingdom (UK), from which the first public health application of the SROI was published in 2005, all other countries published their first public health SROI study in the year 2009 or after [Figure 3.4].

Eight SROI studies have been successfully conducted in low and middle-income countries (LMICs) (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Brady, 2011a; Jönsson, Wikman and Wätthammar, 2011; Misje, 2011; Smith, 2012; Tong, Sopheab and Tuot, 2012; nef consulting and Christian Aid, 2013; Kimani-Murage *et al.*, 2016), compared to 40 published studies from high-income countries (Somers, 2005; Forth Sector Development,

2007; Goodspeed, 2009; Varua and Stenberg, 2009; COUI UK, 2010; Lukoseviciute, 2010; Murphy, 2010; Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Bradly, 2010, 2013; Brady, 2011b; Carrick and Lindhof, 2011; Cawley and Berzins, 2011; GAMH, 2011; Kennedy and Phillips, 2011; Pank, 2011; RM Insight, 2011; Shipley and Hamilton, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Age Concern Kingston upon Thames, 2012; Jones, 2012; McCorriston, 2012; McNiven, 2012; Bagley, 2012; Bradly, Butler and Leathem, 2013; Eckley, 2013; Ofrim, 2013; Paths for All, 2013; SVA Consulting, 2013; Whelan, 2013; Wodinski, Wanke and Khan, 2013; Bhaumik *et al.*, 2013; Bradly and Bolas, 2013; Action on Addiction, 2014; Gardner, 2014; Arvidson, Battye and Salisbury, 2014; Marden, 2014; Richards, 2016; Willis, Semple and de Waal, 2016; Bagnall *et al.*, 2016).

Specifically, 33 SROI studies in public health were conducted in the UK (Somers, 2005; Forth Sector Development, 2007; Goodspeed, 2009; COUI UK, 2010; Bradly, 2010, 2013; Carrick and Lindhof, 2011; Cawley and Berzins, 2011; GAMH, 2011; Kennedy and Phillips, 2011; Pank, 2011; RM Insight, 2011; Shipley and Hamilton, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Brady, 2011b; Age Concern Kingston upon Thames, 2012; Jones, 2012; McCorriston, 2012; McNiven, 2012; Bagley, 2012; Eckley, 2013; Paths for All, 2013; Whelan, 2013; Bradly and Bolas, 2013; Bradly, Butler and Leathem, 2013; Action on Addiction, 2014; Gardner, 2014; Arvidson, Battye and Salisbury, 2014; Marden, 2014; Richards, 2016; Willis, Semple and de Waal, 2016; Bagnall *et al.*, 2016). Other countries in which the SROI methodology has been applied in the public health area are Australia (Varua and Stenberg, 2009; SVA Consulting, 2013), Cambodia (Tong, Sopheab and Tuot, 2012), Canada (Murphy, 2010; Ofrim, 2013; Wodinski, Wanke and Khan, 2013), India (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010), Kenya (Jönsson, Wikman and Wätthammar, 2011; nef consulting and Christian Aid, 2013; Kimani-Murage *et al.*, 2016), Netherlands (Lukoseviciute, 2010), Tanzania (Misje, 2011), United States (US) (Bhaumik *et al.*, 2013), Zambia (Brady, 2011a) and Zimbabwe (Smith, 2012) [[Figure 3.4](#)].

[Table 3.4](#) provides brief descriptions of the interventions within the different public health areas that the SROI methodology has been used to assess their social impact and value-for-money. Details of the interventions are presented in the data extraction sheet [[Appendix 2](#)]. Individuals or organisations within the UK conducted 75% of the public health SROI studies (35 of 48) mentioned above (Somers, 2005; Forth Sector Development, 2007; Goodspeed, 2009; COUI UK, 2010; Bradly, 2010, 2013; Cawley and Berzins, 2011; GAMH, 2011; Kennedy

and Phillips, 2011; Pank, 2011; RM Insight, 2011; Shipley and Hamilton, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Carrick and Lindhof, 2011; Age Concern Kingston upon Thames, 2012; Jones, 2012; McCorrison, 2012; McNiven, 2012; Bagley, 2012; Eckley, 2013; Paths for All, 2013; Whelan, 2013; Bradly and Bolas, 2013; Bradly, Butler and Leathem, 2013; Action on Addiction, 2014; Gardner, 2014; Marden, 2014; Arvidson, Battye and Salisbury, 2014; Richards, 2016; Willis, Semple and de Waal, 2016; Bagnall *et al.*, 2016). Individuals or organisations in Australia (Varua and Stenberg, 2009; SVA Consulting, 2013), Cambodia (Tong, Sopheab and Tuot, 2012), Canada (Murphy, 2010; Ofrim, 2013; Wodinski, Wanke and Khan, 2013), Kenya (Kimani-Murage *et al.*, 2016), Netherlands (Lukoseviciute, 2010), Sweden (Jönsson, Wikman and Wätthammar, 2011), Tanzania (Misje, 2011), US (Bhaumik *et al.*, 2013) and Zimbabwe (Smith, 2012) initiated the other public health SROI studies.

Table 3.4: Public health interventions that have been assessed with the SROI methodology

Public health area	Intervention
Child Health	<i>CHAHA programme</i> : Support for children living with HIV
	<i>Whizz-Kidz</i> provides appropriate mobility equipment for children
	<i>Mkombozi</i> : Basic medical care and health education to street children
	<i>Community based care management for paediatric asthma</i>
Environmental Health	<i>Household-based water treatment and safe storage</i>
Health care management	<i>Consolidation of 12 Catholic healthcare organisations</i> into one
	<i>Hospital-based services based at Leicester Royal Infirmary</i>
Health Education	<i>Self-care training</i> for people with Arthritis and Stroke.
Health Promotion	<i>Smoking cessation policy</i> for three age groups (20 – 44, 45 – 64, 65+)
	<i>Expert Patient Programme</i> : self-management courses for people with substance and alcohol misuse history
	<i>Georgie city farm gardening project</i> for old people engage in physical activity
	<i>Healthwise</i> aims to increase people's awareness to lead healthier lifestyles.
	<i>Stirling Walking scheme</i> : Promoting healthier lifestyles through walking.
	<i>Healthy living Wessex - Weight management scheme</i>
	<i>Bums Off Seats (BoS)</i> : walking initiative promoting physical activity
	<i>Stop Aids Football League</i> : football to improve members' physical well-being
	<i>Stay Well</i> helps people to proactively access physical and emotional support.
	<i>Glasgow health walks</i>
	Substance misuse work for young people.
<i>Walk On</i> : rehabilitation programme of persons with spinal cord injury.	

Table 3.4 cont'd: Public health interventions that have been assessed with the SROI methodology

Public health area	Intervention
Maternal and Child Health	<i>Healthy Empowered Resilient (H.E.R.) Pregnancy Program</i>
	<i>Maternal Infant and Young Child Nutrition Project</i>
Mental Health	<i>MillRaceIT</i> : Support for people recovering from mental illness.
	<i>Restart</i> : financing employment and educate people with mental illness.
	<i>Clubhouse</i> : Support for people recovering from mental illness.
	Mental health awareness courses to challenge stigma/discrimination.
	<i>Leeds Survivor Led Crisis Service</i> : support people at risk of suicide
	<i>Get into reading initiative</i> - improving mental health and wellbeing
	<i>Recovery in Nottingham</i> : helping people recover from substance abuse.
	<i>The Quays</i> : is a peer led drug and alcohol recovery project.
	Supporting children experiencing effects of parental substance misuse
	<i>Ffrindia</i> : Befriending service
	<i>Together for Health programme</i>
	<i>ESCAPE programme</i>
	<i>MOJO programme</i>
	Three dementia peer support groups in South London
	Community befriending to manage post-natal depression.
<i>Workwise</i> - Support for people recovering from mental illness.	
Nutrition	<i>Daystar Foundation</i> provides nutritious breakfast to school children
	<i>Meals on Wheels</i> : provide nutritious meals for clients.
	<i>Meals at Home</i> : Nutritious meals to elderly residents in Leicestershire.
Sexual & reproductive Health	Condom intervention, pregnancy testing and Chlamydia testing
	<i>Teens & Toddlers programme</i> for teens at risk of early pregnancy
	<i>Training intervention against stigma and discrimination of people living with HIV/AIDS</i>
	<i>Speakeasy</i> : train parents on sex communication with their children.
	Prevention for most at risk populations and Integrated care and prevention for people living with HIV and orphans and vulnerable children
	<i>WiseGuyz program</i>
<i>Filling the Gaps (FtG)</i> project: designed to improve demand-side factors needed for successful adherence of people living with HIV to their anti-retroviral therapies	

Across public health areas, mental health (16) (Somers, 2005; Forth Sector Development, 2007; Varua and Stenberg, 2009; Cawley and Berzins, 2011; GAMH, 2011; Bagley, 2012; Whelan, 2013; Bradly, Butler and Leathem, 2013; Eckley, 2013; Action on Addiction, 2014; Arvidson, Battye and Salisbury, 2014; Gardner, 2014; Richards, 2016; Willis, Semple and de Waal, 2016; Bagnall *et al.*, 2016) and health promotion (12) (Lukoseviciute, 2010; Carrick and Lindhof, 2011; Kennedy and Phillips, 2011; Pank, 2011; Shipley and Hamilton, 2011; Age Concern Kingston upon Thames, 2012; Smith, 2012; Jones, 2012; McNiven, 2012; Bradly and Bolas, 2013; SVA Consulting, 2013; Paths for All, 2013) are areas in which the SROI methodology has been most applied [Table 3.5].

The methodology has also been applied in sexual and reproductive health (SRH) (7) (Bradly, 2010; COUI UK, 2010; Brady, 2011a; RM Insight, 2011; Tong, Sopheab and Tuot, 2012; nef consulting and Christian Aid, 2013; Ofrim, 2013), child health (4) (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Misje, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; Bhaumik *et al.*, 2013), nutrition (3) (Goodspeed, 2009; McCorrison, 2012; Bradly and Bolas, 2013) and to a smaller degree in maternal and child health (Wodinski, Wanke and Khan, 2013; Kimani-Murage *et al.*, 2016), health care management (2) (Murphy, 2010; WRVS, 2011), environmental health (1) (Jönsson, Wikman and Wätthammar, 2011) and health education (1) (Brady, 2011b) [Table 3.5].

Thirty studies were evaluative-type (Somers, 2005; Varua and Stenberg, 2009; Murphy, 2010; Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Bradly, 2010; Cawley and Berzins, 2011; Jönsson, Wikman and Wätthammar, 2011; Kennedy and Phillips, 2011; Misje, 2011; Pank, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; Brady, 2011a; Age Concern Kingston upon Thames, 2012; Jones, 2012; McCorrison, 2012; McNiven, 2012; Bagley, 2012; Tong, Sopheab and Tuot, 2012; nef consulting and Christian Aid, 2013; Paths for All, 2013; SVA Consulting, 2013; Whelan, 2013; Bhaumik *et al.*, 2013; Bradly and Bolas, 2013; Bradly, Butler and Leathem, 2013; Action on Addiction, 2014; Kimani-Murage *et al.*, 2016; Richards, 2016; Willis, Semple and de Waal, 2016; Bagnall *et al.*, 2016), while the other 18 were forecast-type studies (Forth Sector Development, 2007; Goodspeed, 2009; Lukoseviciute, 2010; COUI UK, 2010; RM Insight, 2011; Shipley and Hamilton, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; Brady, 2011b; Carrick and Lindhof, 2011; GAMH, 2011; Smith, 2012; Bradly, 2013; Ofrim, 2013; Wodinski, Wanke and Khan, 2013; Eckley, 2013; Arvidson, Battye and Salisbury, 2014; Marden, 2014; Gardner, 2014) [Table 3.5].

Table 3.5: Characteristics of public health SROI studies

SROI type	N=48	%
Evaluative	30	62.5
Forecast	18	37.5
Area of Public Health		
Area of Public Health	N=48	%
Child Health	4	8.3
Environmental Health	1	2.1
Health care management	2	4.2
Health Education	1	2.1
Health Promotion	12	25.0
Maternal and child health	2	4.2
Mental Health	16	33.3
Nutrition	3	6.3
Sexual Reproductive Health	7	14.6
Stakeholders considered		
Stakeholders considered	N=48	%
Only beneficiaries	12	25.0
All stakeholders	36	75.0
Stakeholders included		
Stakeholders included	N=48	%
Only beneficiaries	23	47.9
Beneficiaries and promoters	2	4.2
Beneficiaries and implementers	4	8.3
Beneficiaries, implementers and promoters	7	14.6
All stakeholders	12	25.0
Data Source		
Data Source	N=48	%
Qualitative alone	3	6.3
Qualitative + primary quantitative	13	27.1
Qualitative + secondary quantitative	9	18.8
Qualitative + primary and secondary quantitative	18	37.5
Quantitative (primary) alone	1	2.1
Quantitative (secondary) alone	3	6.3
Quantitative (primary + secondary)	1	2.1
Assurance of public health SROI studies retrieved from grey literature		
Assurance of public health SROI studies retrieved from grey literature	N=40	%
No	22	55.0
Yes	18	45.0

3.11.4 Data collection for SROI

The SROI methodology is firmly based on retrieving perspectives of stakeholders (Nicholls *et al.*, 2012) (SROI Stage 1). Most SROI studies (36) identified all stakeholders before choosing which group of stakeholders to include in the SROI analysis. The remaining 12 studies only considered beneficiaries [[Appendix 2](#)]. A breakdown of stakeholder inclusion for final analysis following initial consideration revealed that 12 studies included all stakeholders (beneficiaries, promoters, implementers and funders) (Somers, 2005; Goodspeed, 2009; Brady, 2011a; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Carrick and Lindhof, 2011; GAMH, 2011; Jönsson, Wikman and Wätthammar, 2011; Shipley and Hamilton, 2011; Bagley, 2012; McNiven, 2012; Smith, 2012); four studies included beneficiaries and implementers (Bradly, 2010; Age Concern Kingston upon Thames, 2012; Whelan, 2013; Willis, Semple and de Waal, 2016); two studies included beneficiaries and promoters (GAMH, 2011; nef consulting and Christian Aid, 2013); another seven studies included beneficiaries, promoters and implementers (Pank, 2011; McCorrison, 2012; Bradly, 2013; Gardner, 2014; Marden, 2014; Kimani-Murage *et al.*, 2016; Richards, 2016). 23 studies included only beneficiaries of the intervention (Forth Sector Development, 2007; Varua and Stenberg, 2009; Lukoseviciute, 2010; Murphy, 2010; Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; COUI UK, 2010; Kennedy and Phillips, 2011; Misje, 2011; RM Insight, 2011; Brady, 2011b; Cawley and Berzins, 2011; Jones, 2012; Tong, Sopheab and Tuot, 2012; Eckley, 2013; Paths for All, 2013; SVA Consulting, 2013; Bhaumik *et al.*, 2013; Bradly and Bolas, 2013; Bradly, Butler and Leathem, 2013; Action on Addiction, 2014; Arvidson, Battye and Salisbury, 2014; Bagnall *et al.*, 2016) [[Table 3.5](#)].

From the included stakeholders, information such as inputs required for the intervention (costs, time etc.), perceived changes experienced by the stakeholder as a result of the intervention, outcomes benefited or otherwise from the intervention, duration of the outcome, changes likely to have occurred in the absence of the intervention and other factors contributing to the changes observed were gathered to build the SROI impact map (Murphy, 2010; Jones, 2012; McNiven, 2012; Whelan, 2013). To gather these information, 13 studies used a mix of qualitative and primary quantitative data (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Bradly, 2010; Murphy, 2010; Shipley and Hamilton, 2011; Kennedy and Phillips, 2011; Bagley, 2012; Smith, 2012; McCorrison, 2012; Wodinski, Wanke and Khan, 2013; Gardner, 2014; Marden, 2014; Bagnall *et al.*, 2016; Richards, 2016), 18 studies used a combination of qualitative, primary quantitative and secondary (existing) quantitative

data (Forth Sector Development, 2007; Goodspeed, 2009; RM Insight, 2011; Brady, 2011a; McNiven, 2012; Jones, 2012; nef consulting and Christian Aid, 2013; Ofrim, 2013; Paths for All, 2013; SVA Consulting, 2013; Whelan, 2013; Bradly and Bolas, 2013; Bradly, Butler and Leathem, 2013; Eckley, 2013; Action on Addiction, 2014; Arvidson, Battye and Salisbury, 2014; Willis, Semple and de Waal, 2016; Kimani-Murage *et al.*, 2016), Nine studies used a combination of qualitative and secondary quantitative data (Somers, 2005; COUI UK, 2010; Carrick and Lindhof, 2011; Cawley and Berzins, 2011; Jönsson, Wikman and Wätthammar, 2011; Misje, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Age Concern Kingston upon Thames, 2012), Three studies used only qualitative data (GAMH, 2011; Tong, Sopheab and Tuot, 2012; Bradly, 2013) and three studies used secondary quantitative data alone (Varua and Stenberg, 2009; Lukoseviciute, 2010; Bhaumik *et al.*, 2013). One study used primary quantitative data alone and another combined primary and secondary quantitative data (Brady, 2011b; Pank, 2011) [Table 3.5].

Peer review process is firmly institutionalised for scholarly work (Spier, 2002; Pontille and Torny, 2014). For SROI articles not published in peer review journals, there is a process to assess the quality of the study. Assurance means that *“the analysis has been independently checked by qualified assessors and assured by a panel to have been prepared in line with the principles of SROI and is therefore to a consistent standard”* (SROIN, 2014b). 55% of the 33 articles retrieved from the grey literature were subjected to the assurance system [Table 3.5].

3.11.5 Calculation of SROI ratio

Among the 30 evaluative-type public health SROI studies, the median duration of implementation of the intervention and assessment of SROI was 1 year and 11 months (range of 4 months to 5 years). Meanwhile, forecast public health SROI studies had a median duration of 8 years and 6 months (range of 1 to 30 years) [Table 3.6].

Table 3.6: Summary of duration of public health SROI analysis

Character	Evaluative health SROI	Forecast health SROI
Mean	1 year	8 years and 6 months
Median	1 year and 11 months	5 years
Mode	1 year	5 years
Minimum	4 months	1 year
Maximum	5 years	30 years
Standard deviation	1.53	9.00

Discount rates (described in [Chapter 2](#)) varied depending on the specific prescription of the specific country, and all studies that were reviewed gave this as a justification for the choice of the discount rate used in the model. For example, public health SROI studies in the UK (Somers, 2005; Forth Sector Development, 2007; Goodspeed, 2009; Bradly, 2010, 2013; COUI UK, 2010; Kennedy and Phillips, 2011; Pank, 2011; RM Insight, 2011; Shipley and Hamilton, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; WRVS, 2011; Carrick and Lindhof, 2011; GAMH, 2011; Age Concern Kingston upon Thames, 2012; Bagley, 2012; Jones, 2012; McCorriston, 2012; McNiven, 2012; Paths for All, 2013; Whelan, 2013; Marden, 2014; Gardner, 2014; Richards, 2016) used the UK government recommended 3.5% (HM Treasury, 2011). Another study, from a developing country – Zambia – used 11.37%, giving justification that this is the Zambian Central Bank discount rate (Brady, 2011a). While a study in Kenya used 6.5%, justifying the choice of the rate as it was the inflation rate for the country in the year the study was conducted (Kimani-Murage *et al.*, 2016) [[Appendix 2](#)].

SROI ratios varied across the different public health areas, with the highest ratio of 71.00:1 reported in maternal and child health, followed by 65.00:1 reported in a study in child health and the lowest ratio of 1.10:1 reported in a health promotion SROI study. However, because of the heterogeneity in the manner of conduct of the SROI studies, it is illogical to compare the ratios to identify the most impactful or the intervention with the most value-for-money.

3.11.6 Lessons learnt from previous SROI application in health

Five key themes emerged that captured lessons learnt from previous SROI application in public health. These are:

- A) use of multiple sources of data improves trustworthiness,
- B) Purchasing Power Parity (PPP) equivalents improves cost comparability,
- C) beneficiaries provide more realistic description and valuation of outcomes,
- D) estimating the counterfactual should be objectively done and
- E) improved transparency required throughout the SROI process.

These themes are described below:

A. Multiple sources of data can help to deal with data challenge

Clearly, data required for SROI studies is scarce and both the type and amount of data required are not routinely collected. One paper suggested that this is the reason why most SROI studies in developing countries depended on stakeholder consultations (such as Key Person Interviews (KPI) and Focus Groups (FG)) to generate values to be used to estimate the SROI ratio (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010). The authors conducted community consultations with children over ten years, women heading households and NGO staff to build an impact map of the project, identify activities, outputs and outcomes, identify similar projects in the area, establish outcome incidence, identify indicators for measure outcomes and place a value on the outcomes. Most of these had to be done because *“there were no existing structures in place to collect such data”* (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010).

“... so for measurement, dependence was mostly on consultation. This can be further triangulated with other data sources available” (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010).

Practitioners encourage organisations to gather and keep accurate data, by embedding robust and rigorous monitoring and evaluation frameworks to assess the effect of interventions (WRVS, 2011). Where these systems are not available, then there is a need to generate primary data (such as interviews, focus groups or surveys). To improve confidence, accuracy and reliability (Greene, Caracelli and Graham, 1989), some authors have triangulated the data obtained during an SROI study with the existing secondary data (Goodspeed, 2009; Varua and Stenberg, 2009; Murphy, 2010; Bhaumik *et al.*, 2013) or collected two or three different types of related primary data (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Bradly, 2010; Kennedy and Phillips, 2011). In cases where there is only one type of secondary data, data can be triangulated with other types of secondary data. This was done by Bhaumik *et al.*, who used claims from insurance providers to verify patients' hospital visitations in a community-based care management programme for paediatric asthma (Bhaumik *et al.*, 2013).

B. Purchasing Power Parity equivalent improves cost comparability

Cost and outcomes are financially valued in SROI (Nicholls *et al.*, 2012). However, the value of a *“basket of goods”* bought with \$1 may differ from the value of the same *“basket of goods”* bought with the exchange rate value of \$1 in another currency.

“Applying PPP is important in order to ensure that we do not overvalue or undervalue goods in different economies by using a day-to-day exchange rate. After all, the US\$ will buy significantly more in Zambia than the Zambian Kwacha, which could skew the findings of the SROI evaluation” (Brady, 2011a).

The use of the Purchasing Power Parity (PPP), which allows for comparability across interventions and settings (Cheung, 2009), is proposed for valuation of both costs and outcomes in future SROI studies (Brady, 2011a).

C. Beneficiaries are best positioned to describe outcomes of interventions than other stakeholders

SROI attempts to describe outcomes as perceived by a range of stakeholders, however, some authors suggest that “true beneficiaries” are better placed compared to other stakeholder groups to determine the outcomes accrued because of the intervention. In general, beneficiaries will have experienced the outcome of the intervention (or lack of the outcome). They can therefore be expected to provide more realistic valuation of the effect of the intervention (on them) than stakeholders who fund, support or implement the intervention (Smith, 2012; SVA Consulting, 2012, 2013).

“While by no means a perfect science, it is important to note that all monetary values or financial proxies used to represent a program outcome should be informed by program beneficiaries” (Tong, Sopheab and Tuot, 2012).

One study went on to sub-classify the beneficiaries into first-tier and second-tier beneficiaries based on their proximity to deriving the outcomes of the intervention (Cawley and Berzins, 2011).

However, it is generally agreed that stakeholders other than the “true beneficiaries” (implementers, promoters and funders) remain very relevant with regard to the identification of these outcomes and effects that may be expected to occur following the intervention, identifying other stakeholders and possibly making recommendations on how to improve the programme based on expert opinion. In addition, their engagement and participation through reflexive consultative processes (Eckley, 2013) is essential to ensure that they clearly understand the needs and perspectives of the beneficiaries, for whom the

intervention is intended. These are considered gains for organisations keen on making an impact in the community (Bradly, 2010; Murphy, 2010).

“... the opportunity to reflect upon the history and anticipated events that were avoided was beneficial and enlightening to the group” (Murphy, 2010).

To make the process by which beneficiaries assign value more robust, especially regarding financial valuation of effects (or lack of effect) of an intervention, Smith suggested that the financial proxies described by beneficiaries (which represent the value they place on the outcome in question), should be tested through further research for appropriateness and relevance. This could be achieved by integrating a proxy verification process into existing routine monitoring and evaluation procedures to ensure that proxy databases are up to date and reflect current trends and perceptions of beneficiaries (Smith, 2012).

D. Estimating the counterfactual should be objectively done

Authors highlight the difficulty in ascertaining what would have happened in the absence of the intervention - counterfactual (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010). The challenges reported include the need for exhaustive data collection, both at baseline and follow-up as well increased cost and personnel required to do this (Arvidson *et al.*, 2010).

Some studies have therefore resorted to using subjective assessments to demonstrate the counterfactual. For example, a study used arbitrary percentage attribution figures by assuming that attribution is 100% if the outcome is entirely a result of the intervention, and no other intervention contributed. 75% if other interventions had some minor role to play in generating the outcome or 50% if contribution was deemed equal from two different interventions, including the one of interest and so on (SVA Consulting, 2013). This arbitrary graded approach was also used for attribution based on role of other people or programmes in generating the outcome vis-à-vis the contribution of the intervention in question and for displacement based on how much the outcome of the intervention displaced other outcomes (SVA Consulting, 2013).

“The issue of how much of the achieved outcome can be attributable to CHAHA is a difficult issue to determine with any level of objectivity, in the absence of a counterfactual, which is the norm for NGO implemented programmes of this nature” (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010).

However, an estimate of the counterfactual is needed in order to be able to establish attribution (what portion of the outcome is specifically due to the intervention). This needs to be done objectively, either by using a before-and-after method or comparing the intervention group with a control group (Whizz Kidz and Frontier Economics Ltd., 2011; Krlev, Münscher and Mülbert, 2013). Alternatively, mapping out the underlying theory of change at the design stage of the intervention, which shows the hypothesised linkage(s) from input to impact of any intervention, will go a long way in aiding establishment of the counterfactual, as this helps to clearly identify specific and relevant data required for input, output and outcomes (Brady, 2011a; nef consulting and Christian Aid, 2013).

E. Improved transparency required throughout the SROI process

The most recent guide to conduct SROI includes being transparent as one of the principles for SROI (Nicholls *et al.*, 2012), though a definition for the concept of *“transparency”* was not given. However, borrowing from mainstream research, transparency is *“the benchmark for writing up research and the presentation and dissemination of findings; that is, the need to be explicit, clear, and open about the methods and procedures used”* (Hiles, 2008). The guide, however, states that being transparent would require SROI researchers to *“demonstrate the basis on which the analysis may be considered accurate and honest, and show that it will be reported to and discussed with stakeholders”* (Nicholls *et al.*, 2012).

Practitioners have suggested other concrete methods to improve transparency of SROI studies. Pank and RM Insight suggested that an audit trail should be maintained all through (Pank, 2011; RM Insight, 2011). Bagley suggested that a self-assurance process that allows for review of processes and comparison against benchmarks as set out in the SROI guidelines should be in place (Bagley, 2012). This process should detail:

“... how each question within the accreditation criteria has been addressed within the report and provide relevant cross-references” (Bagley, 2012).

There is also a suggestion to create a formal process of engaging stakeholders to verify the findings and thus increase transparency of the SROI process (Bradly, 2010; Jones, 2012). The non-profit organisation, Christian Aid referred to this as a process of “*interrogating the analysis*” (nef consulting and Christian Aid, 2013).

“Interrogate this analysis alongside partners to identify what findings are new and what simply confirm the findings and conclusions of other studies. Reach consensus on which parts of the process/analysis were most useful and instigate a process to include these in future impact analyses” (nef consulting and Christian Aid, 2013).

3.12 Discussion

This systematic review has helped to map the global application of the SROI methodology in public health since its first application in 2005. It has also identified best practices and lessons learnt from previous SROI studies in public health. The use of SROI to estimate the social impact and VfM of interventions is innovative, and results could be used to inform policy and practice such that the most cost-beneficial interventions are implemented to solve existing public health challenges (Arvidson *et al.*, 2013; Edwards, Charles and Lloyd-williams, 2013).

One of the key challenges in conducting this systematic review was the identification of SROI studies that have been carried out in public health. There is no dedicated indexed database for SROI studies. Most SROI studies are currently published as reports in the grey literature and do not have keywords and abstracts through which they can be easily retrieved.

To date, the UK is the largest proponent and user of the SROI methodology. This is consistent with the efforts of the UK government to stimulate accountability for wider social, economic and environmental benefits to society within the Third Sector, as earlier methodologies were more focused on the cost of interventions, efficiency and economies of scale (Nicholls, 2007; Harlock, 2013). The steep rise in the number of SROI studies in public health between 2005 and 2011 is consistent with findings from a previous systematic review of all SROI studies (Krlev, Münscher and Mülbart, 2013). This may have been because the Office of the Third Sector launched the Measuring Social Value project in 2008 (Arvidson *et al.*, 2010). There was a decline in the use of SROI after 2011, probably because of the discontinuing stimulus from the government or the inherent challenges needed to conduct SROI studies including cost,

time and the people- and expertise-dependent nature of the methodology (Millar and Hall, 2013). However, with the coming into law of the Social Value Act on 31 January 2013, requiring people who commission public services to consider how they can also secure wider social, economic and environmental benefits, the relevance of frameworks such as SROI is again highlighted (Cabinet Office, 2012).

Additionally, there have been renewed efforts recently to apply the methodology in areas of health such as global health (Kumar, 2011), one health (health of people, animals and environment (AVMA, 2008; Kumar, 2014), physical health (King, 2014), maternal health (Banke-Thomas *et al.*, 2014) and SRH (Kumar and Banke-Thomas, 2016). All these calls recognise that the challenges that 'limit' the application of the methodology are not unique to SROI itself and indeed an SROI study adds value with regards to organisational accountability and reflexivity, which other frameworks rarely offer (Millar and Hall, 2013).

Eighty-three percent of public health SROI studies have been published in high income countries, with only 17% published in LMICs. This is despite the fact that LMICs receive the highest amount of aid to fund public health interventions (OECD, 2014) and arguably need to explore the use of robust methodologies to assess the impact of such interventions. The reasons for this are not entirely clear. However, it appears from this review that paucity of reliable data may be the main reason for this (WHO, 2003; Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010). Triangulation, which most authors in our review suggested as a method of improving data accuracy, is a well-known method for integrating qualitative and quantitative data (O'Cathain, Murphy and Nicholl, 2010) and may potentially help to address this reliability issue.

Furthermore, the awareness of the potential of the methodology to account for the social impact of interventions in public health is also considered to be comparatively low, outside the UK. The UK, Australia and Canada are the only countries currently with a designated national SROI Network, with the membership base comprising of anyone with a specific interest in the methodology (Netten *et al.*, 2010). The SROI Network officially confirmed its merger with the Social Impact Analysts Association (SIAA) to form Social Value International in 2015 (SROIN, 2014a; Social Value UK, 2015). This may have increased global awareness for SROI amongst practitioners and researchers. Evidently, more interests is gathering on SROI now with abstracts being submitted at conferences (Abiola *et al.*, 2016; Villoro *et al.*, 2016;

Walker *et al.*, 2017) and commentaries and analyses of the feasibility and relevance of SROI on the rise in recent times (Pathak and Dattani, 2014; Maier *et al.*, 2015; Klemelä, 2016; Vik, 2017; Yates and Marra, 2017a, 2017b).

Even within the UK, evidence suggests that SROI studies are more frequently conducted within the non-profit sector and there has not been a significant application of the methodology amongst academia, possibly reflected by the minimal number of SROI studies published in peer-reviewed journals. The SROI methodology evidently emerged from praxis rather than research, therefore, for the methodology to gain wider academic acceptance, its processes have to be self-reflexive, the questions being asked have to be clear and well defined, the methodology replicable and results valid (Emerson, Wachowicz and Chun, 2000; Krlev, Münscher and Mülbart, 2013). The rigour required to test and re-test research methods are well developed in academia, which is why academic inputs would be key for future developments of the SROI methodology.

Despite guidance from the SROI Network (Nicholls *et al.*, 2009, 2012), this review has shown that there are some differing opinions on how best to apply the SROI methodology. Firstly, there is a need to explore more scientific methods in accounting for what would have happened without the intervention. At present, most public health SROI studies use subjective means such as asking the beneficiaries what they think would have happened without the intervention (Action on Addiction, 2014) or creating subjectively graded benchmarks (Eckley, 2013) to identify this. However, some studies have used a before-and-after method (Biswas, Kummarikunta, Goverdhan Biswas and Tong, 2010; Murphy, 2010; Brady, 2011b; Carrick and Lindhof, 2011; GAMH, 2011; RM Insight, 2011; Whizz Kidz and Frontier Economics Ltd., 2011; Paths for All, 2013), while some others compared intervention group with a control group (Bradly, 2010; Lukoseviciute, 2010; Brady, 2011a; Jönsson, Wikman and Wätthammar, 2011; Jones, 2012; Bhaumik *et al.*, 2013; Bradly and Bolas, 2013; Whelan, 2013). Both methods are more objective and could potentially increase the reliability and validity of SROI results. Clearly, there are situations when neither of these 'objective means' is possible, either for practical or ethical reasons. For such cases, there is a need to provide clear guidance on how the effect was valued and how the counterfactual was determined.

This review also shows that there is no consensus regarding which stakeholders should be included to account for the outcomes of the intervention(s) assessed. Some authors have included only stakeholders who directly benefitted from the intervention and not all stakeholder groups. Those who experienced the outcomes should be asked to value the benefits (or lack of) themselves; as this may potentially be a closer to accurate reflection of the real impact of public health interventions (Tong, Sopheab and Tuot, 2012). Other stakeholders (implementers, funders or promoters) are not as well placed to describe experiences of beneficiaries. The proposition here is, if an “investment” has been earmarked for the benefit of a group of people, then the “return on investment” should be for what the investment has done for those people. The inclusion of outcomes from other stakeholder groups may lead to overestimation of the social value of the investment, which is not in line with the principles of the SROI methodology (Nicholls *et al.*, 2012). Also, methodologies such as the cost-utility and cost-benefit analysis focus only on the beneficiaries (Weatherly *et al.*, 2009). The proposition here is, if an “investment” has been earmarked for the benefit of a group of people, then the “return on investment” should be valued by those the investment was intended - the beneficiaries. The inclusion of outcomes from other stakeholder groups may lead to overestimation of the social value of the investment, which is not in line with the principles of the SROI methodology (Nicholls *et al.*, 2012). In addition, previous impact evaluation methodologies such as the cost-utility and cost-benefit analysis focus on the beneficiaries (Weatherly *et al.*, 2009).

For this review, we used Krlev et al.’s 12-point quality assessment framework (Krlev, Münscher and Mülbart, 2013). This framework was selected because it is the first and only publicly available framework for judging the quality of SROI reports. Secondly, the framework incorporates critical and sound research insights, such as how SROI studies account for what would have happened without the intervention. We confirmed the fitness for the purpose of the Krlev et al. framework by using a tool developed by Gough (Gough, Oliver and Thomas, 2012). We also shared the framework with an SROI practitioner and an impact evaluation practitioner for their expert opinion, whom both recommended it for use. There is clearly a need for SROI practitioners and public health researchers to collaborate in developing a more widely acceptable and perhaps more robust quality assessment framework for public health SROI studies, similar to the Consolidated Health Economic Evaluation Reporting Standard (CHEERS) framework for economic evaluations (Husereau *et al.*, 2013). This is even more

pertinent as the authors of the quality assessment framework used in this review recognised the limitations (Krlev, Münscher and Mülbert, 2013).

Until 2014, there had not been any significant improvement in the quality of public health SROI studies over the years. Some studies published around 2014 did not conduct sensitivity analysis and/or did not account for the counterfactual scenario objectively (Age Concern Kingston upon Thames, 2012; Bhaumik *et al.*, 2013; Bradley and Bolas, 2013; Eckley, 2013; SVA Consulting, 2013; Action on Addiction, 2014; Arvidson, Battye and Salisbury, 2014). In contrast, some of the earlier studies have fully adhered to the SROI principles and guidance and accounted for the counterfactual scenario (Biswas, Kummariakunta, Goverdhan Biswas and Tong, 2010). However, a significant improvement in the median quality score of public health SROI studies was observed in 2016. This may be associated with the increasing awareness of the methodology and extensive discussions regarding how best to conduct SROI studies in public health (Banke-Thomas *et al.*, 2015). However, quality seems to be analyst dependent rather than time-dependent (as quality has not improved over time) or assurance dependent (as the paid internal peer review service only checks if the conduct has aligned to the SROI Network principles (SROIN, 2014b)). This means that skills of SROI researchers can potentially be increased through training on the methodology. The assurance process of the SROI Network, which is a form of peer review, is worth following, though it is considered inconsistent (SVA Consulting, 2012). The process as it is today can borrow best practices from the peer review process such as is used in the research proposal and scholarly publication (including that peer review is free and uses people of similar competence to evaluate work of others) (Spier, 2002).

For stakeholder described outcomes that occur in the future, social discount rates (SDR) are used for valuations of their costs and benefits (Drummond *et al.*, 2005; Nicholls *et al.*, 2012). This review showed that the use of discount rates has varied, depending on the specific prescription of the specific country in which the study was conducted. All studies that were reviewed gave this as a justification for the choice of the discount rate used in the model. In the United Kingdom, a discount rate of 3.5% is proposed for both costs and benefits (Brouwer *et al.*, 2005; HM Treasury, 2011). Across the developed countries, SDRs ranges from 3% to 7% (Drummond *et al.*, 2005; Zhuang *et al.*, 2007). However, most LMICs use higher discount rates, ranging from 8% to 15%. For example, Zambia (11.37%), India (12%), Pakistan (12%), Philippines (15%) (Drummond *et al.*, 2005; Zhuang *et al.*, 2007; Weatherly *et al.*, 2009; Brady,

2011a). While these variations mostly reflect the different theoretical approaches to estimating the SDR, they also partly reflect the difference in perceived marginal social opportunity cost of public fund (what else could be done with the money now) and extent to which intergenerational equity (what people alive now get that those born in the future must also get) is valued in the country (Zhuang *et al.*, 2007). The challenge, however, with the use of such high discount rates for LMICs is that they are less favourable to any future outcomes that are due to the intervention (Smith and Gravelle, 2001; Brouwer *et al.*, 2005). The World Bank's Handbook on Economic Analysis of Investment Operations recommends 10-12% as a notional SDR range for use in cost-benefit analysis (CBA) and that departures from this range, should be justified based on in-country guidance (Belli *et al.*, 1998). It appears however that there is no 'one size fits all' approach when it comes to choosing an SDR for economic analysis (Zhuang *et al.*, 2007). As this disagreement amongst economists lingers, it may therefore be sufficient for now to use the World Bank global recommendation (10 - 12%) and use sensitivity analysis to explore the possibilities across a sensible range, based on in-country guidance, bearing in mind that adjustment for time variation in valuation of outcomes is part of best practices for conduct of any form of economic evaluation (Walker *et al.*, 2012).

The Roberts Enterprise Development Fund (REDF) described current approaches to SROI as lacking the systemization and links to established information systems that can ensure basic levels of reproducible data, data integrity, and comparability. In a call to action, the REDF proposed that the "next generation SROI" should make use of credible financial and social outcomes systems for collection of costs and outcomes data and these systems should be linked to increase comparability of results and ensure that only meaningful and reliable results will be generated. This would ultimately lead to wider use of the model (Gair, 2009). In this regard, to account for cost variations and currency exchange rate differences, best practices such as the use of Purchasing Power Parity (PPP) value of monies will improve the comparability of results, at least for similar interventions. In addition, installing a framework to support conduct of SROI in programmes at baseline such as was done by Bhaumik *et al.* who tracked the number of children visiting emergency department and costs throughout the community asthma initiative from one year before intervention to three years after (Bhaumik *et al.*, 2013), may help to build more reliable outcomes databases. Only high-quality data can yield the robust values required to account for VfM. The lessons learnt from the application of the methodology need to be accrued and applied in developing future SROI models that will be implemented in public health.

During the initial search in 2014, the areas of public health that SROI had been applied were limited to child health, SRH, health education, health promotion, nutrition, health care management, mental health and environmental health. In the repeat search conducted in 2017, two applications in maternal and child health were found (Wodinski, Wanke and Khan, 2013; Kimani-Murage *et al.*, 2016). However, there was no recorded application in the maternal and newborn health (MNH) area. While the reason for this may not be clear, the difficulty in accounting for newborn health outcomes may have inhibited uptake of the methodology. This thesis reports an SROI application for an MNH intervention.

This review needs to be interpreted bearing in mind the following limitations. Firstly, only published public health focused SROI studies were included in the review. There are probably unpublished SROI studies not in the public domain. While this is a known limitation, attempts were made to request print versions of SROI studies from any authors that the reviewers became aware of during the conduct of the review. Furthermore, the limited number of SROI studies published per public health area and the heterogeneity in the conduct of the studies limited the capacity to aggregate findings from related SROI studies. Finally, the quality of the SROI studies is a limitation. Overall assessment of the quality of SROI studies included in this review provided an above average score. However, a sub-analysis revealed key weaknesses in a choice of design for accounting for outcomes. While this does not mean that the SROI studies themselves do not carry valuable information, the conduct of the research could have been better.

3.13 Recommendations

Going forward, there is a need to:

- Establish a comprehensive database to archive public health SROI studies.
- Engage with academics to develop the methodology.
- Give consideration for a non-fee paying SROI assurance service.

3.14 Conclusion

The international development community continues to invest significantly in public health. A culture of accountability and “*value-for-money*” is central to monitoring and evaluation of public health projects, programmes and policies. In times of austerity, robust and innovative tools are needed. Authors agree that despite the challenges of conducting SROI, the methodology provides a unique platform to systematically account for broader outcomes, impact and value for money of health interventions (SVA Consulting, 2012; Millar and Hall, 2013). SROI is very relevant and applicable, especially as the global focus shifts from “output” to “impact” and from “generous giving” to “accountable giving” (Leat, 2006). It aids identification of the most impactful, cost-beneficial and culturally sensitive public health interventions. As such, SROI is relevant and applicable, especially in MNH, where outcomes are experienced by more than one group of beneficiaries and occur at different times over an extended period of time. For this thesis, insights and lessons learnt from previous SROI applications in public health have been used to develop the study methodology [[Chapter 4](#)].

Key Points

Chapter 3

Systematic literature review of SROI application in public health

- Using the search terms “social return on investment”, “SROI” and “blended value accounting” combined with health”, “healthcare” OR “public health”, articles that applied the SROI methodology on health interventions were sought.
- 48 articles were retrieved from peer reviewed journals and grey literature.
- Overall, 30% of SROI public health studies were adjudged to be of low quality. Out of a maximum score of 12, the range of scores was from 3 to 11. Median quality score was 9.5.
- Quality of health SROI studies appears neither time-dependent ($p=0.89$) nor source of SROI study dependent ($p=0.40$) nor assurance dependent ($p=0.16$) but it appears that quality is analyst or analyst’s organisation dependent.
- SROI has been used across different health areas including mental health (33%), health promotion (25%), sexual and reproductive health (15%), child health (8%), nutrition (6%), health care management (4%), maternal and child health (4%), environmental health (2%) and health education (2%).
- Stakeholder analysis classifies stakeholders into beneficiaries, funders, implementers and promoters.
- Key emerging themes captured as lessons learnt of applying the methodology are: Multiple sources of data can help to deal with data challenge, beneficiaries are best positioned to describe outcomes of interventions than other stakeholders, counterfactual is essential to establish impact and transparency improves the whole process.
- SROI methodology is considered very relevant and applicable in maternal and newborn health, as outcomes are experienced by more than one group of beneficiaries and occur at different times over a long period.
- The methodology will benefit from synergy of praxis and academia.
- Insight from the review were useful in developing the study methodology used for this research.

4 Methodology

4.1 Overview of the chapter

A description of what an SROI study is and what it attempts to achieve, especially capturing the perspectives of different stakeholders on the value of a specific intervention, has been described in [chapter 1](#). Key concepts required to aid understanding of the methodology have been described in [chapter 2](#).

The first part of this chapter briefly describes the country setting as well as the ‘Making it Happen’ programme, with focus on the emergency obstetric care training intervention. The chapter then describes in detail the stages and principles of conducting a social return on investment study. It proceeds to describe how this study will align to these principles and describes the research methods to be used for each of the social return on investment stages. The chapter then discusses the appropriateness of the methods used and describes in detail how they will be applied. In addition, ethical considerations for the data collection process are described. The chapter moves on to describe how the data collected will be analysed. Finally, the chapter concludes with a description of the researcher’s position within the context of the research.

4.2 Preamble

This research was conducted in Kenya as part of operational research under the ‘Making it Happen’ (MiH) programme. MiH is a programme designed to tackle the unacceptable deaths of the estimated 284,000 women and the approximately three million neonates that die annually from complications arising from pregnancy and childbirth in developing countries (WHO, 2011c; WHO *et al.*, 2012). Placing emphasis on developing countries was important. Though there has been a 47% decline in the maternal mortality and 41% decline in mortality rates of children under-five globally, rates in sub-Saharan Africa and South Asia have been slow, and mortality rates have remained high, even increasing in some these countries (United Nations, 2011; WHO, 2011c). This situation ultimately impeded the realisation of the Millennium Development Goals (MDGs), as had already been projected during the conceptualisation of the ‘Making it Happen’ (MiH) programme (DFID, 2012).

Estimates show that a woman’s lifetime risk of maternal death, defined as “*the probability that a 15-year-old woman will eventually die from a maternal cause*”, is 1 in 3,700 in

developed countries, versus 1 in 160 in developing countries (Patton *et al.*, 2009). Complications such as severe bleeding, pregnancy-induced hypertension (pre-eclampsia and eclampsia), unsafe abortions, infections (mostly after childbirth), obstructed labour and complications from delivery all account for approximately 75% of maternal deaths. The remainder is caused by or associated with pre-existing conditions such as malaria or Acquired Immune Deficiency Syndrome (AIDS), which are worsened by pregnancy (Say *et al.*, 2014). For the newborns, approximately 23% die within the first 24 hours of birth as a direct result of complications occurring during childbirth or during the immediate postpartum period (WHO, 2011c).

These poor outcomes can be significantly reduced by skilled birth attendants (SBAs) (de Bernis, 2003). Experts suggest that a combination of SBAs with the provision of basic emergency obstetric care (BEmOC) had the potential to avert intrapartum stillbirths by 45% and SBAs in conjunction with the provision of comprehensive emergency obstetric care (CEmOC) could reduce intrapartum stillbirths by 75% (Yakoob *et al.*, 2011). Also, though patchy, available costing studies demonstrate the potential benefit of SBAs regarding costs of treating complications (Borghi, 2001). Evidence suggests that improvements in recruitment, education, training and supervision of SBAs are crucial steps that enhance their capacity in providing the quality care required by women and children (Adegoke and van den Broek, 2009).

In the ensuing subsections, relevant background of the research country - Kenya is provided along with a description of the EmOC training intervention of the MiH programme. The chapter then goes on to detail the methods used for data collection, analysis and ethical considerations in this research.

4.3 Background of Kenya

4.3.1 Geographical, economic and socio-demographic background

Kenya is the setting for this research. The East African country is bordered by Tanzania to the south, Uganda to the west, South Sudan to the north-west, Ethiopia to the north, Somalia to the northeast, and the Indian Ocean to the south-east (KNBS and ICF Macro, 2010; Compare Infobase, 2017) [[Figure 4.1](#)].

Figure 4.1: Map of Kenya showing the eight provinces and the surrounding countries



© Aduragbemi Banke-Thomas. Map created with ESRI ArcGIS™

Kenya is divided into eight provinces: Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift Valley, and Western [Figure 4.1]. The capital of the country is Nairobi. These provinces were previously divided into 158 districts (KNBS and ICF Macro, 2010), but in 2013, based on a new constitution (Government of Kenya, 2010a), the eight provinces were subdivided into 47 semi-autonomous counties, which are further divided into sub-counties (Government of Kenya, 2012).

Following a rebasing of her economy, the Gross Domestic Product (GDP) is thought to have expanded by 25% to \$54.2 billion (BBC, 2014). Kenya is therefore now considered as an LMIC with a GDP per capita of \$1,137.94 (>\$1,045 GDP per capita threshold, below which it would be classified as a low-income country) (IMF, 2014; World Bank, 2014b).

The last census to be conducted in Kenya in 2009 put the population at 38,610,097 (KNBS, 2009). A 2016 estimate, however, put Kenya's population at 47,251,449 in 2016, with an estimated annual population growth rate of 2.54% (World Population Review, 2015). Male to female ratio is approximately 1:1 across the entire population. The Kenyan population is predominantly young, with 60% of the population being 24 years old or younger, with a median age of 19.1 years. Women of reproductive age, who are those between 15 and 49 years, constitute 25% of the total population (CIA, 2014).

The fertility rate has progressively dropped from 8.1 births per woman in the 1970s to 3.9 births per woman in the present decade. There are substantial differences in fertility rates across the provinces, ranging from 2.3 births per woman in Nairobi to 7.8 births per woman in the North-Eastern province. Fertility also varies across place of habitation, as rural areas tend to have higher fertility rates (average 5.2 births per woman) vs. urban areas where the rate is about 2.9 births per woman (KNBS and ICF Macro, 2010; NCPD, 2012; KNBS, Ministry of Health Kenya, National AIDS Control Council, KEMRI and NCPD, 2015). Regarding crude birth rate, the 2014 estimate is 28 births per 1000 population (CIA, 2014). 76% of the population are domicile in rural areas, while the remaining 24% live in urban areas. The annual rate of urbanisation is 4.4% (KNBS and ICF Macro, 2010; NCPD, 2012). Though there are other languages spoken in the country including, Swahili and English are the most common language spoken in Kenya, as such this research was conducted in both languages (KNBS and ICF Macro, 2010; NCPD, 2012).

4.3.2 The Kenyan health care system

Kenya Health Policy 2012 – 2030 frames the health system development. This policy is hinged on the country's vision 2030, which details her long-term national development agenda to transform the country into a *“globally competitive and prosperous industrialized middle-income country by 2030”*, the Millennium Development Goals (MDGs) as well as the new constitution which was adopted in 2010 (MOMS and MOPHS, 2012). This health policy is aimed at building on gains of previous national health policies and supporting the

achievement of more health gains in an efficient, effective and equitable manner. Specific objectives of the policy are “to attain a 16% improvement in life expectancy; a 50% reduction in annual crude mortality rate from all causes as well as a 25% reduction in time spent in ill-health” (MOMS and MOPHS, 2012).

The Kenyan health system involves several players including government, development partners (bilateral and multilateral agencies), third sector organisations (civil society, faith-based organisations, voluntary organisations and non-governmental organisations), private sector, traditional healers as well as individuals and households ensuring care and support for their families and communities (WHO, 2012b).

In 2010, following the devolution of the health system, governance structures were altered from a centralised structure to a two-tier decentralised system made up of the national government and the newly created 47 county governments (KPMG, 2013; WHO, 2016).

Health workforce

The WHO classifies Kenya as being critically short of HCPs. Kenya’s most recent estimate is 13 per 10,000 (<23 doctors, nurses and midwives threshold per 10,000 population) (WHO, 2011b). The deficiency is worse in the rural counties where under-staffing rates of 50% to 80% have been reported (Transparency International, 2011). Also, there is evidence to support attrition of the current health workforce. The attrition rates of doctors and registered nurses are higher in county referral centres than in the primary care services. Attrition rates are higher amongst doctors when compared to nurses in referral centres. Resignation is the principal reason for attrition amongst doctors (Chankova, Muchiri and Kombe, 2009). Approximately 360 doctors are graduating annually in Kenya. By the year 2000, 3,975 Kenyan doctors were working in the UK, USA, Australia, Canada, Spain, Portugal, Belgium and South Africa. Kenya is one of the top six countries in Africa exporting doctors abroad (Data Dredger, 2014). A study estimated that for every doctor who emigrates to practise abroad, Kenya loses about US\$517,931 in the form of expected returns from investment in training the doctor (Kirigia *et al.*, 2006).

The remaining HCPs within the country are mal-distributed, between rural and urban areas, counties and levels of care (primary vs. secondary) (Kiambati, Kiio and Toweett, 2013; Wakaba *et al.*, 2014). The density of health workers per 1,000 population is twice as high in

the Central province when compared to the North Eastern province, which has some of the highest maternal mortality rates in Kenya (Kiambati, Kiio and Toweett, 2013) [Table 4.1].

Table 4.1: Density of health workforce per 1,000 population across Kenya provinces

Province	Density of health workers per 1,000 population
Central	1.81
Western	1.62
Coast	1.57
Nairobi	1.48
Rift Valley	1.38
Nyanza	1.23
Eastern	1.18
North Eastern	0.84

Data Source: *Understanding the Labour Market of Human Resources for Health in Kenya, 2013*

Available data on the number of skilled birth attendants (SBAs), as defined by the WHO (doctors, nurses and midwives) are shown in Table 4.2.

Table 4.2: Registered medical personnel in Kenya

Type of personnel	Registered medical personnel			
	2010		2013	
	Number	Number per 100,000 pop.	Number	Number per 100,000 pop.
Doctors	7,129	18	8,682	21
Registered nurses	29,678	75	37,907	91

Data Source: *Understanding the Labour Market of Human Resources for Health in Kenya, 2013*

There has been a continuous rise in the number of SBAs available to provide maternal care in Kenya over the past four years, with doctor per 100,000 population increasing from 18 to 21 and registered nurse per 100,000 population increasing from 75 to 91 [Table 4.2]. Nairobi has the highest density of doctors while nurses are more concentrated in the Central and Coast provinces (Kiambati, Kiio and Toweett, 2013).

Service provision

The total number of health facilities in Kenya stood at 9,448 in 2013. Most significant growth has occurred in the private sector. Regarding ownership, there is a majority private sector ownership in 2013 (53% private as compared to 47% public). However, most of the service

provision is carried out within the public facilities (PSP4H, 2014). Healthcare delivery is organised in four levels (MOMS and MOPHS, 2012):

- *Community health services*: comprises all community-based demand creation activities, identification of cases that require higher-level management and promoting appropriate healthy behaviours. The counties manage these services.
- *Primary care services*: This includes all dispensaries, health centres and maternity homes. Services include “disease prevention and health promotion services, basic outpatient diagnostic, medical, surgical and rehabilitative services”. The counties are responsible for their management.
- *County referral services*: These are facilities operating within and managed by a specific county. They provide “comprehensive inpatient diagnostic, medical, surgical and rehabilitative care, including reproductive health services, specialised outpatient services and manage referrals from lower level care”.
- *National referral services*: This level is made up of facilities that provide highly specialised diagnostic, therapeutic, and rehabilitative services and includes all tertiary referral facilities. The two public national referral hospitals are Kenyatta National Hospital in Nairobi and Moi Referral and Teaching Hospital in Eldoret, both managed by the national government. However, some private sector facilities are also classed as referral centres. These are Nairobi Hospital and Aga Khan Hospital.

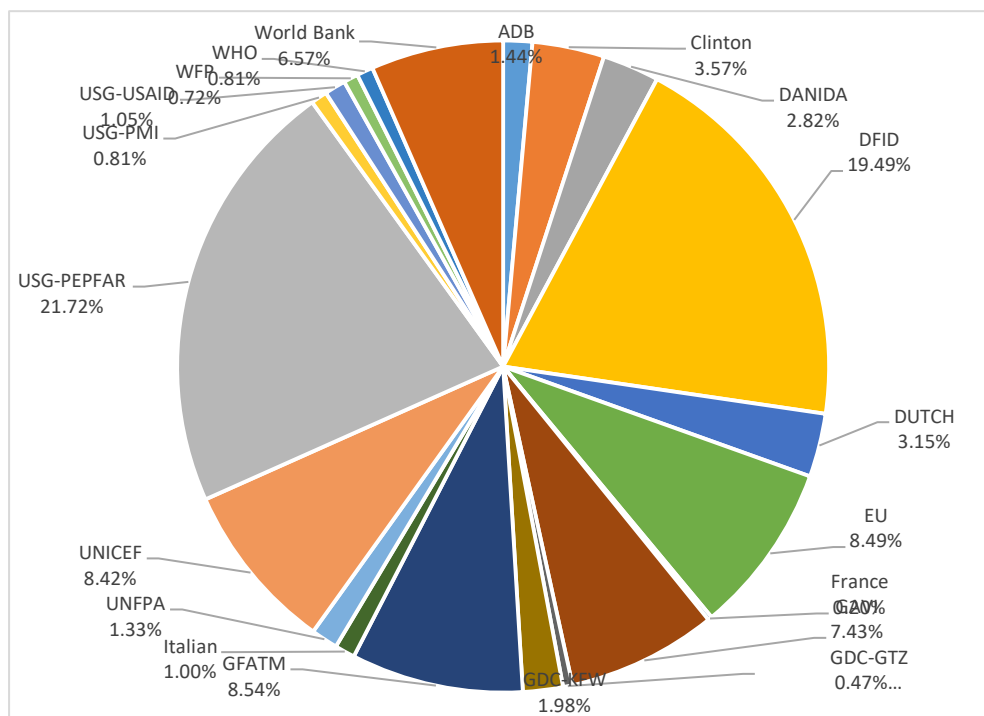
Health care financing

Methods of financing health services in Kenya include taxation, user fees, donor contributions and health insurance. Health expenditure as a percentage of GDP is 4.8% on health, and private spending on health as a percentage of all health spending is 55.7% (WHO, 2014a). Health expenditure per capita, PPP (constant 2005 International \$) was 84 in the year 2012, an increase from 73 in 2011 (World Bank, 2014a). In 2007, the Kenyan government abolished all fees associated with deliveries at public health facilities, however, no data demonstrates the extent of implementation and uptake of the policy, and there has not been an evaluation of its effectiveness conducted till date. So far, there is only anecdotal evidence that there has been some positive effect of the user fee removal policy on equity of service provision (Chuma and Okungu, 2011).

Out-of-pocket (OOP) payments used to be the largest source of health funds in Kenya, accounting for 35.9% of total health expenditure (THE) in 2005/2006 while Government spending on health accounted for 29.3% in 2005/2006. However, estimates of the 2008/2009 national health accounts indicate that this pattern might have changed, with the government contributing 35.0% of THE and households contributing 24.1% through OOP. Donors contribute the largest percentage of THE (Government of Kenya, 2009). Donor contribution to the Kenyan health sector is comparatively large and has increased considerably in recent years. It was estimated at 31.0% in 2005/2006 and amounted to 40.6% of total health expenditure in 2008/09 (Government of Kenya, 2010b).

In recent times, there is an increasing number of donors working with the private health sector across priority health areas and health systems, with the majority supporting civil society organisations (CSOs) and non-governmental organisations (NGOs). The amount of government and development partner funding channelled through local Kenyan CSOs and NGOs has nearly quadrupled in less than a decade: from about 27 billion Kenya shillings (KSh) in 2004/05 to about 104 billion KSh in 2009/10 (PSP4H, 2014). [Figure 4.2](#) shows the contributions of different donors to the Kenyan health system.

Figure 4.2: Donor investment in Kenya



Data source: *What do we know about the Kenyan private health sector? A synthesis of the current literature, 2014*

The EmOC training package being assessed in this research was funded by the Department for International Development (DFID), which contributes about 20% of donor investment in Kenya [Figure 4.2].

4.3.3 Maternal health situation in Kenya

In Kenya, like in many other LMICs, complications due to pregnancy and childbirth constitute the principal causes of morbidity and mortality amongst women. These deaths translate into 362 maternal deaths per 100,000 live births (KNBS, Ministry of Health Kenya, National AIDS Control Council, KEMRI, NCPD, *et al.*, 2015).

While 96% of Kenyan women made at least one antenatal care and 58% attended the recommended four or more visits, of which 19% obtain antenatal care during the first trimester of pregnancy. According to the most recent Kenya Demographic Health Survey (KDHS), 61% delivered in the facility, a significant increase from the 43% reported in the 2008-09 KDHS. Mothers in Central (90%) and Nairobi (88%) provinces were most likely to have their babies in a health facility, while mothers in Western (47%) and North Eastern (29%) provinces were least likely to do so. Urban women (82%) were more likely to deliver in facilities compared to rural women (50%). Women with at least secondary school education (84%) were most likely to deliver in a health facility. Younger women (63%) were also more likely to deliver in facilities compared to older women (53%) (KNBS, Ministry of Health Kenya, National AIDS Control Council, KEMRI, NCPD, *et al.*, 2015).

Status of emergency obstetric care in Kenya

There are eight United Nations (UN) indicators for monitoring EmOC service provision: six with defined standards, one with standard to be determined (intrapartum and very early neonatal death rate) and one other in which standard cannot be determined (proportion of maternal deaths due to indirect causes in EmOC facilities) (WHO *et al.*, 2009).

The others are: availability of BEmOC and CEmOC, geographical distribution of EmOC facilities, proportion of all births occurring in EmOC facilities, met need for EmOC: proportion of women with major direct obstetric complications who are treated in such facilities, caesarean sections as a proportion of all births and direct obstetric case fatality rate (CFR).

There are standards for each of these indicators. [Table 4.3](#) shows the status of EmOC service provision in Kenya as compared to the UN recommendations (WHO *et al.*, 2009).

Table 4.3: EmOC indicators in Kenya compared to UN standards

Indicator	UN recommendation	Kenya actual	Source
Availability of BEmOC and CEmOC	≥5 EmOC (including 1CEmOC)/500,000 population	6.2/500,000	(Echoka <i>et al.</i> , 2013)
Geographical distribution of EmOC facilities	All subnational areas have ≥5 EmOC (including 1CEmOC)/500,000 population	Rural-urban inequities	(Echoka <i>et al.</i> , 2013)
Proportion of all births occurring in EmOC facilities	(Minimum acceptable level to be set locally)	19.7%*	(Ameh, Msuya <i>et al.</i> , 2012)
Met need for EmOC: Proportion of women with major direct obstetric complications who are treated in such facilities	100% of all direct obstetric complications should be treated in EmOC facilities	6.5%*	(Ameh, Msuya <i>et al.</i> , 2012)
Caesarian sections as a proportion of all births	Between 5 and 15% of all births	5%* Rural 2.7% vs. urban 7.7%	(Ameh, Msuya <i>et al.</i> , 2012) (Echoka <i>et al.</i> , 2013)
Direct obstetric case fatality rate	≤ 1% among women with direct obstetric complications	4.2%*	(Ameh, Msuya <i>et al.</i> , 2012)

*Data from survey of 6 provinces (formerly districts)

A study conducted amongst 40 facilities in Malindi district, Kenya indicated that the ratio of EmOC facilities to 500,000 people was 6.2 [[Table 4.3](#)]. However, by using the strict WHO definition, which describes signal functions that should be conducted at both BEmOC and CEmOC levels, none of the facilities met the requirements, as assisted vaginal delivery, by manual vacuum aspiration (MVA) or forceps was not provided in any facility (Echoka *et al.*, 2013). A previous service provision assessment also showed similar findings (NCAPD *et al.*, 2011) [[Table 4.4](#)].

Table 4.4: Percentage availability of EmOC signal functions in Kenya 2010

Signal function	Hospital* (%)	Health centre* (%)	Maternity* (%)
Antibiotics	84	51	67
Oxytocics	93	81	85
Anticonvulsants	51	14	24
Manual removal of placenta facilities	60	38	33
Removal of retained products	70	33	62
Assisted vaginal delivery	13	0	2
Blood transfusion	42	4	23
Caesarean section	47	1	31

* Facilities that performed the signal function at least once during the three months preceding survey

Source: Kenya Service Provision Assessment (NCPAD et al., 2011)

A study that explored the barriers to utilising EmOC in slums of Nairobi, Kenya, indicated that while most people (women and their partners) prefer facility-based EmOC offered by SBAs, there are constraints to utilising the service. These limitations include ineffective health decision-making at the family level, inadequate transport amenities to travel to formal facilities, insecurity especially at night in the case of emergency, the high cost of care, inhospitable nature of HCPs and poorly equipped health facilities in the slums. The majority of slum dwellers, therefore, opt for services offered by traditional birth attendants (TBAs) who lack critical skills and equipment needed for EmOC (Essendi, Mills and Fotso, 2011).

4.4 The intervention: Making it Happen programme

The aim of MiH is to “reduce maternal and newborn mortality and morbidity by increasing the availability and quality of skilled birth attendance and emergency obstetric and newborn care” (CMNH, 2014). The programme is being implemented by the Centre for Maternal and Newborn Health (CMNH) at the Liverpool School of Tropical Medicine (LSTM), with funding provided by Department for International Development (DFID) (Ameh and van den Broek, 2015).

4.4.1 Implementation of the ‘Making it Happen’ programme

There are three components of the programme:

- **Component 1:** Competency-based EmOC training, tailored to country needs.
- **Component 2:** Strengthening data collection for use in facilities and research.
- **Component 3:** Introduction of a Quality Improvement (QI) methodology.

CMNH works in partnership with national governments, Ministries of Health, overseas LSTM offices and in-country implementation partners. The programme has been implemented in 11 countries including eight in Sub-Saharan Africa (Ghana, Kenya, Malawi, Nigeria, Sierra Leone, South Africa, Tanzania, and Zimbabwe) and three in South Asia (Bangladesh, India, and Pakistan). Of these programme countries, Kenya had one of the highest indices for maternal mortality at baseline, as such it was selected as the country of choice for this thesis (DFID, 2012).

In Kenya, the programme was implemented over two phases. The first phase ran from 2009 to 2012 and the second phase, from 2012 to 2015 with a scale up approved till 2018 (CMNH, 2014). The outputs of the second phase of the programme, which is the programme phase of interest of this thesis, are presented in [Table 4.5](#).

Table 4.5: Outputs of the second phase of the ‘Making it Happen’ programme

Number	Output
Output 1	Increased health care provider capacity to provide EmOC
Output 2	Increased availability of EmOC for mothers and babies
Output 3	Strengthened accountability for results with increased transparency
Output 4	Strengthened capacity to sustain improvements in MNH service delivery
Output 5	Evidence generated by programme disseminated to inform national, regional and global agenda

This research focuses only on the EmOC training component (Output 1) [[Table 4.5](#)].

4.4.2 The MiH EmOC training in Kenya

The EmOC training on the ‘Making it Happen’ (MiH) programme is called the Life-Saving Skills – Essential Obstetric Care and Newborn Care (LSS-EOC & NC). The manual that details the training content (van den Broek, 2007) is a product of a partnership between the Liverpool

School of Tropical Medicine (LSTM) and the Royal College of Obstetricians and Gynaecologists (RCOG), United Kingdom. This manual was developed in collaboration with the Department of Making Pregnancy Safer at the World Health Organization (WHO), Geneva, Switzerland (Grady *et al.*, 2014). The LSS-EOC & NC is focused on the eight signal functions of Basic Emergency Obstetric Care (BEmOC) and Comprehensive Emergency Obstetric Care (CEmOC), described by the WHO (WHO *et al.*, 2009) and developed as a package to improve health care provider (HCP) knowledge and skills on EmOC in low-resource settings. It leverages principles of adult education, teaching and learning and a combination of lectures and practical hands-on skills and drills sessions to enhance effective learning. It also encourages group discussions and mentoring within the programme (Grady *et al.*, 2014).

Facilitators who have experience working in low-resource settings are responsible for teaching the modules [Table 4.6]. The facilitators moderate breakout stations (which take the form of skills practice, scenarios, workshops, discussions and video demonstrations), demonstrate case scenarios, mentor participants and provide feedback to participants at the end of the course (Grady *et al.*, 2014).

Table 4.6: Content of the LSS-EOC & NC

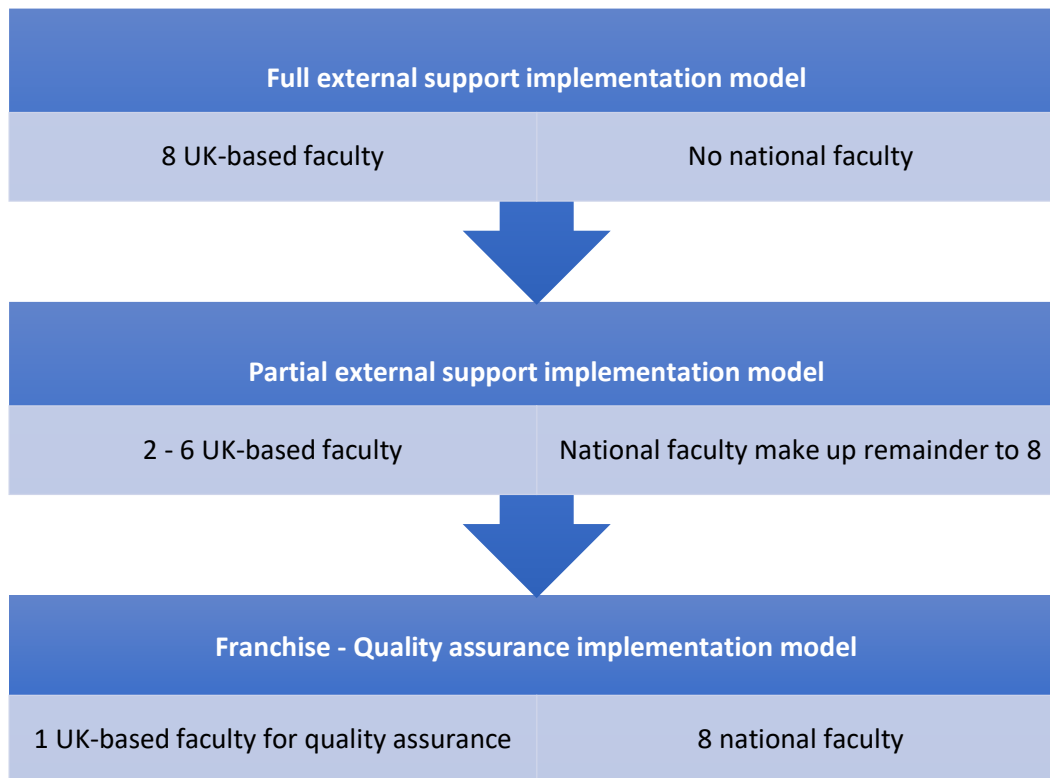
Module number	Module name
Module 1	Communication, triage and referral
Module 2	Resuscitation of mother and neonate
Module 3	Management of shock and the unconscious patient
Module 4	Management of severe pre-eclampsia and eclampsia
Module 5	Prevention and treatment of obstetric haemorrhage
Module 6	Prevention of obstructed labour
Module 7	Diagnosis and treatment of pregnancy-related sepsis
Module 8	Assisted delivery
Module 9	Common obstetric emergencies (breech delivery, cord prolapse, twin delivery and retained placenta)
Module 10	Complications of abortion

The training has been adapted to specific needs in Kenya, based on advice from the Ministry of Health (MoH). For example, the training lasts for five days in Kenya, as opposed to three days in some other countries. Furthermore, the assisted vaginal delivery (AVD) module of the

training content was restricted to only vacuum extraction (excluding obstetric forceps). In addition, the WHO modified partograph (no latent phase, partograph is opened from 4cm cervical dilation) as opposed to the WHO composite partograph (latent phase, partograph is opened from 3cm cervical dilation) is taught (Ameh and van den Broek, 2015). Components such as antenatal care, malaria in pregnancy and family planning have been added to the general coursework. These components are in addition to essential knowledge and skills to avoid the major causes of maternal death – haemorrhage, eclampsia, sepsis, obstructed labour and abortion (Khan *et al.*, 2006) and the signal functions to manage these conditions (van den Broek, 2007). Finally, the training is adapted to the cadre of HCPs being trained. Full course programme is in [Appendix 4](#).

Based on the number of UK-based faculties who volunteer to deliver the training in Kenya, the training is delivered on full external support implementation model (All UK-based facilitators, no national facilitator), partial external support implementation model (2-6 UK-based facilitators, remainder are national facilitators) or franchise/quality assurance model (only national facilitators) [[Figure 4.3](#)].

Figure 4.3: Implementation phases of the EmOC training intervention



4.4.3 The intervention's theory of change

The theory of change (ToC) for the intervention is that resources including trainers, training venue, training manuals, equipment and payments for trainers and trainees are used in implementing the training, which will lead trained HCPs as outputs. Knowledge and skills gained by trained HCPs can be transferred to delivering appropriate quality EmOC to women in need of such care. By ensuring that HCPs are competent to provide EmOC signal functions and that participating facilities have adequate equipment and supplies for service provision, backed up by improved data collection and supervision, the MiH programme is expected to contribute to increasing the coverage of EmOC across the 11 countries. These outcomes will then ultimately contribute to an overall reduction in maternal and newborn morbidity and mortality as well as stillbirths in these countries, including Kenya (DFID, 2012; Ameh and van den Broek, 2015).

4.4.4 Expected outcomes of 'Making it Happen' Phase 2

The phase 2 of the programme is expected to achieve the following results during the programme lifespan (CMNH, 2014):

- Save 9,586 maternal lives
- Save 10,490 newborns
- Avert 12,690 stillbirths
- Avert 191,720 maternal disabilities.

Sustained capacity to provide EmOC in the countries will be developed by the training of 17,025 HCPs, including 1,025 national master trainers, who would be able to continue the delivery of training activities post programme (DFID, 2012).

4.5 Study area description

In selecting study area and facilities to be included in the study, consideration was given to population characteristics of the various stakeholder groups that were to be engaged in the research. The focus was placed on how the population characteristics could impact on the valuation of outcomes (a key stage of the SROI process). Evidence from the literature suggests that culture has an effect on the individual valuation of economic and non-economic goods (Guiso, Sapienza and Zingales, 2006). As such it was critical to recruit a representative

sample of the population. However, due to the logistics that was envisaged in selecting representatives from across the country, the decision was made to focus on Nairobi county, since this is a melting pot of cultures and is the most diverse and cosmopolitan county in the country (Warah, 2013).

In selecting facilities, discussions were held with the MiH programme manager in Kenya. To ensure that the facilities selected would have experienced the intended effect of the intervention, only facilities that have had more than 80% of their staff trained as part of the MiH programme were included. Selected facilities for the study were: Waithaka Health Centre, Mbagathi Hospital, Mama Lucy Kibaki Hospital, Kayole II Hospital, Langata Health Centre and St. Mary's Mission Hospital [Table 4.7].

Table 4.7: Characteristics and training status of health workers in selected facilities

County	Sub-county	Facility	Type	Total number of staff	Total number of maternity staff	Total trained	% Trained
Nairobi	Dagoretti	Waithaka Health Centre	BEmOC	23	23	23	100%
		Mbagathi Hospital	CEmOC	262	33	45	136%
	Embakasi	Mama Lucy Kibaki Hospital	CEmOC	239	39	39	100%
		Kayole II Hospital	CEmOC	28	13	17	131%
	Langata	Langata Health Centre	BEmOC	31	29	27	93%
		St. Mary's Mission Hospital	CEmOC	111	17	17	100%
TOTAL					154	168	

Similarly, because of the known potential influence of socio-economic status of individuals on the valuation of economic and non-economic goods, consideration was also given to the prevalent socio-economic status of the client served by the selected facilities.

[Table 4.8](#) describes the socio-demographic characteristics of the clients receiving care in the selected facilities.

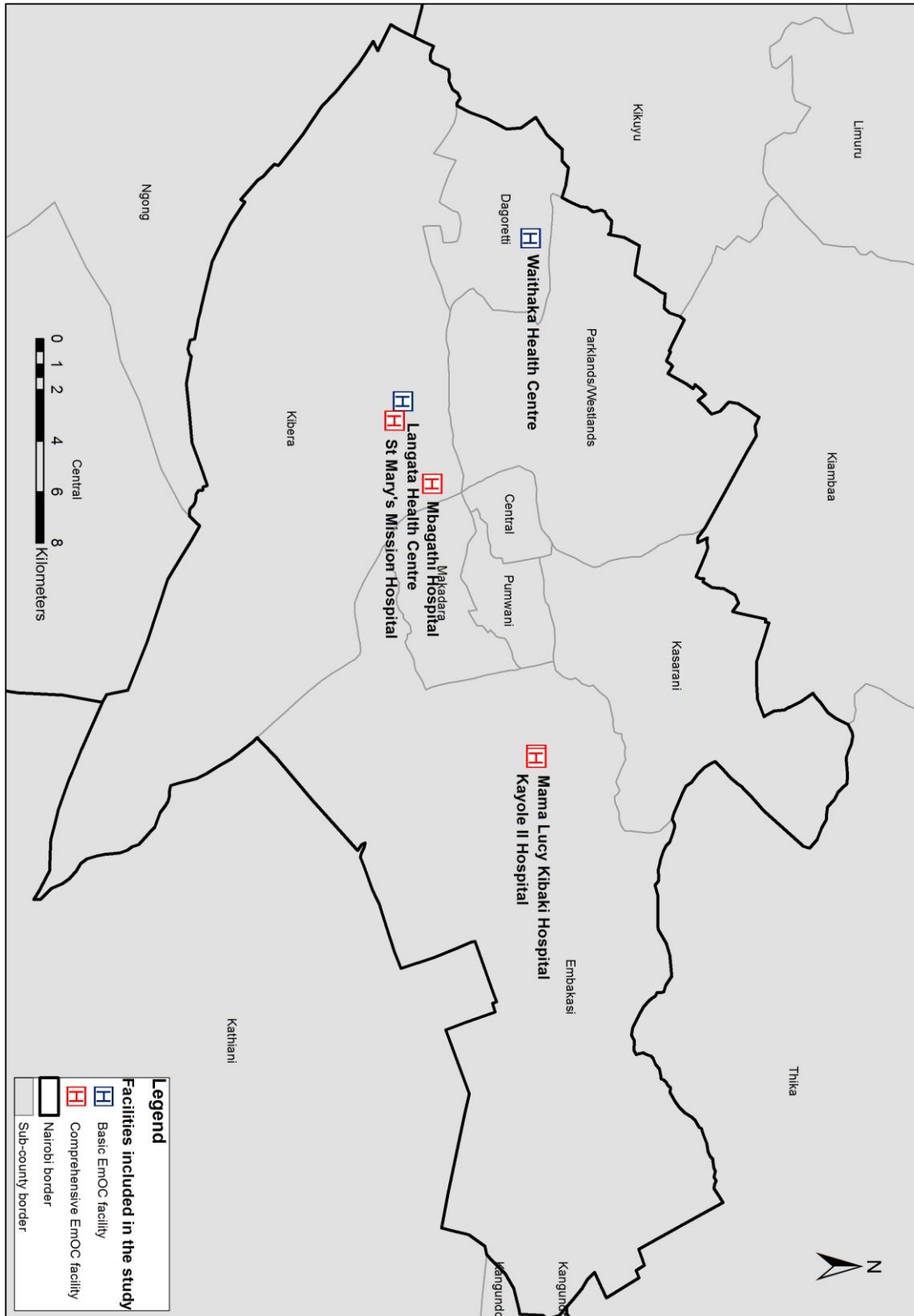
Table 4.8: Characteristics of clients receiving care selected facilities

Facility name	Characteristics of women attended to in the facility
Waithaka Health Centre	Clients are of low socio-economic status, mostly unemployed and housewives. Majority tribes that visit are Kikuyus from rural Kikuyu and Kabete towns of Kiambu and Luhyas from low-class Kawangware semi-slum. They are Christians from Central and Western regions.
Mbagathi Hospital	Essentially receives a broad range of clientele, majorly between low and middle socio-economic groups with most serving as casual labourers in Nairobi's industrial area. The facility is the main referral hospital for all the facilities in Nairobi County. The clientele base is a mix of all the main tribes in Nairobi such as Luo from Nyanza, Kikuyus from Central region, Kamba, Embu and Meru from Eastern and Luhyas from western regions. Most clientele live in the nearby Kibera slums, the biggest slum in Africa. Mostly Christians and few Muslims.
Mama Lucy Kibaki Hospital	Clients are of middle and low socio-economic status, an equal mix of employed and housewives. Most are Christians and a minimal number of Muslims. Major tribes that visit the facility are Kikuyus and Luos from Kariobangi estate in Eastlands. The facility serves minority clients from rural Ukambani, Kangundo sub-county of Machakos County, Eastern Kenya. It also serves middle-class clientele from east of Nairobi estates such as Dandora, Njiru and Kayole and the majority are from Mathare, Mukuru Kwa Njenga and Soweto slums.
Kayole II Hospital	Clients are of low socio-economic status, most unemployed and housewives. Most are Christians. Majority tribes that visit include Kikuyus, Kambas, Luos and Luhyas. The facility serves clientele from Mathare, Mathare North, Mukuru kwa Njenga, Mukuru kayava and Soweto slums.
Langata Health Centre	Clients are mostly of low socio-economic status, housewives and mostly unemployed. Usually from the Nubian community (settlers from the Republic of Sudan) and Luo community (from Nyanza). Minority tribes that visit include Kikuyus, Kambas and Luhyas. Most clientele live in the Kibera slums. An equal mix of Christians and Muslims.
St. Mary's Mission Hospital	The facility serves as a major referral centre, not just for women across Nairobi, but across Kenya. Essentially receives a broad range of clientele, majorly between low- and middle-socio-economic status groups.

The overall objectives of the facility selection process were to ensure that the facilities were representative of facilities in Kenya and specifically the target MiH facilities and to guarantee that the selected facilities had experienced the intended gains of the training intervention at the time of the research.

All selected facilities are geographically situated in Nairobi County, from east to west [[Figure 4.4](#)].

Figure 4.4: Map showing selected facilities across Nairobi



© Aduragbemi Banke-Thomas. Map created with ESRI ArcGIS™

4.6 Introduction to the SROI methodology

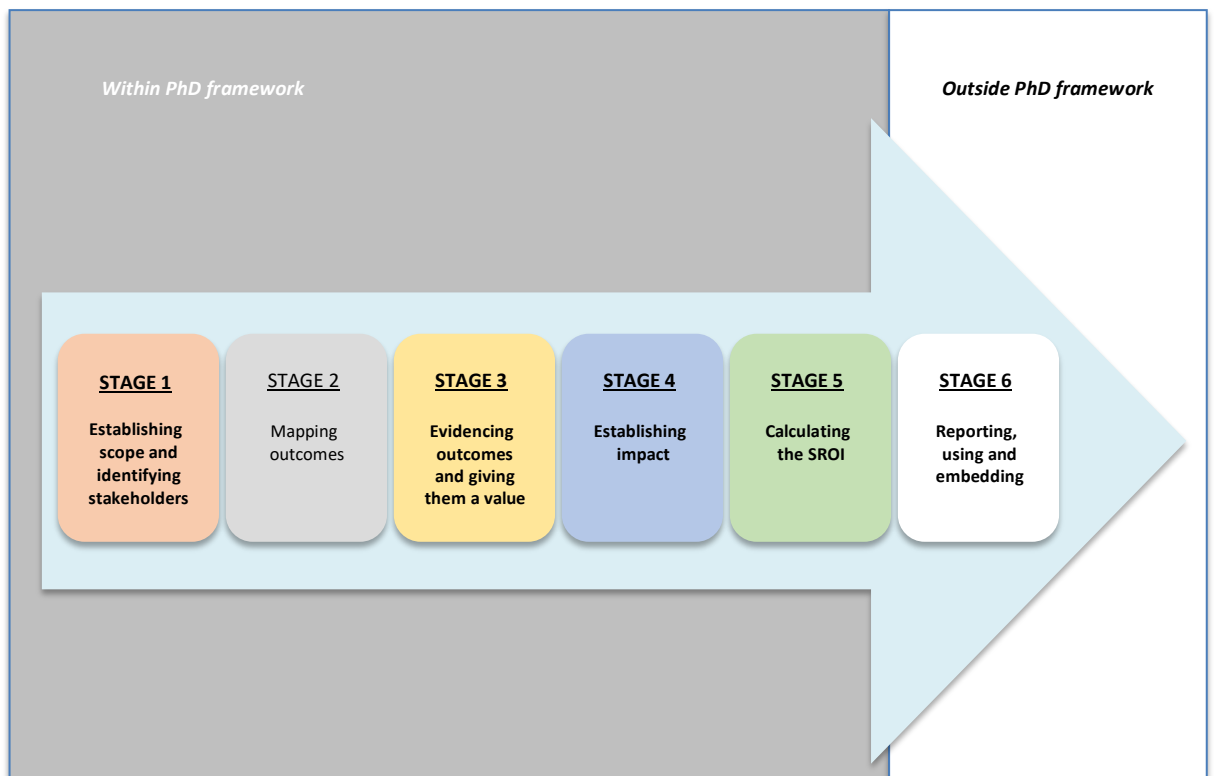
This research was set up to conduct an evaluative SROI study which retrospectively reviewed the social impact of the EmOC training intervention during a one-year period.

The next sub-section describes the conduct of an SROI study as well as principles that guide the conduct of SROI, as prescribed by the most recent guidelines (Nicholls *et al.*, 2012).

4.6.1 Conducting a SROI study

Carrying out an SROI analysis involves six stages. Stages 1, 2,3 and 4 are primarily data collection stages. Stage 5 is data analysis while stage 6 is for data dissemination [Figure 4.5].

Figure 4.5: Stages of SROI



*SROI stages represented based on 2012 Guide on Social Return on Investment (Nicholls *et al.*, 2012)

**Please note: The stages have each been color-coded in the figure above. The same colour code has been applied throughout this thesis.

Stage 1 **Establishing scope and identifying key stakeholders:** This stage is used to set clear boundaries regarding what the SROI analysis will cover and what the SROI analysis does not cover.

Stage 1 involves identification of who the stakeholders are and description of their roles as they relate to the intervention. Also, the identified stakeholders are then categorised based on their roles in the intervention (beneficiary, implementer, promoter and funder).

Stage 2 **Mapping outcomes:** Through the engagement of stakeholders described above, an impact map or theory of change [defined in [chapter 2](#)] is developed, from the perspectives of beneficiaries.

This stage is used to collect data on the inputs, outputs and outcomes for the different stakeholder groups.

Stage 3 **Evidencing outcomes and giving them a value:** This stage involves finding data to show whether the outcomes described by the stakeholders has actually happened and then subsequently value them in monetary terms.

This stage is used to develop outcome indicators, collect outcomes data, establish duration that outcomes last for and value the outcomes, using either fixed costs or financial proxies.

Stage 4 **Establishing impact:** Having collected evidence on outcomes described by the stakeholders and given these a financial value, the amount of change that would have happened anyway (i.e. changes that would have occurred without the intervention) or are a result of other factors (e.g. other similar interventions) are identified and “subtracted” from the total estimated impact.

This stage is used to estimate:

- a) *What would have happened without the training? (deadweight)*

- b) *How much of an outcome has displaced other outcomes? Alternatively, Was the outcome created at the expense of another outcome? (displacement)*
- c) *How much of the outcome was caused by the contribution of other organisations or people? (attribution)*
- d) *How much had the outcome deteriorated over time? (drop-off)*

These are all considered when calculating the impact.

Stage 5 **Calculating the SROI:** While the first four stages (described above) are data collection stages, this is the data analysis stage. This stage involves adding up all the benefits, subtracting any negatives and comparing the result to the investment, both of which are presented as monetary values. In cases which outcomes last beyond a year, then projections are made into the future by calculating the net present value. However, as this thesis reports an evaluative SROI conducted within a one-year time horizon, no discount rate for future value was applied. This total valuation of the benefits is then divided by the total cost of implementing the intervention – input costs – based on data collected in Stage 2.

Finally, this stage involves calculating the SROI ratio, testing the sensitivity of the results and calculating the payback period.

Stage 6 **Reporting, using and embedding:** This is the dissemination stage. This stage involves sharing the findings of the research with the stakeholders and responding to their queries, embedding good outcomes processes and verification of the report, otherwise described as assurance.

For example, the results of this study will be disseminated via presentations and peer-reviewed publications. However, using and embedding of the results are beyond the scope of this thesis.

4.6.2 Aligning with the principles of SROI application

Seven principles underpin the conduct of SROI research and ensure that the SROI analysis is conducted systematically (Nicholls *et al.*, 2012). These principles are outlined and described in [Table 4.9](#).

Table 4.9: Description of SROI principles

No.	SROI principle	Description
1	Involve stakeholders	Inform what gets measured and how this is measured and valued by involving stakeholders.
2	Understand what changes	Articulate how change is created and evaluate this through evidence gathered, recognising positive and negative changes as well as intended and unintended changes.
3	Value the things that matter	Use financial proxies so that the value of the outcomes can be recognised. Many outcomes are not traded in markets, and as a result, their value is not recognised.
4	Only include what is material	Determine what information and evidence must be included in the impact map to give a true and fair picture, such that stakeholders can draw reasonable conclusions about impact.
5	Do not over-claim	Only claim the value that the intervention is responsible for creating.
6	Be transparent	Demonstrate the basis on which the analysis may be considered accurate and honest, and show that it will be reported to and discussed with stakeholders.
7	Verify the result	Ensure appropriate independent verification of the process of conducting the SROI study (Assurance process).

This research aligned with these principles of SROI application by following the steps described below.

- Involve stakeholders:** Stakeholders were identified at the commencement of the study. During this stakeholder identification process, stakeholders themselves were engaged using a mix of focus group discussions (FGDs) and key informant interviews (KIIs) to firstly confirm or refute their status as stakeholders, their relationship to/with the EmOC intervention as well as suggest other possible stakeholders.

Identified stakeholders also helped the researcher to map what should be measured and how such measures should be valued.

A stakeholder analysis was conducted to identify all stakeholders who experienced or contributed to the EmOC training intervention. Also, identified stakeholders were categorised in such a way as to depict their relationship to the intervention.

- **Understand what changes:** In aligning with this principle, this research verified if the change is considered to have taken place. If so, articulated how change has been created and evaluated the magnitude of the described change, gathering evidence of both positive and negative changes, whether they were intended or unintended. This principle was incorporated through the FGDs and KIIs with the stakeholders who are best placed to describe the change that they experience.
- **Value the things that matter:** The valuation of some of the identified changes may be difficult because of their social nature (Murphy, 2010). However, this research sought to value both “hard” and “soft” outcomes and explored ways to measure and represent the value that stakeholders place on them. This was done through engagement of stakeholders during the FGDs and KIIs.

Financial proxies were gathered from existing data sources as well as from suggestions proposed during outcome valuations from key stakeholders during the FGDs.

- **Only include what is material:** Providing a “true and fair picture” of the impact of EmOC training is central to the conduct of this research. Information is described as “material” if its omission or misstatement has the potential to affect the economic decision that the stakeholders will take based on the resultant analysis (Juma’h, 2009; Nicholls *et al.*, 2012).

In aligning with this principle, only stakeholders deemed to be beneficiaries were included. Also, this study assessed the materiality of each beneficiary-described outcome during the FGDs with the specific beneficiary group.

- **Do not over claim:** Only changes that have occurred due to or associated with the training intervention were reported as impact.

This study sought to describe what would have happened without the intervention (deadweight), what contribution to the observed changes was due to effects of other people or organisations conducting similar training or similar activities that have also yielded the beneficiary-described outcomes (attribution).

This research used existing data sources as well as valuations of deadweight and attribution of key stakeholders during the FGDs to identify these values and provided clear justification for the choices and assumptions made.

- **Be transparent:** This principle requires that all decisions made while conducting the SROI analysis be explained and documented.

Clear justification for all activities, processes, assumptions and decisions made for the analysis was provided for each component of the study. In addition, a sensitivity analysis was conducted to test the robustness of assumptions made [Described in [Sub-section 4.13.6](#)].

- **Verify the result:** This principle is focused on ensuring proper conduct of the analysis. A self-assurance process of ensuring that the research aligns with the principles of SROI application was integrated into the conduct of the study. Checking and rechecking the steps being used in the conduct of the research helped to achieve this, certifying that the study remained aligned with the SROI principles.

In addition, the SROI study was submitted to a peer-reviewed journal for publication. Through this process, the study results and the conduct of the study were also assessed. Following the conduct of the study, a decision has been made to prepare an SROI report for the Social value UK assurance process.

4.7 Justification for choice of methods used in the research

There is no clear guidance on choice of methods to be used for SROI studies. Best practices identified from the systematic review conducted as part of this thesis [[Chapter 3](#)] and published in the peer-review literature include the use of mixed methods (combination of quantitative and qualitative methods) for an SROI study (Banke-Thomas *et al.*, 2015).

A combination of quantitative and qualitative methods can help to achieve triangulation, complementarity, development, initiation and/or expansion. This combination of methods provides a holistic evaluation of the intervention (Greene, Caracelli and Graham, 1989). For this SROI study, which more widely is a form of evaluation research, we systematically combined both quantitative and qualitative methods applied across the different stakeholder groups. Triangulation and development were perceived as the key reasons for using mixed methods in this research. Triangulation because this SROI study sought to achieve corroboration, convergence and correspondence of results from the different methods, focused on the same topic (Morse, 1991). Ultimately, triangulating the data helped to *“increase the validity of constructs and inquiry results by counteracting or maximising the heterogeneity of irrelevant sources of variance”* (Greene, Caracelli and Graham, 1989). Development because this research used insights from the qualitative inquiry to inform choices made for the quantitative investigation.

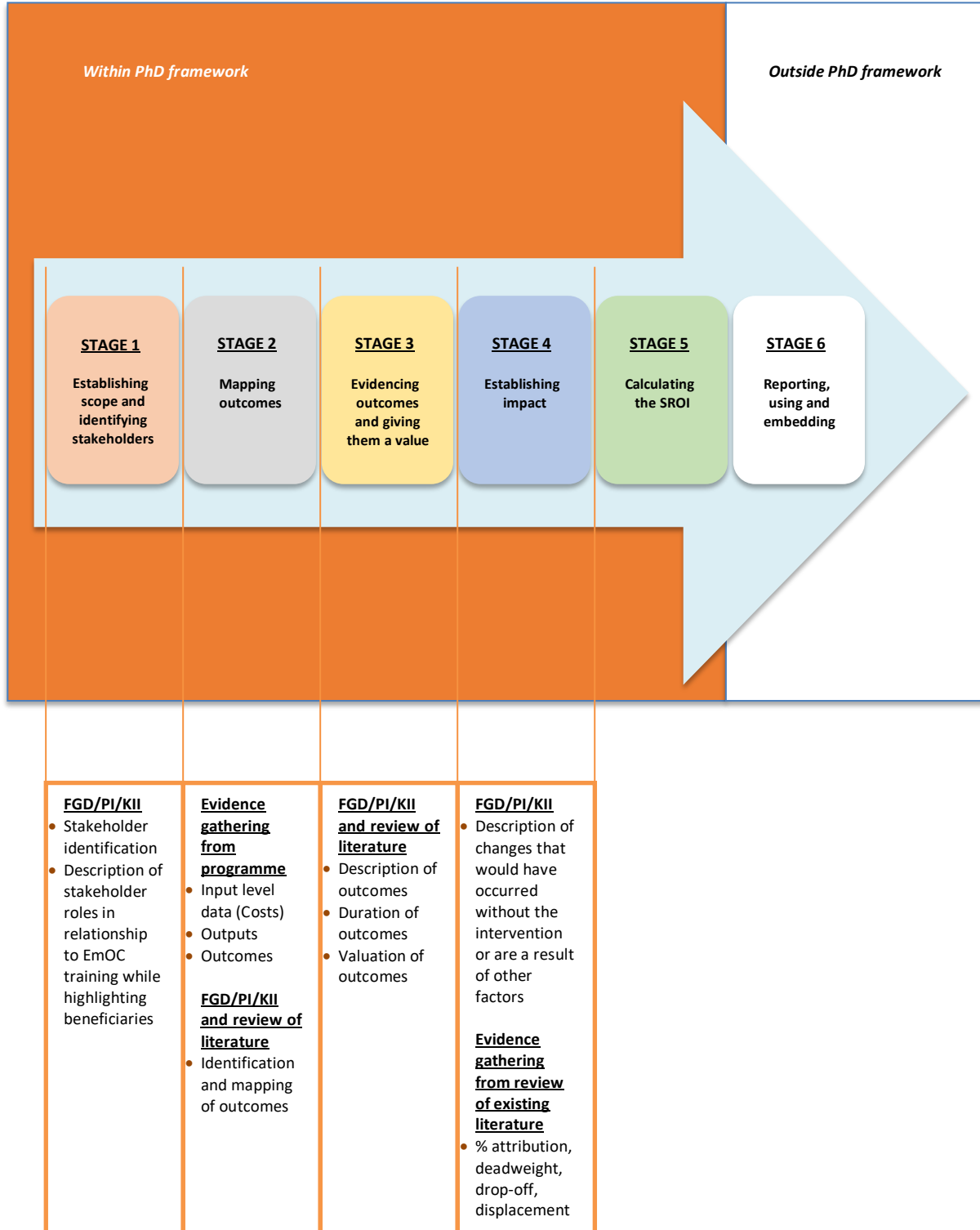
The study made use of focus group discussions (FGDs), paired interviews (PIs) and key informant interviews (KIIs) with pre-identified stakeholders, evidence from the literature and programme to collect information on whom they consider as stakeholders ([Stage 1](#)), what they deem as outcomes of the EmOC training intervention ([Stage 2](#)) as well as financial value of the described outcomes ([Stage 3](#)). Stakeholders were also asked to describe what portions of the identified outcomes were due to the intervention and how long the outcomes lasted for ([Stage 4](#)). Existing output and outcome data routinely collected during the Phase 2 of the intervention and other relevant data secondary data was sought to support assumptions to build the SROI impact map ([Stage 5](#)).

This mix of existing quantitative data that depicts the real achievements of the EmOC training intervention and qualitative data that captures the perspectives of stakeholders on the value of the intervention to them would provide the holistic social impact that the research aims to describe.

4.8 Methods used for the SROI data collection stages

Figure 4.6 describes methods used within each stage of the SROI framework.

Figure 4.6: Methods used for the SROI data collection stages



In the sub-sections below, the research question that the research methods were used to answer will be defined for each of the data collection stages [[Stage 1 – 4](#)].

4.8.1 SROI Stage 1: Establishing scope and identifying stakeholders

The research questions answered at this stage were:

- *Who are the stakeholders?*
- *What role(s) do stakeholders play as it relates to the EmOC training package?*

For [Stage 1](#) (Establishing scope and identifying key stakeholders), the scope was pre-determined before the commencement of the research. The research was to focus on the EmOC training intervention of the MiH programme being implemented in its second phase in Kenya. In deciding the scope of time to be assessed for this research, guidance was sought from the latest SROI guideline. As this is an evaluative-type SROI (described in [sub-section 1.3](#)), the guideline recommends that *“the evaluation should ideally take place after the period for which the outcome was expected to last”* (Nicholls *et al.*, 2012). As such, the decision was made to limit the time scope of the SROI analysis to the number of trainings conducted over a one-year period (2014) during the phase 2 of the intervention. In addition, the funder’s perspective was taken for the SROI analysis.

For stakeholder identification, established stakeholder mapping and analysis techniques (Bryson, 2004) were used. Contacts were identified from the various pre-identified stakeholder group. Using the snowballing sampling technique (Atkinson and Flint, 2004), the pre-identified stakeholders were asked to help identify additional stakeholders, confirm and describe their association with the EmOC training intervention. KIs and FGDs were used to realise this stage [[Figure 4.6](#)].

4.8.1.1 Identifying stakeholders

It was essential to identify all possible stakeholders to be considered for possible inclusion or exclusion ([Stage 1](#)), as the SROI methodology is firmly based on understanding perspectives of stakeholders to account for the impact of the intervention (Nicholls *et al.*, 2012). For the EmOC training package and in this research particularly, a stakeholder was considered as “an

individual, group, or organisation who can affect or be affected by the EmOC training intervention” (defined in [sub-section 2.2.11](#)).

All identified stakeholder groups were engaged through KIs and FGDs to identify and describe their roles as it relates to the EmOC training intervention and to collect information on their opinions regarding EmOC training or EmOC itself.

The list of identified stakeholders for this study is presented in the results chapter [[Chapter 5](#)], which details the results of the stakeholder analysis. However, to aid understanding of the remainder of the methodology chapter, it is critical to highlight the identified stakeholders at this point. They are:

- a) HCPs who have been trained in EmOC,
- b) Healthcare facility managers,
- c) Training volunteers from the United Kingdom,
- d) National level master trainers,
- e) Women who have received emergency obstetric care from facilities that have trained HCPs,
- f) Babies delivered to women who have received EmOC from facilities that have trained HCPs,
- g) Immediate family members of women who have received EmOC from facilities,
- h) Community of women who have received EmOC from facilities that have trained HCPs,
- i) County departments of health,
- j) National Ministry of Health,
- k) Implementing organisation – CMNH,
- l) Department for International Development (DFID) who fund the intervention,
- m) Other organisations, who are implementing similar EmOC training interventions.

Only stakeholders considered as beneficiaries were included for analysis in the SROI impact map. The criteria for inclusion and exclusion of stakeholders within the impact map are stated below.

4.8.1.2 *Criteria for stakeholder inclusion and exclusion in the impact map*

There is no clear guidance on the stakeholder inclusion process to demonstrate the theory of change for SROI studies (Banke-Thomas *et al.*, 2015). However, based on best practices for stakeholder identification, described in the systematic review [Chapter 3] and the characteristics of the identified stakeholders, the inclusion and exclusion criteria were set:

Criteria for stakeholder inclusion

- Only stakeholders that were considered as beneficiaries of the EmOC training were included within the impact map to demonstrate the theory of change and to align with two of the SROI principles of not over-claiming and valuing only what matters. This is also in line with SROI guidance to include only stakeholders that experienced ‘material’ change i.e. relevant and significant outcomes (Nicholls *et al.*, 2012).

Criteria for stakeholder exclusion

- Stakeholder groups were excluded from the SROI model if there was no clear and justifiable evidence that they have benefited from the EmOC training intervention.
- Adolescents, less than 18 years, were excluded from the study, as it was not anticipated that their inclusion would impact on the results of the study. Their exclusion reduced potential ethical challenges.
- HCPs, who had not been trained on the EmOC course provided on the MiH programme, were excluded, as they had no experience of the training intervention.
- Women, who had not received care at facilities with EmOC trained HCPs, were excluded, as they had no experience of care from such trained HCPs.

For stakeholders who considered themselves as beneficiaries, their experiences as it relates to the training package or to the care received from a facility with trained HCPs were deliberated. On the other hand, for stakeholders who did not consider themselves as beneficiaries, but who still had significant roles to play as it relates to the training package, the opportunity was seized to explore their opinions about the programme, especially as it relates to its strengths, weaknesses, opportunities and threats.

4.8.2 SROI Stage 2: Mapping outcomes

The research questions answered in stage 2 were:

- *What are the costs associated with implementing the EmOC training intervention?*
- *What are the outputs of the EmOC training intervention?*
- *What are the outcomes of the EmOC training intervention?*

Programme data was reviewed to collect data on implementation cost of EmOC training in Kenya as well as the outputs of the intervention for the year 2014. Findings from qualitative methods (FGDs, PIs and KIIs) were triangulated with evidence from the literature review to identify and map outcomes and develop an updated theory of change [Figure 4.6].

During the qualitative sessions, stakeholders were asked to identify the outcomes and rank the outcomes, regarding importance to the stakeholder. Subsequently, discussions regarding the reasons for the choices made by the respondents followed. Proposed outcomes deemed 'material' (described in [sub-section 4.6.2](#)) were inputted into the SROI impact map.

4.8.3 SROI Stage 3: Evidencing outcomes and giving them a value

The research question answered in this stage was:

- *What is the financial valuation of stakeholder-described outcomes?*

FGDs and review of the literature were primarily used for this stage. PIs or KIIs were also used when it proved logistically difficult to set up an FGD, such as with relatives of women who have received EmOC as well as with medical doctors (in facilities where there were only a handful of physicians) [Figure 4.6]. Only material stakeholders considered as beneficiaries of the EmOC training intervention were included in this stage.

Valuation of stakeholder-described outcomes was conducted during this Stage 3. For this, stakeholders were asked to establish how long outcomes last and to place a value on the outcomes, either fixed costs or financial proxies. An adaptation of the value game, designed to aid the valuation process for SROI studies, based on a contingent valuation technique (Scholten, 2015), was used for this exercise. The approach asks respondents (consumers) to

directly report their willingness-to-pay (WTP) to obtain a specified commodity, or willingness-to-accept (WTA) to give up a commodity, rather than inferring such valuations from observed consumer behaviour in regular market places (Scholten, 2015). Financial valuations were sourced from the literature and triangulated with beneficiary valuations. In cases in which beneficiaries were not able to provide clear financial valuations, insight from discussions with beneficiaries aided literature searches to find appropriate financial valuations.

4.8.4 SROI Stage 4: Establishing impact

The research question for the data collection component of this stage was:

- *What portion of the stakeholder-described outcomes is/are due to the EmOC training intervention?*

Similar to stage 3, FGDs and evidence gathered from review of the literature were primarily used to achieve this stage. PIs or KIs were considered when it proved logistically difficult to set up an FGD for the specific stakeholder group [Figure 4.6]. Only material stakeholders considered as beneficiaries of the EmOC training intervention were included in this stage. Discussions regarding opinion on portions of the stakeholder-described outcomes that were due to the EmOC training intervention were conducted during these FGDs as part of this stage. FGDs were also used to collect information on stakeholder perception on estimates for *“what would have happened without the training”* (deadweight), *“how much of an outcome has displaced other outcomes”* (displacement), *“how much of the outcome was caused by the contribution of other organisations or people”* (attribution) and *“deterioration of an outcome over time”* (drop-off) (Nicholls *et al.*, 2012). This was incorporated into the value game. Like with stage 3, percentages for deadweight, displacement, attribution and drop-off (if relevant) were sourced from the literature and triangulated with beneficiary estimates. In cases in which beneficiaries were not able to provide clear estimates, insight from discussions with beneficiaries aided literature searches to find appropriate percentages for the SROI model.

4.9 Detailed description of methods

This section provides a detailed description of the methods (highlighted above) used for this research. Four methods were employed in this research:

- Brainstorming exercise for stakeholder identification
- Focus group discussions
- Key informant interviews
- Review of evidence in literature and programmatic data

4.9.1 Brainstorming exercise for stakeholder identification

During a brainstorming session with my supervisors and other MiH staff, a list of potential stakeholders of the EmOC training intervention was generated. Insight from a previous stakeholder identification process for an MNH intervention guided this process (Namazzi *et al.*, 2013).

4.9.2 Focus group discussions

4.9.2.1 Description

FGDs were held with trained HCPs, women who had received EmOC and with CMNH staff. For these groups of stakeholders, it was relatively easy to co-opt them to attend the discussions. FGDs were chosen because the interaction of members of stakeholder groups was essential to providing the most robust description of stakeholder's perception of outcomes of the intervention (Krueger and Casey, 2009). In situations when FGDs were not logistically possible, then paired interviews (PIs) were conducted following the same strategy described below.

4.9.2.2 Recruitment

Leveraging the in-country relationship and networks of the CMNH, trained EmOC providers were tracked from the database of health facility address of the trained HCPs, based on data collected during the training. This was done bearing in mind the potential risk of rotation of HCPs across facilities, to ensure that the same HCPs were not recruited for different FGD sessions. Letters of invitation were sent to the HCPs a minimum of one week before the expected date of the FGD.

Women were recruited while they were on admission in labour ward or during their stay in the post-natal ward. An available CMNH list of facilities with trained HCPs was used to verify that only women who had received care from such facilities were recruited. For other stakeholder groups for which FGDs could realistically be conducted, efforts were made to

ensure that their recruitment had minimal impact on their job. Letters of invitation were sent to the participants a minimum of one week before the intended FGD date.

For all stakeholders, details on purpose and format of the session, including that it will be recorded with their permission, were included in the information sheet. The participants received full information about the research process. Participation was entirely voluntary. Verbal consents were obtained from participants. No financial incentive was given to participants, though light refreshments were provided after the FGDs.

4.9.2.3 Sampling

Purposive sampling was used to identify stakeholders, ensuring a good mix of selection across basic and comprehensive obstetric care in Nairobi County. Six to eight participants per stakeholder group were chosen based on the recommendation from leading authors in qualitative research, who opine that this range provides the optimum number of participants for FGDs (Albrecht, Johnson and Walther, 1993; Kitzinger, 1995; Morgan, 1997).

Stakeholder groups for FGDs were segmented. This segmentation (Morgan, 1997) would ensure that opinions of different cadre, across different facility settings and educational status, are captured. It would also help to achieve homogeneity of the groups and allow comparison of the opinions of stakeholders across the segments (Krueger and Casey, 2009). The segmentation is described below:

- **Health care providers:** Homogeneity was focused on delineating cadres. Six to eight medical doctors (a group comprising senior physicians and a second group comprising junior doctors) and six to eight midwives (a group comprising senior midwives and a second group comprising junior midwives) were recruited at the minimum [Table 4.10].
- **Women:** Homogeneity was focused on delineating slum dwelling/non-slum dwelling to characterise socioeconomic status. FGDs with two groups of six to eight women (slum dwelling) and another two groups of six to eight women (non-slum dwelling) [Table 4.10] were conducted. An attempt was made to ensure sufficient variation among participants within each group to allow for contrasting opinions (Krueger and Casey, 2009). To achieve this, efforts were made to ensure that women who received the different forms of EmOC were within each group.

- **CMNH staff:** Homogeneity was focused on delineating staff working in Kenya and those working in the United Kingdom (UK). Two FGDs were organised, one for each group [Table 4.10].

Table 4.10: Sampling strategy for FGDs

Stakeholder group	No. per session	No. of sessions	No. of participants
EmOC trained HCPs (Doctors)	6 - 8	3 - 4	18 - 32
EmOC trained HCPs (Midwives)	6 - 8	3 - 4	18 - 32
Women who have received EmOC from facilities with trained HCPs (Rural)	6 - 8	3 - 4	18 - 32
Women who have received EmOC from facilities with trained HCPs (Urban)	6 - 8	3 - 4	18 - 32
CMNH staff	6 - 8	1 - 2	6 - 16

Though FGDs are required to achieve four SROI stages, each FGD participant had only one FGD session, ensuring optimum use of participant's time and that the sessions were not disruptive to their normal everyday activities. In all, between 78 and 144 respondents were anticipated to participate across the three pre-identified stakeholder groups. However, the total number of FGDs conducted was dependent on the point in time when saturation (no new information being received from participants) was attained for the different stakeholder groups (Carlsen and Glenton, 2011).

4.9.2.4 Instruments: Topic guides and value game

Topic guides were developed in English and Swahili languages. The use of either was dependent on the language that the respondents were more acquainted to speak. Different topic guides were used for the various stakeholder groups. However, generally, the topic guides verified some background details about the respondent, and then went on to discuss their role/relationship regarding the intervention, opinion on the positive and negative outcomes of the intervention, duration of the outcomes, financial valuation of the outcome and other factors that contributed to its realisation [Appendix 5].

The respondents were then provided with an adaptation of the value game [Appendix 5], which is a technique designed to aid stakeholders in valuation of outcomes without a market value (Scholten, 2015). The value game shows how stakeholders value outcomes that they experienced relative to other items which they also value that have market values (prices). In adapting the value game for this research, the respondents were asked to rank the

outcomes that they described according to which was most important to them, state how long they thought the outcome lasted for, what portion of the outcome they thought was due to the intervention and how much they were willing to pay to accept the positive outcomes or to avoid the negative outcomes in comparison to other items that had market value [[Appendix 5](#)].

4.9.2.5 Data collection

The principal researcher and research assistant involved in moderating the FGDs were trained on how to moderate sessions. Both had previous experience in conducting qualitative research. They were thus able to facilitate an optimum environment for interaction of stakeholders.

In facilitating the FGD sessions, the respondents were provided with the value game (described above), a pen and colour markers to help them with the exercise. The discussions were held alongside completion of the value game, with an explanation for their selected valuation, duration, and attribution to outcome discussed with the respondents.

If respondents agreed that the discussions could be recorded, AudioNote Recorder™ application (Luminant Software Inc., New York, USA) was used for data collection and parallel note taking. AudioNote Recorder™ allowed for time stamping of key moments of the discussions. Transcription was done soon after data collection. Specifically, for the FGDs that were conducted in Swahili, translation and back-translation were done to ensure that actual meaning was captured. Following transcription by the research assistant, the principal researcher edited the transcripts to change grammatical and typographical errors. This was done to increase readability of the transcripts while maintaining the character of the respondents' comments (Stewart and Shamdasani, 2015). Both the recording and the transcription were used for data analysis.

4.9.3 Key Informant Interviews

4.9.3.1 Description

KIIs were aimed at identifying stakeholders of the EmOC training intervention, capturing their initial thoughts and expected impact of the intervention (scope). KIIs were used for immediate family members of women who had received EmOC from facilities, UK based

volunteer trainers, health care facility managers, the relevant staff of CMNH, Ministry of Health, representatives of DFID, and representatives of other similar organisations to CMNH implementing similar training interventions.

The two reasons why this method was most appropriate for these stakeholders were that firstly, it provided an opportunity to have one-on-one in-depth discussions with stakeholders about their perceptions of the scope and impact of the intervention. Secondly, it was more practical to set up KIIs with these stakeholders at their convenience rather than FGDs (Marshall, 1996).

To minimise the lack of interaction in KII as compared to FGDs, multiple KIIs were conducted with members of the stakeholder group until theoretical saturation was achieved (provided this was logistically feasible).

4.9.3.2 Recruitment

Leveraging relationships and networks of the CMNH, key stakeholders who are directly related to the MiH programme, and for who FGDs could not be logistically organised, were purposively sampled. The CMNH has in-country teams that have established relationships with the targeted stakeholders. This in-country team was critical in liaising with the intending participants. However, no coercion was involved in the recruitment of participants.

For stakeholders invited to KIIs, such as officials of Ministries, letters of invitation accompanied by informed consents were sent to them a minimum of three weeks before the proposed date. Personal contact was also established either through email or telephone. Details on the purpose and proposed format of the interview (face-to-face, phone or Skype) were included within the letter of invitation. Other stakeholders invited to KIIs, such as relatives of women who have received EmOC from trained providers were recruited at the same time with the women who had received EmOC.

Consent forms were obtained. Participation was entirely voluntary. No financial incentive was given to participants.

4.9.3.3 Sampling

Purposive sampling was used to select the stakeholders. [Table 4.11](#) summarises the number of participants anticipated for each KII session, proposed number of sessions and the

anticipated number of participants. In all, between 16 and 26 respondents are anticipated to participate across the eight pre-identified stakeholder groups. Each participant will attend only one session to ensure optimum use of participant's time and that the sessions are not disruptive to their normal everyday activities.

Table 4.11: Sampling strategy for KIIs

Stakeholder group	No. per session	No. of sessions	No. of participants
Healthcare facility managers	1	3 - 4	3 - 4
UK-based volunteer trainer	1	3 - 4	3 - 4
National level master trainers	1	3 - 4	3 - 4
Immediate family members of women who have received EmOC from facilities with trained HCPs	1 - 2	3 - 4	3 - 8
Regional departments of health	1	1	1
National Ministry of Health	1	1	1
Department for International Development (DFID)	1	1	1
Other organisations conducting similar EmOC training.	1	1 - 3	1 - 3

4.9.3.4 Instruments: Topic guides and value game

Topic guides were similarly developed in English and Swahili languages. The use of either was dependent on the language that the respondents were more conversant to speak. Different topic guides were used for the various stakeholder groups. However, the topic guides verified some background details about the respondent and then went on to discuss their role/relationship regarding the intervention. If the respondent considered him/herself a beneficiary, then the interview proceeded to discuss their opinion on the positive and negative outcomes of EmOC training, duration of the outcomes, financial valuation of the outcome and other factors that contributed to the actualisation of the outcomes, using the value game [Appendix 5]. If the respondent considered themselves as playing a non-beneficiary role, then issues around strengths, weaknesses, opportunities and threats of the intervention were discussed [Appendix 5].

4.9.3.5 Data collection

The principal researcher who conducted the KIIs himself had been trained on how to conduct interviews. He had previous experience in conducting qualitative research. As such, he could create an optimal environment for interacting with the interviewee.

During the interviews, the interviewer asked the interviewee questions and awaited their response, without directing the conversation. The value game (described above) was only used if the interviewee considered him/herself a beneficiary of the intervention.

If the interviewee agreed that the discussions could be recorded, AudioNote Recorder application was used for data collection with parallel note taking. AudioNote allowed for time stamping of key moments of the interviews. Transcription was done soon after data collection. Specifically, for the KIIs that were conducted in Swahili, translation and back-translation were done to ensure that actual meaning was captured. Both the recording and the transcription were used for data analysis.

4.9.4 Data collection from programmatic sources and existing literature

This method involved reviewing the existing evidence from the programme and the literature as it relates to the components of the intervention's theory of change (inputs, outputs, and outcomes) described by the stakeholders.

This review of evidence included a secondary data analysis, which involves *"the analysis of data that was collected by someone else for another primary purpose"* (Johnston, 2014). Data collection and analysis of secondary data are intrinsically linked, and as such contiguous (Smith *et al.*, 2011). As such, data collected was immediately reviewed for its relevance to the SROI model. Building on findings established during the qualitative enquiry, the principal objective was to collect input, output, outcome level data from existing programme data.

The other part of the review of the evidence was a review of the literature for values to help establish the impact of the intervention (deadweight, attribution, displacement and drop-off) and financial proxies for the stakeholder-described outcomes.

Alternatives were sought for the various values and justification for inclusion of the selected value established before they were then inputted into the SROI impact map.

4.9.4.1 Input level data

Inputs are defined as *"the contributions made by each stakeholder that are necessary for the activity to happen"* (Nicholls *et al.*, 2012). For this research, data on costs of implementing

the EmOC training in Kenya for the year 2014 were collected. This data was routinely collected as part of programme accounting data.

Inputs for the EmOC training intervention were either monetary and non-monetary. The monetary input was primarily the funding provided by DFID for the intervention. This monetary input funded most of the non-monetary inputs which included time, travel and skill of the other stakeholders, as such no additional estimation of non-monetary inputs was required.

4.9.4.2 Output level data

Outputs describe “*the activity in relation to each stakeholder’s inputs in quantitative terms*” (Nicholls *et al.*, 2012). For this intervention, the output was the trained HCP. Therefore, the selected output level indicator was the number of in-service HCPs trained in EmOC. This data was routinely collected as part of monitoring and evaluation data.

4.9.4.3 Outcome level data

Outcome level indicators were selected based on stakeholder-described outcomes. These outcome level indicators are also routinely collected at baseline and quarterly as part of monitoring and evaluation data.

Selection of the required indicators for outcomes was performed with the support of the head of the programme monitoring and evaluation unit. Secondary data were sourced for the period before the HCPs were trained (baseline) and one-year post-training (follow-up) was conducted.

4.9.4.4 Other relevant data for SROI analysis: financial proxies, percentage attribution and duration

Data on financial proxies for the stakeholder-described outcomes were identified from the existing literature. In addition, evidence of the existence of similar EmOC trainings that were being conducted during the same period and in the same areas as the MiH EmOC training were collected from the Ministry of Health.

Furthermore, evidence of attribution of the outcomes to the EmOC training intervention was collected. This evidence establishing the effectiveness of the intervention in yielding the stakeholder-described outcomes were also collected from existing literature. They were

gathered to help in giving the stakeholder-described outcomes values ([SROI stage 3](#)) and to establish the impact of the intervention ([SROI stage 4](#)).

Duration on how long the outcomes last was limited to the one-year period of analysis.

4.10 Ethical considerations

Beauchamp and Childress identified four fundamental moral principles: autonomy, non-maleficence, beneficence and justice (Beauchamp and Childress, 2008). These principles formed the ethical foundation on which this research was conducted.

In this research, all efforts to uphold the dignity of participants, to preserve anonymity, confidentiality and protection against psychological harm were put in place. Strategies with which this was achieved through data collection, management and storage are described in the ensuing sub-sections.

4.10.1 Ethical considerations for data collection

4.10.1.1 Ethical considerations for secondary data

For the secondary data to be used in the research, permission to use the MiH dataset was granted by the CMNH.

4.10.1.2 Ethical considerations for primary data

To collect the primary qualitative data used for this research, ethical approval was received from the Research and Ethics Committee of the Liverpool School of Tropical Medicine (LSTM) (Research Protocol 14.054), the in-country Kenyatta National Hospital Ethics and Research Committee (P718/12/2014) and the Nairobi County Department of Health ([Appendix 3](#)).

In making these ethical considerations, potential adverse effects, discomforts and risks that participants may experience were identified. These are:

- The risk of disturbing women who came to the facility to attend the postnatal clinic but were being co-opted to participate in the FGDs.
- The potential risk of coercion of participants into the study.

- Some FGD participants may need to discuss personal or confidential information.
- Some other participants may need to criticise the EmOC training intervention, malpractice or critic government policies.

Steps taken to minimise these adverse effects, discomfort and risks on the participants were:

- Women were informed on discharge that an FGD is scheduled for their postnatal clinic visit and were free to accept or reject this.
- Only participants from whom informed consents had been obtained were included.
- Support mechanisms were available for respondents should the discussions prompt discomfort or traumatic memories.
- All participants were made aware of the fact that they did not have to respond to any questions that they feel were personal or if talking about them made them feel uncomfortable.

Overall, participation was entirely voluntary, and participants had the opportunity to withdraw from the study at any time. Any participant who agreed to participate in the research was provided with an information sheet and an informed consent form [[Appendix 3](#)], which detailed the purpose of the research, participant expectations, procedure of the inquiry (different procedure for FGDs and KIIs), potential risks, discomfort and privacy and confidentiality. Details of this informed consent are presented below:

- I. **Information given to participants:** The World Health Organization (WHO) Research Ethics Committee template for informed consent was used for this research. The informed consent form had two parts: Information sheet and certificate of consent.

The information sheet contained information on name of principal investigator, name of organization, name of sponsor, name of project, purpose of the research, type of research intervention, reasons for participant's selection, voluntary participation, details of the research procedure, expected duration required to complete the questionnaire, KIIs or FGDs (depending on participant), potential risks and benefits of the SROI study and assured confidentiality of the research.

For FGDs, in which confidentiality was harder to achieve, participants were told that members of the group would be asked not to discuss the talk with people outside, but it was stated that this could not be guaranteed.

- II. **Delivery of the information:** The principal investigator and research assistants obtained Informed consents. The HCPs received the informed consents at work, while the women who have benefitted from EmOC at the facilities were served while in postnatal ward.
- III. **Consideration of local circumstances:** Considering the peculiar nature of discussions that had to do with women's health in local communities, research assistants were culturally aware, and this was reflected in their relationship with the respondents.

Only needed information was collected from participants. The research assistants were trained on data collection to ensure data quality and integrity of research ethics. Full names of participants were not requested, but participant names were coded, their roles stated and anonymity maintained.

The major impact of this research on the local services was the time taken off to attend FGDs, which could have been used to attend to administrative and clinical responsibilities. The key strategies utilised in the research to minimise the effect of this demand were:

- Informing the HCPs ahead of time about the FGDs and find out when it will be most convenient for them to attend, working around the least busy time in the facility. The most commonly suggested convenient time was then proposed to all attendees of the FGD to confirm their attendance.
- The timing for FGDs was structured in tandem with the health facility managers.

4.10.2 Ethical considerations for data management

All secondary data were used only within the boundaries of the agreement guiding its use. Secondary data were secured on the principal researcher's computer and password protected, to ensure that there are no data leakages or unapproved use of data by other people.

For FGD and KII data, data analysis and presentation remained anonymous to ensure that no specific individual could be identified and to prevent any untoward consequences of participating in the FGDs or KIIs. All the collected data were kept strictly confidential. All field notes and transcripts were also secured in a locked drawer, accessible only to the principal researcher and research assistants.

4.10.3 Ethical considerations for data storage

The laptop containing all data was password protected, and only the principal researcher knows the password. No other person apart from principal researcher had access to the computer files that contained the data collected.

Also, data was stored with non-identifiable coded names (understood only by the principal researcher) on the computer as a second line protection. Data is being stored securely with password protection for the five-year period, after which they will be destroyed, following the guidelines of the university on data security.

Data was not being stored on any online/cloud storage, to safeguard the data and ensure that no other person will have access to it.

4.11 Quality assurance

In considering quality assurance of the study, the following steps were taken:

Overall, the study adhered to the principles in the SROI guideline, which aims to improve the quality of SROI studies.

For the FGDs and KIIs, a comprehensive and detailed standardised operating procedure manual, which aligns with the research protocol, guided the data collection. This manual provided a detailed and rigorous recruitment process as well as ethical guidelines for the research. Issues of data security on the field were also discussed. All research assistants agreed to this procedure and were trained on the data collection procedure and ethical guidelines that the research needed to conform to, in order to be judged as being of high quality.

The FGD and KII topic guides were translated into the local dialect – Swahili and back translated to English, to ensure that it retains its original meaning. The topic guides were pretested severally before their use in the full KIIs and FGDs.

Specific emphasis was placed on the trustworthiness of the research. The research aimed to ensure that participants felt comfortable and that they could express themselves and behave naturally (credibility), by ensuring sufficient rapport between the researcher and the researched. Efforts were made to ensure that the sample was representative of the study population and data collection continued up to the point when no new information was being retrieved during the FGDs and KIIs (i.e. saturation is achieved) (dependability/transferability). Also, interpretations made from the collected data were situated in and related to the context of the researched (transferability) and these interpretations concurred with those of the respondents. To further confirm findings, key findings collected from the FGDs were repeated to the participants to verify that they recognise them and that the findings conveyed their intended meaning (confirmability).

For the secondary data analysis, verification of sources of secondary data was conducted. Data entry for secondary data was double-checked by two individuals at each stage to verify correct data entry. The original database was kept intact, and analysis was performed using a copy of the original database to ensure that the original data was not destroyed.

4.12 Quality control

The term quality control refers to *“the efforts and procedures that researchers put in place to ensure the quality and accuracy of data being collected using the methodologies chosen for a particular study”* (Roe, 2008). Quality control was maintained throughout the research, by monitoring of the process, both for the quantitative and qualitative components of the research. The strategies used to achieve this monitoring process include:

For the FGDs and KIIs, research assistants were trained to ensure they could collect quality data. The training introduced them to the purpose of the study and where the results of the FGDs fit. The training also covered fundamental concepts of interview techniques, moderation techniques, obtaining participants’ cooperation and maintaining the confidentiality of participants (Roe, 2008).

The research assistants could contact the principal researcher at any time to ensure that they could clarify any queries that they had. The details of this process were fully documented in the standard operating procedure manual, which was given to the research assistants during the pre-data collection training.

To increase the trustworthiness of the qualitative component of the study, self-reflection and sharing of observations were integrated within the quality control process. Peer debriefing sessions were conducted with research assistants to evaluate conduct of KIIs and FGDs, to ensure that any best practices were shared, errors corrected, and lessons learnt. These sessions were also used to discuss the findings of the KIIs and FGDs. Two five-week periods were used for data collection ensuring prolonged engagement with the stakeholders. Also, both positive and negative opinions were collected and analysed. Finally, stakeholder checks were done during sessions to ascertain the interpretations made of what the stakeholders actually said (Bowen, 2005).

The software used for the different analyses were also monitored throughout so that the results generated from their use could be utilised with confidence. The principal researcher rechecked and verified data following collection, by using sample management systems, to ensure proper case processing and that there were no errors in entry.

4.13 Analysis

4.13.1 Stakeholder analysis

The principal reason for conducting a stakeholder analysis in this research is to identify stakeholders that are deemed 'material' and as such need to be included in the SROI analysis. Stakeholder analyses are known to be used to provide input for other analyses (Schmeer, 2000). Following the preliminary identification of stakeholders, the basic stakeholder analysis technique (described below) was conducted to confirm that all relevant stakeholders had been included. Consideration was given to the positive and negative consequences of involving or not involving specific stakeholders in the analysis. Reasons for such inclusion or exclusion were verified. Role, level of importance and influence of the included stakeholders were verified during subsequent FGDs with the various stakeholder groups. This informed the development of the stakeholder-issue interrelationship diagram (Varvasovszky and Brugha, 2000). Finally, the participation-planning matrix was used to determine how to

engage the different stakeholder groups (Bryson, 2004). The next sub-sections below detail the specific techniques that were used for stakeholder analysis.

4.13.1.1 *The basic stakeholder analysis technique*

This technique described by Bryson (Bryson, 2011) offers a systematic approach to identifying stakeholders and their interests and clarifying their opinions on specific issues of interest. The first step involved brainstorming a list of potential stakeholders. This was done in consultation with supervisors and project staff of the training intervention, as part of data collection. Subsequently, each potential stakeholder was presented on a separate chart, and potential reasons for inclusion or exclusion were listed. The intended and unintended changes due to the intervention were explored.

Following FGDs with the various stakeholder groups, stakeholders were then described according to their roles (assumed roles – described by researcher and perceived roles – described by the actual stakeholder). The stakeholders were then ranked according to their description of their influence (the power of the stakeholder to facilitate or impede the achievement of the activity's objective) and importance (the priority given to satisfying the needs and interests of the stakeholder) as it relates to the EmOC training or EmOC itself. A stakeholder analysis matrix was developed based on this information. This matrix divided the stakeholders into four groups (Brouwers *et al.*, 2010; Bryson, 2011):

- **Square A - Primary beneficiaries:** Stakeholders in square A require special initiatives if their interests are to be protected as they are your primary stakeholders. For this research, only this group of stakeholders were deemed material. This group have a high level of importance, but low level of influence in terms of ensuring that the intervention is implemented.
- **Square B - The ones that can make the difference:** Your project needs to build good working relationships with the stakeholders in square B, to ensure an effective coalition of support. This group have a high level of influence in ensuring that the intervention is implemented.
- **Square C - The risk group:** The stakeholders in square C may be a source of significant risk and are the stakeholders who require careful monitoring and management in the project. They have high influence but are of low importance.
- **Square D - The bystanders:** These stakeholders are unlikely to be the subject of project activities or management but may have an indirect influence.

4.13.1.2 Stakeholder-issue interrelationship diagram

Stakeholder-issue interrelationship diagrams proposed by Bryson (Bryson, 2004) helped in showing which stakeholders have a particular interest in different issues and how the stakeholders might be related to other stakeholders through their relationships with the issues. Relevant content from the FGDs and KIIs with the stakeholders were utilised in framing the diagram.

4.13.1.3 Participation planning matrix

An adapted variant of this matrix designed by the International Association for Public Participation was used in framing decisions about the best methods for engagement and levels of participation intended for each stakeholder group to help answer the research questions (Bryson and Patton, 2010).

4.13.2 Analysis of qualitative data

Following verbatim transcription of the FGD audio recording, the thematic approach was used to reduce the data through summarisation and synthesis (Ritchie and Lewis, 2003). The thematic approach focuses on detecting and describing both implicit and explicit ideas within the transcript, that is, themes. This approach was chosen because of its emphasis on transparency in data analysis (Ritchie and Lewis, 2003; Braun and Clarke, 2006; Smith and Firth, 2011), which aligns closely to the SROI principle of transparency (Nicholls *et al.*, 2012). For this approach, we follow Braun and Clarke's six-step approach: Becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report (Braun and Clarke, 2006).

Transcripts had large margins and adequate line spacing for coding and note making. Familiarisation with the audio recording and any reflexive notes that were recorded during transcription was carried out before the analysis. This familiarisation step involved repeated play of the audio recording and repeated readings of the transcribed notes.

A majorly deductive approach (Miles and Huberman, 1994) was taken in generating the codes, with care taken not to force data into the pre-defined categories. Though some codes were pre-defined before analysis, open coding was still conducted to ensure that no relevant information of the data was missed (Gale *et al.*, 2013), in line with the exploratory approach taken for this analysis (Guest, MacQueen and Namey, 2012). This was done digitally with the

aid of a Computer Assisted Qualitative Data Analysis Software (CAQDAS), NVivo 10™ (QSR International, Memphis, USA), which helped with data retrieval, data linking, transcript editing, memo-ing and data visualisation (Weitzman, 2000). The text of the transcripts was analysed as a proxy for the experience of the respondents' knowledge of the subject matter, perceptions, feelings and behaviour and interpreted while considering my interaction with the research participants (Tesch, 1990).

A working analytical framework was developed and applied by indexing the transcripts into the categories and codes. A spreadsheet was used to generate a framework matrix and data was 'charted' into the matrix. Data were then grouped based on codes and based on cases, and finally, both codes and cases were combined to build the matrix. Charting summarised the data by category from the different transcript. Categories were internally consistent and externally divergent. Throughout the charting stage, a balance was maintained between reducing the data and preserving the original meanings and context of the respondent's words. References to relevant illustrative quotations were included on the spreadsheet (Gale *et al.*, 2013).

Best practices from established qualitative literature guided identification of the main themes within the data (Ryan and Bernard, 2003; Bradley, Curry and Devers, 2007). Themes were derived following analysis of the data, emerging understanding was tested, alternative explanations were sought, and data analysis was written up (Marshall and Rossman, 1999). Themes were coherent, consistent and distinctive. Also, congruence between extracts and analytic claims was ensured.

The research team (principal researcher and research assistant) kept a research diary, where reflexive notes were recorded, and impressions of the data and thoughts about analysis were entered throughout the process. These impressions and thoughts were shared and discussed amongst members of the team, to explore possible interpretations.

Results were visually presented using different NVivo 10™ data presentation tools including word frequency tool and charts. Specifically, distribution of percentage attribution, valuation and willingness to pay for outcomes data were presented with visual scales and graphs. These graphs highlighted the most common percentage attribution, valuation and willingness to pay for outcomes category for the various stakeholder-described outcomes.

4.13.3 Analysis of quantitative data

Microsoft Excel was used for secondary data entry and analysis, collating the data in such a way that they would be easily retrievable.

4.13.3.1 Analysis of input-level data

In line with the SROI guidelines (Nicholls *et al.*, 2012), the value of stakeholder-described inputs was only included for analysis once to avoid double counting. As such, if monetary input from DFID already paid for non-monetary inputs from other stakeholders, then no additional input value was added.

Specifically, for the input (direct implementation cost of EmOC training), the bottom-up cost estimate was conducted to confirm the amount spent. This approach was chosen because it is known to be more accurate compared to the alternative of top-bottom cost estimation (James, 2010). Based on insight from a systematic review of economic evaluation of EmOC trainings (Banke-Thomas, Wilson-Jones, *et al.*, 2017), direct costs of implementation included for analysis were costs of training venue, training manual, training equipment, daily subsistence allowance (DSA) for trainees, DSA for trainers (National and United Kingdom (UK)-based faculty), and travel support for UK-based faculty (airfare, visa, vaccinations, airport transfer). The inclusion of only these direct implementation costs formed the baseline scenario used for sensitivity analysis (described in [sub-section 4.13.6](#)).

4.13.3.2 Analysis of output level data

For output level data, the number of trained HCPs across Kenya in 2014 were retrieved and incorporated into impact map.

4.13.3.3 Analysis of outcome-level data

In line with SROI guidelines (Nicholls *et al.*, 2012), material relevance and significance tests were conducted for stakeholder-described outcomes (Bradly, Butler and Leathem, 2013). Material relevance of an outcome was judged to be present if the response was in the affirmative to one or more of the following questions (Bradly, Butler and Leathem, 2013):

- Is it important to stakeholders?
- Is it important to the organisation's policies?
- Is it important to the aims of partners or peers?
- Does it fit with societal norms?
- Does it achieve short-term financial impact?

Material significance of an outcome means that magnitude of impact would influence decisions and actions. Based on insights from a previous SROI analysis (Bradly, Butler and Leathem, 2013), outcomes were excluded at this stage of significance screening, if it was determined that there simply was not enough consensus on the occurrence of the outcomes or if the outcome is already included in the value of other outcomes. This was done to avoid double-counting.

For the selected outcomes, analysis of outcome-level data involved comparing the data collected at baseline with that collected on-year post-training (follow-up), in line with the one-year scope of analysis for this evaluative-type SROI study. The variance between outcome-level data at baseline and follow-up for the various outcomes were incorporated into the SROI impact map for evidencing outcomes ([SROI stage 3](#)).

4.13.4 Review of evidence from existing literature

Where there was consensus around an actual financial valuation provided by beneficiaries, such valuation was selected. However, in cases in which there was no consensus or where valuation was impossible, financial proxies from the literature were explored. The justification for selecting each financial proxy was provided. A similar review process was done for selection of percentage attribution and deadweight. For all values to be incorporated in the SROI analysis, where possible, multiple sources were explored for triangulation.

4.13.5 SROI stage 5: Calculating the social return on investment

Upon completion of the SROI data collection stages that helped to establish the theory of change of the EmOC training intervention, which involved identification and valuation of the inputs, outputs and outcomes generated from the range of methods (quantitative and qualitative), all relevant data were computed into the SROI impact map to calculate the SROI ratio (Nicholls *et al.*, 2012).

Taking the societal perspective to calculate the SROI ratio, the first step was to estimate the value of each outcome for a one-year period. Deadweight, displacement, attribution and drop off were removed from the estimated value. The resultant financial valuation should then be discounted to their net present value (NPV) for what has been achieved into the

future. As this was an evaluative-type SROI that reviewed a one-year period, there was no need to project into the future, as such no discount rate was used. At this point, the proportion of the total outcome valuation experienced by each stakeholder was established.

Subsequently, financial valuations of all outcomes were summed up. This total outcome valuation divided by the total value of the input (cost of training implementation). The SROI ratio and the net SROI ratio were thus calculated as:

$$\text{SROI ratio} = \frac{\text{Present Value}}{\text{Value of inputs}}$$

$$\text{Net SROI ratio} = \frac{\text{Net Present Value}}{\text{Value of inputs}}$$

All financial analyses were preliminarily conducted in the Kenyan national currency – Kenyan Shillings (KSh). Financial values were then converted to and presented in Great Britain Pounds (£), triangulating values from the Central Bank of Kenya and OANDA for the year of implementation, 2014 (Central Bank of Kenya, 2016; OANDA, 2016):

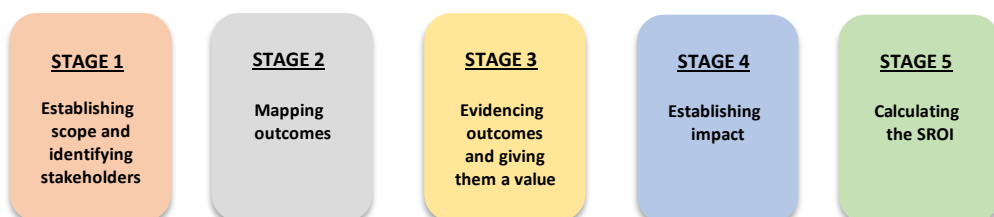
$$1.00\text{KSh} = \text{£}0.0068$$

$$\text{£}1.00 = 145.50\text{KSh}$$

The final financial valuations were also presented as International Dollars (I\$), using Purchasing Power Party (PPP) factors, to aid comparison with other assessments.

The model was built using Microsoft Excel. All variables within the impact map were explained, and the impact map was presented in an easily comprehensible format. The impact map is colour coded [Figure 4.7].

Figure 4.7: Colour coding used for SROI impact map



4.13.6 Sensitivity analysis

The role of the sensitivity analysis was to determine whether the assumptions or decisions made during the data collection and analyses do in fact have a major effect on the results. It helped to manage any uncertainty within the model and identify what parameters were the principal drivers of the observed results (Taylor, 2009).

4.13.6.1 Testing outcome scenarios

The major assumptions made in relation to the outcomes were with the financial proxies used for outcome valuation and the percentages for deadweight, attribution, displacement and drop-off. A sensitivity analysis was conducted to test the impact of these assumptions on the SROI ratio.

By performing a sensitivity analysis, the extent to which the SROI ratio changes when any specific value is altered was described. Outcomes most sensitive to change were seen, and this addressed the question 'Are the findings robust to the method used to obtain them?' to know the likely impact of using alternative values. Ultimately, the sensitivity analysis increased the transparency of the SROI estimation process and reliability of the results (Saisana, Saltelli and Tarantola, 2005), which is in tandem with the SROI principle of being transparent in the conduct of the study (Nicholls *et al.*, 2012).

Specifically, multiple one-way sensitivity analysis, which quantified the level of confidence that a decision-maker should have in the conclusions of the SROI analysis, were conducted to determine the key determinants of the SROI ratio (Drummond *et al.*, 2005). SROI ratios for worse-case scenarios and better-case scenarios for each outcome were calculated. Each time the model was run, with a different value (financial proxy, deadweight, attribution, displacement or drop-off) the result of the model was recorded. Assumptions made for the worse cases for the outcomes were combined to give the worst-case scenario, and similar assumptions made for the better cases were combined to give the best-case scenario.

All sensitivity analyses calculations were done using Microsoft Excel.

4.13.6.2 Testing input scenarios

Though the actual implementation cost of the training was well established in the base-case implementation model, other MiH training implementation models and a scenario involving

payment of consultancy fees for trainers if they were to be actually paid for their expertise in delivering the training, were tested.

4.13.6.3 Testing both input and outcome scenarios

The estimated inputs of the various implementation models ([sub-section 4.13.6.2](#)) were then combined with the worst-case scenario and the best-case scenario for the outcomes ([sub-section 4.13.6.1](#)), to understand what influence the combination made on the SROI ratio.

4.13.7 Payback period

Though an optional calculation in the SROI guidance (Nicholls *et al.*, 2012), it was decided that this step was significant to support strategic management decisions that implementers and funders of the EmOC intervention would make in the future. The calculation was aimed at describing how long it will take for the initial investment to be paid off by the benefit accrued thereof.

Payback period calculation was used to find the time in months or years for the value of the impact to exceed the investment.

The formula used for its calculation was:

$$\text{Payback period in months} = \frac{\text{Investment}}{\text{Annual impact}/12}$$

4.14 Researcher's positionality and reflexivity

Social research is positional, as such researchers are advised to account for their position in relation to the research participants and research setting (McDowell, 1992). Putting forward one's positionality is particularly important in research that leverages a deductive approach to social science inquiry, to explore the researcher's placement within the diverse contexts, power relationships, identities and perspective of the viewpoint for interpretation of research findings. This informs a research study and provides an objective and multi-faceted narrative of the interpretation the investigator makes in the final analysis (England, 1994).

Bearing this in mind, my position within this research as both an outsider and an insider. In the context of Kenya, I was an outsider, but I was not foreign to the context and the question of inquiry. I worked for a year on an MNH programme in Nigeria, which is a similar setting like Kenya. During my doctoral training from which this research was conducted, I worked on the MiH programme, supporting the monitoring and evaluation of the same intervention in South Africa. This allowed me to improve my understanding of the context in which the investigation was to be conducted. Also, my experience as a medical doctor and even my specific interest in MNH gave me a clear insight into the issues related to EmOC.

On the other hand, I was a foreign researcher and not an insider of the circle of Kenyan policy makers or HCPs, in the strict sense. However, this allowed me to objectively analyse the situation, avoiding the effect of any prejudiced opinion before the research (Walt *et al.*, 2008).

To better understand the situation in Kenya, I updated my knowledge of the peculiarities of the Kenyan health system, and the details of the EmOC training being implemented in the country, before the start of the research. This placed me in a better position to interpret the contextual realities within the health system.

During the conduct of the FGDs and KIIs, I stayed neutral, being careful to ensure that my body language, gestures or tone of voice did not suggest approval or disapproval to the respondents. I asked questions, kept quiet and waited for responses. If respondents did not respond, I repeated the question with further explanation, again without suggesting any answers. Throughout my interaction with the respondents, I maintained a conversational voice tone and not an interrogational one.

Key Points

Chapter 4

Methodology

- The SROI research process implemented for this thesis involved establishing scope and identifying key stakeholders, mapping outcomes, evidencing the outcomes and giving them a value, establishing impact, calculating the SROI ratio.
- An evaluative-type SROI was done for the emergency obstetric care (EmOC) training intervention conducted in Kenya.
- This research aligned with the SROI principles of involving stakeholders, understanding what changes, valuing the things that matter, including only what is material, not over-claiming, being transparent and verifying the result.
- Selected facilities for the study were: Waithaka Health Centre, Mbagathi Hospital, Mama Lucy Kibaki Hospital, Kayole II Hospital, Langata Health Centre and St. Mary's Mission Hospital. All facilities are based in cosmopolitan county of Nairobi.
- The research was conducted with high ethical standards. Use of secondary data was with permission of sources, while focus group discussions were conducted with approval from the Research and Ethics committees at LSTM and in Kenya.
- Basic stakeholder analysis technique classifies stakeholders into beneficiaries, funders, implementers and promoters. Only direct beneficiaries of the EmOC training were considered 'material' for inclusion in the analysis.
- A mixture of qualitative and quantitative methods was used for data collection from the 'material' stakeholders - beneficiaries.
- Qualitative data was collected using focus group discussions and key informant interviews with the identified stakeholders. The thematic approach was used for data analysis.
- Based on findings from the qualitative enquiry, quantitative data was collected from programme and literature and incorporated into the stakeholder-described theory of change of the intervention.
- Costs and outcomes (using financial proxies) of the intervention were monetised.
- All data were inputted into a SROI impact map to calculate the SROI ratio taking a funder's perspective.
- Sensitivity analysis was conducted to test robustness of assumptions used in the SROI calculation.
- Quality assurance and quality control systems were implemented to ensure data quality.

5 Results

5.1 Overview of the chapter

This chapter is structured in line with stages 1-5 of the social return on investment methodology. Each sub-section in this chapter details findings for each stage.

With the scope of the SROI analysis already defined and limited to a year of evaluation, the first SROI stage for this analysis only required identification of stakeholders of the intervention. Firstly, roles of stakeholders involved in or related to the emergency obstetric care training and care received following training are presented based on discussions with stakeholders and evidence from the literature and programme. Of the identified stakeholders, those who were beneficiaries of EmOC training were specifically highlighted to be included in the social return on investment analysis. Results of this sub-section contribute to Stage 1 of the social return on investment analysis.

In the next sub-section, the outcomes of the intervention were mapped, as intended by the programme, as described by the beneficiaries and as evidenced in the literature and data from the programme. Results of this sub-section contribute to Stage 2 of the social return on investment analysis.

Following this, indicators to quantify the outcomes, quantities and duration of the outcomes, and financial valuation of the outcomes were reported. Outcome indicators and quantities of the outcomes were sourced from existing programme data. Duration of the outcomes was limited to the one-year evaluation period in line with the scope of the study. Financial valuation of the outcomes from the perspectives of the stakeholders and evidence from literature are presented. Results of this sub-section contribute to Stage 3.

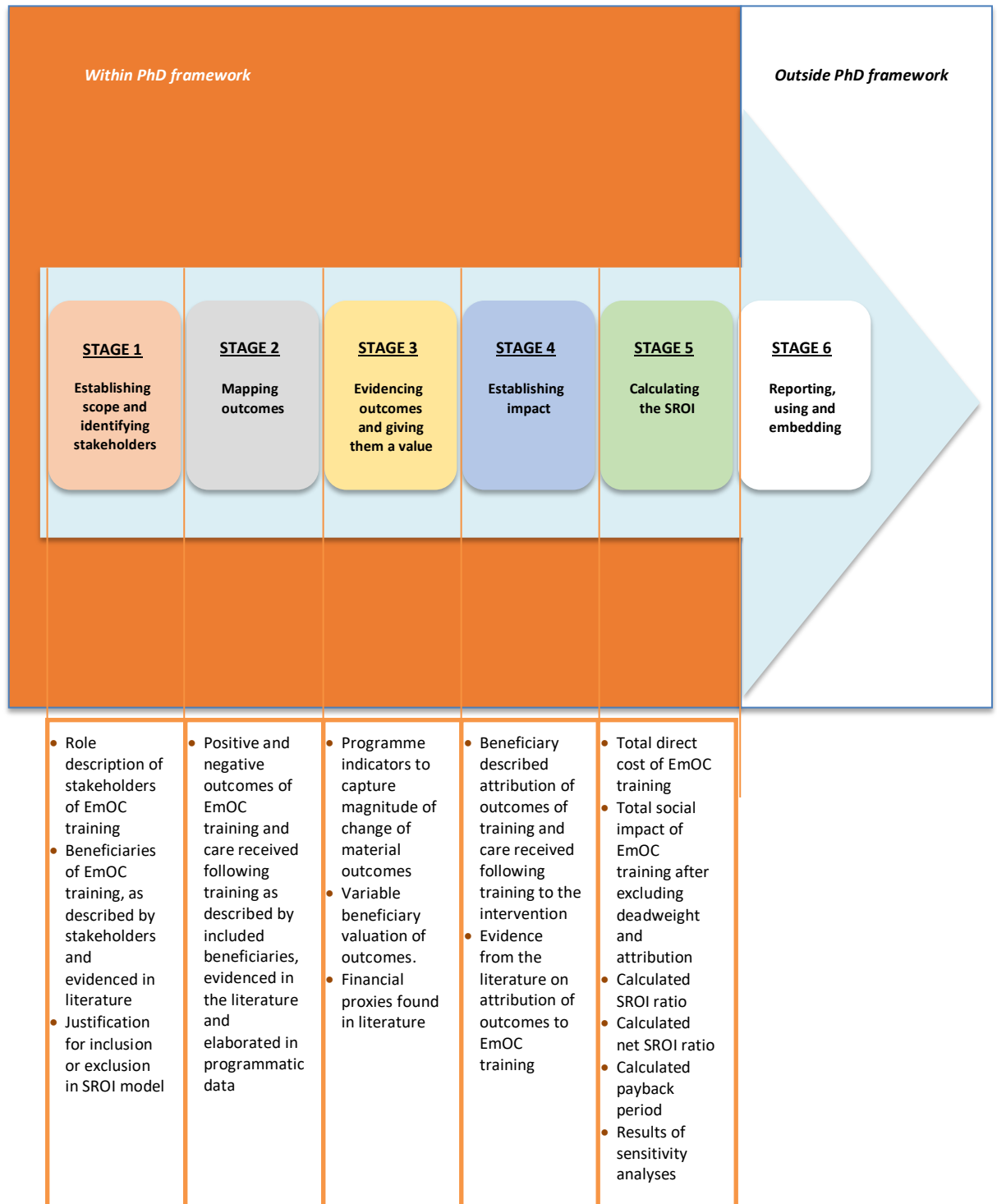
In the next sub-section, percentage attribution of the outcomes as described by the beneficiaries (trained health care providers and women who received care from them) and evidence from the literature are presented.

In the final subsection, the social return on investment ratio calculation is presented after calculating total inputs (financial cost of the training) and total financial valuation of outcomes. Multiple one-way sensitivity analyses conducted to test assumptions made for parameters used in the modelling the SROI ratio are presented. Finally, payback period calculation is presented.

5.2 Introduction

The aim of this research was to assess the social return on investment (SROI) of the emergency obstetric care (EmOC) training for health care providers (HCPs). In laying out this chapter, findings of the research are presented in line with the SROI stages 1-5. [Figure 5.1](#) shows the SROI framework with a summary of the key findings from each stage.

Figure 5.1: Overview of results presented for each SROI stage



This chapter presents the results of this research which are based on qualitative and quantitative data sources:

- Qualitative data on stakeholder role and outcomes of EmOC training obtained from focus group discussions (FGDs), paired interviews (PIs), key informant interviews (KIIs) with key stakeholders that were identified as beneficiaries ([Stage 1](#) and [Stage 2](#)) [[Figure 5.1](#)].
- Quantitative data from programme database which includes data on training costs, quantities of outputs and outcomes of the training. In addition, data was gathered from value game conducted as part of FGDs and PIs with beneficiaries and existing literature on financial valuation, deadweight, and attribution of the outcome to the intervention ([Stage 3](#), [Stage 4](#) and [Stage 5](#)) [[Figure 5.1](#)].

[Subsection 5.3 – subsection 5.7](#) below present the findings specific for each SROI stage.

5.3 Stage 1: Establishing scope and identifying stakeholders

Results of this sub-section contributed to Stage 1 of the SROI analysis and helped to address objective 2 of this research., which was to identify and map the relationship between key stakeholders of the EmOC training intervention in Kenya

The scope of this evaluative SROI study to cover a one-year period of EmOC training retrospectively has been fully described in the methodology chapter [[Chapter 4](#)]. This section presents the identified stakeholders and their relationships to the intervention. It then goes on to identify the beneficiaries of the training and the rationale for including them in the SROI model.

5.3.1 Identified stakeholders of EmOC training and mode of engagement

The SROI methodology requires identification of stakeholders to account for the social impact of the intervention being evaluated (Nicholls *et al.*, 2012). As already established in Chapter 2, for this research, a stakeholder has been defined as “an individual, group, or organisation who can affect or be affected by the EmOC training intervention”.

Based on discussions with staff of the ‘Making it Happen’ (MiH) programme, insights from programmatic evidence and evidence from the literature (Namazzi *et al.*, 2013), trained HCPs, United Kingdom (UK) based volunteer facilitators, in-country based facilitators, women who received care from trained HCPs, relatives of women who received care from trained HCPs, health facility managers, Government (Ministry of Health), Centre for Maternal Newborn Health (CMNH), other organisations implementing similar capacity building interventions and Department for International Development (DFID) were identified and considered relevant to EmOC training.

To establish their roles as stakeholders, identify who were beneficiaries of the intervention and the outcomes (both positive and negative) that beneficiaries had experienced, as well as their financial valuation and attribution of the outcome to the intervention, 28 focus group discussions (FGDs), 3 paired interviews (PIs) and 18 key informant interviews (KIIs) were conducted with representatives of the various stakeholder groups [Table 5.1].

Table 5.1: Number of sessions and participants in interviews and focus group discussions

Stakeholder group	Number of sessions*			Number of participants
	FGD	PI	KII	
EmOC trained HCPs (Nurses/Midwives)	9	-	-	54
EmOC trained HCPs (Doctors)	2	1	1	15
UK volunteer facilitators	-	1	2	4
National facilitators	2	-	-	12
Health facility managers	-	-	4	4
Ministry of Health staff	-	-	2	2
Women who received care from trained HCPs	14	-	-	109
Relatives of women who received care from trained HCPs	-	-	5	5
Staff of Centre for Maternal Newborn Health	1	-	2	10
Staff of other organisations implementing similar training	-	1	2	4

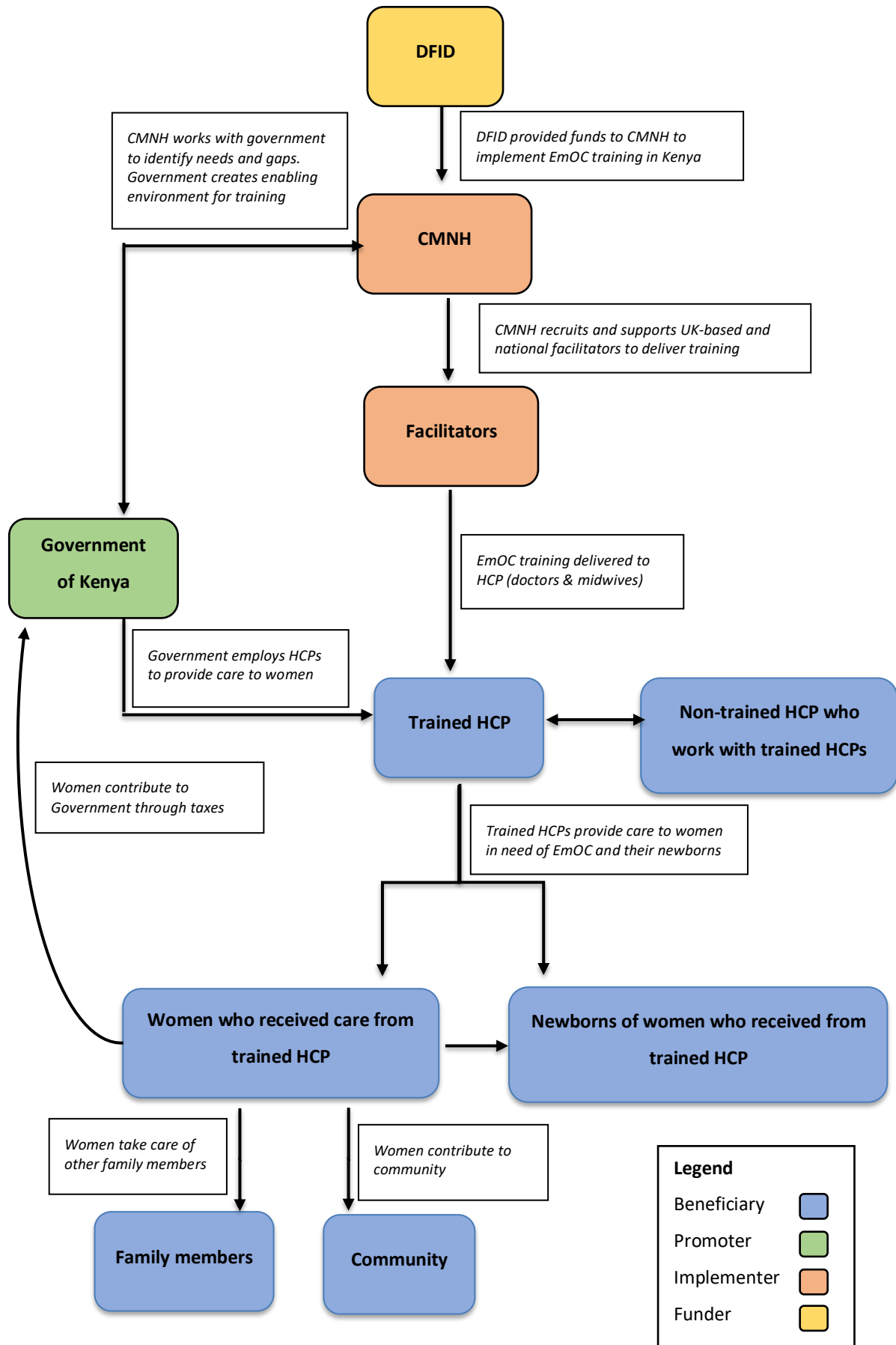
*Number of sessions conducted until saturation was achieved

5.3.2 Role and relationship of stakeholders with EmOC training

Stakeholders were classified into one of four groups: beneficiaries, implementers, promoters (supporters) and funders. This classification was based on how the stakeholders described their role in relationship to the intervention.

[Figure 5.2](#) describes the relationship between the different stakeholder groups based on discussions and interviews with them and programmatic evidence.

Figure 5.2: Analysis of stakeholders' relationships to EmOC training in Kenya



DFID provided funding to CMNH to implement the EmOC training in Kenya. CMNH worked with the Government of Kenya (GoK) in developing and adapting the training modules for the health workers in Kenya while identifying the gaps needed to be addressed by the training. The Government then provided the enabling environment for the intervention to be implemented. The CMNH implemented the training on the ground through in-country teams, inviting both international and national facilitators to deliver the modules to HCPs. The trained HCPs return to their different facilities and pass on their own gains from the training to yet to be trained HCPs. All HCPs provide care to women and their newborns, using information gained from the training. The women that they provided care for live within families and communities and work and contribute to the state [Figure 5.2].

As required for The SROI methodology, the following subsections present the role of stakeholders as described by the stakeholders themselves (Nicholls *et al.*, 2012).

5.3.2.1 Beneficiaries

Beneficiaries in this study have been defined as users, those who experience the outcomes of an intervention. Based on discussions with stakeholders, trained HCPs, women who received care from trained HCPs and their newborns as well as relatives of women who received care from trained HCPs were classified as beneficiaries in this study.

The trained HCPs are the direct beneficiaries of the intervention since the implementers intersect directly with them to deliver the intervention. Women who received care from trained HCPs are the ultimate beneficiaries of the training since they benefit from EmOC being available (for which they are direct beneficiaries), while their relatives indirectly benefit due to their association and relationships with the women [Figure 5.2].

Health care providers

HCPs are the ones receiving the EmOC training. FGDs held with them confirm that they see themselves as beneficiaries of the intervention. This is in line with the original objective of the training is intended to improve their knowledge and skills of EmOC (DFID, 2012) [Figure 5.2].

“The content was nice and it has boosted my skill. I now know how to manoeuvre breech, and I have learnt it, and I have practised it after the training. Now I can work freely.”

- BEmOC midwife, 4 years’ experience, trained September 2014

“Before it [the training], we did not have a lot of knowledge on how to manage some of the cases because according to the training, there were many changes of some of the management of the emergencies.”

- CEmOC midwife, 2 years’ experience, trained June 2014

They have thus been classified as direct beneficiaries of the training intervention in this thesis.

Women who received EmOC from trained HCPs and their newborns

Women were categorised as the ultimate beneficiaries, especially as the funders – DFID – have invested in the intervention because there is evidence that such training could potentially improve quality of EmOC that women receive when they engage with health facilities (DFID, 2012). The women also viewed themselves as beneficiaries of care from HCPs [Figure 5.2].

Their babies were also classified as ultimate beneficiaries, as safe delivery and EmOC for mothers also contributes significantly to good health for the babies.

“The health workers are assisting expectant women to have a safe delivery and ensure that baby too is ok! They are the ones to help us and our babies to be fine while we are in labour and afterwards. That is why they are there. That is why we have come to the hospital.”

- Mother in BEmOC facility, 33 years, housewife, para 3

Relatives of women who receive EmOC from trained HCPs

Relatives were also classified as beneficiaries because if the woman received quality EmOC from the HCP and she survived pregnancy, then she can have a high quality of life post-delivery, therefore able to support her family [Figure 5.2]. This expectation was also confirmed during interviews with relatives of women who received care from trained HCPs.

“I cannot leave my wife alone, so I have come to help. If she is ok, then I am ok. Our son is also ok! All I want is that my wife should be fine. So far, the doctor that I saw and the nurses have been helping out well with this.”

- Husband of mother in CEmOC facility, 25 years, Handyman

5.3.2.2 Implementers

Implementers in this thesis include technical leads, project managers, suppliers and subcontractors.

Centre for Maternal and Newborn Health

The Centre oversaw the everyday operations of the EmOC training intervention. This training intervention was part of a broader programme, which included competency-based training packages in EmOC, tailored to countries that the Centre worked in, strengthening of data collection and use in the facilities and for research and introduction of a Quality Improvement (QI) methodology (CMNH, 2014). The programme was aimed at *“reducing maternal & newborn mortality and morbidity by increasing the availability and quality of skilled birth attendance and emergency obstetric care and newborn care”* (CMNH, 2014). There was an international team based at the Liverpool School of Tropical Medicine (LSTM), United Kingdom and an in-country team located in Kenya (LSTM Kenya office). As it related specifically to the training component of the MiH programme, the operations manager led the daily operations of the Centre at the Liverpool office.

“My role on the training I guess is the operations side and programme management side of the DFID funded programme in Kenya and the other countries. I maintain very close links with the LSTM Kenya office who deliver the training in-country on behalf of LSTM. I also work with the UK volunteer obstetricians and midwives who travel out to provide the training. I am also responsible for reporting the outputs, outcomes etc. to DFID UK. So, in a nutshell, my role, in a nutshell, will be making it happen in a timely manner and ensure that we are getting results. I do not have any benefits from the training myself.”

- Staff, CMNH, LSTM UK, 5-year work experience with the organisation

In Kenya, a technical officer who managed the in-country implementation of the EmOC training.

“I have worked for about a year implementing the ‘Making it Happen’ programme here in Kenya. In relation to the EmOC training, my job is to oversee all the operations of the in-country team here in Kenya, while connecting with Liverpool.”

- Technical officer, CMNH, LSTM Kenya, 1-year work experience with the organisation

Based on these staff roles in providing technical expertise and project management function, CMNH was classified as an implementer for this thesis.

Volunteer facilitators based in the United Kingdom

A network of volunteer obstetricians and midwives from the United Kingdom worked in partnership with CMNH to deliver the training (CMNH, 2016). The volunteer facilitators engaged in this research felt they worked in a “supportive capacity” in implementing the intervention.

“I feel like I am in a supportive capacity. I am only a small part of the facilitating team. I travel to help out with the course when I am invited.”

- UK-based trainer, obstetrician-gynaecologist 1

Though some facilitators also described some “personal benefits” that they derived from their supportive role on the course.

“It has been perfect for me personally and my family have enjoyed the fact that I am doing this [supporting the training]. It sustained my feeling of self-worth. I have benefitted from seeing improvements based on my contributions. For me, there is no point in being depressed with all that’s going on in the world, so this is my opportunity to contributing to making the world a better place.”

- UK-based trainer, obstetrician-gynaecologist 1

The training offered an opportunity for some of the volunteers to fulfil what they described as their “moral obligation” to society.

“For me, it means that I have not stopped functioning because I have retired. I am still doing what I enjoy. If I was not doing this, I would have had to find something else or somewhere else to put my energy... Giving back to the society is a philosophical and moral obligation, in my opinion.”

- UK-based trainer, obstetrician-gynaecologist 3

Since the trainers were primarily responsible for delivery of the training, they were classified as implementers.

National facilitators

Facilitators based in the UK worked with colleagues in-country to deliver the EmOC training (CMNH, 2016). Those who were interviewed felt that they were helping to “*deliver the training*” and “*contributing to a better health system*” while “*improving themselves*”.

“My role is to deliver the training. I impact knowledge and help change attitudes while making better healthcare providers. For me this is contributing to a better health system for Kenya. However, I am also getting a lot of knowledge from the participants anytime I train because I am not a sea of knowledge. Anytime I train I get something new.”

- Nairobi-based in-country trainer, obstetrician-gynaecologist 1

“I support the delivery of the training modules anytime I am called upon. I believe I have been doing this for about four years now. This is my principal role, but then as a trainer one of the things that I get to see is, which is also a challenge is how to improve myself continuously. I keep challenging myself that after every training, I must identify what is it that I am able to do better. I have learnt how to be a better obstetrician myself from the trainingand I do a lot of networking.”

- Nairobi-based in-country trainer, obstetrician-gynaecologist 2

Even though they also they also “improved themselves” and could thus be classified as beneficiaries, they primarily were involved in delivering the training. In any case, any improvements to themselves were improvements to themselves as HCPs, which have been classified as beneficiaries already. Like the UK-based facilitators, national facilitators were also classed as implementers.

5.3.2.3 Funders

Department for International Development

Based on documentary evidence reviewed for this analysis, DFID provided the funds for the MiH programme, under which this training intervention was implemented in Kenya.

“The UK [Through DFID] will provide up to £15.86 million over four years from January 2012 to December 2015 for a multi-country programme to train health professionals and expand the coverage and quality of Emergency Obstetric Care, thereby reducing maternal and newborn mortality and morbidity in 12 countries in sub-Saharan Africa [Including Kenya] and South Asia” (DFID, 2012).

They were thus classified as funders.

5.3.2.4 Promoters

Promoters refer to the group addressed as invisible stakeholders. They support the implementation of the programme but are equally accountable for its outcomes.

National ministry of health and county department of health

The government provides the environment and platforms for the conduct of the training. They are therefore classified as promoters. Based on discussions with government representatives, they also see this as their role.

“We are the coordinators. We have moved a lot because now we have trainers of trainers in every county. So at least now capacity has been built, and they are enabled. As a national government, one of our issues is capacity and EmOC is...amongst our priorities. So, we work with the Liverpool School of Tropical Medicine and several other partners to deliver EmOC training.”

- Representative, Ministry of Health

Health facility managers

Facility managers are responsible for selecting the HCPs who require training.

“My role is to facilitate the attendance of staff at the training. I make sure the staff are available and ready for the training.”

- Manager-in-charge, BEmOC facility

One of the health facility managers interviewed also opined that there were benefits gained from the training indirectly because:

“There were grey areas that my staff were having, and we kept arguing about them. But after the training, they now understand the issues. Now I can leave them to manage patients more comfortably, knowing that they can manage patients better. Now their consultation with me has reduced and thus my workload, explaining how they should care for their patients has also reduced.”

- Manager-in-charge, BEmOC facility

As such, they were classified as promoters of the intervention.

Other organisations implementing similar training

Other organisations were involved in implementing similar training in Kenya.

“Our vision is to empower local communities through partnering with them. And this leads to strengthening health systems. Through that training of health workers, we are achieving our goal. We have stakeholder meetings with the Ministry to see where other development partners and we are with the contributions that we are making nationally. As such, we see Liverpool and other organisations as partners in progress in delivering EmOC training.”

- Executive Director, Organisation A

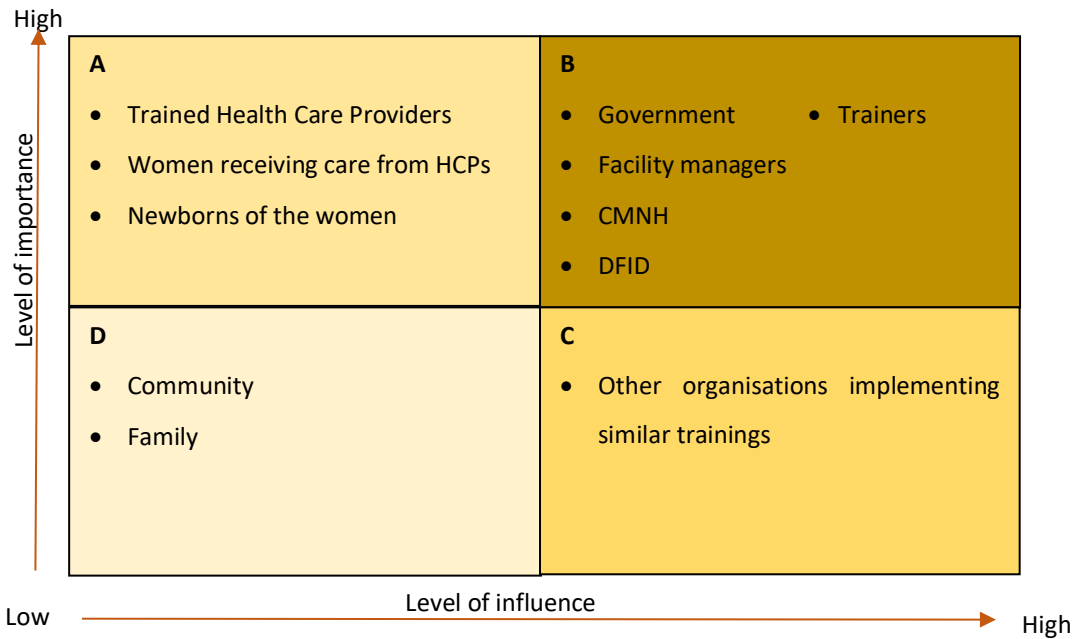
Since such organisations are not specifically delivering the training being evaluated, but deliver similar trainings, they were classified as promoters of the intervention.

5.3.3 Stakeholder analysis and justification for inclusion/exclusion in SROI analysis

Based on the discussions/interviews with stakeholders presented above, in-depth review of project documents and evidence from the literature a stakeholder analysis matrix was constructed. [Figure 5.3](#) displays the stakeholder analysis matrix, which presents an analysis of their level of influence (the power of the stakeholder to facilitate or impede the

achievement of the activity’s objective) and level of importance (the priority given to satisfying the needs and interests of the stakeholder).

Figure 5.3: Stakeholder analysis matrix of EmOC training in Kenya



A: the primary beneficiaries; B: the ones that can make the difference; C: the risk group; D: the bystanders

Family members, community members, government and trainers had varying reasons to deem themselves as beneficiaries. However, their level of importance was not sufficiently high (family and community of the women) or they had significant influence on the activities of the intervention (CMNH, DFID, government and trainers) [Figure 5.3]. As such, these groups could be excluded from any subsequent SROI analysis, as they were not viewed as being material or extremely relevant and significant to be included in the study.

However, trained HCPs, women receiving care from them and their newborns were the ones for whom highest priority was given to satisfying their needs and interests, yet they had the least influence to facilitate or impede the achievement of the activity’s objective [Figure 5.3]. Based on the matrix analysis, these three stakeholder groups thus needed to be included in any subsequent SROI analysis as primary beneficiaries of EmOC training.

Justification for inclusion or exclusion of the of stakeholder groups in the SROI impact map are detailed in Table 5.2 below.

Table 5.2: Justification for inclusion or exclusion of stakeholders

S/No.	Stakeholders	Involvement in the programme	Inclusion	Justification
1	MIH trained HCPs	They are direct recipients of the MIH training	Yes	Direct beneficiaries of the EmOC training
2	Women	They received care from MIH trained HCPs	Yes	Ultimate beneficiaries of the EmOC training
3	Neonates	They have been delivered by MIH trained HCPs	Yes	Ultimate beneficiaries of the EmOC training Their personal satisfaction is a personal gain that the society may not benefit from. The inclusion of such may be over claiming. They are principally implementers
4	UK volunteer trainers	They travel to in-country sites to train HCPs	No	Though they may also benefit from the intervention, their benefits are captured by trained HCPs already. They are principally implementers
5	In-country based trainers	These are in-country trained HCPs who help train HCPs	No	Though they derive some benefits from the survival of the mother and the children, these benefits are already included in those gained by the mother and children. Their inclusion will be deemed as over claiming
6	Immediate family members of women who have received EmOC from facilities (including husbands and children)	They are relatives of the women who receive care. They depend on the services of MIH trained HCPs to ensure that their mother or wife is in good health after delivery	No	Though they would benefit from having good maternal outcomes from EmOC, their benefits are captured by HCPs already. Their inclusion will be over-claiming
7	Health facility managers	They are promoters. They manage the health facilities and are keen on ensuring that the women have good outcomes from delivery.	No	Though they would benefit from having good maternal outcomes from EmOC, their benefit(s) cannot be directly linked to the training.
8	County Department of Health	They are promoters. They coordinate the health facilities at a regional level and are keen on improved MNH outcomes	No	Though they would benefit from having good maternal outcomes from EmOC, their benefit(s) cannot be directly linked to the training.
9	National Ministry of Health	They are promoters. They coordinate the health facilities at a national level and are keen on improved MNH outcomes	No	Though they would benefit from having good maternal outcomes from EmOC, their benefit(s) cannot be directly linked to the training.
10	Centre for Maternal Newborn Health	They implement and coordinate the MIH intervention	No	They are involved in coordinating and implementing the programme.
11	Department for International Development	They are funders of the intervention	No	They provide funds to conduct the intervention. Like in a social contract, the benefits are not accrued to them
12	Other organisations implementing similar capacity building interventions	These are competitors and co-implementers.	No	They contribute to the overall improvement of MNH outcomes but are not involved in the MIH intervention.

5.4 Stage 2: Mapping outcomes

[SROI Stage 2](#) requires mapping of inputs, outputs and outcomes of the intervention for the included beneficiaries (trained HCPs, women and their newborns who received care from them) [[Table 5.2](#)]. For logical presentation of findings, inputs and outputs are presented under Stage 5 (Calculating SROI) [[Subsection 5.7](#)]. The outcomes are described in this section.

The first subsection describes the intended changes for the included beneficiaries at the inception of the programme. The following subsections present outcomes experienced and described by the included stakeholders and outcomes evidenced in the literature.

5.4.1 Programme intended changes for the included beneficiaries

Based on the business case defined for the intervention (DFID, 2012), the log frame for the intervention and engagements with the programme staff, intended changes of the intervention were identified [[Table 5.3](#)].

Table 5.3: Intended changes of the intervention at inception

Stage 1	
Stakeholders	Intended changes
Trained HCPs	Increased knowledge
	Increased skills
Women	Reduced maternal morbidity
	Reduced maternal mortality
Neonates	Reduced neonatal mortality
	Reduced stillbirth
	Reduced neonatal morbidity

The intended change of the intervention was that through the training, knowledge and skills of the trained HCPs would increase. Following this, when trained HCPs are required to manage obstetric emergencies, they would be competent and knowledgeable enough to reduce morbidities and mortalities of mothers and their newborns. These are the outcomes reported in the programme log frame [[Table 5.3](#)].

Though risks associated with not achieving the programme outcomes were highlighted in the log frame, no unintended negative changes were identified.

5.4.2 Outcomes of training as described by stakeholders

The trained HCPs perceived the training content as relevant despite previous education and/or previous EmOC training(s) they had received or extensive work experience. The practical approach of the training was well appreciated, especially as it was perceived to have increased their capacity to deliver EmOC following completion of the training. The training also allowed HCPs to unlearn some out-dated and/or wrong practice while keeping them up to date with best practices in the field.

“I liked it [the training] because there is both practical and theory. Theory kidogo (little), practical more, it was a nice training. It helped me as a professional.”

- CEmOC midwife, 14 years’ experience, trained August 2014

“Some of the things we learnt when we were students, we were not able to apply in practice. The training gave us an opportunity to apply what we had learnt practically in a well-outlined order. Best part for me!”

- CEmOC midwife, 2 years’ experience, trained June 2014

Key themes that emerged during discussions with trained HCs regarding outcomes of training were that training led to positive outcomes including improved knowledge for self and colleagues and improved skills which were relevant to practice. In addition, most HCPs deemed improved attitude with patients as a positive outcome of the EmOC training.

However, there were concomitant negative outcomes of the training reported by some trained HCPs. These negative outcomes were that they experienced increased workload because of new expectation from their patients and their facility managers as well as frustration in inability to practise and apply the newly learnt skills due to resistance within their work environment or policies that did not support them to perform such tasks. These negative outcomes were mostly reported by some HCPs who worked in clinics (basic EmOC facilities) as opposed to hospitals (comprehensive EmOC facilities).

[Figure 5.4](#) is a word cloud showing words frequently used by trained HCPs during the FGDs in describing the outcomes highlighted above.

“I gained a lot from the training, particularly my knowledge. It was better than what I had from school. I felt like I was learning new information and my knowledge was increased.”

- BEmOC midwife, 2 years' experience, trained September 2014

For some HCPs, they gained significant new knowledge, especially in the field of obstetrics, which they argued always generated new knowledge. The relatively more experienced HCPs viewed the training as a refresher, which aided them to recollect some of the information they had garnered from school previously. Generally, doctors and midwives both agreed that the training helped to improve their knowledge in some way or the other.

“Before it [the training], we did not have a lot of knowledge, particularly the recent things. You know they [international organisations like the World Health Organization] keep changing and updating knowledge. Where we thought that we knew, the training showed there were many changes to for example management of the emergencies, which we needed to learn.”

- BEmOC midwife, 19 years' experience, trained June 2014

“Even though I cannot say that there are any new things that were added after you are out of school, sometimes you forget, so I was reminded of what is supposed to know.”

- BEmOC midwife, 18 years' experience, trained August 2014

“For me, it was just like a refresher course whereby you have gone out of track kidogo (little), and then you are brought back like this is how things are supposed to be.”

- CEmOC doctor, 5 years' experience, trained September 2013

HCPs from some facilities reported having official forums to allow for trained HCPs to exchange any new knowledge with colleagues yet to attend the training. This links back to why yet to be trained HCPs were described as beneficiaries in this thesis [[section 5.4](#)].

“After going for training, you give feedback to colleagues who did not go. You tell them what you have learnt. For example, I taught them to vacuum when I returned.”

- BEmOC midwife, 4 years' experience, trained September 2014

In addition, the knowledge gained also helps trained HCPs to self-reflect on their capacity to provide the care required per case. As such, they could promptly make referral decisions if they cannot manage the pregnant woman effectively.

“... Because of the knowledge received from the training, you can do an assessment, and you gauge yourself if you are able to do anything for the condition that the patient presented with. If not, then you have enough knowledge to decide referral if you cannot manage.”

- BEmOC midwife, 10 years' experience, trained April 2015

- **Improved skills**

HCPs largely opined that the training helped them to improve their skills [Figure 5.4]. Specifically, the practical approach of the training helped the HCPs to develop their skills further. Some HCPs, doctors and midwives alike, reported not previously knowing exactly what to do when they had their patients or how to treat their patients in a systematic fashion. However, following the training, they could confidently and systematically manage pregnant mothers and their babies.

“I am the only doctor in this facility that is confident enough to use the vacuum, and everyone knows that. I learnt how to use it from the training.”

- CEmOC doctor, 3 years' experience, trained September 2014

“It has so much impact on my side. The systematic management has really changed because now I am able to approach every patient that I get.”

- CEmOC doctor, 4 years' experience, trained April 2013

The trained HCPs, particularly midwives within BEmOC facilities opined that the improved skills have made them feel more confident in dealing with cases that they managed. Furthermore, they felt there were better skilled in handling cases that presented to their facilities without needing to call the attention of a doctor or refer them to CEmOC facilities, both mothers and their babies. The only situation that warranted referral when they knew they could not manage the patient, mostly because of lack of equipment or the patient had a better chance of survival in CEmOC facilities. However, generally, HCPs from both CEmOC and BEmOC facilities felt more independent in dealing with cases because of the skills they had gained from the training.

“In this BEmOC facility, with the skills we now have, we are able to manage more clients. Some things we used to panic before, but it’s different now. For example, before if somebody had delayed the second stage, we would refer before attempting something like vacuum delivery, but now we can do that. When we refer now, it is because we are very sure we cannot manage the situation, mostly because we don’t have plenty equipment.”

- BEmOC midwife, 10 years’ experience, trained September 2014

“Leaving medical school allowed me to be called ‘doctor’, going for the EmOC training allowed me to become a real ‘doctor’. I can work independently and confidently.”

- CEmOC doctor, 6 years’ experience, trained September 2014

“... Because anything below seven [Apgar score] we used to transfer, but now we don’t refer, we can manage by ourselves.”

- BEmOC midwife, 4 years’ experience, trained March 2015

Managers of BEmOC facilities recognised that in some instances, there is no option than to refer the patient. However, they reported that there has been a reduction in referral rates from BEmOC to CEmOC facilities, as reported by the trained HCPs.

“We are a BEmOC facility! I give you a good example - in a case of impending rupture there is nothing we can do, so for those ones, we must refer. But since the EmOC training, there have been changes. Initially, staff were referring delayed second stage, but now we know that we can shorten the labour using the drugs and deliver the mother, as long as there is no complication with the passage and the passenger.”

- Facility manager-in-charge, BEmOC facility

The trained HCPs generally found the training highly relevant to their practice and patient outcomes. While it appeared that there were specific components of the training that the HCPs particularly valued, including neonatal resuscitation and assisted vaginal delivery with ventouse, HCPs generally perceived the training as a unique opportunity to access key skills which were relevant for practice. The training helped HCPs to have hands-on experience of procedures that they could not perform prior to the training and/or helped them perform procedures they could do before better and in a more systematic fashion.

“I think the content [of the training] was essential and very informative because after the training we are able to do some things that we were not able to do before. For example resuscitating babies and using Kiwi”

- BEmOC midwife, 2 years' experience, trained September 2014

- **Improved attitude to care delivery**

HCPs described an improvement in their attitude to patients while delivering care. They explained that the communication module included in the EmOC training helped in improving their attitude towards care delivery. Another explanation was that the improved attitude to patients that they experienced may be due to the knowledge and skills to carry out life-saving interventions properly, that they had gained from the training.

“There was a special unit that we were taught communication skills, how you attend to the patient from the time of admission to the time that you are going to take the patient to the ward. This really helped to improve my attitude to my women.”

- CEmOC doctor, 5 years' experience, trained April 2014

“... because now we know how to do things it is like we are happy about doing everything, so even your attitude is reflected to the patients, and the patients will go out there to spread the message. So, from the time we started EmOC training, even the numbers [of deliveries] have begun going up.”

- BEmOC midwife, 29 years' experience, trained September 2014

The consequence of the improved attitude appeared to have contributed to increasing the number of women choosing to come to the facilities for delivery. Some trained HCPs reported that they had some patients who gave them some feedback regarding this positive attitude. In addition, HCPs observed that some patients had been referred to them because of the positive feedback that the patients had received from previous patients of the facility.

“A woman was talking to me about [Facility X], when she come to deliver. ...she told me ahh sister huko kwenu (that place where you work), you treat women very well. That [Facility X] is so good compared with before. So, if she was confident enough to tell me, I tend to think she, like others, go to the community and tell others about the services and so mothers are flowing in.”

- BEmOC midwife, 10 years' experience, trained October 2014

5.4.2.2 Concomitant negative outcomes of training

For the trained HCPs, it appeared the 'positive outcomes' gained directly from the training, including improved skills, knowledge and attitude led to a concomitant increase in what the trained HCPs have described as 'negative outcomes'. The two major negative outcomes highlighted by trained HCPs were i) increased workload due to increased number of patients visiting their facilities and ii) frustration due to inability to apply the knowledge and skills gained from the training because of policy restrictions and lack of sufficient infrastructure.

- **Increased workload**

Trained HCPs, especially those working in BEmOC facilities, reported that the number of patients that they are attending to has increased. In some facilities, increments of over 100% were reported. As they have now been trained, they were expected to be able to manage the patients appropriately. The number of patients visiting the facilities was perceived as increased workload because they have not been used to such numbers previously and there have not been additional HCPs posted to work with them, to help in distributing the work.

“Workload! We have gotten many mothers coming and since we are not afraid to take some of the cases we used to refer and our manager knows we can do the work. So actually, the work has gone up, and we have not added the number of health workers. It [number of deliveries] was around eighty something per month, and now we see two hundred plus.”

- BEmOC midwife, 10 years' experience, trained October 2014

The HCPs believed this increased workload that they experienced was partly associated with some of the positive outcomes of the training intervention, including the general awareness in the community of their improved capacity to respond to the needs of the women. As such, upon discharge, women who have been managed in facilities with trained HCPs tend to share their positive experience with other women, who themselves now visit the facility when they are pregnant.

“Because of exactly what we have explained, we have gotten the knowledge, we have applied that knowledge with practice and as I said the outcome is good, so this is satisfactory to the client. So, they go out and say, when you go to [Facility X], services are good and they [patients] keep coming.”

- BEmOC midwife, 29 years' experience, trained September 2014

- **Frustration from inability to practise and apply newly learnt skills**

There was “frustration” experienced by the trained HCPs when they are not able to carry out some of the new skills that have been acquired from the training. This frustration was attributed to lack of equipment to perform the procedure, lack of policy backing the lower cadre HCPs from carrying out some procedures, such as manual vacuum aspiration (MVA), particularly in the BEmOC facilities. For them, this affects their motivation to work. For their patients, the implication is that in such situations, they would need to be referred. These patients are disappointed that they cannot receive the needed care in the facility, despite the facility having been recommended to them.

“The clients do come, but we are saying a situation when a condition you cannot manage if you don’t have the equipment, you are forced to have more referrals.”

- BEmOC midwife, 4 years’ experience, trained September 2014

“So before, we always refer everything! But now, we know what to do. When you have the motivation to do something and apparently, you can’t, because you don’t have this and that [equipment], so we go back to referring patients.”

- BEmOC midwife, 10 years’ experience, trained April 2015

For trained HCPs in CEmOC facilities, their main source of frustration was the difficulty they experienced in changing the ‘norm’ and replacing it with content gained from the EmOC training.

“When I went back to the hospital with this regiment of magnesium sulphate [from the training], my immediate supervisor did not like this kind of protocol; he was refusing. It’s hard to implement change sometimes.”

- CEmOC doctor, 5 years’ experience, trained April 2015

Facility managers reported the lack of amenities and proper environment to carry out some of the procedures that the HCPs learnt during the EmOC training.

“The challenge is we don’t have sufficient infrastructure. For example, MVA, you need a room without interruption. But most of our rooms are used for other activities and those we have are not private. So, we are not able to utilise your knowledge for that purpose.”

- Manager-in-charge, BEmOC facility

The managers also established that the lack of policy support was one of the reasons for which some lower cadre HCPs were not allowed to perform some of the procedures. However, in the BEmOC facilities, where there are no doctors. In such facilities, nurses and midwives are permitted to carry out some procedures including MVA.

“I think it [the training] was somehow made for people who work in basic facilities. They can apply the skills learnt more. I think that was a negative because those who work in big hospitals with emergency setups, we don’t actually practise some of the things we learn. For example, with MVA. You see it’s a big hospital, we work with protocols, and you have your limits you cannot cross the line. So, like neonatal resuscitation that is meant for the midwife, things like MVA are done by the doctor.”

- CEmOC midwife, 4 years’ experience, trained June 2014

The government corroborated the effect of current policy on tasks that can be performed by lower cadre health workers. They highlighted that, as per policy, procedures such as MVA cannot be performed by nurses, though they recognise that the procedure is done by nurses in relatively remote facilities.

“We have regulations that have to be followed. As Government, we have tried to do some task sharing or shifting. I know for MVA, bring it to the facility, maybe not as much in Nairobi, but outside Nairobi, the nurses can do it. Vacuum still not yet task shifted! However, as you go down to smaller counties, nurses do MVA.”

- Representative, Ministry of Health

Managers expressed concern that if trained HCPs were not able to utilise the skills gained from the training, the skills were likely to diminish.

“Disuse syndrome is likely to set in if you are not utilising the new skill. What we can do though is to network to other facilities to set up on-the-job training.”

- Manager-in-charge, BEmOC facility

For some of the trained HCPs, especially those in BEmOC facilities, inability to carry out some procedures learnt during the training made them feel like they were not meeting the ‘high expectations’ required of them by facility management and their clients.

“It [the high expectations] is both in [the facility] and out [outside the facility] because you find some clients coming from the other facilities and are saying this place is better than the other. Now when they come here we also say that we cannot do this because we don’t have this and that, we refer them again, so the expectations are up there or even in the nursing maternity, most nurses are trained for this EmOC and in some cases, you can refer a patient from here to [Facility V], there they know that we have been trained.”

- BEmOC midwife, 10 years’ experience, trained September 2014

5.4.3 Outcomes of care received from trained HCPs as described by stakeholders

The HCPs, particularly the midwives, reported that the training had ultimately translated to positive outcomes for their patients (pregnant mothers and their babies), including reduced morbidity and mortality associated with pregnancy and childbirth. Two care packages that trained HCPs really highlighted were management of pre-eclampsia/eclampsia and neonatal resuscitation.

“We were taught about the management of pre-eclampsia. Earlier we were not using magnesium sulphate. Personally, I had seen mothers going to those very bad fits and dying. From the trainings, I don’t think we have had any mother going into fits.”

- BEmOC midwife, 6 years’ experience, trained November 2013

“Before when babies had meconium, we did not know we are supposed to suck the baby and stimulate we used to stimulate first. But after the training now we are aware of what to do. Lots of babies are now coming up very well.”

- BEmOC midwife, 6 years’ experience, trained November 2013

Generally, women who received care from EmOC trained HCPs had positive opinions on the quality of care that they received, specifically about the provider him/herself. This opinion appeared to be mostly uniform across board, irrespective of the number of previous deliveries or socio-economic strata. Women expressed positive opinions of the quality of care and professionalism displayed by trained HCPs as well as the compassion and dignity with

which care was provided. Women also noted that they observed that health workers worked together as a team.

“I have not experienced any problem since I came here. I was received well! And though the nurse was alone, she attended to me very well. They are friendly.”

- Mother in BEmOC facility, PNC, 25 years, sales representative, para 1

“I was so impressed by the quality of the care because I did not expect a public hospital have such good services. Since I came here in the morning, I have seen the patients are attended to very well. I have nothing negative to say.”

- Mother in BEmOC facility, PNC, 27 years, housewife, para 2

“What I have experienced is quite different from my expectations. They are working as a team. You cannot differentiate a nurse from a doctor. When you ask for assistance, whoever is close by - a patient attendant or health worker - will respond immediately.”

- Mother in CEmOC facility, labour, 32 years, housewife, para 3

Some women who participated in the FGDs had received negative reviews from other women who had used the facility “long time ago” (verified as the time before training was held for the HCPs in the facility) appeared to now have a different opinion when they then visited the facility themselves. The negative opinions of women regarding care provided in the facilities before training of HCPs were re-echoed during the FGDs by women who had delivered in the facility in years prior to the training and were back in the facility to deliver again. The women generally felt that there has been significant improvement in service delivery more recently.

“I gave birth to my first born here [in the facility], and I used to hear people say this is not a good hospital. I agreed with them then. But then I was referred here for this baby [points to baby], I was initially reluctant, but when I came here, they checked me, admitted, monitored me regularly. Honestly, there has been a lot of change here! They made sure I had no problems! The nurses are courteous and even educate you on what preparation you need to make before delivery.”

- Mother in BEmOC facility, PNC, 22 years, housewife, para 2

However, the negative opinions that were mentioned focused mainly on the duration of time that it took to access the care and the disappointment in being turned away when the HCPs, particularly those working in BEmOC facilities, say to the women that they are unable to provide the required care and refer them to CEmOC facilities.

"I was expecting quick services, but they took too much time. I think they sometimes forget..., but they should realise that everyone is important! We are all emergencies! So, they need more hands."

- Mother in BEmOC facility, 39 years, housewife, para 5

"Some expectant women do not get quality care from the health workers; instead they are being tossed about. You know first pregnancy usually present with many challenges. My younger sister came here while in labour and was turned away to go and look for a hospital with better health facilities."

- Mother in BEmOC facility, 27 years, housewife, para 2

Facility managers alluded to the referrals from the BEmOC facility recognising that there is a limit to the level of service that can be provided. The prompt referral is interpreted as a thorough understanding of the situation of the expectant mother and the comprehensive assessment of the facility's potential to help her or if she will benefit from higher-level care.

"In terms of referral, when there is a problem. You see when you are able to refer the mother early, after doing your initial assessment, you know from what you were taught at training that you cannot help, then you refer. That way you are contributing to reducing the chances of maternal mortality and neonatal mortality too. So, when we detect a problem early, you can refer to a higher level. We only refer those that we cannot help. It's about best chance for mother and child."

- Manager-in-charge, BEmOC facility

Regarding this negative perception of care that some of the women raised, the government says it is committed to ensuring that women can access quality EmOC. It is for this reason that the government prioritises training of HCPs on EmOC service provision and provision of equipment, both being done in collaboration with partners.

"There is also political will. The first lady started the 'Beyond Zero' campaign, focused on reducing maternal mortality. So, demand is coming in, and with demand, you have to have facilities with trained health workers to manage them."

- Representative, County Department of Health

There was clear agreement amongst all women that were recruited for the FGDs on what they perceived as outcomes of receiving care from trained HCPs. These outcomes were grouped as either wanted positive or unwanted negative outcomes.

Expected positive outcomes of care

The positive outcomes expected by women from care provided by HCPs are centred on good health outcomes for mother and baby. Specifically, the women expected to:

- Mother should remain healthy during and after delivery (No maternal morbidity)
- Baby should remain healthy during and after delivery (No neonatal morbidity)
- Mother should be alive after delivery (No maternal mortality)
- Baby should be alive after delivery (No neonatal mortality or stillbirth)

These expectations were shared by all the women interviewed, irrespective of the number of previous deliveries or socio-economic strata. Their expectations also remained the same across antenatal, delivery and postnatal phases.

"If she [the mother] does not leave with any complications. I mean this is why we come to the hospital, to have our baby and leave safe and sound."

- Mother in BEmOC facility, PNC, 27 years, housewife, para 2

"What I can say is that the main outcome is that one should have delivered a healthy baby. After carrying my baby for 9 months. That's all I want."

- Mother in BEmOC facility, PNC, 22 years, housewife, para 2

"I expect to give birth without complication, that's why I have come to the hospital."

- Mother in BEmOC facility, ANC, 20 years, housewife, para 0

"When both mother and baby are well without any problem, that is safe delivery."

- Mother in CEmOC facility, labour, 28 years, businesswoman, para 0

Unwanted negative outcomes of care

Women recognised that complications could occur in pregnancy, labour and after delivery. Women also recognised that these complications might lead to the death of the mother or the baby. The women categorised these negative outcomes into:

- negative outcomes that could occur with or without HCP intervention and
- negative outcomes that could occur as a direct result of HCP intervention

The women mentioned different negative outcomes that could happen with or without the involvement of the HCP including ectopic pregnancy, miscarriage, heavy bleeding and the placenta remaining in the womb after delivery. They highlighted that some of these complications could lead to death. However, they pointed out that while some of these negatives outcomes were attributable to the HCPs, some were because the women themselves were not attending antenatal care (ANC), had home deliveries and/or experienced stress in pregnancy.

“A mother can die during pregnancy if the baby develops in the fallopian tube instead of the womb. Then there is heavy bleeding because of this...”

- Mother in BEmOC facility, PNC, 22 years, housewife, para 2

“There is a woman who died while giving birth, both the mother and the baby were tired. Some women stay at home until when they are in advance stage of labour and that is dangerous. You can never say that’s the fault of the nurse. She knew she was in labour.”

- Mother in BEmOC facility, PNC, 25 years, housewife, para 1

For the baby, the women suggested that breech delivery, as well as stillbirth, might be negative outcomes that may occur with or without the intervention of the HCP.

“The baby may present with the buttocks or the legs delivery. Abnormal positioning of the baby while in the womb.”

- Mother in BEmOC facility, PNC, 23 years, University student, para 1

“The baby may be born dead, and no one would have known before the mother finally came to the hospital.”

- Mother in BEmOC facility, PNC, 20 years, housewife, para 1

The women were aware of situations in which both mother and baby died, and a woman gave an example of this.

“There is a woman that I know personally who died while giving birth... May her soul rest in peace...but what they said was that the mother and the baby were tired by the time they got to the hospital.”

- Mother in BEmOC facility, ANC, 22 years, housewife, para 1

The women cited negative outcomes to both mother and baby that could potentially be due to the HCP. Most of these unwanted negative outcomes pointed to “carelessness” of HCP in delivering service. For the mother, the women opined that this “carelessness” might lead to precipitate labour, vaginal tears or obstetric fistula. While for the baby, problems like hypothermia or neonatal tetanus were raised as potential unwanted negative outcomes.

“A mother may give birth to a big baby and ends up with a tear which if not repaired may leave the mother with a big problem due to the nurse or doctor.”

- Mother in CEmOC facility, PNC, 29 years, housewife, para 3

“A mother may develop fistula if she gives birth to a big baby and she is not assisted by a health worker. As far I am concerned, it’s just carelessness.”

- Mother in BEmOC facility, PNC, 27 years, housewife, para 1

“The baby could be infected with tetanus due to health worker carelessness.”

- Mother in CEmOC facility, PNC, 30 years, information technologist, para 1

The impact of the negative outcomes appears to go beyond the women who directly experience them. Family members are also affected.

“In case of any loss of life, the whole family will be affected. Last year, I delivered at [Facility X], where I gave birth to a live baby, but later I was told that my baby was exhausted and passed on. That experience really affected my first-born child so much that this time around he told me not to go to [Facility X] and that I should go to a better hospital. Even the siblings get affected psychologically... When I was coming to the hospital, my son asked me mum ‘where are you going to?’, I had to reassure him I was going to a different hospital not [Facility X].”

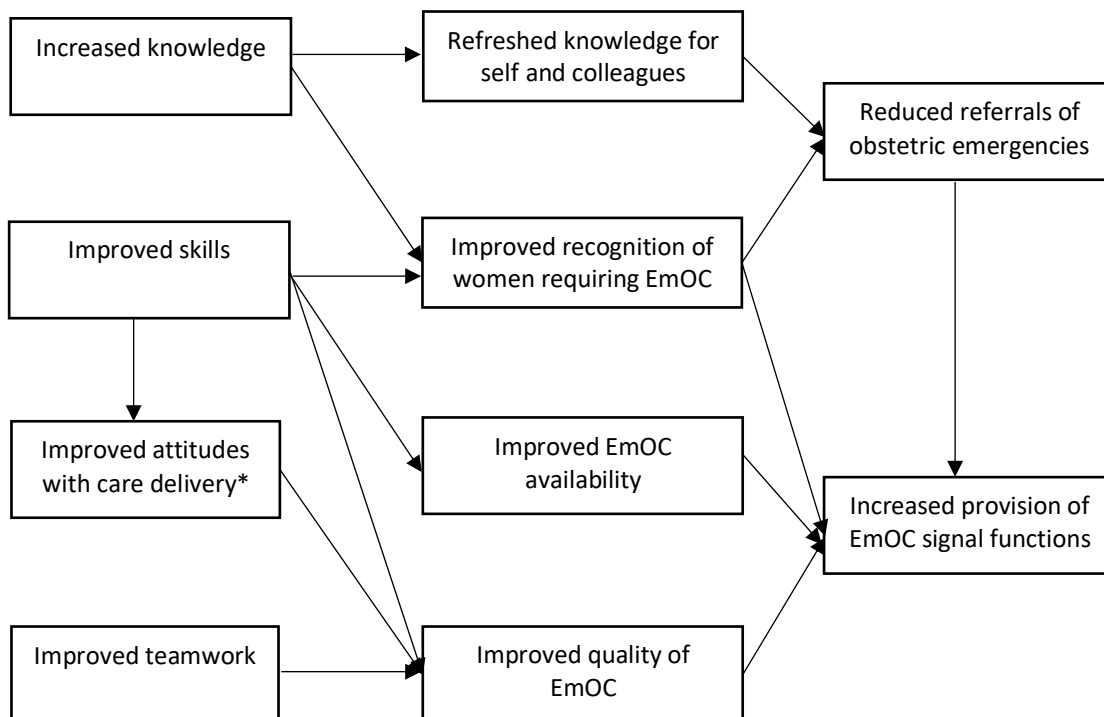
- Mother in CEmOC facility, PNC, 29 years, business woman, para 1

5.4.4 Evidence from the literature regarding EmOC training outcomes

For trained HCPs, evidence from the literature supports the trained HCPs assertion that the training leads improved knowledge and skills (Crofts *et al.*, 2007, 2013; Frank, Lombaard and Pattinson, 2009; Ameh *et al.*, 2016). The increased knowledge led to reduced referrals since trained HCPs now know how best to manage the presenting obstetric complication. In India, trained HCPs who received the same training evaluated in this research opined that the training improved their attitude with care delivery patients including their confidence and

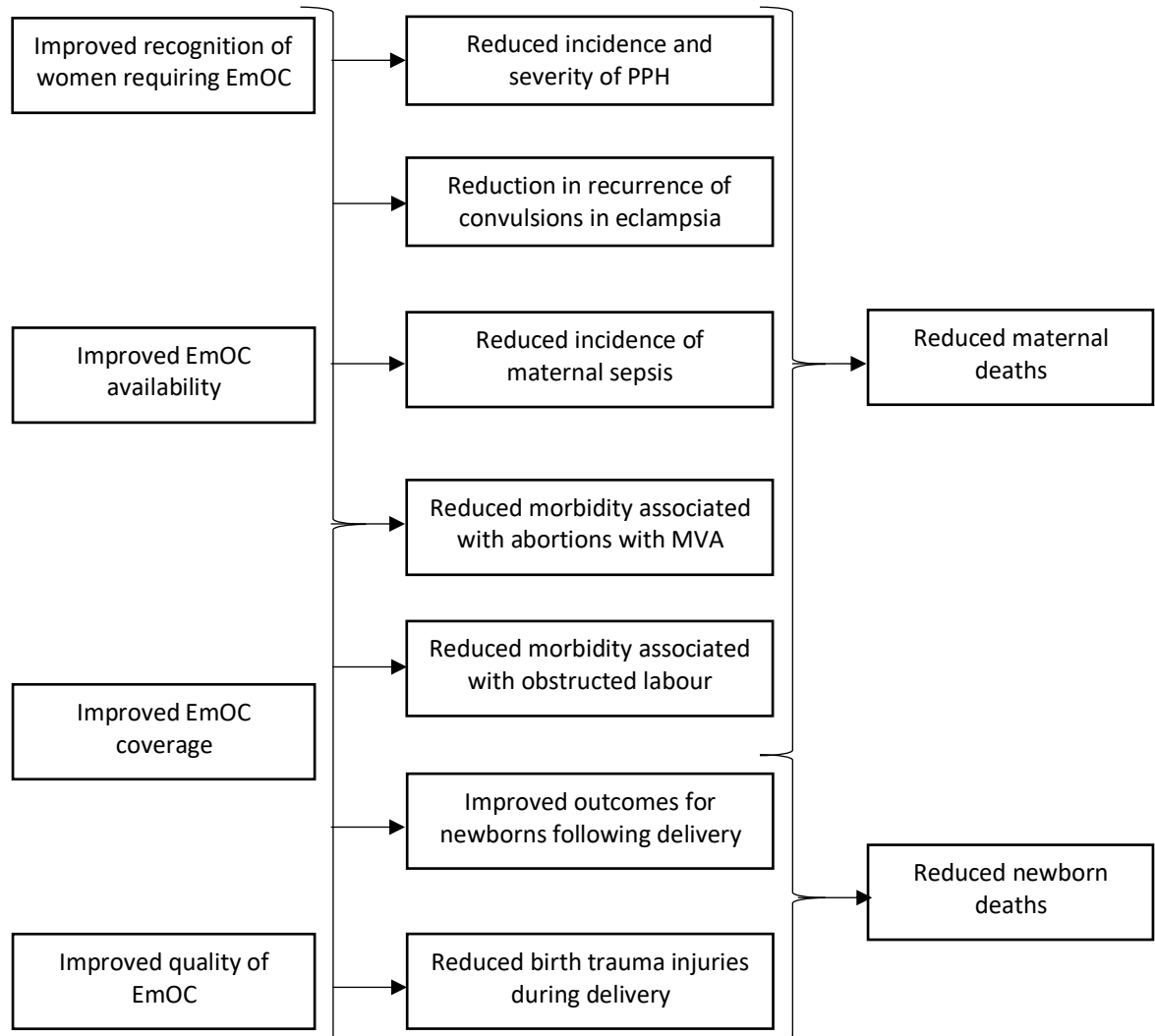
enthusiasm to provide care (Raven *et al.*, 2011). Some authors have reported that improved attitude was due to the improved skills. For example, improved skills have been associated with increased confidence and autonomy in care provision, increased motivation to work, increased efficiency in patient care and improved care organisation and improved team-working (Ameh *et al.*, 2012; Cooper *et al.*, 2012). These outcomes associated with improved skills following training have also been separately classified as attitudes/perceptions in the literature (Bergh, Baloyi and Pattinson, 2015) and have been shown to have resulted in improved availability, coverage and quality of EmOC (Mekbib *et al.*, 2003; Evans *et al.*, 2009; Dijkman *et al.*, 2010; Ameh *et al.*, 2012; Msemo *et al.*, 2013). Evidence in the literature also suggests improvements in team-working and communication skills (Draycott *et al.*, 2006; Walker *et al.*, 2014), though it is not clear if this is specifically due to the training content or the addition of team-working and communication modules in the EmOC training content (Bergh, Baloyi and Pattinson, 2015). There was no evidence found in the literature to support that EmOC training led to increased workload or increased frustration due to inability to practise what had been learnt following training, as reported by HCPs in this study. Though the literature highlights that EmOC training leads to increased provision of EmOC signal functions by trained HCPs (Raven *et al.*, 2011; Ameh, Adegoke, *et al.*, 2012) [Figure 5.5].

Figure 5.5: Mapping training outcomes for HCPs, as evidenced in the literature



*Improved attitudes with care delivery includes increased confidence, efficiency and motivation for work (Bergh, Baloyi and Pattinson, 2015)

Figure 5.6: Mapping care outcomes for women, as evidenced in the literature



For the women who received EmOC from trained HCPs, evidence from the literature shows training has an impact on maternal and newborn health outcomes (Bergh, Baloyi and Pattinson, 2015). Specifically, training has been shown to lead to reductions in incidence of post-partum haemorrhage (PPH) (Sorensen *et al.*, 2011; Dresang *et al.*, 2015) and blood transfusion rates (Egenberg *et al.*, 2017). Beyond training, in situations in which the EmOC signal functions have been properly implemented following training or otherwise, it has been shown to lead to improved maternal and newborn health outcomes including reduction in morbidity associated with PPH (Tunçalp, Gülmezoglu and Souza, 2010; Sorensen *et al.*, 2011; Westhoff, Cotter and Tolosa, 2013), eclampsia (Duley, Gülmezoglu and Chou, 2010), sepsis after caesarean section (Smail and Grivell, 2014), and complications associated with

abortions with the use of manual vacuum aspiration (MVA) (Tunçalp, Gülmezoglu and Souza, 2010) [Figure 5.6]. Though the incidence of obstetric fistula is considered low (Adler *et al.*, 2013), a systematic review showed that between 79 and 100% of fistulae occur following prolonged or obstructed labour (Tebeu *et al.*, 2012). However, no evidence was found in the literature that linked EmOC training to obstetric fistula or any other negative outcomes of care received described by beneficiaries [Figure 5.6]. Similarly, maternal deaths due to haemorrhage, pre-eclampsia/eclampsia and sepsis have reduced following multi-component interventions, including EmOC training (Ronsmans *et al.*, 1997; Mekbib *et al.*, 2003; Duley, Gülmezoglu and Chou, 2010; Dumont *et al.*, 2013) [Figure 5.6].

For newborns delivered to women who received EmOC from trained HCPs, researchers have reported significant reductions in Apgar scores <7 at 5 minutes, including reductions in Hypoxic-Ischaemic Encephalopathy (HIE) amongst newborns managed by HCPs post-training (Draycott *et al.*, 2006; Spitzer *et al.*, 2014). Some studies have also reported reductions in birth trauma, in particular, brachial plexus injury after training (Draycott *et al.*, 2008; Weiner *et al.*, 2014). The QUARITE trial that tested a multi-component intervention including EmOC training showed significant decrease in neonatal mortality in hospitals in the capitals of Mali and Senegal, but no reductions in stillbirths (Dumont *et al.*, 2013), as had been reported in another study in the United Kingdom (Draycott *et al.*, 2006) [Figure 5.6].

5.4.5 Refining description of stakeholder-described outcomes based on literature

Table 5.4 presents a refined description of beneficiary-described outcomes in the study based on evidence from the literature, described above in subsection 5.4.4 (Nicholls *et al.*, 2012). As shown above, outcomes such as improved knowledge, skills and attitudes reported by HCPs following the training were in congruent with evidence from the literature. As such, there was no need to refine the outcome labels. However, some HCPs in BEmOC facilities perceived the need for them to perform more EmOC signal functions as a negative outcome as it increased their workload [Table 5.4]. The other negative outcome of the training which was increased frustration in applying new skills was noted by HCPs in both BEmOC and CEmOC facilities, as they faced resistance in implementing their newly learnt skills. This limited their capacity to achieve the longer-term outcomes of the intervention for women and newborns that they cared for [Table 5.4].

Table 5.4: Refined description of beneficiary-described outcomes

Stage 2			
Beneficiaries	Beneficiary-described outcomes	Refined stakeholder-described outcomes	Description of the outcome
MiH trained HCPs	Improved knowledge	Same as described by beneficiary	Knowledge of trained HCPs improved following training
	Improved skill	Same as described by beneficiary	Skill of trained HCPs improved following training
	Improved attitude with patients	Same as described by beneficiary	Attitude of trained HCPs with their patients improved leading to more women coming to the facilities to deliver their babies
	Increased workload	Same as described by beneficiary	More women are coming to the facilities to deliver their babies and trained HCPs are being required to do more work
	Increased frustration with inability to practise and apply newly learnt skills	Same as described by beneficiary	HCPs faced resistance in applying newly learnt skills limiting their capacity to achieve the longer-term outcomes of the training
Women who have received EmOC from trained HCPs	No maternal morbidity/ Maternal morbidity	Reduced maternal morbidity	Reduced number of obstetric complications due to HCPs
	No maternal mortality/ Maternal mortality	Reduced maternal mortality	Reduced number of deaths of mothers due to obstetric complications
	No occurrence long-term consequence of delivery like obstetric fistula/ occurrence of obstetric fistula	Reduced incidence of obstetric fistula	Reduced number of women who go on to develop obstetric fistula after obstructed labour
Newborns delivered to women who have received EmOC from trained HCPs	No neonatal morbidity/ Neonatal morbidity	Reduced neonatal morbidity	Reduced number of obstetric-related newborn due to HCPs
	No stillbirths/ Stillbirths	Reduced stillbirths	Reduced number of stillbirths
	No neonatal mortality/ Neonatal mortality	Reduced neonatal mortality	Reduced number of newborn deaths due to obstetric complications

For the outcomes experienced by women and their newborns, occurrence and non-occurrence of morbidities and mortalities are direct opposites, since they are mutually exclusive events. Morbidities and mortalities that occur can be deducted from the no mortalities and no morbidities to lead to 'reduced morbidities' and 'reduced mortalities'. Also, reduced morbidities and mortalities have been evidenced in the literature as outcomes of the intervention, as reported above. Though not evidenced in the literature, stillbirths were also included in the analysis, as the women included recruited in this study flagged such

deaths as mortalities. This outcome was refined as 'reduced stillbirths'. Finally, though the women did not recognise the non-occurrence of obstetric fistula as a positive outcome, occurrence of obstetric fistula can also be deducted from its non-occurrence, leading to reduced incidence of obstetric fistula.

5.4.6 Materiality test of stakeholder-described outcomes

Stakeholder-described outcomes were tested for material relevance and significance. For the outcome to be materially relevant, it meant that it was deemed important to all stakeholders, and aligned to aims and policies of the of programme partners. For the outcome to be assessed as materially significant, this meant that if the outcome is excluded from the analysis, it will cause a significant change in the result of the analysis.

Stakeholder-described outcomes deemed materially insignificant (highlighted in red) were excluded from the final SROI analysis [Table 5.5]. For trained HCPs, 'improved knowledge' and 'Improved skill' were deemed as materially significant because of there was a consensus amongst HCPs that these changes occurred. In addition, the occurrence of these changes was especially important to all stakeholders. 'Improved attitude with patients' was also deemed materially significant. However, it appears to have the same effect of leading to increased patient load as the negative and unintended effect of 'increased workload' amongst HCPs who worked in BEmOC facilities. To account for this counteracting effect, the effect of 'increased workload' (which was also deemed materially relevant and significant because BEmOC facilities make up a major proportion of facilities in-country) was subtracted from the positive effect of improved attitude, thereby nullifying any gains from improved attitude [Table 5.5]. The other negative outcome, 'frustration due to inability to practise learnt skills' was deemed not of material significance as there were only a few trained HCPs that described this outcome as there was no evidence in the literature to support the theory that this frustration was actually due to the training. It was thus excluded from this social account [Table 5.5]. However, consideration of the effect of the outcome on reducing the effect of the positive outcomes was accounted for in the sensitivity analysis (reported later in this chapter), since it limited the realisation of the longer-term outcomes of the intervention for women and newborns.

Table 5.5: Materiality of stakeholder described outcomes

Stakeholders	Stakeholder-described outcomes	Material relevance	Material significance
MiH trained HCPs	Improved knowledge	Yes, relevant to the stakeholders	Significant value
	Improved skill	Yes, relevant to the stakeholders	Significant value
	Improved attitude with patients	Yes, relevant to the stakeholders	Significant value
	Increased workload	Partly so, relevant to some trained HCPs	Significant value
	Increased frustration with inability to practise and apply newly learnt skills	Partly so, important to only a few HCPs	No significant value due to low incidence of outcome and no evidence found in the literature of the outcome occurring directly because of the training
Women who have received EmOC from trained HCPs	Reduced maternal morbidity	Yes, relevant to all stakeholders	Significant value
	Reduced maternal mortality	Yes, relevant to all stakeholders	Significant value
	Reduced incidence of obstetric fistula	Yes, relevant to all stakeholders	Significant value
Newborns delivered to women who have received EmOC from trained HCPs	Reduced neonatal morbidity	Yes, relevant to all stakeholders	Significant value
	Reduced stillbirths	Yes, relevant to all stakeholders	Significant value
	Reduced neonatal mortality	Yes, relevant to all stakeholders	Significant value

Reduced maternal and newborn morbidity and mortality were considered both materially relevant and significant as the changes were particularly important to all stakeholders. Similarly, 'reduced stillbirths' was also considered both materially relevant and significant. Though evidence suggests that the incidence of obstetric fistula is generally considered as low, with an estimate of 1.57 (95% CI 1.16, 2.06) per 1000 recently pregnant women in Sub-Saharan Africa (Adler *et al.*, 2013), the literature also shows that these fistulas may develop within days after obstructed labour and can cause significant psychological and economic distress to sufferers (Wall, 2006; Pope, Bangser and Requejo, 2011). As such, reduced incidence of obstetric fistula was also considered materially relevant and significant for this SROI analysis.

5.4.7 Perspectives of other stakeholders on training and training outcomes

In addition to what the included beneficiaries reported (presented above), the government, implementing organisations and facility managers justified the need to continue training HCPs. Key themes emerging from discussions with non-beneficiary stakeholders including government, facility managers and representatives of other organisations implementing similar EmOC trainings were focused on the intervention viewed as guaranteeing value-for-money, need to focus on maximising outcomes of training and exploring new approaches to sustain training implementation. Specifically, the government opined that it is her responsibility to provide quality care for pregnant mothers in situations of emergency. This responsibility involves ensuring that HCPs are adequately trained to deliver the care required, irrespective of training cost. The training is viewed as part of their broader strategy to reduce maternal mortality in Kenya, and so it is important to keep training HCPs until training outcomes can be sustained beyond the training itself.

“The training is quite expensive, but in terms of skill provision to the health workers, it is high level. EmOC training is value-for-money. So, it for us as counties to sustain it. The biggest cost is the mannequin. But we have trained over 2,000 health workers in the last three quarters. If we can get those numbers up, we will get to saturation... But the training has to be continued because it definitely adds value. It is actually part of our strategic plan for tackling maternal mortality.”

- Representative, Ministry of Health

Facility managers believe that there is a case for continued training of HCPs on EmOC, especially because of the evolving nature of obstetrics practice, which always requires training updates. From their perspective, implementation of the training in recent years have contributed to the reduction in maternal mortality that has been observed recently. Facility managers opined that the most important consideration in deciding to continue with the training is positive maternal and newborn health outcomes.

“I have personally seen the difference in staff that have attended the training, particularly in the way they do their work. What we want are a safe mother and safe baby. If it is helping us, then it [the training] has to continue.”

- Manager-in-charge, CEmOC facility

“There has been a reduction in maternal deaths in the past seven years. The only significantly different thing we have done is intensive training in EmOC.”

- Manager-in-charge, CEmOC facility

In terms of maximising the training outcomes, stakeholders suggested the need to focus on sustainability of the training, maintaining trained human resource database, retaining trained HCPs in relevant departments and considering a new format for training.

“We found that sometimes some HCPs are trained, return to their facilities, and then they are moved to other departments. This is a waste! We found that 25% of those trained have been moved to departments that have nothing to do with maternity issues. We have to work with the Ministry to ensure that those trained are retained in relevant departments.”

- Country Director, a different organisation implementing EmOC training

Specifically, regarding the model of training implementation, stakeholder suggested that there was a need to consider facility-based training or refresher on-the-job training of HCPs to ensure sustainability of the training outcomes. Stakeholders highlighted that a similar model of training implementation have worked in other settings and would be applicable in Kenya too.

“Facility-based delivery has to be an option definitely. Now that we have finished the harmonised training package, so there is standard everywhere. We should be looking at how we can repackage the training in a different way.”

- Representative, Ministry of Health

“Sustainability is definitely a key consideration. Refresher on-the-job training may just be ok. You don’t really need a big training all the time, or maybe the training or some regular on-the-job fire drill can be conducted in the facilities. And again, doing with real clients may even be better. It makes you even remember more. I believe that will even be more helpful as a follow-up.”

- Manager-in-charge, BEmOC facility

“The training has to evolve to. In the UK, you have to have a re-certification done following refreshers every six months, and I think this is what needs to happen here [in Kenya] ...”

- Manager-in-charge, BEmOC facility

5.5 Stage 3: Evidencing outcomes and giving them a value

In line with the requirements for the [SROI Stage 3](#), this section presents indicators used for material outcomes [[subsection 5.5.1](#)], quantities of the material outcomes financial valuation [[subsection 5.5.2](#)], duration [[subsection 5.5.3](#)] and financial valuation of the outcomes as described by stakeholders and evidenced in the literature [[subsection 5.5.4](#)].

5.5.1 Indicators for material outcomes

In line with the SROI methodology, the indicators had to relate to the number of stakeholders that experienced or are expected to experience the outcome (Nicholls *et al.*, 2012). Except for obstetric fistula incidence, indicators used for this SROI analysis were routinely collected as part of the MiH programme. As such, obstetric fistula incidence had to be excluded from the analysis. [Table 5.6](#) details the indicators selected for the analysis.

Table 5.6: Selected indicators for material stakeholder described outcomes

Stage 3			
Stakeholders	Stakeholder-described outcomes	Indicator	Source
MiH trained HCPs	Improved knowledge	Number of trained HCPs with improved knowledge after training	Programme data (Ref: Indicator 1.3)
	Improved skill	Number of trained HCPs with improved skill after training	Programme data (Ref: Indicator 1.3)
	Improved attitude with patients	Number of women coming to MiH facilities for delivery	Programme data (Ref: Indicator 1)
	Increased workload	Number of women coming to MiH facilities for delivery	Programme data (Ref: Indicator 1)
Women	Reduced maternal morbidity	Number of women who required and received EmOC	Programme data (Ref: Indicator 1.4)
	Reduced maternal mortality	Maternal lives saved	Programme data (Ref: Indicator 2)
	Reduced incidence of obstetric fistula*	Number of obstetric fistula avoided	Not collected
Newborns	Reduced neonatal morbidity	Obstetric related newborn complications successfully managed	Programme data (Ref: Indicator 1.5)
	Reduced stillbirths	Stillbirths averted	Programme data (Ref: Indicator 3)
	Reduced neonatal mortality	Newborn lives saved	Programme data (Ref: Indicator 4)

*Incidence of obstetric fistula not collected on MiH programme, as such could not be included in SROI analysis. Influence on SROI analysis accounted for in sensitivity analysis.

5.5.2 Quantities of material stakeholder-described outcomes

According to programme data, of the 2,965 HCPs who received training, 2,482 (83.7%) and 2,941 (99.2%) experienced an improvement when their post-test scores are compared to pre-test scores for knowledge and skills respectively [Table 5.7].

Table 5.7: Quantity of change for material stakeholder described outcomes

Stage 3				
Stakeholders	Stakeholder-described outcomes	Indicator	Number	%
MiH trained HCPs	Improved knowledge	Number of trained HCPs with improved knowledge after training	2,482	83.7% of total HCPs trained
	Improved skill	Number of trained HCPs with improved skill after training	2,941	99.2% of total HCPs trained
	Improved attitude with patients	Number of women coming to MiH facilities for delivery (BEmOC + CEmOC)	56,532	11.2% increase in women
	Increased workload	Number of women coming to MiH facilities for delivery (BEmOC)	14,632	26% of the additional women coming to MiH facilities
Women	Reduced maternal morbidity	Number of women who required and received EmOC	3,982	20% increase compared to baseline
	Reduced maternal mortality	Maternal lives saved	138	23% decrease compared to baseline
Newborns	Reduced neonatal morbidity	Obstetric related newborn complications successfully managed	2,612	21% decrease compared to baseline
	Reduced stillbirths	Stillbirths averted	1,145	8% decrease compared to baseline
	Reduced neonatal mortality	Newborn lives saved following resuscitation	1,662	24% decrease compared to baseline

Within the facilities of the trained HCPs, 567,351 newborns (including singletons, twins and triplets) were delivered to 561,280 women during the year. During the baseline year, 510,208 newborns were delivered to 504,748 women. Compared to the baseline, 56,532 more women came to the facilities with MiH trained HCPs for delivery in the follow-up year. Of those 56,532 more women, 14,632 women (26%) went to BEmOC facilities, where HCPs perceived this increase in number of women as an increase in their workload [Table 5.7].

For the 'reduced maternal morbidity' outcome, 19,912 women required and received EmOC at follow-up compared with 15,930 women at baseline. As such, there was a 20% increase in the number of women who needed and received EmOC, as 3,982 more women received the

care that they needed [Table 5.7]. Similarly, for ‘reduced maternal mortality’, the number of maternal lives saved was the number of women who died at follow-up (414) deducted from those that died at baseline (552). 138 maternal lives were saved, which equals a 23% reduction in maternal deaths [Table 5.7]. For ‘reduced newborn morbidity’, 2,612 fewer babies (21% decrease) were referred to Newborn Care Unit for birth asphyxia (a condition of oxygen deficit at birth seen amongst severely ill newborns, which may manifest in the post-natal as HIE (Golubnitschaja *et al.*, 2011) [Table 5.7]. For ‘reduced stillbirths’, the number of stillbirths averted was the number of stillbirths at follow-up (13,163) deducted from stillbirths at baseline (14,308). 1,145 stillbirths were thus averted, which equals an 8% reduction [Table 5.7]. Similarly, for ‘reduced neonatal mortality’, the number of newborn lives saved following resuscitation was the number of newborns who died at follow-up (5,262) deducted from those that died at baseline (6,924). 1,662 newborn lives were saved, which equals a 24% reduction [Table 5.7].

5.5.3 Duration of outcomes

As this was an evaluative SROI, the duration of all outcomes was limited to the value created within the one-year scope of the study. As such, the figure applied was ‘one’. However, beneficiaries were still asked about their opinion on duration of outcomes they experienced. Generally, with duration of outcomes, trained HCPs attempted to propose how long they opined that outcomes had lasted for, but it was difficult to explain the rationale behind their proposed duration. The suggestion for the outcomes varied from outcome to outcome and from HCP to HCP. The commonest response that HCPs gave was that knowledge was sustained “*as long as you practise*”. A few HCPs suggested that knowledge is sustained “*as long as you read*” and a few others though knowledge remained “*indefinitely*”. Amongst those who suggested knowledge was sustained “*as long as you practise*”, they suggested a range of between six months and ten years for how long knowledge lasted without practice. The most common duration suggested without practice was one year. For improved skills, all HCPs interviewed agreed that skill was sustained “*as long as you practise*”. Without practice, trained HCPs suggested that the skills last between three months and five years. The most common duration suggested without practice was six months. For both, it did not appear that there was any influence on suggested duration by the years of experience of the trained HCP. For improved attitude, HCPs were not particularly clear with their response to this question. The few that responded said attitude was sustained “*as long as you practise*” or “*forever*”. There was no suggestion of how long attitude lasted without practice. For the

negative outcomes, HCPs generally agreed that both increased workload and frustration due to inability to practice continued “*until necessary changes are made at facility or policy level*”.

Duration of the outcome of care received from trained HCPS was difficult for women to estimate. Most of the women surmised that the outcomes of care lasted “*forever*” or “*for as long as God pleases*”. This difficulty in estimating duration was reported by all women, irrespective of their age, number of previous children or facility in which she received care.

“It [effect of positive outcomes] will continue for a long time because she will have no problems and can thus move on with her normal living.”

- Mother in BEmOC facility, PNC, 34 years, unemployed, para 3

“If the mother dies, the baby will suffer for a lifetime because the baby will not receive the same care as if the mother would have been alive.”

- Mother in CEmOC facility, PNC, 27 years, businesswoman, para 2

However, some women, especially those who have had multiple gestations at the time of the FGD, suggested that the care outcomes last until the next pregnancy and delivery experience.

“For me, if you give birth to a live baby you will always be happy seeing him/her around you and if you give birth later to a challenged baby you are prone to forget the past positive outcome. Any outcome is only as good until the next baby comes.”

- Mother in BEmOC facility, 39 years, housewife, para 5

5.5.4 Financial valuation of outcomes

In this subsection, willingness to pay (WTP) and financial valuation of outcomes from perspectives of the beneficiaries are presented [[subsection 5.5.4.1](#) and [subsection 5.5.4.2](#)]. Then, financial proxies from available evidence are presented in [subsection 5.5.4.3](#). The values presented in the charts within these sub-sections are based on the information provided by respondents during the value game conducted as part of FGDs/PIs.

5.5.4.1 Willingness to pay and valuation of the training outcomes

Estimation of WTP and actual valuation of the training outcomes was difficult. Most trained HCPs were willing to pay 100% of their money for outcomes [[Figure 5.7](#) and [Figure 5.8](#)].

Figure 5.7: Distribution of responses on % willingness-to-pay for positive training outcomes

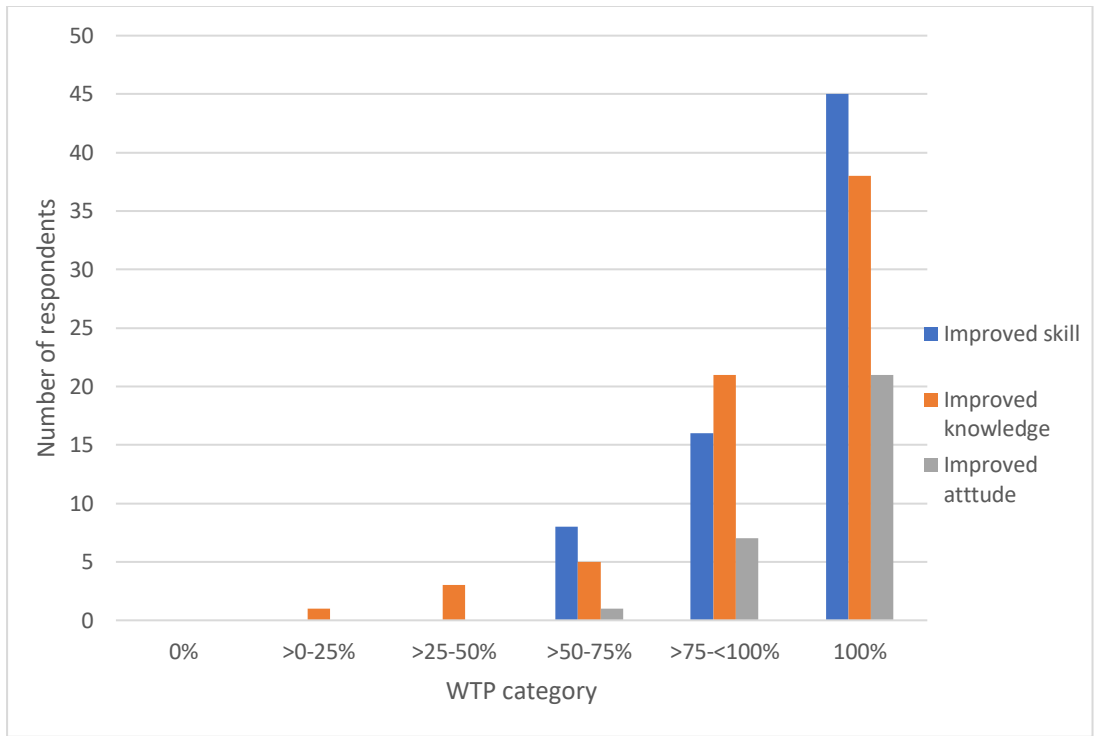
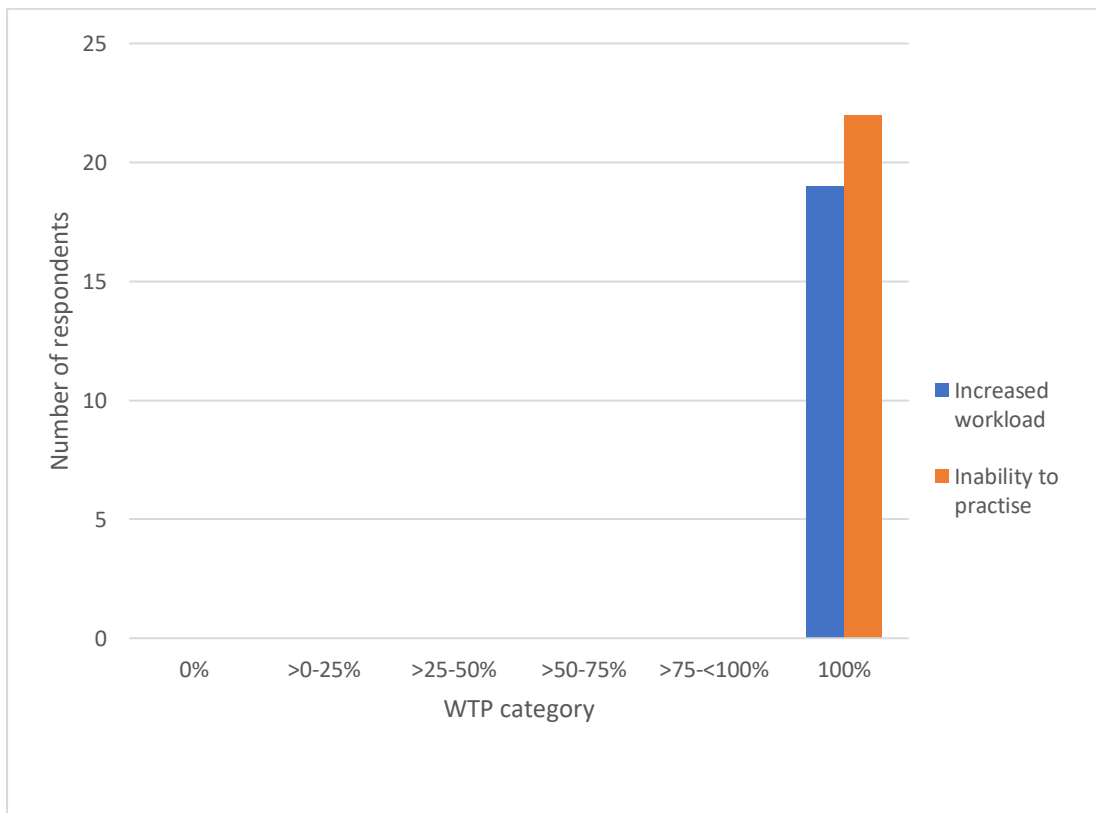


Figure 5.8: Distribution of responses on % willingness-to-pay for negative training outcomes



However, when asked to state their actual valuation [Figure 5.9 and Figure 5.10], most respondents were willing to pay some amount to avoid negative outcomes but most thought the positive outcomes were “invaluable but inestimable”.

Figure 5.9: Distribution of responses on financial valuation of positive training outcomes

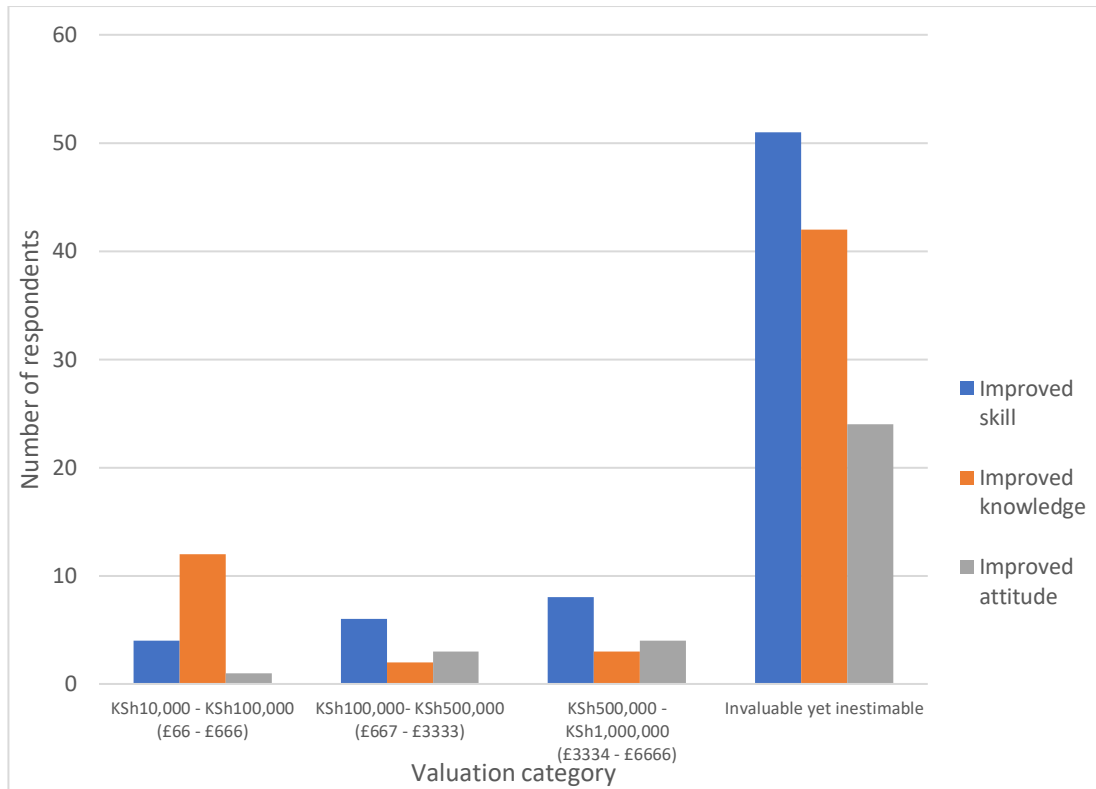
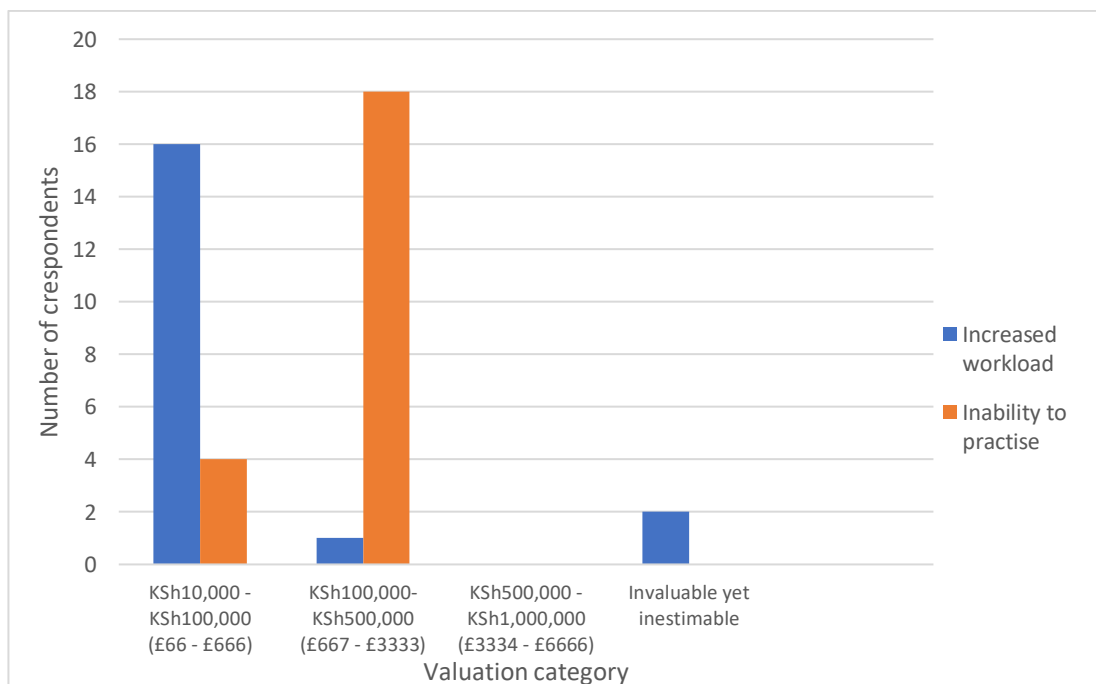


Figure 5.10: Distribution of responses on financial valuation of negative training outcomes



*Conversion rate: £1 – KSh150

*Purchasing Power Parity (PPP): \$US1: £0.71: KSh40.43

In terms of the actual financial valuation, trained HCPs who attempted to value the outcomes tended to be willing to pay more to have the positive outcomes than they were willing to pay to avoid the negative outcomes of the training. The next sub-sections present the reasons given for WTP and valuations of training outcomes by the trained HCPs.

Willingness to pay for and valuation of improved knowledge

59 of the 68 trained HCPs who responded to this question were willing to pay more than three-quarters or all the money available to them (100%) to acquire the knowledge gained from the EmOC training [Figure 5.7]. However, when trained HCPs were asked to mention the actual amount they would be willing to pay, 42 of 59 respondents thought that it was “invaluable but inestimable” [Figure 5.9]. The reasons for the valuations varied. The HCPs that valued the improved knowledge less than £666 (KSh100,000) mostly mentioned that they did so because they had some existing knowledge prior to the training gained from previous education, continuous professional development events, other workshops and/or the Internet.

“This knowledge I already had some, so am adding on what I had. For me, I would say 60,000KSh [£400]!”

- BEmOC midwife, 14 years' experience, trained August 2014

“Because I wasn't green with the little knowledge that I had to add it on top I wouldn't mind spending 75Gs (KSh75,000) [£500].”

- CEmOC doctor, 6 years' experience, trained November 2013

For trained HCPs who valued the outcome of improved knowledge “high” compared to others, they opined that the training had a significant effect on what they now know and as such, they will be willing to pay any amount provided they have the money. Some other trained HCPs estimated the value of the improved knowledge as “inestimable”.

“I wrote one million for knowledge. If I have money, I will not hesitate to pay more for something that can help my patients.”

- BEmOC midwife, 6 months' experience, trained March 2015

“It's inestimable. It's like paying for the grace (laughter). You cannot estimate it!”

- CEmOC midwife, 2 years' experience, trained August 2014

Willingness to pay for and valuation of improved skills

61 of the 69 trained HCPs that responded to this question were willing to pay more than three-quarters or all the money available to them (100%) to acquire the skill gained from the EmOC training [Figure 5.7]. When trained HCPs were asked to mention the actual amount they would be willing to pay, 51 of 69 respondents thought that it was “*invaluable but inestimable*” [Figure 5.9]. For trained HCPs, who valued the outcome lower than £3,333 (KSh500,000), they generally pointed out that their ‘*overall skill level*’ was still dependent on regular practice of the skills that had been gained from the training and this influenced how they valued improved skills.

“For skills, I gave it KSh50,000 (£333). I still have to practice then what I learnt and do it repeatedly. I definitely left the training better than I got there, but the only guaranty that I will be able to do those things after some time is practice.”

- BEmOC midwife, 4 years’ experience, trained March 2015

However, other trained HCPs opined that the skill gained from the EmOC training is “*invaluable*”, especially since such skills are deemed critical to delivering the care that patients require.

“You know am imagining you read a ‘how-to-drive manual’ and then get the knowledge of driving, but are you a driver? No, but if you go to driving school and get the skills of driving, then you will become a driver. This is the same. I could be having the knowledge in here (pointing to the head) but do I know how to apply the knowledge? Now I can perform things properly. The skill has gained can save the lives of who knows how many patients. This is invaluable, and I can pay any amount for this”

- CEmOC midwife, 10 years’ experience, trained October 2014

“As a doctor, you need to be able to deliver care and deliver it well. The bus stops on your desk. While I had learnt some of the skills before, the way it was taught at the training made it so better for me. It made me the better doctor that I am today. For me, it is invaluable. I cannot even try to estimate how much I will pay for the skill.”

- CEmOC doctor, 5 years’ experience, trained April 2013

Generally, it appeared that trained HCPs were willing to pay more for improved skills compared to knowledge.

Willingness to pay for and valuation of improved attitude with patients

Almost all trained HCPs that responded to this question (28 of 29 trained HCPs) were willing to pay more than three-quarters or all the money available to them (100%) to acquire the improved attitude gained from the EmOC training [Figure 5.7]. When trained HCPs were asked to mention the actual amount they would be willing to pay, 24 of 33 respondents thought that it was “inestimable but invaluable” [Figure 5.9]. Generally, most trained HCPs valued attitude ‘high’, compared to the proportion of those who valued knowledge and skills high. One of the clear justification for the high valuation of attitude was that it was due to the training and HCPs had not been exposed to such training before.

“I know for sure that without the training, I would not have changed my attitude. You know there are just many things we used to take for granted in relating with clients. Now that I see the results and my clients have specifically complemented me about my attitude, I will pay anything for it. 1 million Shillings [£6,666] why not? It’s worth it”

- CEmOC midwife, 5 years’ experience, trained April 2014

“For me, it was my first time being exposed to attitude training and to be honest it really helped me. I saw the difference. I am willing to pay anything for it.”

- CEmOC midwife, 8 years’ experience, trained April 2014

For respondents that valued attitude less than £666 (KSh100,000), generally, they opined that attitude is a human response and as such though the training teaches them about how to communicate with patients, it cannot change their behaviour.

“The best the EmOC training is to tell what you need to do; it does not make you do it. I think the training is worth it, but the information I got was generic. I knew them already, so I would not be willing to pay so much for it. At the most, KSh50,000 [£333]!”

- CEmOC midwife, 8 years’ experience, trained April 2014

Willingness to pay to avoid workload

All trained HCPs that responded to this question (19 of 19 trained HCPs) were willing to pay all the money available to them (100%) to avoid the increased workload that was associated with positive outcomes they derived from the EmOC training [Figure 5.8]. When trained HCPs

were asked to mention the actual amount they would be willing to pay, most of the respondents (16) valued the outcome between £66 and £666 (KSh10,000 and KSh100,000) [Figure 5.10]. Most of the trained HCPs willing to pay to avoid the increased workload from those who responded to the question (17 of 19 respondents) were working with BEmOC facilities. Those who said the increased workload was “*too high to place a value*” felt they were only sent for the training so that they could be given extra task without extra pay and no one asked if they really want extra work. The increased workload has since been a burden on them. However, most of the trained HCPs who responded to the question felt they could do with more HCPs to work with them, but would not pay so much to avoid the increased workload, as it made them better HCPs.

“I will pay anything to get my work to what it used to be. Now you can’t even rest. The work is too much, and no one even asked if I wanted training.”

- BEmOC midwife, 10 years’ experience, trained September 2014

“To be honest, yes, the work has increased, but I would not want to pay that much to avoid that. It is my joy to work and get better working. If they could just improve the working conditions...”

- BEmOC midwife, 4 years’ experience, trained June 2014

Willingness to pay to avoid frustration from inability to perform learnt skills

Similarly, all trained HCPs that responded to this question (22 of 22 trained HCPs) were willing to pay all the money available to them (100%) to avoid the inability to perform learnt skills from the training [Figure 5.8]. When trained HCPs were asked to mention the actual amount they would be willing to pay, no respondent thought that it was “*too high to place a value*”, 18 respondents valued the outcome between £667 and £3,333 (KSh100,000 and KSh500,000) [Figure 5.10]. Trained HCPs are generally wanted to be able to apply the knowledge and skills gained from the training. The reasons given for the financial valuations made by the respondents mostly centred on the feeling of under-utilisation.

“It is just frustrating! What is the reason for all the training when you cannot even get to do what you have learnt? It [the training] was for five days. For me, I will pay 100,000KSh [£667] to avoid this type of feeling. I know what to do, but they don’t allow me to do it.”

- BEmOC midwife, 10 years’ experience, trained September 2014

5.5.4.2 Willingness to pay for and valuation of care outcomes

Figure 5.11 and Figure 5.12 show distribution of WTP and valuation for the stakeholder-described positive and negative care outcomes respectively.

Figure 5.11: Distribution of percentage willingness to pay for positive outcomes of care

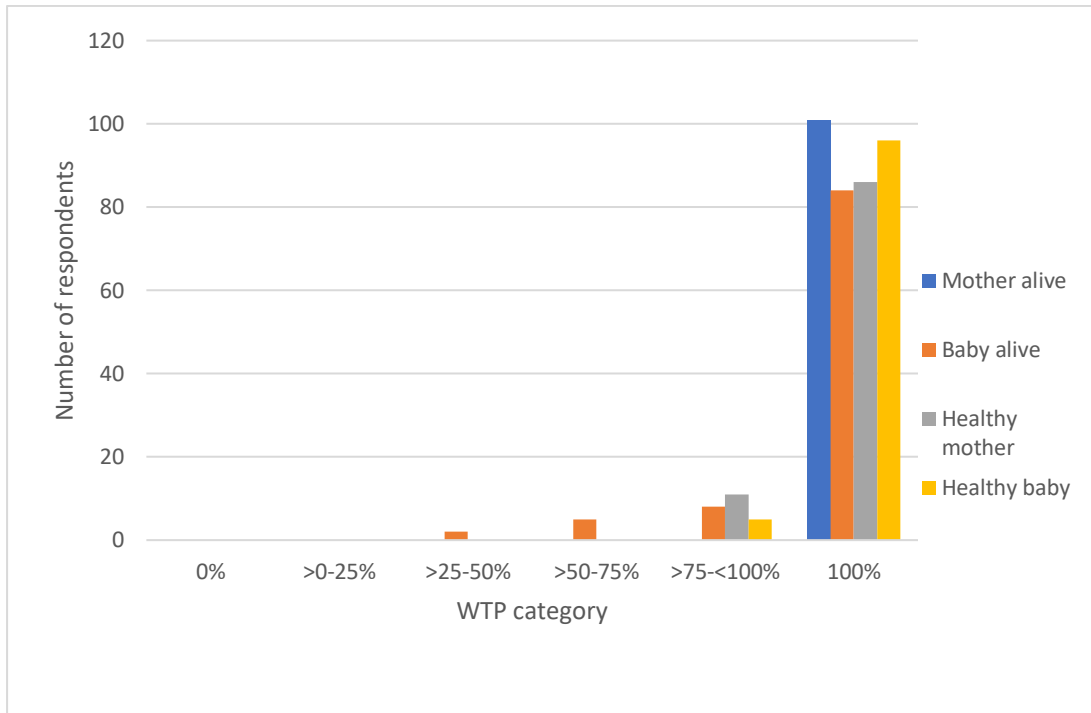


Figure 5.12: Distribution of percentage willingness to pay to avoid negative outcomes of care

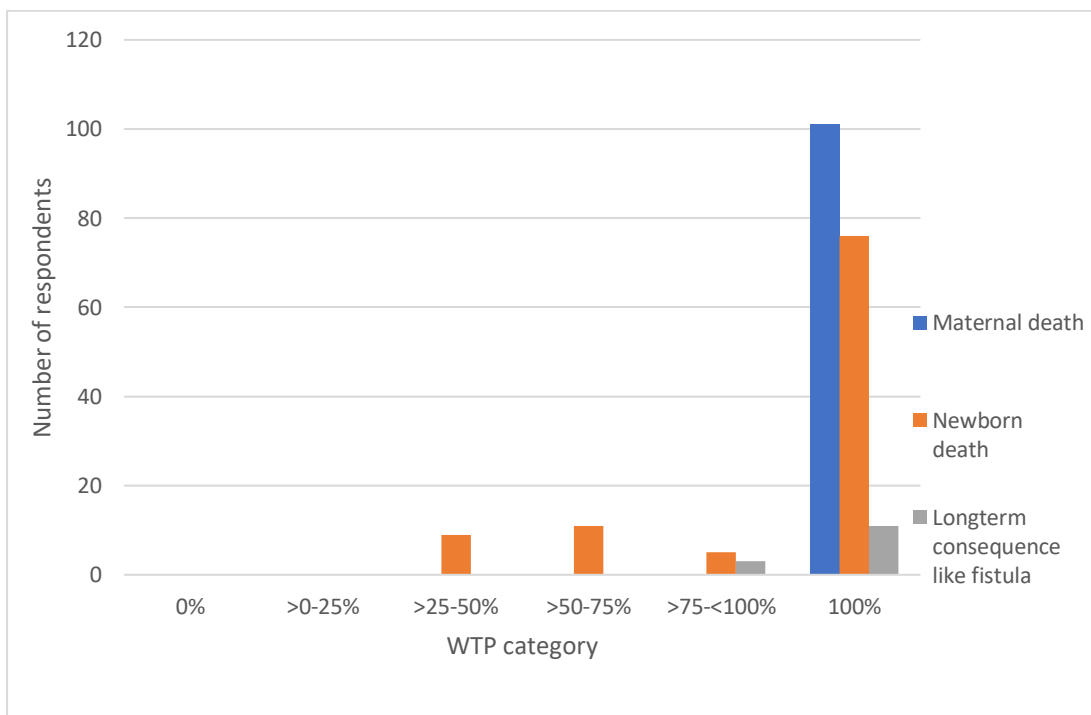


Figure 5.13 and Figure 5.14 show distribution of WTP and valuation for negative outcomes of care given by respondents respectively.

Figure 5.13: Range of valuation of respondents for positive outcomes of care

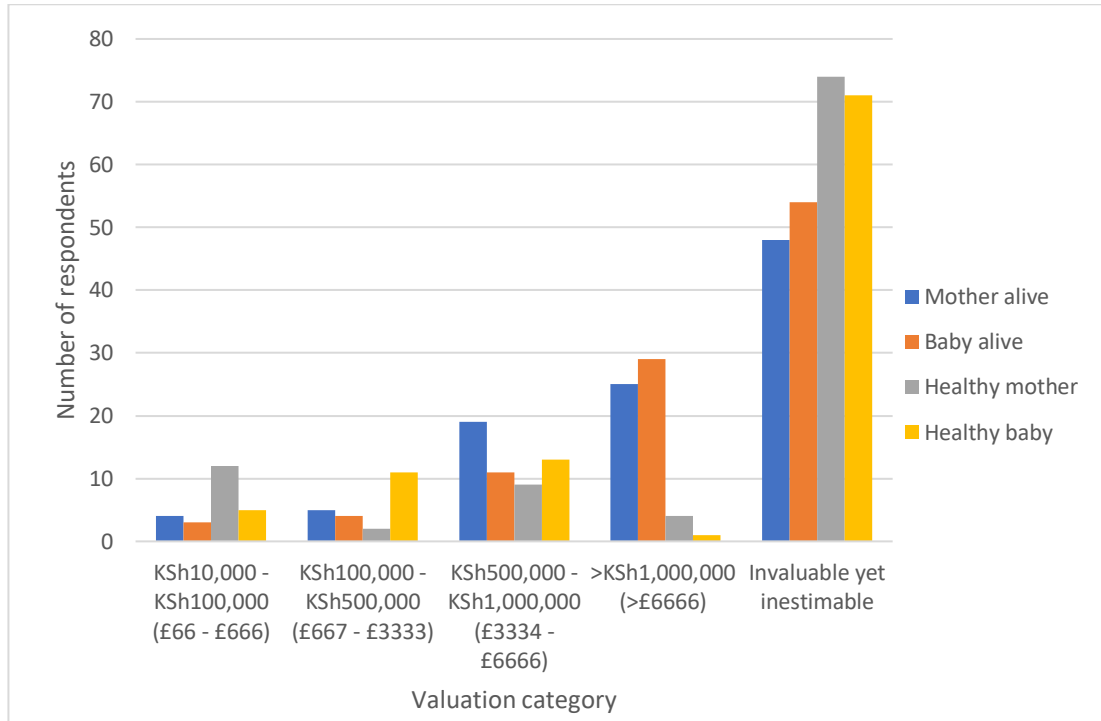
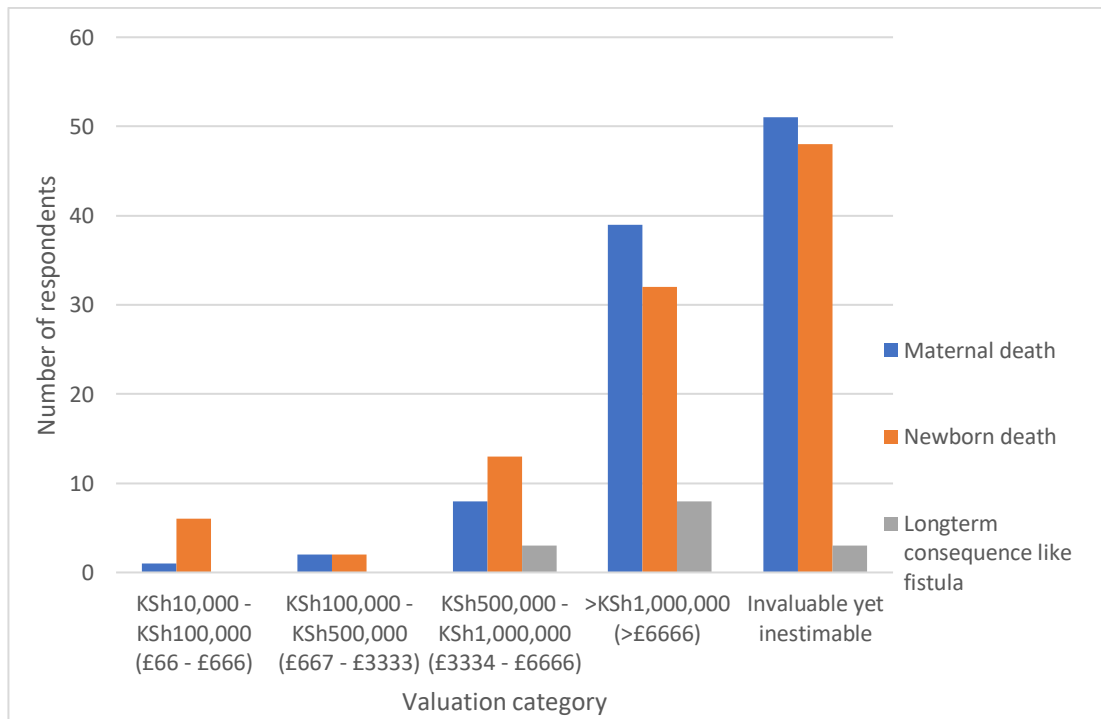


Figure 5.14: Range of valuation of respondents for negative outcomes of care



*Conversion rate: £1 – KSh150

*Purchasing Power Parity (PPP): \$US1: £0.71: KSh40.43

Most women in the study expressed ‘willingness to pay’ (WTP) 100% of the total money available to them for the positive outcomes or to avoid the negative outcomes [Figure 5.11 and Figure 5.13]. However, the actual valuation of the care outcomes was difficult to estimate. It appeared that women were generally wary of putting a price tag on outcomes that related to their health and life [Figure 5.12 and Figure 5.14].

Willingness to pay for and valuation of ‘mother alive’ outcome

All 101 women who responded to this question were willing to pay all the money available to them to be alive after receiving care from trained HCPs [Figure 5.11]. When women were asked to mention the actual amount, they would be willing to pay, 48 of 101 respondents thought that it was “*inestimable yet invaluable*”, while 25 respondents valued the outcome more than £6,666 (KSh1,000,000), including two respondents who valued being alive as high as £66,666 (KSh10,000,000) [Figure 5.13]. There was no clear explanation given by the women for the valuations. However, women generally viewed being alive as a gift from a supernatural being and as such there was no price to pay for it, but if they had to pay, then it had to be significant.

“There is no amount of money that can buy life; it’s a gift from God!”

- Mother in CEmOC facility, PNC, 29 years, business, para 1

“I cannot quantify, but it is a lot of money. I can pay all the money that I have.”

- Mother in CEmOC facility, PNC, 28 years, teacher, para 1

Willingness to pay for and valuation of ‘baby alive’ outcome

Of 101 women who responded to this question, eight were willing to pay more than three-quarters but less than 100% of the money available to them (100%) to have their babies born alive after receiving care from trained HCPs. 84 were willing to pay all the money available to them to have their babies born alive after having received care from trained HCPs [Figure 5.11]. When women were asked to mention the actual amount that they would be willing to pay, 54 of 101 respondents thought that it was “*inestimable yet invaluable*”, 29 respondents valued the outcome more than £6,666 (KSh1,000,000), with the highest valuation being £16,666 (KSh2,500,000) [Figure 5.13]. Generally, women valued the lives of their babies high, but these valuations were not as high as the valuations the women put to being alive

themselves after care. The women opined that they needed to be alive to have other babies and move on with their lives.

“My baby’s life is important, but mine is also important. When I am alive, I can give birth to another baby, but if I die, it’s over. This is the reason why I placed a higher amount on mine.”

- Mother in CEmOC facility, PNC, 28 years, teacher, para 1

Willingness to pay for and valuation of healthy mother

Of 101 women who responded to this question, 86 were willing to pay all the money available to them to be healthy after receiving care from trained HCPs [Figure 5.11]. However, when women were asked to mention the actual amount they would be willing to pay for the outcome, 74 of 101 respondents thought that it was “*inestimable*” [Figure 5.13].

There was no clear explanation given by the women for the valuations. However, for many women who opined that the value of the outcome was “*inestimable*”, they thought the concept of being healthy was too abstract to have a value or was beyond a numerical cost.

“Being healthy is like having grace! You cannot explain why you have it, but you are grateful that you have it. For me, the value is uncountable.”

- Mother in BEmOC facility, PNC, 34 years, unemployed, para 3

Willingness to pay for and valuation of healthy baby

Of 101 women who responded to this question, 96 were willing to pay all the money available to have healthy babies after receiving care from trained HCPs [Figure 5.11]. However, when women were asked to mention the actual amount they would be willing to pay, 71 of 101 respondents thought that it was “*inestimable*” [Figure 5.13]. Like the ‘healthy mother’ outcome, there was no clear explanation given by the women for the valuations.

Willingness to pay to avoid and valuation of maternal death

All 101 women who responded to this question were willing to pay all the money available to them to be alive after receiving care from trained HCPs [Figure 5.12]. When women were asked to mention the actual amount that they would be willing to pay, 51 of 101 respondents thought that it was “*inestimable*”, 39 respondents valued the outcome more than £6,666

(KSh1,000,000), including eight respondents who valued avoiding maternal death as high as £66,666 (KSh10,000,000) [Figure 5.14].

Willingness to pay to avoid and valuation of newborn death

Of 101 women who responded to this question, 76 were willing to pay all the money available to them to avoid newborn death after receiving care from trained HCPs [Figure 5.12]. However, when women were asked to mention the actual amount they would be willing to pay, 48 of 101 respondents thought that it was “*inestimable*”, 32 respondents valued the outcome more than £6,666 (KSh1,000,000), 13 respondents valued the outcome between £3,333 (KSh500,000) and £6,666 (KSh1,000,000) and six valued the outcome between £66 (KSh10,000) and £666 (KSh100,000) [Figure 5.14]. Like valuation to avoid maternal death, there was no clear explanation given by the women for the valuations.

Willingness to pay to avoid and valuation of long-term consequences like fistula

Of the 14 women who responded to this question, 11 were willing to pay all the money available to them to avoid long-term consequences of receiving care from trained HCPs. The remaining three were willing to pay more than three-quarters but less than 100% of all the money available to them to avoid long-term consequences of receiving care from trained HCPs [Figure 5.12]. When women were asked to mention the actual amount that they would be willing to pay, three of 14 respondents thought that it was “*inestimable*” and 8 respondents valued the outcome more than £6,666 (KSh1,000,000) [Figure 5.14]. Women shared the concern that negative long-term consequences affected their chances of having subsequent pregnancies and their chances of staying married with their partners.

“For me, I will pay any amount to avoid fistula. I have seen the effect on one of my neighbours, and I never want it in my life. It will ruin you for yourself and your family.”

- Mother in BEmOC facility, PNC, 27 years, housewife, para 1

5.5.4.3 Financial proxies and values of outcomes from available evidence

Findings the financial valuation of the stakeholder-described outcomes presented above showed varied responses, including in most cases, inability for beneficiaries to place a value on the outcome. According to the SROI methodology guidelines, in such situations where it

is difficult to determine the precise value, financial proxies which provide estimates of financial value should be sort from the literature (Nicholls *et al.*, 2012). In this study, the Global Value Exchange (GVE) 2.0 platform created by the SROI Network (Social Value UK, 2017) was searched for relevant financial proxies for the intervention using the search term “maternal health”. No ‘hits’ were found. Subsequently, evidence from the literature was explored to justify the selection of relevant financial proxies for the stakeholder-described outcomes [Table 5.8]. Insight from enquiries with the stakeholders guided selection of the financial proxy estimate. Ranges of the financial proxies were used for the sensitivity analysis conducted as part of this research.

Table 5.8: Financial proxies of material stakeholder described outcomes

Stage 3					
Stakeholders	Outcomes	Financial proxy	Financial proxy (KSh)	Financial proxy (£)	Source and justification
MiH trained skilled birth attendants	Improved knowledge	Tuition fee paid for obstetrics posting in Kenyan medical school	114,791.50	780.58	Web sites of Kenyan medical schools
	Improved skill	Salary of mid-level HCP in Kenya	138,895.00	944.49	Kenya Medical Practitioners Pharmacists and Dentists Union
	Improved attitude with patients	User fee paid to access care	20.00	0.14	Government of Kenya
	Increased workload	User fee paid to access care	20.00	0.14	Government of Kenya
Women	Reduced maternal morbidity	Cost of care and hospital stay in public hospital	75,000.00	510.00	Kenyatta National Hospital
	Reduced maternal mortality	Value of statistical life of a woman in Kenya	17,171,547.10	116,766.52	Journal of Transport Economics and Policy
Neonates	Reduced neonatal morbidity	Cost of treating birth asphyxia*	-	-	Kenyatta National Hospital
	Reduced stillbirths	Cost of care and hospital stay in public hospital*	-	-	Kenyatta National Hospital
	Reduced neonatal mortality	Diaper price for the neonatal period	10,515.00	71.50	Xinhua market survey

* Cost often included in cost of care for the mother

Financial proxy for improved knowledge was sourced from the three most reputable medical colleagues in Kenya (Kenyatta University, University of Nairobi, Moi University) where the

average annual tuition fee for undergraduate medical students was 459,166KSh (Range: 450,000KSh at Kenyatta University to 467,500KSh at University of Nairobi) (Kenyatta University, 2016; Moi University, 2016; University of Nairobi, 2017). Obstetrics posting runs for three months in Kenyan medical schools. When the annual fee is divided by four, the posting is valued at 114,791.50KSh (Range: 112,500KSh at Kenyatta University to 116,875KSh at University of Nairobi) [Table 5.8].

For the outcome 'improved skills', the annual salary of medical officers, who are classed as mid-level HCPs in Kenya (Job group L) was used. Their annual salary ranges from 127,910KSh and 149,880KSh, with an average of 138,895KSh (Jamah, 2015) [Table 5.8].

For improved attitude with patients, the user fee of 20KSh that women were required to pay to access maternity care until the government abolished the fee in 2013 (Chuma and Maina, 2014; Opwora *et al.*, 2015) was selected as the financial proxy [Table 5.8].

For the 'increased workload' outcome that some HCPs in BEmOC facilities experienced as a negative outcome of the training, the user fee of 20KSh that women were required to pay to access maternity care until the government abolished the fee in 2013 (Chuma and Maina, 2014; Opwora *et al.*, 2015) was also selected as financial proxy [Table 5.8], as this outcome had a logical link to improved attitude with patient.

For mothers and their babies, the cost of care and hospital stay in public hospital for mother and inclusive of newborn care varies from 20,000KSh for normal delivery and 130,000KSh for caesarian section at the publicly owned Kenyatta National Hospital (KNH, 2015; Jacaranda Health, 2016). Average cost is, therefore, 75,000KSh [Table 5.8].

The value of a statistical life (VSL) is derived with a methodology called "willingness to pay to avoid death in relation to the years this person can expect to live according to the statistical life expectancy" (Viscusi, 2005). VSL is typically about 120 times GDP per capita (Miller, 2000). Based on Kenya's 2014 GDP per capita of US\$1,358.30, VSL was estimated 17,171,547.10KSh [Table 5.8].

To account for the financial value of the newborn remaining alive during the neonatal period, their cost of care for the period was chosen as a financial proxy. An assumption that all

newborns were breastfed was made, and as such, they only required diapers for the period. Diaper prices for a month range between 9,900KSh to 11,130KSh in Kenya (Mengo, 2012). The average cost for diapers (or napkins, as is commonly used by women in Kenya), therefore, is 10,515KSh for the neonatal period [Table 5.8].

5.6 Stage 4: Establishing impact

This sub-section establishes what would have happened without the training [SROI Stage 4]. Subsection 5.6.1 presents perspectives of beneficiaries on the proportion of the outcomes that occurred due to the training [subsection 5.6.1.1] or outcomes due to care received from trained HCPs [subsection 5.6.1.2]. In the subsequent sections, evidence of impact of the intervention as elaborated in the literature is presented [subsection 5.6.2].

5.6.1 Percentage attribution of outcomes to the intervention by beneficiaries

5.6.1.1 Attribution of training outcomes to the training

Figure 5.15 and Figure 5.16 show the distribution of percentage attribution by trained HCPs of the positive and negative outcomes to the training received respectively.

Figure 5.15: Distribution of percentage attribution of positive outcomes to training

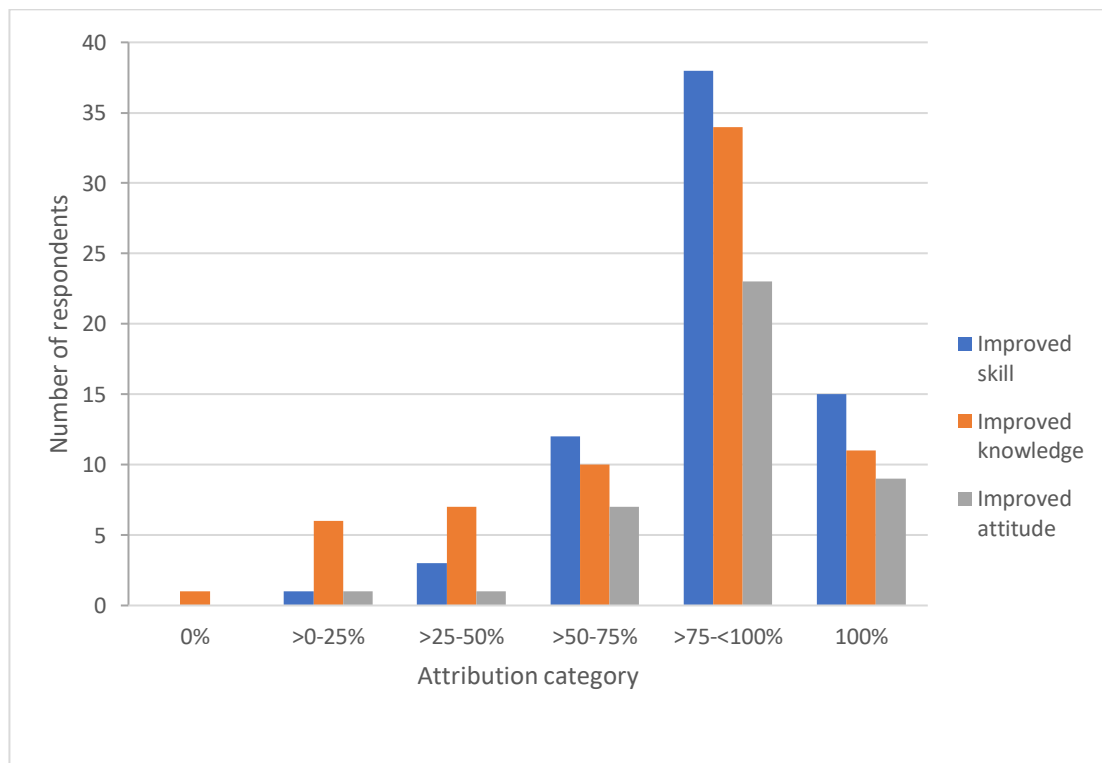
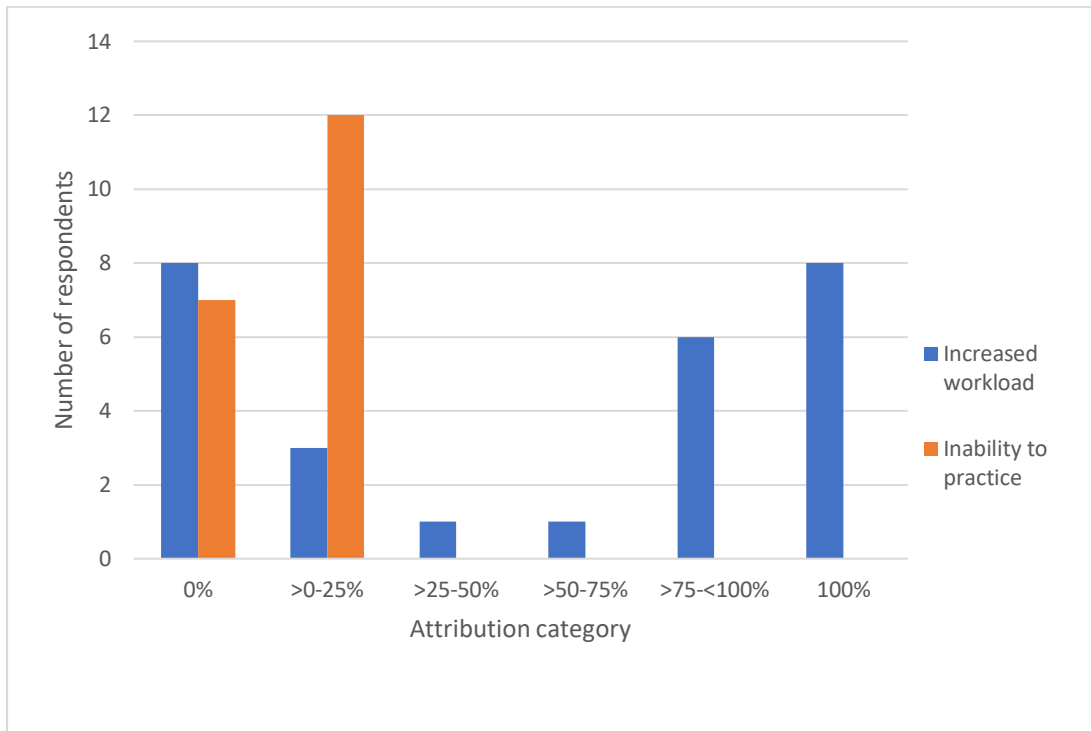


Figure 5.16: Distribution of percentage attribution of negative outcomes to training



Most participants appeared to attribute between 75% but less than 100% of their skill, knowledge and attitude with patients to the training [Figure 5.15]. For the ‘frustration due to inability to practice’ outcome, most trained HCPs attributed less than 25% but more than 0% to the training. While for workload, there were as many participants (eight) willing to attribute 0% of the outcome to the training as there were participants willing to attribute 100% of the outcome to the training [Figure 5.16]. The reasons given for the percentage attributions are presented in sub-sections below.

Percentage knowledge attributed to the training

Despite the variation in percentage attribution [Figure 5.15], the reason for attributing less than 100% to the training was very similar. Trained most HCPs opined that their knowledge was not due solely to the training, as they had previous knowledge and had continued to participate in various continuous professional development activities to further improve their knowledge.

“Knowledge is 25% because I was not a vacuum. There was a lot there before.”

- CEmOC midwife, 14 years’ experience, trained August 2014

“For me, the EmOC training has contributed 50% because I wasn’t so green. I was from college; there is still Internet, Google, OJT [On the job training]”.

- BEmOC midwife, 10 years’ experience, trained October 2014

“Knowledge is about 90%. I really did not feel knowledgeable before I went to EmOC training and I mean it. The way we were taught was very methodical.”

- BEmOC midwife, 5 years’ experience, trained March 2015

Percentage improvement in skill attributed to the training

Most trained HCPs respondents, pointed to the practical approach of the training as having significantly improved their skills. This was reflected in the relatively higher percentage attribution given by participants to improved skill, compared to other positive outcomes [Figure 5.15]. However, trained HCPs pointed out that their skill was not due solely to the training. This outcome was also attributed to practice and previous professional experience. The explanation for the different percentage attributions varied as described below.

“I am a qualified midwife. I was not zero. Of course, I would not have gotten my certificate if I was zero, the other percentage is from practice from previous work experience and here. So, I have worked in maternity for a long time. On skills, I have put 50% it has sharpened me more.”

- BEmOC midwife, 10 years’ experience, trained September 2014

“Medical school was normal, but when I came for the training, it really opened my eyesso that is why 75% of my skill I learnt from the training because now I have gone back a better doctor.”

- CEmOC doctor, 3 years’ experience, trained October 2014

“90% of my skills were gained from the training. For example, like vacuum extraction, I will not have attempted before, even though the apparatus was there and I didn’t know how to use it. So, after the training, I have improved on my skills because I’m doing it now. There are many other examples, breech delivery, shoulder dystocia. I struggled with them all before.”

- BEmOC midwife, 10 years’ experience, trained September 2014

Percentage improvement in attitude to patients attributed to the training

Attribution of the improved attitude in relating with patients varied widely. Most trained HCPs opined that the training had caused them to improve their attitude in relating with their patients [Figure 5.15]. Respondents opined that their better understanding of the quality care required of them to provide to their clients improved their attitude towards the patients.

“Before I had some attitude, I am certain all the patients who had encountered me before not all of them knew that I had bad attitude, so I could not have said the training changed my attitude 100% because ideally, I had some positive attitude... but I think it really improved it by say 75%. Because some of those negative attitudes are due to lack of knowledge on what to do to a patient or how to do you, so you cover up by being on the defence.”

- BEmOC midwife, 14 years' experience, trained August 2014

Percentage increase in workload due to training

Attribution of the increased workload to the training varied widely. While some trained HCPs opined that the workload had nothing to do with the positive outcomes gained from the training (0% attribution), others felt that the only reason for the increased workload (100% attribution) was because they had gained the positive outcomes of the training, such as improved skills and attitude to patients [Figure 5.16]. The HCPs appeared to argue if they had not been trained, the workload would have remained the same.

“I don't think increased workload has anything to do with the training. Patients will come anyway, whether or not we are trained. The only thing is where they go! They probably do not even know we are being trained. All they want is good care. For me, it is zero!”

- BEmOC midwife, 10 years' experience, trained September 2014

“For workload, I put 100%, because it was not there before and the only new thing is the training (laughter), everyone now expects you to do the work - supervisors and patients!”

- BEmOC midwife, 10 years' experience, trained September 2014

Frustration from inability to practice due to training

Of the 19 trained HCPs that responded to this question, 7 felt that the training had nothing to do with their frustration from inability to practice (0%), 12 felt that the training led to 25% of their frustration from inability to practice [Figure 5.16]. There was broad consensus that wider systemic issues such as ‘lack of supportive policies’ and ‘resistance to change’ rather than the training were more partly responsible for the inability of HCPs to practise what they have learnt from the training. They opined that the training contributed to the outcome because if they did not receive it, they would not have felt the need to do more. This is despite their existing expertise gained from school or previous professional experience. HCPs who argued against this position attributed the inability to practice outcome entirely to failings of the system, mostly because of the government, and not the training itself.

“There are other things that cause it [inability to practice], but truth be told if we were not trained, we would not be referring to not being able to practice because some of those things [what HCPs do for patients] never just mattered. We were not taught that way. All you do is refer!”

- BEmOC midwife, 10 years’ experience, trained September 2014

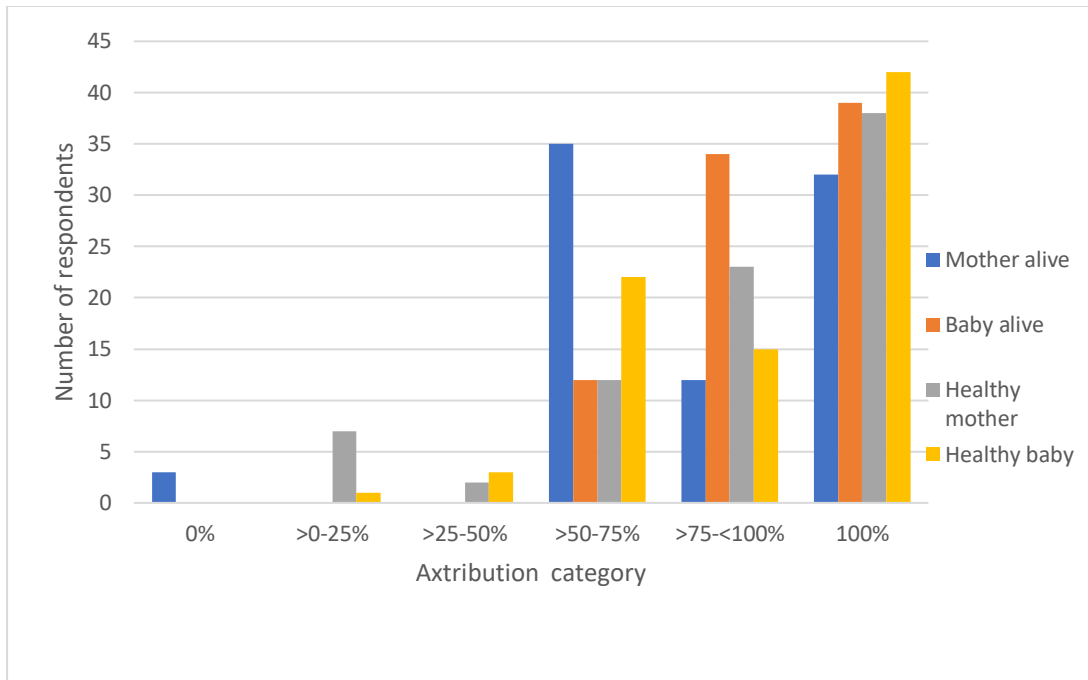
“For me, it’s a normal change process. If you want to change something, you will get resistance. It has nothing to do with the training! If you want to blame anyone, blame government. They are responsible for policies to institutionalise change.”

- CEmOC doctor, 4 years’ experience, trained September 2013

5.6.1.2 Attribution of care outcomes to a trained health care provider

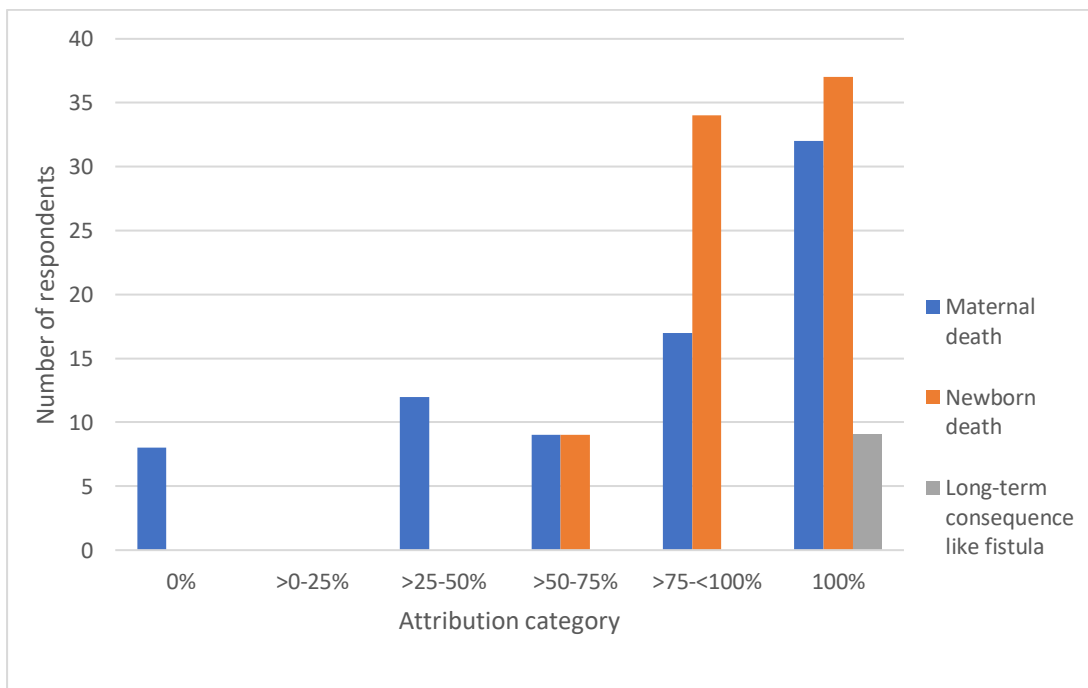
Figure 5.17 shows the distribution of percentage attribution of stakeholder-described positive as provided by women. Most women (32 of 82 respondents (39%)) associated 100% of the ‘mother alive’ outcome to the HCP. Most women (39 of 85 respondents (46%)) associated 100% of the ‘baby alive’ outcome to the HCP. Most women (38 of 82 respondents (46%)) associated 100% of the ‘healthy mother’ outcome to the HCP. Most women (42 of 83 respondents (50%)) associated 100% of the outcome to the HCP [Figure 5.17]. Generally, it appeared that women attributed more of positive outcomes that had to do with the newborn to the trained HCP.

Figure 5.17: Distribution of percentage attribution of positive outcomes due to care



[Figure 5.18](#) shows the distribution of percentage attribution of stakeholder-described negative outcomes as provided by women. Most women (32 of 78 respondents (41%)) associated 100% of the ‘maternal death’ outcome to the HCP. Amongst 80 respondents, 37 (46%) associated 100% of the ‘newborn death’ outcome to the HCP. All nine (100%) women associated 100% of having long-term consequences like fistula to the HCP [[Figure 5.18](#)].

Figure 5.18: Distribution of percentage attribution of negative outcomes due to care



The women believed that the occurrence of the outcomes could not be entirely attributed to intrinsic characteristics or capabilities of the HCP who provided the care to them. Other factors that the women identified included factors related to the woman herself and her family or simply just due to chance. These factors affected all the different outcomes that were proposed by the respondents. There was however no apparent relationship between the specific percentage attribution that the women suggested and their demographic characteristics (age, number of previous children or facility in which she received care). Reasons given for the percentage attributions are presented below.

“I have given the health worker almost everything because since I came, they have helped me, I could not have known the baby is fine. They check and make sure it is all fine! So, 80% is due to the health worker. 20% may be any other thing including myself. Never say never!”

- Mother in BEmOC facility, PNC, 32 years, tailor, para 3

“50% for the health worker, 50% for me. I still had to struggle by myself till I delivered my baby.”

- Mother in CEmOC facility, PNC, 25 years, housewife, para 1

“I will give 80% to the mother and 20% to the health worker. Several things affect outcome of delivery. Sometimes, the time a woman gets to the hospital matters. If you don’t have the family support, like somebody to help you when you are in labour, then there can be negative outcomes that health workers cannot help.”

- Mother in BEmOC facility, PNC, 25 years, housewife, para 1

“Health worker is 100%. During the first delivery, mothers don’t know how to cope, so health workers are the ones who teach us many things like breathing, pushing and how to avoid injuring the baby. When you are giving birth, you get disorientated, and it’s the health worker who will assist you.”

- Mother in BEmOC facility, PNC, 23 years, university student, para 1

“I will not give the doctor much, but it is also difficult to give the mother much in some cases. For instance, it was not the mother’s wish to give birth to a big baby, in this case, one cannot give a high percentage. However, if she got a big baby and did not seek treatment, then I will attach about 70% of any negative outcome to her.”

- Mother in BEmOC facility, PNC, 22 years, housewife, para 2

5.6.2 Evidence from literature: deadweight, displacement, attribution and drop-off

As it was difficult to consensus amongst stakeholders on percentage attribution to the intervention, evidence was sought from the literature. In cases where there was not supportive evidence found in the literature, then the most prevalent value proposed by beneficiaries was used. [Table 5.9](#) presents percentages for deadweight, displacement, attribution and drop-off used for the analysis.

Table 5.9: Percentages for deadweight, displacement, attribution and drop-off

Stage 4					
Stakeholders	Stakeholder-described outcomes	Deadweight	Displacement	Attribution	Drop-off*
MiH trained HCPs	Improved knowledge	25%	0%	0%	-
	Improved skill	25%	0%	0%	-
	Improved attitude with patients	25%	0%	0%	-
	Increased workload	25%	0%	0%	-
Women	Reduced maternal morbidity	0%	0%	0%	-
	Reduced maternal mortality	0%	0%	50%	-
Neonates	Reduced neonatal morbidity	0%	0%	0%	-
	Reduced stillbirths	-	-	-	-
	Reduced neonatal mortality	0%	0%	0%	-

*Drop-off not relevant for evaluative-type SROI, as outcomes occurred within a one-year period.

For the base-case scenario, 25% was selected as deadweight for improved knowledge, improved skill, improved attitude with patients and increased workload [[Table 5.9](#)]. For outcomes that related to women and their newborns, 0% was used as deadweight. With the exception of maternal mortality, for which a 50% attribution percentage factor was used for the base-case scenario, all other outcomes had a 0% attribution percentage factor applied [[Table 5.9](#)]. The ensuing sub-sections provides justification for the selected percentages.

5.6.2.1 Deadweight - What would have happened without the training?

HCPs engaged in this research pointed out that they also sourced knowledge from continuous professional development (CPD) activities and built on the knowledge that they had previously. Similarly, for improved skills, HCPs opined that they also learnt from their own

practical experience, though the training made their approach to care more systematic. Most HCPs attributed 75% of both knowledge and skills to the training. As such, the significant improvement in knowledge and skills experienced by the HCPs following the training is deemed to have mostly happened because of the training. Deadweight is therefore 25% for both outcomes [Table 5.9].

For 'improved attitude with patients' and 'increased workload' which both led to an increase in the number of women visiting the facilities, deadweight for these outcomes were difficult to estimate. This was because the Free Maternity Service (FMS) scheme was implemented in 2013, just before the commencement of the training. Evidence suggests that there was a trend of gradual increment in the use of maternal health services across the continuum of care before and during the training (Ministry of Health Kenya, 2015). Based on estimates from the HCPs recruited as part of this research, the highest proportion agreed that 75% of the increment was because of the positive perception that women of them following the training. As such, 25% of the outcome would have happened anyway [Table 5.9].

The difference in the number of women who required and received EmOC at baseline compared to follow-up was included in the model. There was no indication that this increase in receiving EmOC would have occurred without the intervention. Evidence from engagement with the stakeholders supported this assumption. As such, deadweight was taken as 0% [Table 5.9]. Similarly, for newborn outcomes, the difference of the outcome from baseline to follow-up was included in the model. There was also no indication from the engagement with the stakeholders that these differences would have taken place anyway without the intervention. As such, deadweight was taken as 0% [Table 5.9].

5.6.2.2 Attribution – How much of the outcome was caused by the contribution of other organisations or people?

All 2,965 HCPs that were trained only received EmOC training from the MiH programme during the period of analysis. Evidence from the literature shows that 99.7% (approximately 100%) of HCPs improved their knowledge and skill in sub-Saharan Africa and Asia following the MiH EmOC training (the same EmOC training evaluated in this thesis) (Ameh *et al.*, 2016). As such, all training related outcomes were attributed to the training.

For the women, limited information is available on effect of training on maternal outcomes (Bergh, Baloyi and Pattinson, 2015). However, the available evidence in the literature showed that in Tanzania, EmOC training led to significant reduction in the incidence of PPH from 32.9 to 18.2% [RR 0.55 (95%CI: 0.44-0.69)] and severe PPH from 9.2 to 4.3% [RR 0.47 (95%CI: 0.29-0.77)] (Sorensen *et al.*, 2011; Dresang *et al.*, 2015). When EMOC signal functions are properly instituted, the evidence in the literature suggests that oxytocin leads to a 44% reduction in PPH morbidity compared with placebo (Westhoff, Cotter and Tolosa, 2013), 94% reduction in recurrence of convulsions with the use of MgSO₄ compared with Lytic cocktail (Duley, Gülmezoglu and Chou, 2010), 69% reduction in maternal serious infectious complications with the use of prophylactic antibiotics in women undergoing caesarean section compared to placebo (Smaill and Grivell, 2014) and 72% reduction in number of women with blood loss greater than or equal to 100 ml for women who had MVA compared to dilatation and curettage (D&C) in management of abortions (Tunçalp, Gülmezoglu and Souza, 2010). However, the comparators used in these randomised controlled trials were not the management protocols that HCPs would have instituted without EmOC training, as verified by trained HCPs engaged in this study.

Evidence from the literature shows that significant advances have been made in the prevention of some of the direct obstetric complications. However, it is known that even in the best of circumstances, many cannot be prevented. Exceptions include: postpartum haemorrhage reduction with active management of third stage of labour (Enkin *et al.*, 2001; McCormick *et al.*, 2002), reduction in complications of abortion by providing safe abortion as well as reduction in post-partum sepsis by paying attention to infection prevention during delivery, including limiting vaginal exams during labour to only essential (Dare, Bako and Ezechi, 1998). There was no specific evidence found that related EmOC training to obstetric fistula. However, an obstetric fistula rate of 0.08% of births as a proportion of neglected obstructed labour cases, which is considered low has been reported in the literature (Dolea and AbouZahr, 2003; Adler *et al.*, 2013). Since all the outcome data utilised in this study were based on programmatic data collected from facilities with HCPs that received training as part of the MiH programme, it was assumed that all outcomes were attributable to the training. Thus, attribution of 0% for reduced maternal morbidity was applied to the model for contributions made by other organisations and people [Table 5.9]. An assumption was made that the trained HCPs had all the equipment they needed to work within a supportive environment to support a reduction in morbidity.

with an estimate of 1.57 (95% CI 1.16, 2.06) per 1000 recently pregnant women in Sub-Saharan Africa (Adler *et al.*, 2013).

For the ‘reduced maternal mortality outcome’, evidence from a randomised controlled trial (RCT) conducted to assess the effect of EmOC on maternal mortality showed that availability of EmOC led to a 50% (0.50 [0.22–0.99]) reduction in maternal mortality (Ronsmans *et al.*, 1997). A more recent RCT showed significant MMR reduction in intervention hospitals compared to control hospitals (odds ratio [OR] 0.85, 95% CI 0.73-0.98, $p=0.0299$), but this effect was limited to capital and district hospitals, which mainly acted as first-level referral hospitals in this trial. There was no effect in second-level referral (regional) hospitals outside the capitals (OR 1.02, 95% CI 0.79-1.31, $p=0.89$) (Dumont *et al.*, 2013). However, multi-component interventions including EmOC training were assessed in these studies and not EmOC training solely (Ronsmans *et al.*, 1997; Dumont *et al.*, 2013), so it would have been erroneous to apply these figures to a SROI model. For this study, 50% of the reduction was attributed to receiving proper EmOC from trained HCPs [Table 5.9]. This was a conservative choice, based on insight from the engagement with stakeholders who suggested that multiple factors contribute to maternal mortality beyond just the training.

For newborns, researchers have reported significant reductions in Apgar scores <7 at 5 minutes, including a 50% reduction in HIE amongst newborns managed by HCPs post-training in the United Kingdom (Draycott *et al.*, 2006). In Kenya, another study showed a 30% reduction in the number of neonates with 5-minute Apgar scores <5 ($p=0.006$) (Spitzer *et al.*, 2014). However, studies have not reported any reductions in stillbirths (Draycott *et al.*, 2006; Dumont *et al.*, 2013). As such this was excluded from the analysis altogether. Since all the outcome data utilised in this study were based on programmatic data collected from facilities with HCPs that received training as part of the MiH programme, it was assumed that all outcomes were attributable to the training. As such, outcomes related to newborns were fully attributed to receiving care from trained HCPs. Thus, attribution of 0% for contributions made by other organisations and people was applied to the model [Table 5.9]. Like with the maternal health outcomes, an assumption was made that the trained HCPs had all the equipment they needed to work within a supportive environment to support a reduction in morbidity and mortality.

5.6.2.3 Displacement - Was the outcome created at the expense of another outcome?

The trainees could not attend to their daily clinical work while attending the training. However, the facility managers did not view the training as being disruptive to their regular service, since the rota was managed in such a way as to avoid any service disruptions. As such, displacement was set to 0% across all outcomes.

“The training does not affect our work. Those who need to go for training know ahead of time, so we can plan and ensure there is no disruption to our work”

- Facility manager-in-charge, BEmOC facility

5.6.2.4 Drop-off - How much had the outcome deteriorated over time?

For this evaluative SROI research, drop-off was not included, as it only covered outcomes of the past twelve months and did not include any future valuation.

5.7 Stage 5: Calculating the SROI

This subsection reports the calculations made to estimate SROI ratio of EmOC training in Kenya, sensitivity analysis, testing the various assumptions made in the modeling exercise and the payback period for the investment, as required for an evaluative-type SROI analysis (Nicholls *et al.*, 2012).

5.7.1 Inputs (Financial costs) of the EmOC training

[Table 5.10](#) summarises the total direct implementation cost of EmOC training in Kenya for the one-year period of EmOC training implementation (January 2014 – December 2014).

Table 5.10: Direct implementation costs by item

No.	Items	Total (KSh)	Total (£)	%
1	Training venue	2,325,000.00	16,089.40	1.5
2	DSA for facilitator (National faculty) (n=698)	33,722,000.00	233,362.02	21.6
3	DSA for facilitator (UK faculty) (n=85)	7,342,900.00	50,814.13	4.7
4	International travel (UK faculty) (n=85)	12,282,925.00	84,999.95	7.9
5	Visa/Vaccinations/Airport transfer/Faculty training manual (UK faculty) (n=85)	2,125,000.00	14,705.36	1.4
6	DSA for participant (n=2965)	50,054,000.00	346,382.25	32.1
7	Participant training manual (n=85)	1,779,000.00	12,310.98	1.1
8	Training equipment	46,345,526.53	320,718.98	28.0
	TOTAL	155,976,351.53	1,079,383.07	100.0

The total direct training implementation cost for the partial external support implementation approach done in Kenya in the year 2014 was **£1,079,383** [Table 5.10]. Other costs such as core costs (central management, monitoring and research and dissemination of findings), overheads and external evaluation (DFID, 2012) were excluded from the analysis. Daily Subsistence Allowance (DSA) paid to trainees constituted the largest portion of the implementation costs (32%), followed by costs of training equipment (28%). Printing of training manuals which made up approximately 1% of the cost was the least budget item [Table 5.10]. No other stakeholder made any financial input to the intervention [Table 5.11].

Table 5.11: Stakeholder group inputs, financial valuation and justification

Stage 2				
S/No.	Stakeholders	Input	Cost (£)	Justification
1	MiH trained HCPs	Time Travel	0 0	^ ^
2	Women who have received EmOC from trained HCPs	Time Travel	0 0	* *
3	Neonates delivered to women who received EmOC from trained HCPs	Time	0	*
4	UK based volunteer trainers	Time Travel	0 0	Volunteer trainers are not paid on the MiH programme. However, the value of their time and expertise is included in the sensitivity analysis. ^
5	National trained facilitators	Time Travel	0 0	^ ^
6	Immediate family members of women who received EmOC	Time	0	*
7	Health facility managers	Time	0	*
8	County Department of Health	Time	0	*
9	National Ministry of Health	Time	0	*
10	Centre for Maternal Newborn Health	Time Skill Wages	0 0 0	The value of all inputs are included in the project funding provided by DFID.
11	Department for International Development	Funding Time Skill	1,079,383 0 0	Funding provided for training in 2014 (<i>Budget breakdown presented in Table 5.10</i>). * *
12	Other organisations implementing similar capacity building interventions	Time Skill	0 0	* *
	TOTAL		1,079,383	

^Not estimated separately, as these monetary cost are already included in DFID funding.

*Not estimated at all as MiH EmOC training would go ahead to the same extent without the inputs.

Funding provided by the DFID was used to pay for the non-monetary inputs contributed by all the other stakeholders, except the time contributed by UK based volunteer facilitators, who facilitate the trainings, since this was done on a volunteer basis. Economic costs, such as the opportunity costs of trained HCPs missing clinical work was not included, since the HCPs received DSA for their attendance. As such, the total financial cost of inputs across all stakeholder groups during this period remained **£1,079,383** [Table 5.11]. During the period under review, 93 courses were conducted across 44 training venues in Kenya. Due to data protection agreement, the full breakdown of the total direct implementation costs across these training venues cannot be made publicly available. However, it can be made available on request [Appendix 6].

Modelled implementation costs of the other two training implementation models (full external support and franchise-quality assurance) are reported later in this study and used for sensitivity analysis presented later in this chapter.

5.7.2 Output of the EmOC training

The outputs are the training were the trained HCPs. From programme data, **2,965** HCPs (1,222 from BEmOC facilities and 1,743 from CEmOC facilities) were trained in Kenya across the 93 courses conducted in the year 2014. To calculate cost per output (cost-efficiency) of the training, the input [Table 5.11] is divided by the output.

$$= \frac{\text{Total cost of intervention}}{\text{Number of trained HCPs}}$$

$$= \frac{1,079,383.07}{2965}$$

The cost per trained HCP is **£364.00**. The cost per trained HCP per day is **£72.80**.

5.7.3 Financial valuation of EmOC training outcomes

To estimate the financial valuation of each of the outcomes under analysis, based on the selected financial proxies presented in Table 5.8, the following formula was used:

((financial proxy for outcome x quantity of outcome)

-

(deadweight + displacement + attribution))

x

duration (adjusted for drop off and discount rate)

This calculation was done for each row of the impact map [reported fully in [Appendix 7](#)].

[Table 5.12](#) shows a summary table of the financial valuation of each stakeholder-described outcome after discounting for deadweight, displacement and attribution.

Table 5.12: Financial valuation of outcomes

Stage 3			Stage 4				Impact
Stakeholders	Stakeholder-described outcomes	Financial valuation of outcomes	Deadweight	Displacement	Attribution	Drop-off	
MiH trained HCPs	Improved knowledge	1,937,405.02	25%	0%	0%	-	1,453,053.77
	Improved skill	2,777,733.33	25%	0%	0%	-	2,083,299.99
	Improved attitude with patients	7,688.35	25%	0%	0%	-	5,766.26
	Increased workload	1.989.95	25%	0%	0%	-	1,492.46
Women	Reduced maternal morbidity	2,030,820.00	0%	0%	0%	-	2,030,820.00
	Reduced maternal mortality	16,113,779.80	0%	0%	50%	-	8,056,889.90
Neonates	Reduced neonatal morbidity	0.00*	0%	0%	0%	-	0.00
	Reduced stillbirths	-	-	-	-	-	-
	Reduced neonatal mortality	118,836.32	0%	0%	0%	-	118,836.32
TOTAL							13,747,173.78

* Cost often included in cost of care for the mother

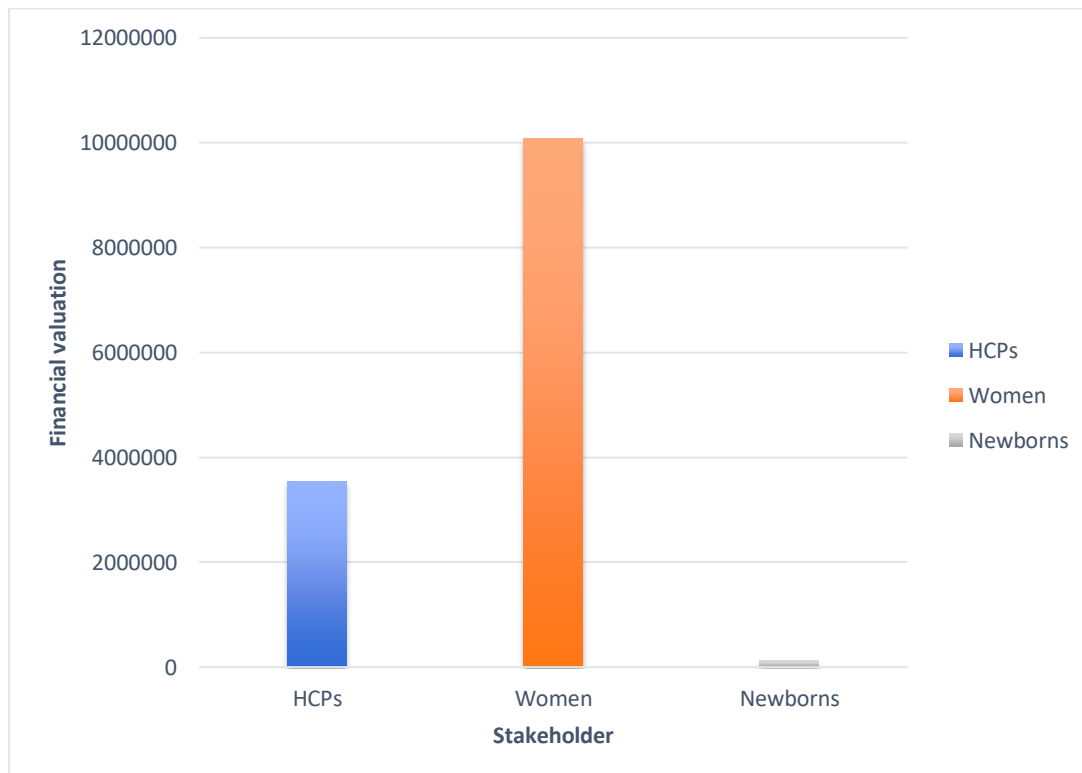
The total financial valuation of the intervention’s social impact was the sum of all the impact calculations for each outcome. The total social impact for one year of EmOC training was valued at **£13,747,173.78** [Table 5.12].

Reduced maternal mortality contributed to the largest proportion of the social impact created by the intervention followed by improved skills experienced by trained HCPs (£8,056,889.90) and then reduced morbidity experienced by women who received care from trained HCPs (£2,030,820.00) [Table 5.12].

Improved attitude with patients (£5,766.26) and increased workload (£1,492.46) contributed the least to the overall financial valuation of the training outcomes [Table 5.12].

Figure 5.19 shows the relative proportions of social impact created for each stakeholder group. Women benefited the most from the EmOC training of HCPs (£10,087,709.90 (73% of total social impact)). This is followed by the trained HCPs themselves (£3,540,627.57 (26%)) and then the newborns (£118,836.32 (1%)) [Figure 5.19].

Figure 5.19: Percentage distribution of financial valuation per beneficiary



5.7.4 SROI of EmOC training

When the total outcome valuation [Table 5.12] is divided by the total direct financial implementation costs [Table 5.11], the SROI ratio of the EmOC training intervention comes to 11.02: 1.00. The calculation is described below:

= Total financial valuation of outcomes

Total financial cost of inputs

= 13,747,173.78

1,247,478.00

= 11.02

This means that for every **£1** invested in training HCPs in EmOC in Kenya there is **£11.02** of social impact created.

Using the Purchasing Power Parity (PPP) factor for the year the training was implemented (I\$1: £0.71: KSh40.43), it means I\$1 leads to I\$15.52.

The net SROI is calculated by deducting the initial investment (total input) from the total financial valuation of the outcomes and then divide the resulting net present value (NPV) by the value of the input.

= Total financial valuation of outcomes - Total financial cost of inputs

Total financial cost of inputs

= 13,747,173.78 - 1,247,478.00

1,247,478.00

= 10.02

This means that for every **£1** invested in training HCPs in EmOC in Kenya there is **£10.02** of net social impact created.

5.7.5 Sensitivity analyses

Different one-way sensitivity analyses were undertaken to determine the key determinants of the SROI ratio. This allows tests of the assumptions made and determines their impact on the final SROI calculation. Ranges tested were based on those found in reviewing the literature and from those defined by beneficiaries of the intervention during the discussions and interviews.

5.7.5.1 Input scenarios

For input scenarios, the estimated costs of the different implementation models were tested. For the base case scenario, the partial external support implementation, involving between two and six UK-based facilitators who support national faculty, which was actually used to deliver the training in Kenya was used. For the sensitivity analyses, the other two implementation approaches - full external support implementation approach (worse-case scenario) and the franchise - quality assurance implementation approach (better-case scenario) (fully described in [sub-section 4.3.2](#)) were tested. If the entire faculty were UK-based, the cost of implementation would come to £2,126,626.75, and the estimated SROI would be £6.46. If the entire faculty was made up of nationals based in Kenya supported by one UK faculty for quality assurance every sixth training, the cost of implementation would come to £986,514.72, and the estimated SROI ratio would be £13.94 [[Table 5.13](#)].

Table 5.13: Sensitivity analysis of inputs

Element	Base case scenario	Worse-case scenario	SROI ratio	Better-case scenario	SROI ratio
Cost of implementation					
Implementation model	85 UK faculty; 698 national faculty	783 UK based faculty; 0 national faculty	6.46	783 national faculty + 1 UK faculty for quality assurance every sixth training	13.94

In addition, a scenario involving paying consultant fee to the volunteer trainers (UK-based and national) was tested. If the ‘volunteers’ were paid a fee for their service, a consultant fee of £350 per day has been estimated (DFID, 2012). For the five-day training, this would amount to £1,750 per trainer and a total of £1,370,250 for all 783 trainers. If this is added to the

actual cost of implementation (£1,247,478), the cost of implementation comes to £2,617,728, and the SROI ratio comes to £5.25.

5.7.5.2 Outcome scenarios

Assumptions around values of financial proxies, attribution and deadweight used for the base-case scenario of the outcomes were tested [Table 5.14].

Table 5.14: Sensitivity analysis of outcomes

Element	Base-case scenario	Worse-case scenario	SROI ratio	Better-case scenario	SROI ratio
Financial proxies of outcomes					
Improved knowledge	780.58	765.00	11	794.75	11.04
Improved skills	944.49	869.79	10.89	1019.18	11.15
Improved attitude with patients	0.14	0.00	11.02	0.17	11.02
Increased workload	0.14	0.00	11.02	0.17	11.02
Reduced maternal morbidity	510	136	9.83	884.00	12.21
Reduced maternal mortality	116766.52	-	-	-	-
Reduced neonatal morbidity	0	-	-	-	-
Reduced stillbirths	0	-	-	-	-
Reduced neonatal mortality	71.5	67.32	11.01	75.68	11.03
Estimates of deadweight					
Improved knowledge	25%	50%	10.63	0%	11.41
Improved skills	25%	50%	10.46	0%	11.58
Improved attitude with patients	25%	50%	11.02	0%	11.02
Increased workload	25%	100%	11.02	0%	11.02
Reduced maternal morbidity	0%	25%	10.61	0%	11.02
Reduced maternal mortality	0%	25%	7.79	0%	11.02
Reduced neonatal morbidity	0%	25%	11.02	0%	11.02
Reduced stillbirths	0%	25%	11.02	0%	11.02
Reduced neonatal mortality	0%	25%	11.02	0%	11.02
Estimates of attribution					
Reduced maternal mortality	50%	75%	7.79	25%	14.25
Combination of all scenario			2.18		16.60

- Changes in financial proxies of outcomes: For the base case, excluding the statistical value of life used as a financial proxy for maternal lives saved, all other values were based on averages. For the sensitivity analysis, the upper border of the range was selected as the best-case scenario and the lower border selected as the worse-case scenario [Table 5.14].

- Changes in estimates of deadweight: For the base case, 25% deadweight was selected for what would have happened to the outcomes experienced by the HCPs without the intervention. For the sensitivity analyses, an assumption made that all the value created was due to the intervention. That is, 0% of the outcome would have happened without the intervention (Better-case scenario). The worse-case scenario was that only 50% of the outcome would have happened without the intervention. For outcomes experienced by women and their newborns, 0% was selected for the base-case scenario while 25% was selected for the worse-case scenario. No better-case scenario was estimated [Table 5.13].
- Changes in estimates of attribution: For the base case, 50% attribution was selected for what was due to other organisations or people. A range between 25% (better-case scenario) and 75% (worse-case scenario) was chosen for sensitivity analysis [Table 5.13].

Each variable was assessed, and it was found that most changes around the financial proxies used for the analysis did not have a significant impact on the result, thereby providing a degree of confidence over the figures used. The most significant variation in the SROI ratio was around the 'reduced maternal morbidity' outcome (£9.83 - £12.21) [Table 5.14]. No intervals were estimated around the financial valuation of maternal lives saved since this was calculated based on the GDP of Kenya at the time of analysis.

Based on the estimates used for displacement and attribution, the widest variation was around the SROI ratio was for the reduced maternal mortality ((£7.79 – £11.02) and (£7.79 – £14.25) respectively)) [Table 5.14]. It was not necessary to conduct any sensitivity analysis around drop-off or displacement since there was no logical explanation for these to occur based on insights from engagement with the stakeholders and evidence from the literature.

When all the worse-case scenario relating to the outcomes were combined, the value of outcomes comes to £2,719,502.04, and the estimated SROI ratio was 2.18, and when the better-cases were all combined, the value of outcomes comes to £20,708,134.80, and the estimated SROI was 16.60 [Table 5.14].

As mentioned above, the outcome of reduced incidence of fistula could not be included in the SROI model, as the indicator for the outcome is not routinely collected as part of the MiH programme [subsection 5.5.1]. As such, using the available evidence in the literature of 0.08% (Dolea and AbouZahr, 2003; Adler *et al.*, 2013) and assuming that EmOC training would ensure that all obstetric cases were avoided, the outcome of reduced incidence of fistula following EmOC training was added to the base-case scenario. With 3,982 more women who required EmOC receiving it, that means that three women (0.08% of 3,982) would not develop obstetric fistula after delivery. Average cost of fistula surgery is \$586 (£448) for each woman (Fistula Foundation, 2016). Adding the financial valuation of this outcome for the three women to the SROI model yields the same ratio of **£11.02**.

5.7.5.3 Combining input and outcome scenarios

When the best-case scenario for outcomes (£20,708,134.80) is combined with paid trainers who are all locally based in Kenya (£2,356,764.72), the estimated SROI comes to £8.79. When the worst-case scenario for outcomes (£2,719,502.04) is combined with paid trainers who are all based in the UK (£3,496,876.75), the estimated SROI comes to £0.78.

5.7.6 Payback period

The basic formula to calculate the payback period of months is:

$$= \frac{\text{Total financial valuation of inputs}}{\text{Total financial valuation of outcomes for the year}/12}$$

$$= \frac{1,247,478.00}{13,747,173.78/12}$$

$$= 1.1 \text{ months}$$

This means that investments made to implement EmOC training were recovered in one month and three days.

Key Points

Chapter 5

Results

- Based on findings from the stakeholder analysis, the primary beneficiaries of EmOC training were trained HCPs, women and newborns who received care from them. These beneficiaries were included in the SROI impact map.
- In mapping the intervention's theory of change, programme accounts showed that the total direct financial cost of implementation across all stakeholder groups was £1,079,383. For output, 2,965 HCPs were trained across 93 courses in the year 2014. The cost per trained HCP is £364.00 and cost per trained HCP per day is £72.80.
- HCP defined outcomes were 'improved knowledge', 'improved skill', 'improved attitude', 'increased workload' and 'increased frustration in applying learnt skills' for HCPs. While outcomes for women and newborns were 'reduced maternal morbidity', 'reduced maternal mortality', 'reduced incidence of obstetric fistula', 'reduced neonatal morbidity', 'reduced stillbirths' and 'reduced neonatal mortality'. 'Increased frustration in applying newly learnt skills' and 'reduced incidence of obstetric fistula' were deemed materially insignificant and thus excluded from the analysis. While evidence from the literature supported the occurrence of the other outcomes.
- 2,482 (83.7%) and 2,941 (99.2%) experienced at least 10% improvement when their post-test scores are compared to pre-test scores for knowledge and skills respectively. Compared to the baseline, 56,532 more women came to the facilities with MiH trained HCPs for delivery in the follow-up year. 3,982 more women received the care that they needed and 138 maternal lives were saved. 2,612 more babies were referred to Newborn Care Unit for birth asphyxia. 1,145 stillbirths were averted and 1,662 more newborn lives were saved.
- Attribution, duration, valuation and willingness to pay for outcomes from stakeholder perspectives were difficult and variable. However, they provided insights from searches of relevant values in the literature.
- The total social impact for one year of EmOC training was valued at £13,747,173.78. Women benefited the most from EmOC training of HCPs (£10,087,709.90 (73% of total social impact)). This is followed by the trained HCPs themselves (£3,540,627.57 (26%)) and then the newborns (£118,836.32 (1%)). Reduced maternal mortality contributed to the largest proportion of the social impact created by the intervention followed by improved skills experienced by trained HCPs.
- Based on the calculation, for every £1 invested in training HCPs in EmOC in Kenya there is £11.02 of social impact created and net SROI was £10.02. Payback period for the investment is one month and three days.
- All the scenarios tested guaranteed value-for-money with SROI > 1, except when the worse-case scenario for outcomes (£2,719,502.04) is combined with paid facilitators based in the UK (£3,496,876.75), the estimated SROI comes to £0.78.

6 Discussion

6.1 Overview of the chapter

The chapter starts by stating the main findings of this study. It then proceeds to draw on the key findings to situate them within the existing literature. Specifically, the findings are discussed under sub-headings that link to the objectives of the research – Stakeholder mapping highlighting the beneficiaries of the emergency obstetric care training intervention, benefits of emergency obstetric care training and emergency obstetric care received following training and social return on investment of emergency obstetric care training. In doing this, notable new contributions of the research to the literature are highlighted.

Beyond the discussion of the actual results of the research, a critical analysis of the application of the social return on investment methodology and its application for value-for-money assessments in the maternal and newborn health area is then discussed. Following which strengths and limitations are discussed. Implications of the research findings for policy and practice as well as those for future research are then presented.

6.2 Background

The aim of this study was to explore the application of the social return on investment (SROI) methodology to evaluate the social impact and value-for-money (VfM) of training health care providers (HCPs) in emergency obstetric care (EmOC). To the best of our knowledge, this was the first attempt to apply SROI to an EmOC training intervention.

To achieve the aim of the study, we set out to answer five research questions: 1) Who are the primary beneficiaries of EmOC training and EmOC received after training? 2) What are the outcomes that beneficiaries attribute to EmOC training and EmOC received after training? 3) What financial value do beneficiaries put on outcomes attributed to EmOC training and EmOC received after training? 4) What is the evidence base in the literature and programme data regarding outcomes attributed to EmOC training and EmOC received after training? and 5) What is the social return on investment on EmOC training implemented in Kenya? The following subsections summarise the main findings of this research in response to these questions and discuss them within the context of the wider literature.

6.3 Summary of research findings

Our findings show that trained HCPs, women who received care from them and their newborns are the primary beneficiaries of EmOC training. From discussions with trained HCPs, key themes that emerged were that training led to positive outcomes including improved knowledge, skills and attitude with patients. However, there were some concomitant negative outcomes including increased workload because of new patient expectation and frustration from inability to practice what was learnt reported by some HCPs. Women who received care from trained HCPs had positive opinions concerning the quality of care that they received. They expected positive outcomes including avoiding maternal and newborn morbidity and mortality. However, women affirmed that negative outcomes could occur, attributable to HCPs, themselves, their families or simply due to chance. These outcomes experienced by both HCPs and women who received care from them have been mostly reported in the literature and evidenced from programme data. However, 'increased workload' is reported as increased EmOC provision in the literature and 'increased frustration due to inability to practise what had been learnt following training' had not been directly linked to training previously.

Based on programmatic data, 2,482 (83.7%) and 2,941 (99.2%) experienced at least 10% improvement when their post-test scores are compared to pre-test scores for knowledge and skills respectively. Compared to the baseline, 56,532 more women came to the facilities with MiH trained HCPs for delivery in the follow-up year. 3,982 more women received the care that they needed and 138 maternal lives were saved. 2,612 more babies were referred to Newborn Care Unit for birth asphyxia. 1,145 stillbirths were averted and 1,662 more newborn lives were saved. For beneficiaries, estimation of attribution, duration, and financial value of these outcomes by the beneficiaries was difficult and variable. As such, values were sourced from the literature. An aggregate of the financial valuation of these outcomes showed that total social impact for one year was £13,747,173.78, with women benefitting the most from the intervention (73%). For the intervention itself, the total financial costs of inputs across all stakeholder groups was £1,079,383 for the 2,965 HCPs that were trained across 93 courses. The cost per trained HCP per day was £72.80. SROI ratio was calculated as £11.02: £1. The payback period for the investment was about one month. Based on the multiple one-way sensitivity analyses, the intervention guaranteed VfM (that is SROI ratio > 1) in all scenarios except when all the trainers were paid consultancy fees and the worst-case scenario for training outcomes occurred.

6.4 Interpretation of research findings

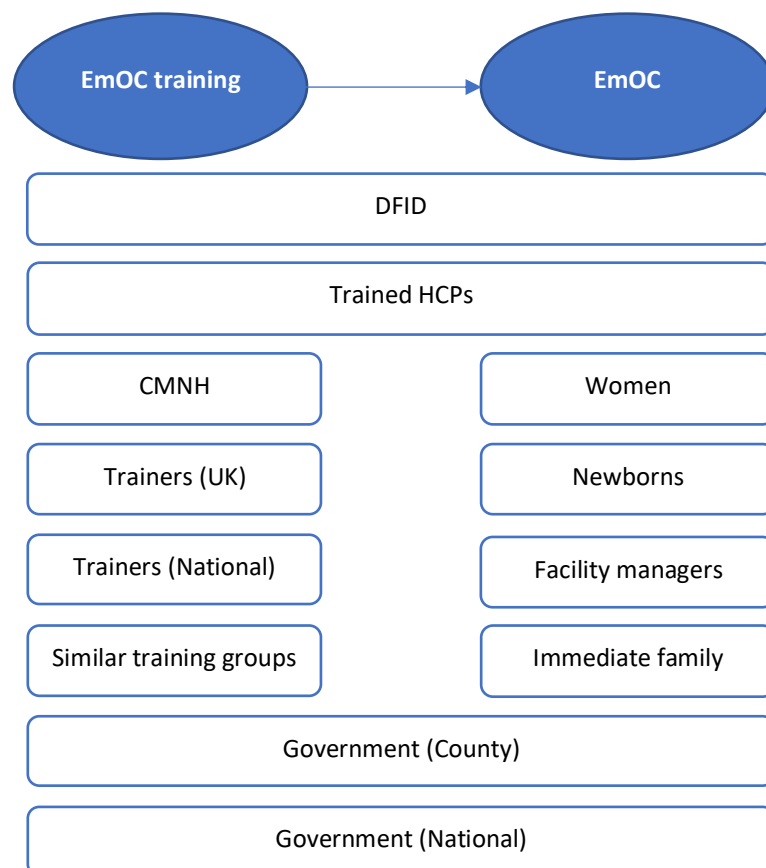
6.4.1 Stakeholders of EmOC training and care provided following training

According to the World Health Organization (WHO)'s guideline on stakeholder analysis (Schmeer, 2000), it is critical to establish the purpose of a stakeholder analysis upfront. The purpose of the stakeholder analysis conducted in this research was to provide input for the SROI analysis. This is one of the known uses of stakeholder analysis (Schmeer, 2000). Specifically, in the context of the research, the stakeholder analysis was needed to map the stakeholders and understand their roles in relation to the EmOC training and care received following training, in order to identify those who were 'material' beneficiaries, tangible enough to be included in the SROI analysis.

6.4.1.1 Relevant stakeholders of EmOC training and care received following training

From the findings of this research, 12 stakeholder groups were identified who were related to the training and/or the care that was provided following training [Figure 6.1].

Figure 6.1: Stakeholders relevant to EmOC training and care received after training



Namazzi et al. who conducted a stakeholder analysis of a community-based maternal health intervention to improve access to health care facilities for mothers, using the brainstorming technique, identified 11 stakeholders who constitute a similar spectrum of stakeholders as those involved in this research. In that study, the authors included the Ministry of Health, members of parliament, development partners, religious leaders, district leadership, district health team, health providers, public providers, private providers, households (women and men) and opinion leaders (community leaders and transporters) (Namazzi *et al.*, 2013). However, based on the profile of the maternal and newborn health (MNH) intervention being assessed in this research - EmOC training - which is a facility-based MNH intervention, there was no justification to specifically engage members of parliament (who are also part of the government) or opinion leaders (who would have been more relevant in community-based MNH interventions (Lassi and Bhutta, 2015; Perry *et al.*, 2015)).

6.4.1.2 Role of stakeholders in relation to EmOC training and care received after training

Findings from this research showed that the Department for International Development (DFID) provided funding to the Centre for Maternal and Newborn Health (CMNH) to implement the training. Similar bilateral and multilateral agency support has been provided for other EmOC trainings (Penny, 2000; Mekbib *et al.*, 2003; Santos *et al.*, 2006; Yau *et al.*, 2016), though national governments have also funded EmOC trainings (Kruk *et al.*, 2007). It is not unusual to have groups such as CMNH being funded to implement EmOC trainings in low-resource settings (Islam *et al.*, 2006). For this, there was a clear business case to justify the need for the training with the magnitude of expected outcomes estimated (DFID, 2012). The training itself was delivered by volunteer trainers based in the United Kingdom (UK) and locally in Kenya (Raven *et al.*, 2011; Ameh and van den Broek, 2015). Mook and colleagues estimated that contributions of volunteers, such as these trainers, account for almost a third of the value added by implementing organisations (Mook *et al.*, 2005). As such, it was critical to recognise the role that volunteers played in the EmOC training intervention assessed in this study.

HCPs were the direct recipients of the training. Though women who received care from HCPs may not have been aware of the EmOC training specifically, they expect that HCPs who manage them in situations of emergency during pregnancy and childbirth are skilled enough to provide the care that they require (Wright *et al.*, 2016). Since the training helps to build the capacity of HCPs to provide this care, women are the ultimate beneficiaries of the

intervention. HCPs engaged in this study posited that benefits that they gained from the training ultimately translated to improved outcomes of their patients (pregnant mothers and their babies).

County government representatives and facility managers organised and mobilised the staff that received training. A similar EmOC training intervention in Bangladesh had the government represented by the line director for in-service training of the Directorate General of Health Services coordinating all training activities (Islam *et al.*, 2006). Having local onsite support can help to ensure that potential training gains are maximised by avoiding retraining of previously trained HCPs while ensuring that facilities of most need receive training. These are key lessons that have been learnt from other reported implementation of EmOC training (Islam *et al.*, 2006; Ameh and van den Broek, 2015).

Organisations that are involved in the implementation of similar interventions are generally viewed as 'risk groups' who could negatively affect the achievement of the programme objectives (Schmeer, 2000). For the SROI methodology, it is important to account for effect of other groups/organisations who may be contributing to the outcomes of the intervention. In this study, organisations who implemented similar EmOC trainings viewed themselves as partners working towards the same objective of improving the capacity of HCPs in providing EmOC. Regular stakeholder meetings organised by the Ministry of Health, which brought development partners together was seen an important initiative that helped consolidate the efforts of various organisations implementing similar EmOC trainings. As such, the effects contributed by the various training initiatives would most likely be additive. Though it is also likely that other trainings have different content and format that may conflict with that of the programme being evaluated. However, there was no evidence of such conflicting information from different trainings attended reported in discussions with the stakeholders.

Overall, findings of this research did not show any conflict of interests or confusion in terms of expectations of roles. All stakeholders supported and bought into the intervention. This is an important factor which influences success of any intervention (as it makes stakeholder buy-in for the intervention easier) (Brinkerhoff, 1991; Davies, 1999), especially for a programme being implemented by external players. Acquiring the buy-in of stakeholders was one of the lessons learnt from implementing a similar competency-based EmOC training in Bangladesh (Islam *et al.*, 2006).

6.4.1.3 Stakeholders who were identified as beneficiaries of material significance

In this study, beneficiaries were defined as “those who experience the outcomes of an intervention”. Of the 12 stakeholders that were identified, only direct beneficiaries (trained HCPs) and ultimate beneficiaries (women identified to have received EmOC from trained HCPs and their newborns) were deemed to have experienced materially relevant and significant changes (Nicholls *et al.*, 2012) due to the EmOC training and the care received after training. Evidence in the literature suggests that HCPs who participate in competency-based trainings significantly improve their knowledge and skills following training (van Lonkhuijzen *et al.*, 2010; Grady *et al.*, 2011; Ameh, Adegoke, *et al.*, 2012; Bergh, Baloyi and Pattinson, 2015). In this study, the trained HCPs pointed out that they also passed on knowledge and skills gained from attending the training to colleagues (other HCPs) who had not participated in the training. However, these yet-to-be trained HCPs were not included in the study specifically, as they would have still received training of their own following their interaction with their trained colleague, since the target of the intervention was to train all maternity based HCPs. Thus, including yet-to-be trained HCPs may have resulted in double-counting. Evidence in the literature suggests that training has an impact on maternal and newborn health outcomes (Spitzer *et al.*, 2014), consistent with the inclusion of women and newborns as beneficiaries of the intervention.

Our engagement with the broader groups of stakeholders showed that there were other stakeholder groups who also deemed themselves as beneficiaries of the intervention. For example, husbands of the women engaged in the study posited that they benefited from outcomes of the care that their partners receive, if they are kept alive and healthy after pregnancy and childbirth. The literature suggests that women play significant roles in families including providing critical care for the children, contributions to household income and to general decision-making (Grindstaff and Trovato, 1990; Oyediran and Odusola, 2004; Wright *et al.*, 2016). As such, families would benefit from her being alive and healthy after delivery. For the community that the women reside, though they were not engaged directly in this research, evidence suggests that women make significant contributions to the community also (Linda, 1998). As such, the community benefits from her being alive and healthy after delivery. However, these contributions to both family and community could still have happened with or without the EmOC training, as such it is difficult to classify them as ‘real beneficiaries’ with any material change specifically due to EmOC training.

Similarly, the government may also benefit from a woman who is healthy and alive, as she can then contribute to the workforce and pay taxes. However, this such gains can only be acquired if the woman is gainfully employed and pays taxes. In Kenya, 62% of women are employed in the formal sector (World Bank, 2017), where mechanisms to collect taxes are more rigorous. In any case, potential gains of the woman being healthy and alive to the government would be captured in the value of statistical life the woman being alive, as this estimation includes her estimated tax contributions (Viscusi, 2005). As such, including the government in the analysis may lead to 'double counting' of outcomes, which is not in line with the principles of the SROI methodology (Nicholls *et al.*, 2012).

For the volunteer trainers who travelled to Kenya to help deliver the training, they "*felt they derived some satisfaction by 'making it happen' in many developing countries*" and "*helped sustain their feeling of self-worth*". Some authors described such feeling of self-worth as an "*image*" of one's self and a social reputation needing protection. Such "*selfish altruism*" has been associated with motivation to "*do good*" (Unger, 1991; Carpenter and Myers, 2010). In any case, the volunteer trainers would have explored "*elsewhere*" for opportunities to feel this self-worth if the training was not available to them. Similar views were documented in the experience of an EmOC training volunteer trainer who worked in Kenya (Rivers, 2015). Even if volunteer trainers were included, there have been questions raised by authors about the 'good vs. harm' that volunteer trainers coming from abroad do in low-resource settings like Kenya, including that they may be depriving local HCPs of their livelihood (Langowski and Iltis, 2011). As such, they were not considered as beneficiaries of material significance.

In addition to speaking with the stakeholders to evaluate if they experienced material change, materiality assessment also requires review of what peers have reported in the literature (Nicholls *et al.*, 2012). Evidence from systematic reviews of EmOC training effectiveness in the literature only highlighted material changes from such trainings as being experienced by the trained HCPs, women who received care from the HCPs and their newborns (van Lonkhuijzen *et al.*, 2010; Bergh, Baloyi and Pattinson, 2015). No reference was found in the literature regarding the relevance of other stakeholder groups to the intervention. As such, it made logical sense to exclude these other stakeholder groups from any SROI analysis.

6.4.2 Outcomes of EmOC training and care received after training

6.4.2.1 Outcomes of the training for trained HCPs

In this research, trained HCPs reported both positive and negative outcomes of EmOC training. However, in the literature, only positive outcomes of EmOC training have been reported, including increased knowledge and skills. For the stakeholder-described positive outcomes of increased knowledge and skills reported by trained HCPs, programmatic evidence supported this opinion as it showed that 83.7% and 99.2% of trained HCPs experienced at least 10% improvement when their post-test scores are compared to pre-test scores for knowledge and skills respectively. In the literature, a systematic review on the effectiveness of short EmOC training courses showed that such courses generally improved knowledge of participants (van Lonkhuijzen *et al.*, 2010). More recently, a study conducted across seven African countries including Kenya and two Asian countries on the outcomes of the EmOC training being evaluated in this thesis found that there were significant improvements in knowledge and skills for each HCP cadre and for each country ($p < 0.05$). Overall, authors of the study found that 99.7% of HCPs improved their overall score with a median (IQR) increase of 10.0% (5.0% - 15.0%) for knowledge and 28.8% (23.1% - 35.1%) for skill (Ameh *et al.*, 2016). Improved skills have also been previously reported in the literature (Ameh *et al.*, 2012; Cooper *et al.*, 2012). In a 2014 survey conducted in Kenya, 85% of HCPs stated that they had acquired knowledge and skills following training (Ministry of Health Kenya, 2014). Put together, these findings show clear agreement between beneficiaries, literature and programme data on what is/are known to be 'positive' outcomes of EmOC training. These outcomes are also in line with what the training set out to achieve at inception (DFID, 2012). In our study, it appeared that whether the knowledge and skill gained were new to the HCP or were refresher (as posited by many more experienced HCPs who had the training intervention), they found it better than what they had received from previous education or by clinical experience only.

Specifically, for improved skills, trained HCPs in this study reported that this outcome led to their increased confidence to work, improved efficiency and teamwork, increased autonomy/independence for care provision. While improved knowledge helped them to know who to refer and who not to refer. A previous systemic review of EmOC training effectiveness categorised outcomes such as confidence, self-efficacy and motivation to work as part of attitudes/perceptions (Bergh, Baloyi and Pattinson, 2015). The HCPs engaged in this research were generally of the opinion that the knowledge and skills learnt on the

training were very relevant to their practice. This finding is coherent when considering that the training content was specifically developed to meet the needs of the health workforce, following deliberations with the Kenyan Ministry of Health (Ameh and van den Broek, 2015). The same tailor-made EmOC training was conducted in Somaliland between 2007 and 2009, eliciting positive ratings and opinions from trained HCPs, who agreed that the skills and knowledge acquired from the training would be useful in performing their jobs better (Ameh *et al.*, 2012). HCPs also found the training content as relevant despite previous education or from previous EmOC trainings they had received. It appears that the incorporation of the 'mastery learning approach' (AMDD and JHPIEGO, 2003) in the training, which includes application of a variety of teaching methods (a combination of lectures and practical hands-on skills and drills sessions), self-directed learning experience for the training participants, focus on competency-based and a dynamic approach that allows trainees to receive continual feedback (Grady *et al.*, 2014), may all be contributing to making the training more worthwhile compared to their previous experiences. This also links to the positive opinion that the trained HCPs had because of the practical approach of the training, especially as it was perceived to have increased their capacity to deliver EmOC following completion of the training. This "humanistic" approach to education and training allows HCPs to practice skills on anatomic models, treating them as though they are actual clients (Otolorin *et al.*, 2015).

The most relevant and valued components of the EmOC training as assessed by the respondents in the study were neonatal resuscitation and assisted vaginal delivery with ventouse. A study conducted to capture opinions of health workers for Improving the quality of neonatal healthcare in Tanzania, showed that HCPs mostly recalled birth asphyxia as the health problem requiring critical care (neonatal resuscitation) (Mbwele *et al.*, 2014). On the other hand, with many sub-Saharan African countries reporting ventouse delivery rates of less than 1% (Bailey, 2005; Okeke and Ekwuazi, 2013), partly due to lack of equipment and know-how (Ameh and Weeks, 2009), it is therefore not entirely surprising that trained HCPs valued these training components the most.

Knowledge and skills could easily be incorporated into the SROI model, as even in the literature, these outcomes had related indicators that were easily quantifiable as the number of HCPs who had improved, comparing before and after the intervention (Ameh *et al.*, 2016). However, the positive outcome of improved attitude in relating with patients was less so. A recent systematic review showed that this outcome had only been previously reported in

trainings conducted in high-income countries, Australia (Shoushtarian *et al.*, 2014) and the United States (Pratt *et al.*, 2007) and not in any low- and middle-income country (LMIC) (Bergh, Baloyi and Pattinson, 2015). However, like in our study, improved attitude has only been reported as a qualitative finding. To quantify the outcome for inclusion in the SROI model, it was important to understand the rationale and immediate consequence of the outcome. Trained HCPs in this study posited that the outcome occurred because they “...are happy about doing everything” and “so even your attitude is reflected to the patients...and so more of them are coming”. One critical point of note is that women in LMICs place great importance on attitudes of HCPs while providing care to them. HCP attitude has considerable influence on their acceptability and utilisation of services (D’Ambruoso, Abbey and Hussein, 2005; Srivastava *et al.*, 2015; Ishola, Owolabi and Filippi, 2017). Their acceptability and utilisation would only increase the likelihood of HCPs being able to provide the critical care that women may need during pregnancy and childbirth (Wright *et al.*, 2016). Programmatic evidence collected as part of this research showed that more women were visiting the facilities with trained HCPs. As such, the additional number of women using the facilities with trained HCPs was used as a proxy indicator of the outcome.

Regarding the negative outcomes of training, these have been tagged concomitant because it appeared that they only occurred because the positive outcomes occurred. In this research, some of the trained HCPs, mostly from the BEmOC facilities associated the increased workload that they experienced to the training. Their argument is that their workload increased because expectant mothers now perceive that they are competent enough to care for them and their facility managers (nurse-in-charge) also expect them to manage the cases since they have received training. However, there was a counter-argument from trained HCPs in CEmOC facilities, who did not think their workload increased due to the training. They argued that they “have been used to a lot of work already, even before the training”. As such, it is difficult to specifically associate the increased workload to the training. This increased workload associated with more women visiting the facilities also means increased need to carry out signal functions. Programmatic evidence and evidence from the literature shows evidence of an increased number of deliveries and increased conduct of signal functions by HCPs post-training (Makuwani *et al.*, 2010; Raven *et al.*, 2011; Ameh, Adegoke, *et al.*, 2012). In studies that reported increased signal functions following training, the authors reported them as positive outcomes, associating this with the improved skill capacity of trained HCPs, contrary to the opinion of BEmOC based HCPs in our study. It is therefore important to

interpret this 'increased workload' outcome in the context of the Kenyan health system, especially since some previous assessments of wider health system strengthening efforts that included amongst other interventions EmOC training of HCPs had reported increased number of deliveries (Gill and Ahmed, 2004) and increased met need for EmOC (Rana *et al.*, 2007) when baseline figures were compared with three years' follow-up. In Kenya, the free maternity service (FMS) scheme was introduced in 2013 (The Presidency, 2013) and this has been associated with an increase in the number of deliveries (Ministry of Health Kenya, 2015; Wamalwa, 2015). While the explanation for this "increased workload" may be that the available work has increased, the available workforce may also not be sufficient to meet the real demands for care. This proposition aligns with the opinion of women in our study who reported that the HCPs have "too many women to deal with". To support this proposition, a recent assessment by the Kenyan Ministry of Health and some of its partners revealed that following training, there was a drastic increase in number of trained HCPs that provided different MNH services including focused antenatal care (FANC), Integrated management of childhood illness (IMCI) and prevention of mother to child transmission of HIV (PMTCT), but not EmOC (Ministry of Health Kenya, 2014). A qualitative inquiry with HCPs in Malawi revealed that there are "too few staff" and "too many patients", which potentially undermines performance and professionalism of HCPs (Bradley *et al.*, 2015).

In addition to shortage of qualified staff, lack of vital installations, supplies and medications, burn-out and turnover, and poor data collection and monitoring systems, HCPs have recognised increasing workload as one of the major barriers to the provision of quality EmOC (Chi *et al.*, 2015). With the presidential declaration and subsequent implementation of the FMS scheme (The Presidency, 2013), experiences of Kenyan HCPs show that many more women are being encouraged to give birth at health facilities under skilled personnel (Ministry of Health Kenya, 2015; Wamalwa, 2015). It appears that inadequate health workforce is key contributors to the gaps in EmOC provision and need to be addressed to ensure that gains from building the capacity of HCPs to provide critical care are not undermined. The implication of this as regards the SROI model is that it became imperative to interpret this outcome as a positive and negative one, limiting the negative component to those BEmOC based HCPs who reported it.

While there was no evidence in the literature or the programme specifically associating frustration to carry out newly learnt skills to training, the trained HCPs engaged in this study

reported otherwise. They mostly attributed this to the lack of equipment to perform the procedure and the lack of policy backing the lower cadre HCPs from carrying out the procedure, particularly in the BEmOC facilities. It appears that the BEmOC facilities are not sufficiently equipped to provide some of the signal functions taught at the training (Chi *et al.*, 2015). In a Kenyan post-training national assessment reported shortage of supplies and equipment (37%), inadequate physical environment (31%), staff rotation (27%), and lack of motivation and culture/religion (23%) were some of the factors that hindered service delivery after training (Ministry of Health Kenya, 2014). In terms of policy support to perform some of the signal functions, several of the stakeholders agreed that this was a real problem. There is lack of clarity regarding signal functions that some HCP cadres can perform. In our study, the government submitted that signal functions such as manual vacuum aspiration (MVA) have not been task-shifted from doctors to lower-cadre HCPs, but they are aware that MVAs are being performed by lower-cadre HCPs in relatively rural locations. The disappointment of being referred by HCPs particularly those working in BEmOC facilities was a negative opinion shared by women in our study. Clearly, there is a need for clarity regarding policy position on this subject, so that performance is based on the capacity of the skilled HCP to provide the care and not location. However, there was no evidence found in the literature to suggest that this was specifically due to the training. At best, it can be classed at contextual health system challenges that limit the realisation of the outcomes. As such, 'frustration due to inability to practise' outcome was excluded from SROI analysis.

6.4.2.2 Process of and expected outcomes of care received by women after HCP training

The women who received care from trained HCPs in this study appeared to have mostly positive opinions on the quality of care that they received, specifically about the provider him/herself. A previous qualitative enquiry also concluded that in-service training is a critical component of improving EmOC service delivery (Austin *et al.*, 2015). In our study, women generally addressed their perception of the quality of care within two domains: clinical and non-clinical aspects of the care received. Women were happy about the professionalism displayed by trained HCPs including a recognition that there had been significant improvements in service delivery, which they observed in recent years (coinciding with years after the EmOC training of HCPs commenced in Kenya). Perceived provider competency has been reported as one of the critical determinants of satisfaction of women receiving facility-based maternal care (Srivastava *et al.*, 2015). But even more specifically, perceived provider competency has been previously reported as a significant factor in maternal satisfaction for

delivery care, in a survey conducted in the informal settlements of Nairobi, Kenya (Bazant and Koenig, 2009). Women in our study were disappointed when they were referred by HCPs, particularly those working in BEmOC facilities, to CEmOC facilities. This mostly appears to be due to a problem of communication, since the HCPs view the referrals to be due to their assessment of the need for higher level care in CEmOC facilities. Support through effective communication and sharing of sufficient information with women regarding their situation and/or the care they require, including need for referral, has been deemed as a critical determinant of satisfaction with maternal care in many similar LMICs including Ghana and Malawi (Changole *et al.*, 2010; Avortri, Beke and Abekah-Nkrumah, 2011).

In addition to the clinical aspects of care, women also appear to have positive opinions regarding the compassion, dignity and promptness with which the care they received was provided. Previous studies that explored opinions of women on EmOC have shown that women in some developing countries, place a high value on the non-medical aspects of their (Kabakian-Khasholian *et al.*, 2000; Changole *et al.*, 2010; Essendi, Mills and Fotso, 2011; Stal *et al.*, 2015). The opinion of women engaged in this research appears to be mostly uniform across the board, irrespective of the number of previous deliveries or socio-economic status regarding this aspect of the care they received. It appeared that even women who had negative opinions or had heard negative reviews of the facilities from women who had used the facilities pre-HCP training, had an opposite impression when they visited the facility for their index pregnancy. These non-clinical aspects have been classified as process determinants of satisfaction with maternal health care (Srivastava *et al.*, 2015). While, these opinions of care received are not the outcomes of care that are critical for the SROI model, they provide some evidence associating the immediate outcomes of the training to the outcomes of the care that women experience afterwards.

In terms of outcomes of care provided by trained HCPs to women following training, trained HCPs in this study opined that the training actually led to improvement in outcomes for their patients, pregnant mothers and their babies. Programmatic evidence showed increase in the number of women identified to need and received EmOC and reductions in case-fatality rate (CFR). The literature supports this finding, as evidence shows that positive HCP training outcomes including increased knowledge and skills, as well as improved attitude result in improved availability, provision, coverage and quality of EmOC (Mekbib *et al.*, 2003; Evans *et al.*, 2009; Dijkman *et al.*, 2010; Ameh, Adegoke, *et al.*, 2012; Msemo *et al.*, 2013). When

EmOC has been properly implemented, and the immediate gains of the training actualised, it has led to improved maternal and newborn health (MNH) outcomes including reduction in morbidity associated with post-partum haemorrhage (PPH) (Tunçalp, Gülmezoglu and Souza, 2010; Sorensen *et al.*, 2011; Westhoff, Cotter and Tolosa, 2013), eclampsia (Duley, Gülmezoglu and Chou, 2010) and long-term consequences such as obstetric fistula which is associated with obstructed labour in over three-quarters of cases (Tebeu *et al.*, 2012). However, data on obstetric fistula was not collected as part of the MiH programme, as such this outcome could not be included in the model. On the other hand, maternal deaths have reduced following EmOC training (Ronsmans *et al.*, 1997; Mekbib *et al.*, 2003). Improvements in patient outcomes following similar training have been reported in Ethiopia where case fatality rate (CFR) (for direct maternal deaths) decreased from 7.2% at baseline (before training), to 4.6% three years later in 2001 (Mekbib *et al.*, 2003). Larger reductions in CFR following EmOC training (30 – 50%) have also been reported in Rwanda, Ethiopia and Tanzania (Kayongo *et al.*, 2006). For their newborns, significant reductions in Apgar scores <7 at 5 minutes (Draycott *et al.*, 2006; Spitzer *et al.*, 2014), birth trauma (Draycott *et al.*, 2008; Weiner *et al.*, 2014) and neonatal mortality (Dumont *et al.*, 2013), have been reported. These findings corroborate the opinions of trained HCPs that were recruited in this research. However, though the women pointed that stillbirths may occur with or without the intervention of an HCP, there was no evidence in the literature that EmOC training contributes to significant reductions in stillbirths (Draycott *et al.*, 2006; Dumont *et al.*, 2013).

For the women, positive outcomes expected from care provided by HCPs were centred on survival and positive health outcomes for mother and baby, such as mother alive and baby alive and healthy. This is expected, and entirely coherent with what has been reported in studies conducted in similar LMICs like Kenya - Gambia, Ghana and Nigeria (D'Ambruso, Abbey and Hussein, 2005; Cham, Sundby and Vangen, 2009; Wright *et al.*, 2016). In this research, unwanted negative outcomes of care were the direct opposites of the positive outcomes stated by the women that were interviewed. However, the women were aware that some of the negative outcomes occur with or without HCP intervention while others were described as occurring due to a direct result of HCP intervention. Though the women opined that conditions such as ectopic pregnancy, miscarriage, heavy bleeding and retained placenta could occur with or without the involvement of the HCP, it is important to establish that the purpose of close monitoring through ante-natal (Health Evidence Network, 2003; Health Evidence Network and WHO, 2006; Hollowell *et al.*, 2011) and intrapartum care

(Darmstadt *et al.*, 2005; Hofmeyr, 2005; Campbell and Graham, 2006) is to identify danger signs that put women at risk before these aggravate maternal morbidities and to prevent maternal mortalities. It is thus expected that trained HCPs should be able to recognise such danger signs and respond appropriately. This is the purpose of the EmOC training being assessed in this research (Ameh and van den Broek, 2015). However, even though some facilities have trained HCPs who can manage obstetric complications, other determinants of maternal mortality such as delay in the decision of women to seek care and delay in travel to the facilities to access this care (Thaddeus and Maine, 1994) need to be considered.

6.4.2.3 Duration of stakeholder-described outcomes attributed to the intervention

For HCPs, the most common durations suggested for knowledge and skill without practice was one year and six months respectively. For improved attitude, there was no suggestion of how long the attitude lasted without practice. Evidence from the literature supports the duration suggested by trained HCPs for improved skills, as Ameh *et al.* have previously concluded that trained HCPs require bi-annual update training to retain their skills sufficiently to save lives (Ameh *et al.*, 2012). A more recent prospective before and after the study conducted in Malawi compared mean scores to assess written and practical EmOC knowledge and skills before the training (pre-test), immediately after training (post-test 1), and at least six months after training (post-test 2) (Tang *et al.*, 2016). Their results showed that the scores for both the total written test and total practical test were significantly better in post-test 1 compared to the pre-test, as were the scores for each individual topic ($P < 0.001$ for all). However, a significant drop in scores was recorded between post-test 1 and post-test 2 for the total written test ($P = 0.001$), as well as for sepsis ($P = 0.017$), pre-eclampsia ($P = 0.028$), shoulder dystocia ($P < 0.001$), and neonatal resuscitation ($P = 0.033$) (Tang *et al.*, 2016). For the duration of the two negative outcomes, trained HCPs generally agreed that increased workload continued “*until necessary changes are made at facility or policy level*”. This makes sense considering that trained HCPs have no direct control over policy-level decision making.

For duration of outcomes attributed to care received following training, it was difficult for women to estimate. Most of the women surmised that the outcomes of care lasted “*forever*” or “*for as long as God pleases*”. Similarly, such non-specific response could be expected from mothers because of the intangible nature of the outcome. In addition, it appeared women were generally reluctant to place a specific time on how long the outcomes last for. This may

not be unconnected to the religious nature of Kenyans in general and their willingness to leave such decisions to a Supreme Being (Theodorou, 2015). Logically, it can be argued that the outcomes of care for women can only last as long as the next pregnancy. However, for this evaluative-type SROI assessment, the scope of the study was in the one-year period between baseline and follow-up.

6.4.2.4 Willingness-to-pay and valuation of outcomes

In this study, the stated preference technique, which is one of two preference-based methods of valuation (the other being the revealed preference technique) (Fujiwara and Campbell, 2011) was used. To do this, a value game was incorporated into the stakeholder engagements and allowed participants to place a value on these outcomes that were difficult to value as compared to budget items that have more apparent financial value, such as a new car. This technique has been used fairly commonly in several SROI analyses (Leck, Upton and Evans, 2016). However, it was still difficult for stakeholders to reach consensus on the valuation of the outcomes. Difficulty in estimating the value of outcomes has been reported in many SROI assessments, including those conducted in the broader public health area (Banke-Thomas *et al.*, 2015).

For trained HCPs, willingness to pay (WTP) for training outcomes had not been previously reported in the literature. While most trained HCPs opined that they could pay 100% of the money available to them for the training, when asked to state their actual valuation, most respondents thought the value of the outcomes was *“invaluable but inestimable”*. One phenomenon that was observed is that trained HCPs appeared to be willing to pay more to have the positive outcomes than they were willing to pay to avoid the negative outcomes of the training. This may point to trained HCPs putting more value in being better at doing their job but not thinking that the negative outcomes (increased workload and frustration due to inability to practise what they have learnt) significantly impedes their job, so much so as to need to pay much more to avoid this.

Similarly, for women, there was an aversion to placing a financial value on life and health for themselves and their babies, as outcomes of care received following training. When probed further, women appeared to value being alive themselves despite any foetal loss, as they can have other babies in the future and move on with their lives; as opposed to their babies surviving and they losing their lives. Women in other studies conducted in Gambia, Ghana

and India have also placed higher value on their own lives (George, 2002; D'Ambruoso, Abbey and Hussein, 2005; Cham, Sundby and Vangen, 2009). Clearly, this higher valuation needs to be reflected in any estimation of the outcome value. The difficulty in estimating value of outcomes may be due to the religious nature of Kenyans (Theodorou, 2015), as women viewed being alive and healthy as a gift from a supernatural being, and as such there was no price to pay for it. But if they had to pay, then it had to be significant.

However, for the SROI model, putting a value on outcomes is an important component of the analysis. As such, it was necessary to review the literature to find reasonable valuation alternatives (Nicholls *et al.*, 2012). To do this appropriately, it was important to source local valuation from the literature as already valued in Kenya to represent local outcomes, based on insight from stakeholder engagement. For HCPs, the cost of the tuition fee paid to complete the obstetrics and gynaecology posting in Kenyan medical schools was used as financial proxy for improved knowledge. For improved skill, the salary for a mid-level HCP in Kenya was used. These values were used because they aligned with stakeholder and societal valuation of the outcomes. For both improved attitude and increased workload, the cost of user fee for maternity care was used. The justification for this choice was that the end-result of both pathways was that more women were utilising the facilities.

For maternal mortality, the value of a statistical life (VSL) was used. Several methods including willingness-to-pay, the cost of compensation, and human capital approach have been used to estimate VSL in the past (Biausque, 2012). However, the values obtained exhibit a wide range of variability in most cases (Miller, 2000). Even when VSLs are estimated, they are rarely done for LMICs (Biausque, 2012). One relatively easier approach that can be done to estimate VSL of a country was proposed by Ted Miller. In his paper, he concluded that the VSL is typically about 120 times GDP per capita (Miller, 2000). It was the resulting VSL estimate based on 2014 GDP per capita in Kenya that was used in this thesis. Though concerns have been raised by economists regarding the use of GDP per capita for estimating VSL (Biausque, 2012), no other VSL estimate for Kenya was found. An attempt to estimate VSL using other approaches would require conducting large scale surveys while targeting the population of interest. This would have been both costly and time-consuming (Biausque, 2012).

The financial value that mothers were willing to pay to have their newborns alive and healthy was also difficult to obtain. Clearly, it would have been over-claiming to attribute any value of the newborn beyond the neonatal period to the EmOC training. So many other illnesses including malaria, pneumonia, meningitis and so on may afflict the child after the neonatal period which may have economic consequences (Ayieko *et al.*, 2009), but these cannot be linked to the training received by HCPs on EmOC. However, the question remained – What is the value of the newborn being healthy and alive for the neonatal period? The women engaged in the study mostly suggested that this was inestimable, which may be due to the emotional and biological attachment of the mother to child. Some other women argued that they can always have another baby. However, some rational considerations were required for this study. The cost of care of the newborn, which is already incorporated in the cost of care of the mother was used as the value for reduced neonatal morbidity and reduced stillbirths. However, based on insights from the women during the value game, the cost of baby napkins (diapers) for the four-week neonatal period was used to value the reduced neonatal mortality outcome. This was the only consensus item that women in this study agreed that they purchased for their newborns. Previous studies have incorporated such beneficiary proposed financial proxy in the SROI analysis. For example, in an attempt to put a financial value on “Increased self-esteem and sense of well-being” following an anti-stigma campaign for people living with Human Immuno-Deficiency Virus, the “value of a new traditional outfit for a woman” was proposed as a financial proxy by the beneficiaries (Brady, 2011a). Of course, the logicity of such financial proxies is at best contentious, but based on the sensitivity analyses conducted, its exclusion would not have altered the conclusions of this study and an inclusion of a higher financial value would only have further crystallised the conclusion of the SROI analysis that the intervention guarantees value-for-money.

6.4.2.5 Proportion of outcomes attributable to the intervention

Whilst the stakeholders could in many cases highlight that they experienced a change in this form or the other, it was difficult for them to describe the magnitude of the change or how much of the change could be attributed to the training. Programmatic evidence showed that there were differences in outcomes, however, it did not specifically highlight the attribution of those outcomes to the training, as there are confounding. According to the SROI guidelines, when there is robust evidence to support this attribution, then this should be factored into SROI calculations. However, when the evidence is not clear, then proposed attribution factors from beneficiaries should be used as deadweight (Nicholls *et al.*, 2012).

For proportion of the outcome that trained HCPs attributed to the training, this was varied. However, across the three positive outcomes i.e. improved knowledge, improved skill and improved attitude, the '75% but less than 100% attribution' percentage was the most prevalent, as such 25% was used as deadweight. Evidence from the literature shows that 99.7% of HCPs improved their knowledge and skill in sub-Saharan Africa and Asia immediately after the MiH EmOC training (Ameh *et al.*, 2016) and similar percentage improvements were reported as programmatic data collected in Kenya. However, these evidences have been demonstrated by comparing pre- and immediate post-training knowledge and skills. There has not been any previous attempt reported in the literature to assess how much improvements in knowledge and skills were still evident one-year after EmOC training, while excluding effect of other health system strengthening initiatives. With evidence suggesting that there is decomposition of knowledge gained even at six months after training (Tang *et al.*, 2016), it was imperative to take a more conservative perspective to how much knowledge and skills would be retained after one-year of the training. As such, the most prevalent 75% attribution was selected for the SROI analysis. Specifically, for 'improved attitude', there was no quantitative research that compared before and after training, thus, the most prevalent 75% attribution was also selected. Overall, though it makes logical sense that any improvements observed in all three positive outcomes would most likely be due to a combination of factors and not solely the training intervention, it is hard to quantify by how much. Difficulty in estimating attribution is a major challenge of SROI analysis (Arvidson *et al.*, 2010; Banke-Thomas *et al.*, 2015). For the negative outcomes reported by trained HCPs in this study, 25% attribution was the most prevalent for frustration due to inability to practice. However, there was no consensus regarding the increased workload (since as many trained HCPs responded 0% attribution as did those who said 100% attribution). As such, the outcome was deemed to have been attributable to the training for HCPs in BEmOC facilities who specifically reported the outcome in this study. For these negative outcomes, no specific evidence was retrieved that directly linked their occurrence to the training.

For the women, they generally believed that the occurrence of most of the care outcomes could not be entirely attributed to intrinsic characteristics of the HCP who provided the care. However, it is noteworthy that all women attributed 100% of the occurrence of obstetric fistula to HCPs, even though there are several non-HCP related risk factors of obstetric fistula

which have been elucidated in the literature (Tebeu *et al.*, 2012). A 2010 systematic review on effectiveness of EmOC training in low-resource settings (van Lonkhuijzen *et al.*, 2010) showed that only three of 38 studies explored the impact that the EmOC training had on women who received care from the trained HCPs (O'Rourke, 1995; Orero *et al.*, 2003; Warren and Liambila, 2004). However, the evidence related mostly to only maternal morbidities and it is sometimes difficult to associate any improvements in outcomes specifically to EmOC training, particularly in LMICs, as the training is usually done in combination with other health system strengthening initiatives (Dumont *et al.*, 2013). When EmOC training specific evidence is available (Bergh, Baloyi and Pattinson, 2015), about 50% significant reduction in PPH and Severe PPH incidence was reported (Sorensen *et al.*, 2011; Dresang *et al.*, 2015). However, this evidence is a population based index, which is not applicable for the SROI methodology that looks at individuals that have experienced the outcome (Nicholls, 2017). In another article, longitudinal cohort studies conducted in Colombia, Guatemala, and Honduras, and from an uncontrolled prospective trial in Tanzania, demonstrated mixed results on the impact of EmOC training (Dresang *et al.*, 2015). These variable results included increased maternal morbidities, increased conduct of some signal functions and non-significant and significant reductions in maternal mortalities (Dresang *et al.*, 2015). However, according to a review, improvements in maternal and newborn health outcomes have been reported following training in high-income settings (Siassakos *et al.*, 2009). Overall, there is sufficient evidence that shows that proper implementation of the various signal functions can reduce risk of maternal morbidity and mortality (Ronsmans *et al.*, 1997; Paxton, Maine and Freedman, 2005; Duley, Gülmezoglu and Chou, 2010; Duley, Henderson-Smart and Chou, 2010; O'Mahony, Hofmeyr and Menon, 2010; Tunçalp, Gülmezoglu and Souza, 2010; Westhoff, Cotter and Tolosa, 2013; Smaill and Grivell, 2014). With such strong evidence base from the literature and programme data (in which only data relating to MiH facilities were reported), an assumption was made in this research that any positive outcomes gained by women and their newborns, except maternal mortality, should be due to the training. For maternal mortality reduction, recognising that multiple factors, beyond those in control of the HCPs, contribute to maternal mortality beyond just the training (Ronsmans *et al.*, 1997), a conservative choice was made.

6.4.3 What about the SROI of the EmOC training?

To estimate the SROI of the intervention, the total financial valuation of the outcomes was divided by the cost of implementing the intervention. The cost of implementation was

straightforward and easily retrieved from programme accounting data. These were the funds received from DFID. £1,079,383 was spent on implementing the training during the 2014 fiscal year for the partial external support implementation approach that was taken in Kenya. The Daily Subsistence Allowance (DSA) to trainers (26.3% for in-country and UK based faculty) and trainees (32.1%) constituted the largest portion of training implementation costs. Similarly, output data which were routinely monitored on the programme were easily retrieved. Financial input and outputs are known to be easily estimated (Banke-Thomas, Madaj, *et al.*, 2017). With 2,965 HCPs trained across 93 courses as the output of the training, the cost/trained HCP was estimated at £364.00 and the cost/trained HCP/day for the five-day training was calculated as £72.80. A recent systematic review on economic evaluation of EmOC trainings (Banke-Thomas, Wilson-Jones, *et al.*, 2017) argued for the need to convert cost of EmOC trainings from the local currency of the country in which the training was conducted to International Dollar (I\$) equivalents for the year the training took place, using purchasing power parities (PPP) conversion factors (Cheung, 2009; World Bank, 2015). The derived International Dollar (I\$) equivalents for the same year can then be used to compare the training cost to cost of similar trainings (Banke-Thomas, Wilson-Jones, *et al.*, 2017). Based on the PPP conversion factor for the year of the training (0.69), the training cost I\$50.23 per trained HCP per day. This is within the cost range of trainings in LMICs that require accommodation of trainers and/or participants in the literature (I\$33 and I\$90) (Banke-Thomas, Wilson-Jones, *et al.*, 2017). In our study, costs included accommodation of trainers.

In terms of outcomes, the total financial valuation of the outcomes of one year of the EmOC training was estimated to be £13,747,173.78. Women benefited the most from the intervention (73% of the entire social impact created). Essentially, HCPs are being trained to go make the 'big change' out in their practices. This aligns with the objectives of the intervention – which is to ultimately contribute to an overall reduction in maternal and newborn morbidity and mortality in Kenya (DFID, 2012; Ameh and van den Broek, 2015). Yet, most EmOC training evaluations do not go beyond assessing knowledge and skills gained by trained HCPs (Bergh, Baloyi and Pattinson, 2015). Trained HCPs made up only 26% of the social impact created. While newborns make up just 1% of the social impact. Though it is plausible that the impact of saving the life of a newborn who then goes on to become an infant and then a child may be higher in the future, it is difficult to attribute more value for newborns to the training. A forecast SROI that takes a prospective lens would need to reflect some of these other benefits (Nicholls *et al.*, 2012). No financial valuation was attributed to

still births that were prevented, since their cost of care and hospital stay is already included in that of the mother.

In this research, for the partial external support implementation approach used in Kenya, the SROI ratio was estimated as £11.02: £1. This means that intervention provides value-for-money (VfM) because for every £1 invested in training HCPs in EmOC in Kenya there is £11.02 of social impact created. As we found no report of similar analyses on EmOC training reported in the literature, we were unable to compare this finding with others. However, we were able to test the various assumptions included in the model using sensitivity analysis, thereby increasing the transparency and reliability of our analysis (Saisana, Saltelli and Tarantola, 2005), which is in tandem with the SROI principle of being transparent (Nicholls *et al.*, 2012).

The results of the sensitivity analysis showed that all scenarios proved to be of value-for-money, even in the worst-case scenario of the outcomes based on the actual training implementation approach that was done in Kenya, with the SROI ratio ranging from 2.18:1 to 16.60:1 respectively. However, if the implementation model is altered to use trainers that are all from the UK and are paid consultancy fee and the worst-case scenario of the outcomes occur, then the intervention does no longer guarantees VfM, with an SROI ratio of £0.78 for every £1 spent on implementing the training (lower than the 1:1 benchmark ratio). Clearly, the use of teams of experienced specialists from the UK and in-country who serve as volunteer trainers (Ameh and van den Broek, 2015) makes the intervention more cost-beneficial even in scenarios when the outcomes of the training are not fully realised. However, there is a case for using local resources to achieve local gains by leveraging in-country faculty as volunteer trainers. This implementation approach significantly increases the SROI ratio thereby guaranteeing higher returns on the investments.

6.5 Critical analysis of SROI and its application in MNH VfM assessments

From the experience of using SROI in this research, it is evident there is still need for further discussions regarding how to make SROI assessments more robust, reliable and trust worthy. Below, we critically analyse the SROI methodology itself. In doing this, we highlight some gaps that need to be addressed and reasons why we believe these are critical in moving the methodology forward. We then critically analyse its application in assessing VfM of MNH interventions, comparing its use to the use of other approaches in assessing VfM of MNH interventions.

Firstly, clarity on forecast vs. evaluative type SROI is needed. In the current guideline, evaluative-type SROI is described as one “*which is conducted retrospectively and based on actual outcomes that have already taken place*” and forecast-type “*predicts how much social value will be created if the activities meet their intended outcomes*”. To calculate this future financial value, present-day values are discounted. However, a systematic review on application of SROI in public health (Banke-Thomas *et al.*, 2015), some researchers have used discount rates in accounting for “actual outcomes that have already taken place” in evaluative-type SROI reports. Future guidelines on SROI should consider expressly stating that discounting is only relevant for forecast SROIs.

Nomenclature of SROI stages needs to also be reviewed to ensure that the stages reflect actual activity required of SROI researchers. For example, SROI stage 1 is focused on “establishing scope and identifying stakeholders” (Nicholls *et al.*, 2012). But in fact, beyond identifying stakeholders more broadly, the methodology requires researchers to specifically highlight stakeholders that benefit – positively or negatively – from the intervention (beneficiaries) (Nicholls *et al.*, 2012). This needs to be the emphasis of Stage 1. Furthermore, Stage 2, is named “mapping outcomes”, but SROI researchers are required to map input(s), output(s), and outcome(s) within the theory of change of the intervention (Nicholls *et al.*, 2012). One option would be to change the description of Stage 2 to “mapping the theory of change”. However, from our experience using the methodology, it may make more logical sense to specifically map outcomes for stage 2 and then incorporate costing for inputs and outputs as part of SROI stage 5 – “calculating the SROI”.

The other key consideration is the appropriateness of the suggested methods in collecting the data required of the stakeholders. For example, is it appropriate to just ask 20 beneficiaries out of 1,200 potential beneficiaries over a telephone interview how they value a specific outcome, get an average of their response and put that into a model? Quantitative researchers would argue otherwise, saying this is not a representative sample. In the guidelines itself, the authors say that “*a common question is how big the sample of your clients should be*”? but then respond saying “*there is no hard and fast rule here*” (Nicholls *et al.*, 2012). In fact, there is a “*hard and fast rule here*”. Clearly, there has to be a gold standard, so that future SROI researchers can know what to aim for, especially as more robust methods have cost implications (Krueger and Casey, 2009). The sample should be large enough to

make a credible case for the results that are derived and sensible conclusions in the end. In part, it appears that SROI attempts to use qualitative methods to collect quantitative data; and use quantitative methods to synthesise qualitative data. From our experience, SROI requires mixed methods and there are different reasons that justify use of mixed methods research (Greene, Caracelli and Graham, 1989; Tashakkori and Teddlie, 1998). Clarity on which method should be used for which SROI stage and best approaches to combine, triangulate or complement the findings would help the SROI methodology going forward. One approach may be conduct a survey of a representative sample first and then engage some of the respondents in focus groups later to better understand their responses.

In our study, we have applied SROI to assess the VfM of an MNH intervention - EmOC training. However, there are other approaches to assessing VfM that have been proposed in the literature. Like SROI, a cost-benefit analysis (CBA) can be used independently, or a cost-effectiveness analysis (CEA) or cost-utility analysis (CUA) can be combined with a detailed cost analysis and effectiveness study to assess VfM (Banke-Thomas, Madaj, *et al.*, 2017). Findings from a recent analysis suggest that there is very limited published literature reporting actual conduct of VfM assessments of MNH interventions (Banke-Thomas, Madaj, *et al.*, 2017), even though there is theoretical guidance on how to assess VfM and the global interest and attention on the need for accountability and for demonstrating VfM of interventions aimed at improving population health (Pearson and Rawlins, 2005; DFID, 2011; Independent Commission for Aid Impact, 2013; National Institute for Health and Care Excellence, 2013).

From our experience in this research, gathering cost and output data were straightforward. Just like with other approaches to VfM assessments, this is based on a robust monitoring and evaluation framework for the intervention. To generate the cost data needed for VfM assessments, assessors have the choice of either the bottom-up (ingredient) or the top-down (expenditure) approach (Walker, 2001). Unlike the top-down approach which breaks down total 'expenditure' into component costs ($C_{Total} \Rightarrow C_1 + C_2 + C_3$), the bottom-up approach builds-up the 'ingredients' to estimate the total cost ($C_1 + C_2 + C_3 \Rightarrow C_{Total}$), as utilised in this thesis. Both health economists and MNH experts who have conducted costing exercises recommend the bottom-up approach, which utilises micro-costing methods in identifying and valuing each resource required for the specific intervention (Johns, Baltussen and Hutubessy, 2003; Chola *et al.*, 2015; Saronga *et al.*, 2015). This approach allows for analysts and policymakers

to check and verify each individual component included in the analysis and make decisions on where to save money without compromising on the quality of output of the intervention (Chola *et al.*, 2015; Saronga *et al.*, 2015).

However, the real challenge in using SROI was with accounting for the outcomes of the EmOC training. SROI allows for incorporation of multiple stakeholders into the assessment framework. Like CBA, SROI allowed for preferences of multiple beneficiaries of the intervention to be taken into account in estimating the valuation of benefits (Millar and Hall, 2013; Namazzi *et al.*, 2013). Unlike CBA that typically excludes 'soft' or 'intangible' outcomes (McIntosh, Donaldson and Ryan, 1999; Hutton and Rehfuess, 2006), SROI allowed capture of intangible outcomes such as increased workload in the research that we carried out. Clearly, excluding such outcomes from the 'cost-benefit analysis' limits the complete account of the programme benefits, even though they are indeed benefits.

Though the approach of seeking financial proxies to represent valuation of the outcomes of the intervention as used in SROI, to incorporate these intangible outcomes, can at best be described as challenging. A database called 'Global Value Exchange' (GVE) has been instituted to standardise such outcomes by recommending indicators and financial proxies that can be used to account for such outcomes (Rauscher, Schober and Millner, 2012). However, though the GVE helped with providing some insight into what outcomes have been used for SROI assessments in the area, it did not help with the actual financial proxies that have or could be utilised for MNH interventions. For this reason, some authors concluded that the strength of SROI approach in incorporating soft and intangible outcomes could also be its greatest weaknesses (Leck, Upton and Evans, 2016). There is clearly a need to develop a clear approach for financial proxy estimation. If SROI is going to deliver on its potential to account for valuation of soft outcomes, many of which cannot be estimated by beneficiaries (as evidenced in this study), then the GVE needs to be fully leveraged in sharing experiences of different researchers in estimating relevant financial proxies. One other approach for future SROI studies may be to use Delphi method to engage a panel of "experts", as opposed to "beneficiaries". The Delphi method, when used systematically can be used to elucidate financial proxies based on expert opinion, leveraging their extensive experience in interacting with beneficiaries (Okoli and Pawlowski, 2004).

For the other two VfM approaches which require the use of CEA or CUA, CEA appears to be relatively easy to apply, especially as outcomes are accounted for in natural units. This probably explains its more frequent use in MNH (Mangham-jefferies *et al.*, 2014). Researchers only need to report the exact count of the unit of interest. However, CEA is one-dimensional. Therefore, it would be one of both ('number of years of mothers saved' or 'number of years of newborns saved') and not both. This could limit holistic evaluation of MNH programmes or require multiple assessments. In addition, there is difficulty in comparing across disease conditions or different population groups. Furthermore, CEA does not allow capture of patient preferences and in addition determination of whether an intervention is cost-effective is based on a pre-determined WTP threshold.

CUA, on the other hand, uses metrics like QALYs and DALYs, incorporating the impact of both maternal morbidity and mortality (AbouZahr, 1999), basically taking into account both the value of the extra length of years gained and the quality of that extra life gained. QALYs are sometimes derived from the valuation of the populations who benefit from the intervention. However, this is not always the case. For DALYs, health status is not based on self-report (as with QALYs), but by valuations provided by health experts using the person trade-off (PTO) technique. DALYs that have been calculated focus only on the five main causes of maternal mortality and their associated morbidity (haemorrhage, sepsis, eclampsia, obstructed labour and abortion). Other direct causes of maternal death such as ectopic pregnancy or indirect causes such as HIV/AIDS, malaria and gestational diabetes are not considered.

In addition, the DALY method does not account for burden from non-specific signs and symptoms such as a headache, nausea, dizziness etc. (AbouZahr, 1999). Thus, DALYs are disease-focused, while QALYs are health-focused. Both would have limited applicability in estimating benefit and by extension VfM of life-saving interventions such as caesarian. Furthermore, the scales being used to derive QALYs such as EQ-5D are limited into three dimensions of health (Malek, 2001; Bravo Vergel and Sculpher, 2008). Health is wider than physical, mental and social dimensions, particularly when viewed from an extra-welfarist perspective. Specifically, MNH interventions usually have broader outcomes of programmes such as improved knowledge about antenatal care, reduced stigma from an obstetric fistula reinsertion programme etc. (Borghi, 2001). As such, these broader outcomes need to be incorporated in any VfM analysis for such analysis to be sufficiently robust.

In conducting VfM assessments, considerations need to be given to cross-cutting themes such as sustainability, scalability, and cultural acceptability within the narrative (Trémolet *et al.*, 2015). By using SROI for the assessment of the EmOC training, we were able to explore these critical themes through engagements with the main stakeholders. Especially for interventions that aim to improve MNH which are often multi-component, complex interventions involving a range of standards and actual practice (Pradhan, 2008; McPake and Koblinsky, 2009), this is important. Qualitative engagements with key stakeholders would help provide critical contextual information for interpreting VfM assessments (Bond for International Development, 2012; Jackson, 2012).

According to the recent synthesis report of the United Nations General Assembly, the focus of the post-2015 agenda rests firmly on leveraging new evaluation metrics of subjective well-being that can capture social progress, human well-being, security, justice, equality and sustainability, from the 'real beneficiaries' (United Nations General Assembly, 2014). The SROI framework, if sufficiently grounded in robust quantitative and qualitative methods, may prove to be an invaluable tool going forward.

Overall, using SROI in this research provided a platform to garner a broader understanding of the impact that the training had on the direct beneficiaries – trained HCPs – and beyond. This information is particularly relevant for decision makers. However, it was only possible to complete the research as mixed methods, while leveraging robust quantitative data systems that had already been embedded in the intervention, evidence from the literature and insight from stakeholders. Researchers and practitioners who intend to use SROI as a VfM tool need to establish such intention before the intervention starts and conduct a forecast SROI to get a baseline understanding of the stakeholders, outcomes (and their financial valuation) as well as the potential SROI of the planned intervention. Such an exercise will also better inform on the variables to be incorporated for monitoring and evaluation purposes, as the intervention is being implemented.

6.6 Study strengths and limitations

The strengths and limitations of the study are summarised in [Table 6.1](#) below and discussed in subsequent sub-sections.

Table 6.1: Strengths and limitations of the study

Strengths	Limitations
<ul style="list-style-type: none"> This research is the first application of the SROI methodology to assess value-for-money of an EmOC training intervention 	<ul style="list-style-type: none"> FGDs and KIIs were only conducted in Nairobi, one of the 47 counties in Kenya
<ul style="list-style-type: none"> The use of both qualitative and quantitative methods allowed for a more robust understanding of and evidence for the intervention's theory of change 	<ul style="list-style-type: none"> Use of several assumptions and subjective judgements for attribution, displacement and financial valuation of outcomes in developing the SROI model
<ul style="list-style-type: none"> Leveraged existing large scale EmOC training intervention with robust datasets available for analysis 	<ul style="list-style-type: none"> Limitations regarding the strength of the evidence base of the financial proxies used for valuation of outcomes
<ul style="list-style-type: none"> Combined a contingent valuation technique, using the value game, allowing beneficiaries to value outcomes from their perspective with available evidence from the literature 	<ul style="list-style-type: none"> No randomised controlled trial or step-wedged cluster randomised controlled trial data on EmOC training available for attribution of outcomes to intervention
<ul style="list-style-type: none"> The analysis modelled other EmOC training implementation approaches 	<ul style="list-style-type: none"> Inability to cost the social impact of women receiving different signal functions
<ul style="list-style-type: none"> The researcher was independent and not a member of staff of the organisation implementing the intervention in Kenya 	

6.6.1 Strengths

To the best of our knowledge, this is the first application of the SROI methodology to assess VfM of an EmOC training intervention. A 2013 systematic review of the application of SROI in public health did not retrieve any published paper or report of use of the methodology in the maternal and newborn health area, despite its increasing use in areas such as reproductive health (Banke-Thomas *et al.*, 2015), though recently there has been a published SROI report on a breastfeeding intervention in Kenya (Kimani-Murage *et al.*, 2016). By using this SROI methodology, broader outcomes (health and non-health outcomes) have been captured, which experts acknowledge is very important (van Mastrigt *et al.*, 2015). This is a strength of SROI as it would not have been possible to capture such outcomes with the more conventional economic evaluation methods such as cost-effective and cost-utility analyses, in which outcomes are more unidimensional (Drummond *et al.*, 2005).

Furthermore, the SROI methodology requires a lot of data for developing the model. In this research, the use of both qualitative and quantitative methods allowed for a more robust understanding of the intervention's theory of change. The qualitative methods yielded some outcomes of the training intervention that would otherwise not be considered in traditional

VfM assessment methods. While the quantitative methods captured numerical data from the programme and existing literature were used to substantiate and value the stakeholder described outcomes.

The research piggy-backed on an existing large scale EmOC training intervention with an established monitoring and evaluation framework that collected and tracked progress in implementation and impact of the intervention during the entire life-cycle of the training intervention. Robust datasets such as were available for this research are critical for SROI assessments (Nicholls *et al.*, 2012).

A contingent valuation technique was used, leveraging the value game (Scholten, 2015), which allowed beneficiaries to value the outcomes as they perceive them. While this did not always yield an actual financial value, it provided critical insight into the value of the outcome from the perspective of the beneficiary.

The opportunity of conducting this SROI assessment of the EmOC training, in the format it was implemented (partial external support) was also used to assess the other training implementation approaches. This information would be useful for decision makers who would be seeking how best to use limited resources in delivering such interventions.

The researcher was independent and not a staff of the organisation implementing the intervention in Kenya. As such, the researcher was neither known nor connected to the different study sites. This allowed the stakeholders to be more open and not withhold information due to any concerns of not compromising their job or care, as may be relevant.

6.6.2 Limitations

Within the scope and budget of the study, it was only possible to conduct focus group discussions and key informant interviews with a number of stakeholders within the various stakeholder groups. For example, we did not cover the 47 counties in Kenya as available resources did not allow country-wide coverage. The decision was made to focus on Nairobi county since this is the capital of the country and a melting point of cultures and is the most diverse and cosmopolitan county in the country (Warah, 2013). To address this potential limitation, an attempt was made to ensure sufficient variation among participants within each group, by selecting them purposively (Krueger and Casey, 2009). In any case, as

theoretical saturation was achieved, it is unlikely that any additional stakeholder would have changed the conclusions reached in this research.

SROI analysis relies upon the use of assumptions and judgements. This relates to deadweight, attribution, valuation of outcomes using financial proxies. Specifically, for the financial proxies used for maternal morbidity and mortality, it was assumed that the various causes of maternal morbidities and mortalities have the same social impact. However, there are different obstetric emergencies with potentially varied social impacts. There was no evidence for this. However, in conducting this research, efforts were made at every stage to align with the SROI methodology principle of transparency, including making sure that all assumptions and justifications for making judgements in the analysis are clearly stated and indicating clearly in the supportive narrative where we leveraged reasonable theories as opposed to established truths. Communicating the findings of the research in this manner helps to establish credibility and encourage critical thinking around the conclusions.

The study benefitted from a substantial amount of robust existing literature, which was used to inform the assumptions and judgements. However, there were some limitations regarding the evidence base. For example, some of the sources from which financial proxies used for the analysis were local websites with information that could not be verified or double-checked in cases where that was the only source for which the information was available. These considerations need to be kept in mind in interpreting the findings of this research. Given the fact that proxy financial values can be obtained through a variety of methods, it is essential that those that are applied are recognised as appropriate by those to whom they apply (Leck, Upton and Evans, 2016). Therefore, we held discussions with in-country experts who had local knowledge to decipher the sensibility of the financial proxies retrieved before they were incorporated into the SROI analysis.

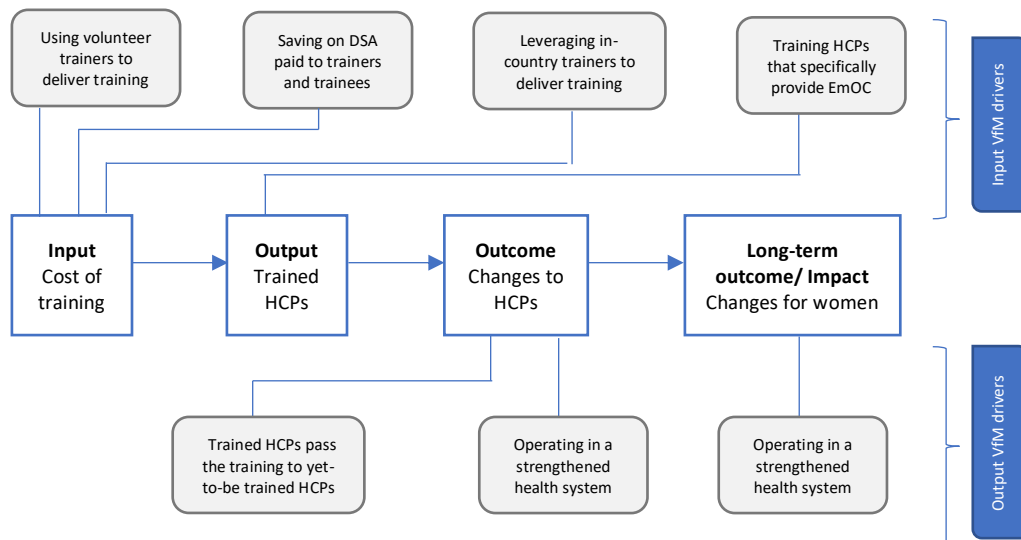
6.7 Implication for policy and practice

Stakeholders engaged in our study generally concluded that there is a case for repeated training of HCPs on EmOC. As evidenced in this research, short-duration EmOC training interventions guarantee good VfM, with payback on investment in one-month. This adds to the existing body of evidence that suggests the value of such investments. Studies have shown that EmOC training is a cost-effective way of increasing knowledge and skills of providers (Walker *et al.*, 2002; Osei *et al.*, 2005), productivity of trained HCPs in terms of

managing obstetric complications (Walker *et al.*, 2002; Osei *et al.*, 2005; Boulenger and Dmytraczenko, 2007; Kruk *et al.*, 2007) and in improving maternal outcomes, both in terms of number of lives saved and number of disability-adjusted life years averted (DALYs) (Manasyan *et al.*, 2011). With global attention firmly placed on improving the quality of care, evidence from this research points to the fact that EmOC trainings bespoke to the needs of specific health systems represent a good use of resources.

Figure 6.2 shows the most significant VfM drivers of the intervention, which we have grouped into input and outcome drivers. Our research shows that to fully realise the gains of EmOC training interventions, it is critical that both positive and negative outcomes are considered. EmOC training would be most successful within the context of broader health system strengthening initiatives including supply-side interventions such as optimisation of human resources for health, supply and maintenance of appropriate up-to-date equipment, infrastructure development and demand-side interventions such as removal of user fees for maternal health services, implementation of innovative ways to finance EmOC services for mothers, mobilisation of women to use facility-based EmOC and provision of sensible transport options for pregnant women in situations of emergency [Figure 6.2].

Figure 6.2: Value-for-money drivers of EmOC training



It is noteworthy that some facility managers had debriefing sessions for HCPs who are yet to be trained led by HCPs who have been trained. Through this forum, trained HCPs could share their newly learnt knowledge and skills with other HCPs who are yet to be trained. There is a

case for doing this in a more systematic way for other facilities with trained HCPs as it increases the gains derived from the intervention and ultimately increases its VfM. The facility managers/Ministry of Health, who had a role in selecting those who needed to be trained also ensured that it was only those who provide EmOC received training, thereby contributing to increased gains [Figure 6.2].

In addition, our research clearly showed that volunteer trainers from the UK and trainers based in-country contribute significantly to ensuring that the EmOC training intervention is of value-for-money [Figure 6.2]. While other incentives could be employed to sustain the training in this format, it is critical to explore other training implementation approaches such as facility-based fire drills and on-the-job training to ensure that knowledge and skills are refreshed and that this is done in the most cost-effective way. The evidence from the research shows that a locally delivered training embedded in the regular clinical care delivery system guarantees the greatest VfM for investments made [Figure 6.2].

With the DSA paid to trainers (26.3%) and trainees (32.1%) making up the largest proportion of funds spent to deliver the training, it is critical to explore cost-saving approaches to minimise the costs paid out for this purpose [Figure 6.2]. DSA or per-diem as these costs are called are paid quite frequently in the implementation of several MNH initiatives (Chukudebelu *et al.*, 1997; Mekbib *et al.*, 2003; Manasyan *et al.*, 2011; Larsen-Cooper *et al.*, 2016). One EmOC training implemented in Zimbabwe had a policy of no per diem payments and found that this policy significantly reduced the cost of training (Crofts *et al.*, 2015). Some authors have challenged the ethics of per diem payments in the first place, saying that in relation to EmOC trainings, it has led to “*a culture where training has become an opportunity to supplement income*”, rather than an opportunity to build professional capacity (Vian, 2009; Crofts *et al.*, 2015). A condition referred to as ‘acute per diemitis’ by Dr Valéry Ridde (Ridde, 2010). Options such as converting DSA/per diem budgets to financial aid for improving salaries and working conditions of HCPs, harmonisation of DSA/per diem based on output following training and payment of DSA/per diems based on actual need rather than hierarchy are some of the alternatives that can be explored going forward. Another option is to use facility based training models, which reduce the amount of DSA paid or exclude the need to pay it in its entirety. Representatives of government, UK-based faculty and health facility managers suggested that there was a need to consider facility-based training or refresher on-the-job training of HCPs to ensure sustainability of the training outcomes. This

opinion is in agreement with conclusions from two recent systematic reviews which showed that facility-based trainings were more cost-minimising compared with trainings that required boarding of participants (residential trainings) (Bergh, Baloyi and Pattinson, 2015; Banke-Thomas, Wilson-Jones, *et al.*, 2017).

6.8 Implications for future research

This research was an evaluative SROI of an EmOC training intervention. In the future, there is a case for conducting a forecast SROI studies that can potentially explore and incorporate more long-term changes that occur due to EmOC trainings. Such changes, as seen in this research, may include social impact of the avoidance of long-term sequelae of obstructed labour including obstetric fistula and contributions of healthy mothers to their family and community, as well as neonates who survive to childhood. Data on obstetric fistula incidence need to be collected as part of monitoring and evaluation activities for EmOC training.

One of the key strengths of this research was its access to a large-scale dataset that had been collected as part of the EmOC training intervention in Kenya. Databases that store information regarding facility performance indicators routinely before, during and after the training are critical for success in any future SROI analysis. It is also important that VfM indicators, especially those that have to do with efficiency and effectiveness of EmOC training are consistently monitored. This might require having dedicated data collectors or monitoring and evaluation officers that continually collate these data.

Parameters used for financial proxies in this study were based on estimates available in grey literature. Research that helps to generate more robust financial proxies that can be used for MNH interventions in LMICs would be relevant for future SROI applications in the area. More so for obstetric emergencies, there is a case for exploring their social impact on receiving treatment of the various signal functions on women. These parameters should be tested for adequacy in LMICs and uploaded to the Global Value Exchange (GVE) for other SROI researchers to critique and apply in future MNH SROI applications.

Programmatic evidence and evidence from the literature demonstrated change in outcomes before and after the intervention, without specifically highlighting attribution to EmOC training. Though we were able to borrow insight provided by beneficiaries, it is critical to leverage more robust data from RCTs or step-wedged cluster RCTs to better understand the

attribution of outcomes to EmOC training. While RCTs offer an opportunity to isolate the effect of the training specifically, these may be expensive, ethically challenging due to the exclusion of some HCPs from a beneficial intervention and indeed difficult to conduct at a large scale. However, step-wedged cluster RCTs address these challenges and are being used for evaluating EmOC training in South Africa (Ameh and van den Broek, 2015). In planning for such research, additional programmatic data that demonstrate the effect of potential confounding factors including other health systems strengthening interventions should be collected.

The research was conducted in one country, Kenya, leveraging qualitative research methods and quantitative data that was unique to Kenya. As such, it would be difficult to categorically conclude that EmOC training designed and implemented in this format demonstrates VfM elsewhere. It would be useful to repeat the same analysis across different countries and settings to see if the intervention still guarantees VfM. The approach used in conducting the research in Kenya offers a template that can be built upon in conducting any such future endeavour.

The training evaluated in this research was a five-day long training. Some organisations implement trainings for longer durations (Bergh, Baloyi and Pattinson, 2015). Comparative SROI analysis of both training approaches (short vs. long duration) would help provide critical economic evidence to guide decision makers on how best to use the limited available resources for capacity building of HCPs in order to guarantee VfM (Banke-Thomas, Wilson-Jones, *et al.*, 2017). Specifically relating to how the VfM of EmOC training is better understood, there is a need to scale-up and standardise processes that capture costs and effectiveness data of trainings and to agree on suitable economic evaluation models that allow for comparability across settings (Banke-Thomas, Wilson-Jones, *et al.*, 2017).

Key Points

Chapter 10

Discussion

- This was the first attempt at using SROI to assess the social impact and value-for-money of an EmOC training intervention. At the commencement of this thesis, there was no published application of SROI in the wider maternal and newborn health area.
- There was no conflict of interests or confusion in terms of expectations of roles as it related to the EmOC training intervention. Evidence from the literature supports the choice of trained HCPs and women who received care from them as beneficiaries of the intervention.
- There was congruence between opinions of the intervention’s beneficiaries (trained HCPs and women), evidence from the literature and the programme regarding the positive outcomes. However, there was no clear evidence in the literature to support that the increased workload or frustration due to inability to practise newly learnt skills was due to the training.
- For attribution, lack of step-wedged cluster randomised controlled trials of EmOC training limit choice of parameters to model attribution of EmOC training to the outcomes. It is also difficult to exclude influence of other interventions from the outcomes based on programmatic data. Insight from stakeholders however provided some insight that allowed development of the SROI model. Similarly, engagement with stakeholders helped with the sourcing of financial valuation of outcomes.
- Use of mixed methods, leveraging large scale robust datasets, and combining a contingent valuation technique with the value game with evidence from the literature were strengths of the research. While some key limitations included the limit of the research to just the capital, Nairobi, use of several assumptions to build the SROI model, and use of financial proxies from grey literature.
- In terms of policy and practice, critical value-for-money drivers for the intervention are: using volunteers to deliver trainings, saving on DSA paid to trainers and trainees, leveraging in-country trainers to deliver training, training HCPs that specifically provide EmOC, organising debriefing sessions led by trained HCPs for yet-to-be trained HCPs and operating within a strengthened health system.
- SROI modelling is built on robust data. Validity of parameters to be incorporated in future models should be tested. For future research, forecast SROI study, comparative multi-country SROI study, multi-training format SROI study should be considered.
- Going forward, it is critical that a gold-standard for SROI conduct is clearly established, while making sure that appropriate research methods are being used to collect the required data for SROI assessments.
- Overall, using SROI in this research provided a platform to garner broader understanding of the impact that the training had on the direct beneficiaries – trained HCPs – and beyond.

7 Conclusions and recommendations

7.1 Conclusions

This aim of this study was to apply the social return on investment (SROI) methodology to evaluate the value-for-money (VfM) of training health care providers (HCPs) in emergency obstetric care (EmOC). To achieve this aim, a preliminary understanding of SROI application in the broader public health area was obtained via a systematic literature review. Insight from this helped shape the application of the methodology in particular, to establish the roles of the stakeholders, their opinions on outcomes and valuation of the EmOC training and on the care received from trained HCPs, based on evidence from multiple sources.

Key findings from this research were that health care providers, women who received care from them and their newborns are the primary beneficiaries of EmOC training. In agreement with existing literature, this research showed that training led to positive outcomes including improved knowledge, skills and attitude with patients. However, there were concomitant negative outcomes including increased workload because of new patient expectation and frustration from inability to practise what was learnt; which had not been previously reported or directly linked to training in the literature. Women had positive opinions concerning the quality of care that they received following training of HCPs and they expected positive outcomes including avoiding maternal and newborn morbidity and mortality. However, women affirmed that negative outcomes could occur, attributable to the HCPs, themselves or simply due to chance.

Based on programmatic data, total implementation costs was £1,079,383 for the 2,965 HCPs that were trained across 93 courses and the cost per trained HCP per day was £72.80. The total social impact for one year was valued at £13,747,173.78, with women benefitting the most from the intervention (73% of the social impact value). The SROI ratio was calculated as £11.02: £1. Following multiple one-way sensitivity analyses, the intervention guaranteed VfM in all scenarios except when all the trainers were paid consultancy fees and the least amount of outcomes occurred. This is new evidence generated through this research and it helps to clearly show how invaluable volunteer trainers and in particular local volunteer trainers can be if they are fully maximised in implementing EmOC trainings such as this in low- and middle-income countries (LMICs) such as Kenya.

This research is the first use of SROI to assess the social impact and VfM of EmOC training and more broadly the first use of SROI on a maternal and newborn health (MNH) intervention conducted in a low- and middle-income country underpinned by core academic research principles. While all efforts were put into sourcing credible financial proxies for the analysis, It is worth noting that available evidence from peer-reviewed literature was minimal and many instances non-existent. Future analyses will benefit from more robust evidence on financial proxies.

Overall, this study showed that SROI is a useful approach for assessing VfM of EmOC training, as it provided additional key insight regarding implementation of EmOC training in Kenya. In implementing EmOC training, consideration needs to be given to both intended positive and unintended negative outcomes of the intervention. In addition to what is known regarding the optimisation of training to yield best results that ultimately increase its VfM, the use of volunteer trainers, particularly those who work locally is a critical driver in increasing its VfM.

From this research, it is evident that the challenges that limit the application of SROI methodology are real. However, so is the benefit of the outputs of the SROI analysis. Using SROI for VfM assessments and VfM assessments more broadly is an ongoing discussion. The challenges that limit its development are not unique to the area of MNH, as evidenced from the systematic review conducted as part of this study. However, from the experience of this research, these challenges are even more highlighted within the MNH area, because of the complexity of MNH interventions. With emphasis on innovative MNH interventions, innovative evaluative methods need to be considered to ensure that critical cross-cutting teams such as scalability, feasibility, appropriateness, and acceptability, in addition to VfM are captured (Lunze *et al.*, 2015). To upscale the robustness of VfM tools such as SROI in the MNH area, the synergy of researchers and practitioners would be critical going forward and more strategic thinking would be required in choosing and embedding any VfM tool, including SROI, within any MNH intervention. Specifically, more thinking around how financial proxies are estimated, mixed methods are leveraged, and attributions determined would really help in moving the SROI methodology forward. Capacity to demonstrate VfM will ensure that MNH interventions can remain competitive for the limited resources in the post-2015 era when more questions regarding VfM will likely continue to be asked.

7.2 Recommendations

Targeted key recommendations emanating from this research are:

7.2.1 Implementers and funders of EmOC training

- In implementing EmOC trainings, consideration needs to be given to both intended positive and unintended negative outcomes of EmOC training. Efforts should be made to avoid unintended negative outcomes.
- Use of volunteers to deliver EmOC training can be a critical driver in achieving VfM for investments made. Systematic engagement of volunteers to support delivery of trainings would be extremely cost-saving even if the outcomes are not fully realised.
- Advocacy to push policy directions towards empowering lower cadre health workers, particularly those working in basic emergency obstetric care facilities to perform signal functions such as manual vacuum aspiration would help to maximise gains from the training intervention, as was highlighted by stakeholders in this study.
- Deliberate debriefing sessions for HCPs who attended trainings to share their newly learnt knowledge and skills with other HCPs, who are yet to be trained. Such sessions would increase the gains from the training and ultimately increases its VfM.

7.2.2 Implementers and researchers

- To conduct an SROI study effectively, robust monitoring and evaluation systems of MNH interventions need to incorporate VfM indicators before the commencement of the intervention and routinely follow-up the change process for at least a year.
- Efforts to populate the indicators and financial proxies of MNH outcomes in the Global Value Exchange database should be intensified. The indicators should reflect the cultural sensitivity of various groups of women. Using the Delphi method to collect expert opinion may provide a valid platform to build on.

- In addition, it is critical to conduct research to better understand the burden of disease and social impact of the various obstetric emergencies.
- Implementers and researchers should endeavour to work with colleagues based locally, to be able to leverage their local expertise in building the SROI analysis.
- Synergy between researchers and practitioners focused on examining most relevant approaches to improving SROI as a VfM tool should be initiated and sustained.

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Appendices

Appendix 1: Search strategy

Pubmed

1. exp ("social return on investment").mp. (191)
2. exp (SROI).mp. (11)
3. exp ("social return on investment" OR SROI).mp. (202)
4. exp ("blended value accounting").mp. (2)
5. health\$.mp. (2917046)
6. (((SROI) OR "social return on investment" OR "blended value accounting" AND health\$)
(134)
7. limit 5 to date (1st January 1993 to 31st August 2017)
(((SROI) OR "social return on investment" OR "blended value accounting" AND health\$)
Filters: Publication date from 1993/01/01 to 2016/12/31 (105)
8. limit 6 to humans
(((SROI) OR "social return on investment") AND health\$) Filters: Publication date from
1993/01/01 to 2016/12/31; Humans (75)
9. limit 7 to English language
(((("social return on investment" AND ("1993/01/01"[PDat] : "2014/12/31"[PDat]) AND
Humans[Mesh] AND English[lang])) OR ("SROI" AND ("1993/01/01"[PDat] :
"2014/12/31"[PDat]) AND Humans[Mesh] AND English[lang])) AND ("health*" AND (
"1993/01/01"[PDat] : "2014/12/31"[PDat]) AND Humans[Mesh] AND English[lang]) (74)

Scopus

1. Set limits to 1993 to present
2. ALL(SROI) AND PUBYEAR > 1992 (302)
3. ALL("social return on investment") AND PUBYEAR > 1992 (452)
4. ALL("blended value accounting") AND PUBYEAR > 1992 (79)
5. ALL(health*) AND PUBYEAR > 1992 (8,657,246)
6. (ALL(sroi) AND PUBYEAR > 1992) OR (ALL("social return on
investment") AND PUBYEAR > 1992) OR(ALL("blended value
accounting") AND PUBYEAR > 1992) AND (ALL(health*) AND PUBYEAR > 1992) (277)
7. (ALL(sroi) AND PUBYEAR > 1992) OR (ALL("social return on
investment") AND PUBYEAR > 1992) OR(ALL("blended value
accounting") AND PUBYEAR > 1992) AND (ALL(health*) AND PUBYEAR > 1992) AND(LIMI
T-TO(LANGUAGE, "English")) (273)

8. (ALL(sroi) AND PUBYEAR > 1992) OR (ALL("social return on investment") AND PUBYEAR > 1992) OR(ALL("blended value accounting") AND PUBYEAR > 1992) AND (ALL(health*) AND PUBYEAR > 1992) AND(LIMIT-TO(LANGUAGE, "English")) AND (EXCLUDE(DOCTYPE, "re")) (213)

Proquest

1. Search "health" AND ("SROI" OR "social return on investment" OR "blended value accounting") in ANYWHERE (661)
2. Delimit full text, peer reviewed and scholarly journals (661)
3. Set publication date – on 1st January 1993 (661)
4. Source type: Select Dissertations & Theses, scholarly journals and working papers (534)
5. Language: Select English language (527)

Google Scholar

1. Search "SROI" (7400)
2. Search "social return on investment" (6180)
3. Search "blended value accounting" (346)
4. Search "social return on investment" "SROI" OR "blended value accounting" (10510)
5. Search "social return on investment" "SROI" OR "blended value accounting" AND health (5150)
6. Remove patents (5140)
7. Remove citations (5010)
8. Custom time range to 1993 – 2017 (4760)
9. Limit to English language Articles (4740)

The Social Value UK database

1. Enter Social Value UK member area: <http://www.socialvalueuk.org/report-database/>
2. Go to Report Database
3. Select "Any" Report Type
4. Select "Any" Country
5. Select "any Year"
6. Download all SROI reports
 - a. Assured (62)
 - b. Not Assured (185)

nef database

1. On the nef website <http://www.nef-consulting.co.uk/about-us/our-publications/reports/>
2. Download all SROI reports (11)

Appendix 2: Systematic review results

S/No.	Author(s)	Year of publication	SROI type	Country of organisation conducting SROI	Country of applying SROI	Intervention	Area of health	Sector	Stakeholders considered	Stakeholders included in analysis	Sample description	Data source	Discount rate	Assurance	Source	Duration (Intervention-Measurement)	SROI ratio	Sensitivity	Lessons learnt
1	Ali Beth Somers, MillRace IT	2005	Evaluative	United Kingdom	United Kingdom	Supports people recovering from mental ill health. It provides advanced IT on-site training, teaching people how to refurbish, maintain, service and build computers.	Mental Health	Social Health	participants, employees, participants' families, InterAct, RDC, Local government, NHS	All stakeholders	participants, employees, participants' families, InterAct, RDC, Local government, NHS	Stratified purposive (Qualitative) and Secondary Data (Quantitative)	0		Grey literature	1	7.4	Done	
2	Forth Sector Development, Social Economy Scotland	2007	Evaluative	United Kingdom	United Kingdom	Restart - financialising the Employment and education outcomes for people with mental health problems	Mental Health	Social Health	10 beneficiaries, NHS Lothian, Into Work, Referral Agents, Capital city partnership, Forth sector, Job centre plus, volunteer centre Edinburgh, West Edinburgh Action Group, Careers Scotland, City of Edinburgh Council	Only beneficiaries	Beneficiaries	Stratified purposive (Qualitative), secondary data and Primary Data (Quantitative)		No	Grey literature	1	1.57	Done	1. Sample Size should be sufficient for analysis 2. Data collection/monitoring systems should be pre-reconfigured to ensure that they capture some of the data required to undertake impact analysis
3	Varua, M. E., & Stenberg, L. C.	2009		Australia	Australia	Daystar foundation's provision of breakfast to school-aged children	Nutrition	Health	Between 500 and 800 school children	Only beneficiaries	No sufficient detail	Secondary Data (Quantitative)		No	Peer-reviewed	1	4	Done	
4	Tim Goodspeed	2009	Forecast	United Kingdom	United Kingdom	Workwise aim to successfully develop and train people with mental health problems in a genuine business environment to encourage self-esteem and independence through work, and thus contribute to their quality of life.	Mental Health	Social Health	Trainees, Family/friends of trainees, Employers, Big Lottery, Grant Making Trust, Statutory funders, Business Links, SEIF, Adult Further Education, Employees, Directors and volunteers, Suppliers, Referral Agents, Public and local Community, Artists, Suffolk Mental Health Partnership Trust	All stakeholders	24 Trainees, 10 Family/friends of trainees, Employers, 1 Big Lottery, Grant Making Trust, 6 Statutory funders, Business Links, SEIF, Adult Further Education, 12 Employees, 3 Directors and volunteers, Suppliers, Referral Agents, Public and local Community, Artists, 1 Suffolk Mental Health Partnership Trust	Stratified purposive (Qualitative), secondary data and Primary Data (Quantitative)	0.035	Yes	Grey literature	5	3.09	Done	
5	Murphy R.	2010	Evaluative	Canada	Canada	consolidation of 12 Catholic healthcare organizations into one	Health care management	Health	(a) board members, past and present; (b) governing and community and senior leadership teams; (c) the greater leadership team; and (d) staff and physicians.	Only beneficiaries	32 participants	Stratified purposive (Qualitative) and Primary Data (Quantitative)		No	Thesis (D.BA)	1	7		1. Developing consistent objective, standardized, and widely accepted measures would assist in improving the credibility of the applications in similar situations. 2. Direct financial impact can be quantified, but indirect impacts may be harder to ascertain.
6	Lukoseviciute L.	2010	Forecast	Netherlands	Netherlands	Smoking cessation policy for three different age groups (20 – 44, 45 – 64, 65+)	Health Promotion	Health	Governments (local and central), health insurers, providers, employers, and individual former smokers themselves.	All stakeholders	Assumed two scenarios with all stakeholders: business as usual and smoking policy implemented	Secondary Data (Quantitative)	0.04	No	Thesis (MSc)	4	1.1	Done	
7	International HIV/AIDS Alliance	2010	Evaluative	United Kingdom	India	CHAHA programme – a child-centred home- and community-based case and support initiative	Child Health	Social Health	Children over 10 years old, Parents and caregivers, NGO staff, Children under 10 years old, Women-headed households, Teachers, Relatives/friends of households affected, Government, ART centre, local leader	Only beneficiaries	Children, parents, households, government services. A total of 72 ultimate beneficiaries were consulted and 20 to 25 NGO staff. 1630 children and 1323 parents and caregivers surveyed.	Stratified purposive (Qualitative) and Survey (Quantitative)	0.06	No	Grey literature	3	4	Done	1. The issue of how much of the achieved outcome can be attributable to CHAHA is a difficult issue to determine with any level of objectivity, in the absence of a counterfactual, which is the norm for NGO implemented programmes of this nature. 2. More time should be allocated to do the stakeholder consultation at field level. 3. There are not much secondary data sources available in developing countries, so for measurement dependence was mostly on the consultation. This can be further triangulated with other data sources available internationally.
8	Bradly Joëlle	2010	Evaluative	United Kingdom	United Kingdom	Condom intervention, Pregnancy testing, Clamidia testing	Sexual and Reproductive Health	Health	Young people, parents of teenagers, Connexion staff, school and the local community	Implementers and beneficiaries	o 51 young people (44 in initial consultation and 7 to verify values) o 13 parents of teenagers (2 in initial consultation and 11 to verify results) o 18 Connexion staff trained by CSSP (7 in initial consultation and 11 to verify results and attribution) This represented 7% of the young people who were service users and 36% of the trained Connexions staff. However, when outcomes, indicators and values had been established a database of all service users was analysed to calculate actual impact (696 young people over 12 months).	Stratified purposive (Qualitative) and Survey (Quantitative)	0.035	Yes	Grey literature	1	8	Done	1. Draft finding were shared with CSSP trained Connexions staff and parents to check any assumptions.
9	COUI	2010	Forecast	United Kingdom	United Kingdom	Teens & Toddlers programme targeting teens at risk of early pregnancy and sexual health issues.	Sexual and Reproductive Health	Social Health	teens, families, schools, Government & Society, toddlers, volunteers, strategic funding organisations	Only beneficiaries	5 interviews with teens, 2 telephone interviews with families, 2 telephone interviews wit schools, 2 telephone interviews wit Government & local authority	Stratified purposive (Qualitative) and Primary Data (Quantitative)	0.035	No	Grey literature	5	5.52	Done	
10	Jönsson et al	2011	Evaluative	Sweden	Kenya	Household-based water treatment and safe storage	Environmental Health	Health	funders, beneficiaries, implementers and promoters	All stakeholders	As many as possible of local users of Solvatten, Solvatten AB, Solvatten facilitators, Swedish Cooperative Centre	Stratified purposive (Qualitative) and Secondary Data (Quantitative)	0.03	No	Thesis (BSc.)	5	26		

S/No.	Author(s)	Year of publication	SROI type	Type of organisation commissioning SROI study	Country of organisation conducting SROI	Country of applying SROI	Area of public health	Intervention	Stakeholders considered	Stakeholders included in analysis	Sample description	Data source	Time horizon (Intervention-Measurement)	Sensitivity	Discount rate	SROI ratio obtained	Source	Quality score	Overall quality grade
1	Ali Beth Somers	2005	Evaluative	Social enterprise	United Kingdom	United Kingdom	Mental Health	Mill Race IT supports people recovering from mental health. It provides advanced information technology on-site training, teaching people how to refurbish, maintain, service computers.	Participants, Employees, participants' families, InterAct, RDC, Local government, NHS	All stakeholders Promoters, Implementers, Funders, Beneficiaries	Participants, Employees, participants' families, InterAct, RDC, Local government, NHS	Qualitative and secondary quantitative data	1 year	Done	0	7.40	Grey literature	9	High
2	Forth Sector Development, Social Economy Scotland	2007	Forecast	Social enterprise	United Kingdom	United Kingdom	Mental Health	Restart financing the employment and education outcomes for people with mental health problems	Beneficiaries, NHS Lothian, Into Work, Referral Agents, Capital City partnership, Forth Sector, Job Centre plus, Volunteer Centre Edinburgh, West Edinburgh Action Group, Careers Scotland, City of Edinburgh Council	Only beneficiaries	10 beneficiaries (patients)	Qualitative, secondary and primary quantitative data	1 year	Done	Not available	1.57	Grey literature	10	High
3	Varua, M.E., Stenberg, L.C.	2009	Evaluative	Research/ Academia	Australia	Australia	Nutrition	Daystar Foundation's provision of breakfast to school-aged children	Between 500 and 800 school children	Only beneficiaries	No detail provided	Secondary quantitative data	1 year	Done	Not available	4.00	Peer-reviewed	7	Low
4	Tim Goodspeed	2009	Forecast	Social enterprise	United Kingdom	United Kingdom	Mental Health	Workwise aims to successfully develop and train people with mental health problems in genuine business environment to encourage self-esteem and independence through work and thus contribute to their quality of life.	Trainees, Family/friends of trainees, Employers, Big Lottery, Grant Making Trust, Statutory funders, Business Links, EIF, Adult Further Education, Employees, Directors and volunteers, Suppliers, Referral Agents, Public and local community, Artists, Suffolk Mental Health Partnership Trust	All stakeholders Promoters, Implementers, Funders, Beneficiaries	24 trainees, 10 family/friends of trainees, 10 employers, Big Lottery, Grant Making Trust, Statutory funders, Business Links, EIF, Adult Further Education, 12 Employees, Directors and volunteers, Suppliers, Referral Agents, Public and local community, Artists, Suffolk Mental Health Partnership Trust	Qualitative, secondary and primary quantitative data	5 years	Done	0.035	3.09	Grey literature	10	High
5	Murphy R.	2010	Evaluative	Research/ Academia	Canada	Canada	Health care management	Consolidation of 2 Catholic health care organizations into one.	Board members, past and present, Governing and community and senior leadership teams, greater leadership team, and staff and physicians.	Only beneficiaries	32 participants	Qualitative and Primary data	1 year	Not done	Not available	7.00	Thesis (D.BA)	10	High
6	Lukoseviciute I.	2010	Forecast	Research/ Academia	Netherlands	Netherlands	Health Promotion	Smoking cessation policy for three different age groups (20-34, 35-64, 65+)	Governments (local and central), health insurers, providers, employers, and individual former smokers themselves.	All stakeholders Promoters, Implementers, Funders, Beneficiaries	Assumed two scenarios with stakeholders: business as usual and smoking policy implemented	Secondary quantitative data	4 years	Done	0.04	1.10	Thesis (MSc)	8	Low
7	Kaushik Biswas, Goverdhan Kumarikunta, Anandita Biswas and Liza Long	2010	Evaluative	Non-governmental organisation	United Kingdom	India	Child Health	CHAHA programme - a child-centred home and community-based case and support initiative for children living with HIV/AIDS	Children over 10 years old, Parents and caregivers, NGO staff, Children under 10 years old, Women-headed households, Teachers, Relatives/friends of households affected, Government, ART centre, local leader	Only beneficiaries	Children and 25 NGO staff, 630 children and 323 parents and caregivers surveyed.	Qualitative and quantitative (Survey)	3 years	Done	0.06	4.00	Grey literature	11	High
8	Bradly O'Le	2010	Evaluative	Public Agency	United Kingdom	United Kingdom	Sexual and Reproductive Health	Condom intervention, pregnancy testing and Chlamydia testing	Young people, parents of teenagers, Connexion staff, school and the local community	Implementers and beneficiaries	15 young people (44 in initial consultation and 7 to verify values) 13 parents of teenagers (2 in initial consultation and 1 to verify results) 18 Connexion staff trained by CSSP (7 in initial consultation and 11 to verify results and attribution) This represented 7% of the young people who were service users and 6% of the trained Connexion staff.	Qualitative and quantitative (Survey)	1 year	Done	0.035	8.00	Grey literature	10	High
9	COUI	2010	Forecast	Charity	United Kingdom	United Kingdom	Sexual and Reproductive Health	Teens & Toddlers programme targeting teens at risk of early pregnancy and sexual health issues.	Teens, families, schools, Government & Society, toddlers, volunteers, strategic funding organisations	Only beneficiaries	5 interviews with teens, 2 telephone interviews with families, 2 telephone interviews with schools, 2 telephone interviews with government local authority	Qualitative and quantitative (Secondary data)	5 years	Done	0.035	5.52	Grey literature	9	High
10	Jönsson et al	2011	Evaluative	Research/ Academia	Sweden	Kenya	Environmental Health	Household-based water treatment and safe storage	Local users of Solvatten, Solvatten AB, Solvatten facilitators, Swedish Cooperative Centre	All stakeholders Promoters, Implementers, Funders, Beneficiaries	As many as possible of local users of Solvatten, Solvatten AB, Solvatten facilitators, Swedish Cooperative Centre	Qualitative and quantitative (Secondary data)	5 years	Not done	0.03	26.00	Thesis (BSc.)	10	High
11	Robin Brady, International HIV/AIDS Alliance	2011	Evaluative	Non-governmental organisation	United Kingdom	Zambia	Sexual and Reproductive Health	Stigma and discrimination training component of the Alliance's Africa Regional Programme Phase 2 (ARP 2): training trainers, ensuring that the trainers rolled out the training through the use of district workshops and training treatment support workers who could provide health talks to the community at clinic sites in Mumbwa and Mazabuka communities.	People living with HIV, family members of people living with HIV who have been affected by stigma training, NGOs, other NGOs that have delivered the training and district workshops, trainers	All stakeholders Promoters, Implementers, Funders, Beneficiaries	People living with HIV, family members of people living with HIV who have been affected by stigma training, NGOs, other NGOs that have delivered the training and district workshops, trainers	Qualitative, secondary and primary quantitative data	2 years	Done	0.1137	21.20 (Mumbwa) 13.75 (Mazabuka)	Grey literature	11	High

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12	Kennedy Phillips	2011	Evaluative	Public agency	United Kingdom	United Kingdom	Health Promotion	Expert Patient Programme: self-management courses in the Wirral, focused on participants with a substance and alcohol misuse history.	Programme participants	Only beneficiaries	72 course participants divided into focus groups of 5-6 people. 30% of the participants completed questionnaire	Qualitative and Primary quantitative data	5 years	Done	Not available	6.09	Peer-reviewed	10	High
13	Helen Pank	2011	Evaluative	Social enterprise	United Kingdom	United Kingdom	Health Promotion	Gorgie City Farm community gardening project: to allow for old people to interact and engage in physical activity.	Volunteers, organisations providing social care services, visitors (adults), visitors (children), environment, city of Edinburgh, other community projects in Edinburgh and funders	Implementers, Promoters and beneficiaries	All 6 volunteers, 16 social care providers, 4 visitors (adults), visitors (children), environment, city of Edinburgh, other community projects in Edinburgh and funders. No detail on sampling type	Quantitative (Survey)	1 year	Done	0.035	3.56	Grey literature	8	Low
14	Glasgow Association of Mental Health (GAMH)	2011	Forecast	Charity	United Kingdom	United Kingdom	Mental Health	Clubhouse: Support for people recovering from mental illness.	Clubhouse members, strategic funder, referring agencies, clubhouse national and international bodies, carers and family members, staff members and employers,	Promoters and beneficiaries	Clubhouse members, 2 in depth exploratory interviews. 26 in depth data gathering interviews 3 regular attended reference group, strategic funder (1), referring agencies (10)	Qualitative (Interviews)	5 years	Done	0.035	5.38	Grey literature	8	Low
15	RM Insight	2011	Forecast	Research	United Kingdom	United Kingdom	Sexual and Reproductive Health	Speakeasy: sexual health project that offers courses to parents to help them acquire the knowledge and confidence to communicate with their children about sex.	Parents, children, state	Only beneficiaries	Parents (52 telephone interviews and 52 online survey), children (3 telephone interviews and 64 online survey), state	Qualitative, secondary data (policy analysis) and quantitative (Online Survey)	5 to 20 years	Done	0.035	2.15	Grey literature	10	High
16	Rebecca Shipley & Lois Hamilton	2011	Forecast	Public agency	United Kingdom	United Kingdom	Health Promotion	Healthwise: aims to increase the knowledge, understanding, awareness and information about health issues for those people who attend courses which focus on leading healthier lifestyles.	Health Champions, Healthwise employees, (together better the funding body), indirect beneficiaries (family, friends, colleagues, etc), Hull PCT, referral agencies	All stakeholders Promoters, Implementers, Funders, Beneficiaries	Health Champions, Healthwise employees, (together better the funding body), indirect beneficiaries (family, friends, colleagues, etc), Hull PCT	Qualitative and quantitative (Survey)	3 years	Done	0.035	2.57	Grey literature	9	High
17	Karen Carrick & Jessica Lindhof	2011	Forecast	Charity	United Kingdom	United Kingdom	Health Promotion	Stirling Walking Scheme: Promoting healthier lifestyles through walking.	Walkers and walk leaders, volunteers, NHS, local authority, paths for all	All stakeholders Promoters, Implementers, Funders, Beneficiaries	125 walkers and convenience sampling of walk leaders, volunteers, NHS, local authority, paths for all	Qualitative and secondary quantitative data	5 years	Done	0.035	9.00	Grey literature	10	High
18	Frontier Economics Ltd, WRVS	2011	Evaluative	Voluntary organisation	United Kingdom	United Kingdom	Healthcare management	Hospital-based services based at Leicester Royal Infirmary: services considered in analysis: Meet and Greet, Retail, Community Transport Scheme, Buggies and Clinic Volunteers.	The service users which includes hospital visitors and their friends and family, the volunteers providing the services, WRVS staff, and University Hospitals of Leicester NHS trust (UHL).	All stakeholders Promoters, Implementers, Funders, Beneficiaries	Service users which includes hospital visitors and their friends and family, the volunteers providing the services, WRVS staff, and University Hospitals of Leicester NHS trust (UHL).	Qualitative and secondary quantitative data	1 year	Done	Not available	1.98	Grey literature	10	High
19	Robin Brady, Arthritis Care	2011	Forecast	Charity	United Kingdom	United Kingdom	Health Education	Self-care training for people with long term conditions such as Arthritis, stroke.	The 209 participants	Only beneficiaries	Participants: 31 were randomly surveyed at six-month and twelve-month post-course intervals. 75% of the 31 surveyed responded (57%).	Primary and secondary quantitative data	5 years	Not done	0.035	7.25	Grey literature	7	Low
20	Frontier Economics Ltd, Whizz-Kidz	2011	Forecast	Charity	United Kingdom	United Kingdom	Child Health	Whizz-Kidz: provides mobility equipment that is more appropriate to the child's needs, in less time, more cheaply and for more children within a given budget.	Children, their family, local and central government, schools and the NHS	All stakeholders Promoters, Implementers, Funders, Beneficiaries	Children, their family, local and central government, schools and the NHS	Qualitative and secondary quantitative data	25 years	Done	Not available	65.00	Grey literature	8	Low
21	Misje, Jurid	2011	Evaluative	Non-governmental organisation	Tanzania	Tanzania	Child Health	Mkombozi: services related to physical health, provided to children and young people on the streets of Moshi. This includes basic medical care and health education provided directly in the streets as well as hospital referrals.	Children and young people from the streets of Moshi to whom three were girls; Romanal Dlomi, social welfare officer, Mawenzi regional hospital; Dr. Kireja May, doctor at Mawenzi regional; Joyce Yimo, counsellor ANGAZA; and 7 Mkombozi staff including street workers, the nurse and members of the SROI team	Only beneficiaries	12 children and young people from the streets of Moshi	Qualitative and secondary quantitative data	3 months	Done	Not available	2.40	Grey literature	8	Low
22	Justine Lawley & Karina Berzins	2011	Evaluative	Public agency	United Kingdom	United Kingdom	Mental Health	Changing Minds: was a project delivered by the South London and Maudsley NHS Foundation Trust (SLaM). It aimed to develop and equip participants to design and deliver mental health awareness training courses to challenge stigma and discrimination within staff groups and in their local communities.	Trainees, Training providers, Government, SLaM	Only beneficiaries	15 graduates of the training programme	Qualitative and secondary quantitative data	1 year	Not done	Not available	8.78	Grey literature	4	Low
23	Tong, Liza Sopheab, Heng Sovannary, Quot, HIV/AIDS Alliance	2012	Evaluative	Non-governmental organisation	Cambodia	Cambodia	Sexual and Reproductive Health	Prevention for most at risk populations and integrated care and prevention for people living with HIV and orphans and vulnerable children.	140 PLHIV, orphan and vulnerable children (OVC), caregivers, and community support volunteers	Only beneficiaries	140 PLHIV, OVC	Qualitative (Consultative) workshop and focus group	4 years	Not done	Not available	1.73	Grey literature	3	Low

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24	Jones M.	2012	Evaluative	Research/Academia	United Kingdom	United Kingdom	Health Promotion	Healthy Living Wessex Weight management scheme.	Beneficiaries	Only beneficiaries	292 participants including 104 adults, 31 children & young people, 6 GPs, 2 other health practitioners, 3 secondary health practitioners, 3 sports & leisure practitioner & 2 employers	Qualitative, secondary and primary quantitative data	3 years	Done	0.035	5.42	Grey literature	11	High
25	Lobley N. and Carrick K., Vivienne M.	2012	Evaluative	Voluntary organisation	United Kingdom	United Kingdom	Health Promotion	Bums Off Seats (BoS): Walking initiative.	Participants, Volunteer Walk Leaders, Bums Off Seats, NHS, Carers and Life Physical Activity Partnership	All stakeholders Promoters, Implementers, Funders, Beneficiaries	No sufficient detail	Qualitative, secondary and primary quantitative data	5 years	Done	0.035	5.00	Grey literature	9	High
26	Smith Pippa Satchwell	2012	Forecast	Non-governmental organisation	Zimbabwe	Zimbabwe	Health Promotion	The Stop AIDS Football League: Using football to improve both physical and mental wellbeing of its members and ongoing outreach activities alongside the football including a campaign awareness, information dissemination in the community drama/distribution and counselling/psychosocial support.	PIT members, family members, Health service providers, NGOs AIDS networks, suppliers, PIT board of trustees, PIT secretariat, HIV support groups and the community	All stakeholders Promoters, Implementers, Funders, Beneficiaries	PIT members, family members, NGOs AIDS networks, suppliers, PIT secretariat, HIV support groups and the community	Qualitative and quantitative (Survey)	20 years	Done	0.1	6.35	Grey literature	10	High
27	Bagley Andy	2012	Evaluative	Public agency	United Kingdom	United Kingdom	Mental Health	Leeds Survivor Led Crisis Service: support people in crisis and at risk of suicide	Manager & staff, Volunteers, Chair of trustees, visitors and callers in groups and family members, Government, Leeds Adult Social Care, NHS Leeds (Leeds PCT), NHS Leeds (Crisis Resolution & Home Treatment Team) and Leeds Personality Disorder Network	All stakeholders Promoters, Implementers, Funders, Beneficiaries	12 NHS Manager & staff, 6 Volunteers, Chair of trustees, 2 visitors and callers in groups and 2 family members, Government, Leeds Adult Social Care, NHS Leeds (Leeds PCT), NHS Leeds (Crisis Resolution & Home Treatment Team) and Leeds Personality Disorder Network	Qualitative and quantitative (Survey)	1 year	Done	Not available	5.17	Grey literature	10	High
28	McCorriston Elaine	2012	Evaluative	Social enterprise	United Kingdom	United Kingdom	Nutrition	Meals on Wheels: provide nutritious meals for clients.	clients, family carers, HCC and state, HCM staff, SEIF, luncheon club clients, community groups, volunteers	Implementers, Promoters and beneficiaries	clients (476), family carers (204), HCC, volunteers (7) and state	Qualitative and quantitative (survey)	1 year	Done	0.035	5.28	Grey literature	9	High
29	Age Concern Kingston upon Thames	2012	Evaluative	Charity	United Kingdom	United Kingdom	Health Promotion	Stay Well: fulfils a critical role in helping people proactively access both practical and emotional support, reducing isolation and loneliness and their spiralling consequences: depression, anxiety and failure to self-medicate, which can often lead to an emergency.	The older people who used the service, their families and health and social care professionals.	Implementers and beneficiaries	The older people who used the service, their families and health and social care professionals.	Qualitative and quantitative secondary data	1 year	Not done	Not available	11.00	Grey literature	4	Low
30	Bhumik et al	2013	Evaluative	Research/Academia	USA	USA	Child Health	Community based care management for paediatric asthma	Patients enrolled in the Community Asthma initiative and a comparative group of children with asthma, but not enrolled in the programme	Only beneficiaries	102 patients enrolled in the Community Asthma initiative compared to a comparative group of 559 children with asthma, but not enrolled in the programme	Quantitative (Secondary data)	3 years	Not done	0.1	1.85	Peer-reviewed	8	Low
31	Paths for All	2013	Evaluative	Public agency	United Kingdom	United Kingdom	Health Promotion	Glasgow health walks	Walkers and walk leaders, Paths for All, NHS Greater Glasgow and Clyde, Vulnerable individuals	Only beneficiaries	141 Walkers and 13 walk leaders, Paths for All, NHS Greater Glasgow and Clyde, Vulnerable individuals	Qualitative, secondary and primary quantitative data	1 year	Done	0.035	8.00	Grey literature	10	High
32	Gayle Whelan, Liverpool John Moores University	2013	Evaluative	Research/Academia	United Kingdom	United Kingdom	Mental Health	Get into Reading Initiative: aims to improve mental health and wellbeing.	The Reader Organisation, group attendees, volunteers, Get into Reading staff, The Lauries	Implementers and beneficiaries	Group attendees, volunteers, Get into Reading staff, The Lauries	Qualitative, secondary and primary quantitative data	1 year	Done	Not available	6.47	Grey literature	11	High
33	Bradly Joëlle, Leicestershire County Council	2013	Forecast	Public agency	United Kingdom	United Kingdom	Nutrition	Meals at Home: Hot, nutritious meals to elderly residents in Leicestershire 65 days a year.	Meals at home, lunch club attendees, volunteers, service user family members, drivers	Implementers, Promoters and beneficiaries	Meals at home, lunch club attendees, volunteers, service user family members, drivers	Qualitative quantitative (Interviews)	1 year	Done	0.035	2.05	Grey literature	8	Low
34	Bradly Joëlle, Butler William, Leatham Karl	2013	Evaluative	Charity	United Kingdom	United Kingdom	Mental Health	Recovery in Nottingham: Helping people recover from all types of substance abuse	Service users, other treatment service providers, volunteers scheme partners, Volunteers/mentors, significant others (parents, partners and children of service users), Nottingham City Service Commissioner, other state agencies (Social Services, DWP etc.)	Only beneficiaries	Service users, volunteers/mentors, Judiciary & prison Service, NHS, DWP, Social Services	Qualitative, secondary and primary quantitative data	1 year	Done	0.035	4.02	Grey literature	9	High
35	Bradly Joëlle, Bolas Chris	2013	Evaluative	Charity	United Kingdom	United Kingdom	Health Promotion	Substance misuse work for young people	Young people, family members, criminal justice system, health services, DWP	Only beneficiaries	44 young people	Qualitative, secondary and primary quantitative data	1 year	Done	0.035	4.00	Grey literature	11	High

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36	SVA Consulting	2013	Evaluative	Charity	Australia	Australia	Health Promotion	<i>Walk On</i> is an intensive activity-based community rehabilitation programme designed to assist the person with spinal cord injury to improve and maximise their functional ability and lead more independent life.	Participants of the Walk On programme, their families, partners, Partners (including universities), Spinal Cord Injuries Australia (SCIA), funders, paid carers, PhD students, Hospital Spinal Cord Units, Walk On staff, university students and Government	Only beneficiaries	Participants of the Walk On programme, their families, partners, Partners (including universities), Spinal Cord Injuries Australia (SCIA) and Government	Qualitative, secondary and quantitative data	1 year	Done	Not available	5.00 literature	9	High	
37	Eckley, Lindsay	2013	Forecast	Research/Academia	United Kingdom	United Kingdom	Mental Health	<i>The Quays</i> is a peer-led drug and alcohol recovery project in Wirral. The project offers befriending scheme, which provides peer support for people struggling to attend medical assessment appointments.	Volunteer befrienders, the befriendees, The Quays, ATOS Healthcare, NTG training, NHS services and the local government	Only beneficiaries	Volunteer befrienders and the befriendees	Qualitative, secondary and primary quantitative data	1 year	Done	0.035	11.91 literature	10	High	
38	nefi Consulting Christian Aid	2013	Evaluative	Non-governmental organisation	United Kingdom	Kenya	Sexual and Reproductive Health	<i>Filling the Gaps (FTG) project</i> , a project designed to improve the demand-side factors necessary to achieve the successful adherence of PWHIV (people living with HIV) to their ART (anti-retroviral therapies)	PWHIV, households with one or more PWHIV, home-based care givers (HBCGs), Religion leaders (RLs) and local community	Promoters and beneficiaries	PWHIV (45 intervention site, 30 control site), households with one or more PWHIV (45 intervention site, 30 control site), home-based care givers (HBCGs) (20 intervention site, 20 control site) Not applicable, Focus Group Discussions with PWHIV, Households, local community and religion leaders (10 and 5 intervention site, 10 control site) Not applicable	Qualitative, secondary and primary quantitative data	4 years	Done	Not available	1.85 literature	11	High	
39	Ofrim Jenny	2013	Forecast	Non-governmental organisation	Canada	Canada	Sexual and Reproductive Health	WiseGuyz program	WiseGuyz participants, partners, friends and peers of the participants, programme facilitators, Government of Alberta	Only beneficiaries	WiseGuyz participants, partners, friends and peers of the participants, Government of Alberta	Qualitative, secondary and primary quantitative data	5 years	Done	0.08	6.92 literature	10	High	
40	Wodinski et al.	2013	Forecast	Research	Canada	Canada	Maternal and Child Health	Healthy Empowered Resilient (H.E.R.) Pregnancy Program	Aboriginal pregnant clients, 20-29 years old	Only beneficiaries	77 pregnant clients	Qualitative and quantitative (survey)	1 year and 7 months	Not done	Not available	8.24 literature	7	Low	
41	Action on Addiction	2014	Evaluative	Non-governmental organisation	United Kingdom	United Kingdom	Mental Health	<i>Moving Parents and Children Together</i> , a programme developed by Action on Addiction, delivered by a range of partner agencies under licence. M-PACT supports children/young people aged 8-17 who are experiencing the effects of parental substance misuse within the family. The programme offers a 'Whole Family Approach'.	Parents, children, state	Only beneficiaries	49 families across Essex, Guernsey, Tower Hamlets and Wiltshire	Qualitative, secondary and primary quantitative data	1 year	Done	0.035	2.76 literature	9	High	
42	Arvidson, Malin Batty, Fraser Salisbury, David	2014	Forecast	Research/Academia	United Kingdom	United Kingdom	Mental Health	Community befriending delivered by Acacia to families affected by post-natal depression (PND).	Service users, volunteers, professionals, NHS services, and volunteers.	Only beneficiaries	39 service users, NHS services, and volunteers.	Qualitative, secondary and primary quantitative data	30 years	Not done	0.035	6.50 Peer-reviewed	9	High	
43	Marden R.	2014	Forecast	Research	United Kingdom	United Kingdom	Mental Health	<i>ESCAPE</i> is a pilot project working with adults with mental health problems and children at risk of social exclusion	Participants: adults and children, volunteers, families of participants, Swaffham Family Action, Swaffham Mind, Flagship Housing Trust, NHS Community Mental Health Team, local GPs, Family Intervention Team, Swaffham Junior School, local people, Garden Science Trust, Garden Organic (Master Gardener Programme), funders (EcoMinds), local businesses, environment	Implementers, Promoters and beneficiaries	34 adult participants, 30 children participants and 33 volunteers, families of participants, Swaffham Family Action, Swaffham Mind, Flagship Housing Trust, NHS Community Mental Health Team	Qualitative and Primary quantitative data	5 years	Done	0.035	1.94 literature	11	High	
44	Gardner C.	2014	Forecast	Non-governmental organisation	United Kingdom	United Kingdom	Mental Health	MOJO programme	Participants of the MOJO programme, family members of MOJO participants, professionals in the advisory group, staff in the programme, referral agents, funding agency, hosting agency, neighbours/community health services	Implementers, Promoters and beneficiaries	47 men, family members, organisations involved in the programme, the state	Qualitative and Primary quantitative data	3 years	Done	0.035	4.96 literature	10	High	
45	Willis Elizabeth Semple Amy de Waal Hugo	2016	Evaluative	Research/Academia	United Kingdom	United Kingdom	Mental Health	Three dementia peer support groups in South London	People with dementia, carers, group staff (unpaid)	Implementers and beneficiaries	Variable	Qualitative, secondary and primary quantitative data	1 year	Done	Not available	5.18 Peer-reviewed	8	Low	
46	Adam Richards	2016	Evaluative	Non-governmental organisation	United Kingdom	United Kingdom	Mental Health	Friendia (Befriending Service)	Individuals befriended, volunteer befrienders, Mantell Gwynedd, Carers Outreach Gwynedd and Môn, Age Cymru Gwynedd and Môn, Steering Group members, Gwynedd Council	Implementers, Promoters and beneficiaries	208 individuals befriended, 1211 volunteer befrienders, NHS organisation	Qualitative and Primary quantitative data	2 years	Done	0.035	2.81 literature	10	High	

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47	Bagnall Anne-Marie et al.	2016	Evaluative	Research/ Academia	United Kingdom	United Kingdom	Mental Health	Together for Health programme	Age UK Yorkshire & Humber, the local Age UKs, sample of Age UK clients, health and social care professionals	Only beneficiaries	277 clients	Qualitative and Primary quantitative data	1 year	Done	Not available	4.84	Grey literature	11	High
48	Kimani-Murage Elizabeth W et al.	2016	Evaluative	Research	Kenya	Kenya	Maternal and Child Health	Maternal Infant and Young Child Nutrition Project	Mothers in the two slums involved in the intervention, children in the intervention, relatives of mothers and children in the intervention, neighbours, healthcare providers in the community, traditional birth attendants/Herbalists, NGOs/CBOs/Feeding Centers/ Programs, Ministry of Health, local leaders, community health volunteers	Implementers, Promoters and beneficiaries	1100 mothers, 1100 children, 935 fathers, 52 grandmothers, 91 healthcare providers, 30 Community Health Volunteers, 15 data collectors, 10 day care centres	Qualitative, secondary and primary quantitative data	5 years	Done	0.065	71	Grey literature	12	High

Appendix 3: Ethics related documents

LSTM ethics approval



Dr Aduragbemi Banke-Thomas
Liverpool School of Tropical Medicine
Pembroke Place
Liverpool
L3 5QA

Tuesday, 10 February 2015

Dear Dr Banke-Thomas,

Research Protocol (14.054) Social Return on Investment of Emergency Obstetric and Newborn Care Training in Kenya

Thank you for your letter of 07/02/2015 providing the necessary in-country approvals for this project. I can confirm that the protocol now has formal ethical approval from the LSTM Research Ethics Committee.

The approval is for a fixed period of three years and will therefore expire on 09/02/2018. The committee may suspend or withdraw ethical approval at any time if appropriate. Approval is conditional upon:

- Continued adherence to all in-country ethical requirements.
- Notification of all amendments to the protocol for approval before implementation.
- Notification of when the project actually starts.
- Provision of an annual update to the Committee. Failure to do so could result in suspension of the study without further notice.
- Reporting of new information relevant to patient safety to the Committee
- Provision of Data Monitoring Committee reports (if applicable) to the Committee

Failure to comply with these requirements is a breach of the LSTM Research Code of Conduct and will result in withdrawal of approval and may lead to disciplinary action. The Committee would also like to receive copies of the final report once the study is completed. Please quote your Ethics Reference number with all correspondence.

Yours sincerely

**Dr Angela Obasi,
Chair,
LSTM Research Ethics Committee**

KNH ethics approval



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Ref: KNH-ERC/AI/28

2nd February, 2015

Dr. Abduragbemi Banke-Thomas
Principal Investigator
Liverpool School of Tropical Medicine
LIVERPOOL

Dear Dr. Thomas

Research Proposal: Social Return on Investment for Emergency Obstetric Care raining in Kenya (P718/12/2014)

This is to inform you that the KNH/UoN-Ethics & Research Committee (KNH/UoN-ERC) has reviewed and **approved** your above proposal. The approval periods are 2nd February 2015 to 2nd February 2016.

This approval is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
- c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
- e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal.*)
- f) Clearance for export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
- g) Submission of an *executive summary* report within 90 days upon completion of the study
This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

For more details consult the KNH/UoN ERC website www.erc.uonbi.ac.ke

Protect to discover

Informed consent for HCPs



INFORMED CONSENT FORM

Name of Principal Researcher: Dr. Aduragbemi Banke-Thomas

Name of Organisation: Liverpool School of Tropical Medicine

Name of Project: Social Return on Investment on Emergency Obstetric and Newborn Care Training in Kenya

Participant group: Health Care Providers

This informed consent form has two parts:

- Information Sheet (to share information about the research with you)
- Certificate of Consent (for signatures if you agree to take part)

INFORMATION SHEET

BACKGROUND

You are invited to participate in this research project, which is part of a doctoral thesis and an innovative evaluation of an Emergency Obstetric and Newborn Care (EmONC) training package for health care providers, which is aimed at improving capacity to provide quality EmONC. Before you decide, it is important for you to understand why the research is being done and what it entails. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you want more information. Take time to decide whether or not to participate.

You were chosen because you meet certain criteria for participation, which are: you are considered a beneficiary of the EmONC training and you provide the care to women, who are considered as ultimate beneficiaries.

Department for International Development (DFID) funding is being used to support this research. Ethical approval was received from the research and ethics committee of the Liverpool School of Tropical Medicine and the Kenyatta National Hospital Ethics and Research Committee.

PURPOSE OF THE RESEARCH

The research is being conducted to understand the impact of an Emergency Obstetric and Newborn Care (EmONC) training package that you benefitted from in the recent past. The Centre for Maternal and Newborn Health implements this training alongside partners here in Kenya. We want to understand the outcomes that you derive from EmONC training and the value that you place on such outcomes.

The results of this research will be crucial in understanding the impact that this training intervention is having on women, who are the ultimate beneficiaries of care.



PROCEDURE

You are being invited to take part in a discussion with 6-8 other persons with similar backgrounds. For the focus group discussion, a member of the research team will guide the discussion. The focus group will start with the focus group moderator, making sure that you are comfortable. Questions that you might have about the research can be answered at this point.

Then we will ask you to describe outcomes that you experienced following your participation in the training. Together, we will develop indicators for these outcomes that you have described. Then I will ask you how long you reckon that the outcomes last for and what value you place on the outcomes, either as fixed costs or financial proxies. Finally, we will talk about what proportion of the impact you reckon is due to the EmONC training that you received and what would have happened without the training in your opinion.

The discussion will take place in [location of the FGD], and no one else but the people who take part in the discussion, the note taker and I will be present. The entire discussion will be recorded, with your permission, but no one will be identified by name on the recording. Recordings will be stored on a secure drive and will be in possession of the principal researcher only. Information recorded is confidential. The recordings will be destroyed after 5 years.

DURATION

The focus group discussion will be held once and will last between one and a half and two hours.

RISKS

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the discussion if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

POTENTIAL IMPACT ON PARTICIPANTS

There is no potential risk or discomfort in this research.

EXPECTED BENEFITS FOR PARTICIPANTS AND SOCIETY

By participating, you would be contributing invaluable feedback to be used in improving emergency obstetric care provision. There is no direct benefit to participant.

REIMBURSEMENTS

No financial incentive will be given to participants, though light refreshments will be provided during the focus group sessions.



CONFIDENTIALITY

We will ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know, however, that we cannot prevent participants who were in the group from sharing things that should be confidential.

Any information obtained from you during the discussion will be anonymised. All data will be entered into the database and securely stored. Data will be transported out of the country for analysis in the United Kingdom. Data will only be used for the purposes of this evaluation.

DISSEMINATION OF RESULTS

Results will be published in peer-reviewed journals and in print and e-thesis format.

PARTICIPATION AND WITHDRAWAL

Choice to participate in this study relies solely on you. At any time during the research, you can choose to withdraw without consequence to you. You can refuse to answer any question you do not want to answer and still be part of the study.

RIGHTS OF PARTICIPANTS

You do not lose legal rights while participating in this study.

CONTACT

Please contact the principal researcher on the telephone number 08X XXX XXXX, if you have questions or concerns about this study.

You can also contact the Ethics committee regarding any concerns you have about the conduct of the research, if you do not want to contact the principal researcher.

Contact Details:

Research and Ethics Committee
Liverpool School of Tropical Medicine
1, Pembroke Place
L3 5QA
United Kingdom
+44(0)151 705 3100

Kenya Medical Research Institute
Mbagathi Rd. Nairobi, Kenya
P.O. BOX 54840 - 00200
+254 (0)20 2713349
+254 (0)20 2722541
0722-205901



CERTIFICATE OF CONSENT

The above information was clearly explained to me in English/Swahili by the administrator of the instrument and I understand that language. I was given the opportunity to ask questions which were answered satisfactorily.

I hereby voluntarily consent to participate and have received a copy of this form.

I am also aware that the discussion will be recorded and I consent to this.

Signature of participant / Date
Thumbprints for illiterate participants

For administrator,
I certify that all information concerning the research was accurately provided to the participant.

Signature of administrator / Date

A copy of this information will be given when you return the completed form.

THANK YOU

Informed consent for women - English



INFORMED CONSENT FORM

Name of Principal Researcher: Dr. Aduragbemi Banke-Thomas

Name of Organisation: Liverpool School of Tropical Medicine

Name of Project: Social Return on Investment on Emergency Obstetric and Newborn Care Training in Kenya

Participant group: Women who have received Emergency Obstetric Care from trained health care providers

This informed consent form has two parts:

- Information Sheet (to share information about the research with you)
- Certificate of Consent (for signatures if you agree to take part)

INFORMATION SHEET

BACKGROUND

You are invited to participate in this research project, which is part of a doctoral thesis and an innovative evaluation of an Emergency Obstetric and Newborn Care (EmONC) training package for health care providers, which is aimed at improving capacity to provide quality EmONC for women. Before you decide, it is important for you to understand why the research is being done and what it entails. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you want more information. Take time to decide whether or not to participate.

You were chosen because you received EmONC from a trained health care provider.

Department for International Development (DFID) funding is being used to support this research. Ethical approval was received from the research and ethics committee of the Liverpool School of Tropical Medicine and the Kenyatta National Hospital Ethics and Research Committee.

PURPOSE OF THE RESEARCH

The research is being conducted to understand the impact of the care that you received from a health facility with health care providers that have been trained in Emergency Obstetric and Newborn Care (EmONC) in the recent past. The Centre for Maternal and Newborn Health implements this training alongside partners here in Kenya. We want to understand the outcomes that you derive from the care provided by trained skilled birth attendants.

The results of this research will be crucial in understanding the impact that this training intervention is having on women, who are the ultimate beneficiaries of care.



PROCEDURE

You are being invited to take part in a discussion with 6-8 other persons with similar backgrounds. For the focus group discussion, a member of the research team will guide the discussion. The focus group will start with the focus group moderator, making sure that you are comfortable. Questions that you might have about the research can be answered at this point.

Then we will ask you to describe outcomes that you experienced following the EmONC received during your last delivery. Together, we will develop measures for these outcomes that you have described. Then I will ask you how long you reckon that the outcomes last for and what value you place on the outcomes, either as fixed costs or financial proxies. Finally, we will talk about what proportion of the impact you reckon is due to the care that you received from a trained health worker and what would have happened without the care in your opinion.

The discussion will take place in [location of the FGD], and no one else but the people who take part in the discussion, the note taker and myself will be present during this discussion. The entire discussion will be recorded, but no one will be identified by name on the recording. The recording will be stored on a secure drive and will be in possession of the principal researcher only. The information recorded is confidential. The recordings will be destroyed after 5 years.

DURATION

The focus group discussion will be held once and will last between one and a half and two hours.

RISKS

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the discussion if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

POTENTIAL IMPACT ON PARTICIPANTS

There is no potential risks or discomfort in this research.

EXPECTED BENEFITS FOR PARTICIPANTS AND SOCIETY

By participating, you would be contributing invaluable feedback to be used in improving emergency obstetric care provision. There is no direct benefit to participant.

REIMBURSEMENTS

No financial incentive will be given to participants, though light refreshments will be provided during the focus group sessions.



CERTIFICATE OF CONSENT

The above information was clearly explained to me in English/Swahili by the administrator of the instrument and I understand that language. I was given the opportunity to ask questions which were answered satisfactorily.

I hereby voluntarily consent to participate and have received a copy of this form.

I am also aware that the discussion will be recorded and I consent to this.

Signature of participant / Date
Thumbprints for illiterate participants

For administrator,
I certify that all information concerning the research was accurately provided to the participant.

Signature of administrator / Date

A copy of this information will be given when you return the completed form.

THANK YOU



CONFIDENTIALITY

We will ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know that we cannot prevent participants who were in the group from sharing things that should be confidential.

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DISSEMINATION OF RESULTS

Results will be published in peer-reviewed journals and in print and e-thesis format.

PARTICIPATION AND WITHDRAWAL

Choice to participate in this study relies solely on you. At any time during the research, you can choose to withdraw without consequence to you. You can refuse to answer any question you do not want to answer and still be part of the study.

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Please contact the principal researcher on the telephone number 08X XXX XXXX, if you have questions or concerns about this study.

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+254 (0)20 2713349
+254 (0)20 2722541
0722-205901

Informed consent for women - Swahili



FOMU YA RIDHAA

Jina La mtafiti mkuu: Dakta Aduragbemi Banke-Thomas

Jina la shirika: Liverpool School of Tropical Medicine

Jina la utafiti: Jamii Kurudi juu ya Uwekezaji wa matibabu ya dharura ya uzazi kutoka kwa waauguzi wa afya

Kundi linaloshiriki: Mama ambao wamepokea matibabu ya dharura ya uzazi kutoka kwa wauguzi walihitimu

Fomu hii ya ridhaa inasehemu mbili:

- Habari (sehemu ya kuelezea habari ya utafiti pamoja nawe)
- Cheti cha kukubali (iko na sehemu ya kutia sahihi iwapo unakubali kushiriki)

HABARI

USULI

Unakaribishwa kushiriki katika utafiti huu ambayo ni sehemu ya shahada ya juu na iliyobunifu kutadhmini huduma ya dharura ya uzazi kwa mafunzo ya wahudumu wa aya inayolenga kuboresha uwezo wa kupeana huduma hiyo kwa akina mama. Kabla uamue, ni muhimu kwako kuelewa mbona utafiti huu unafanywa na unahusisha nini.

Tafadhali chukua muda wako kusoma ujumbe kwa makini na jadiliana na wengine iwapo ungependa. Tuulize iwapo kuna jambo ambalo halieleweki ama iwapi ungependa habari Zaidi. Chukua muda kabla hujaamua kushiriki.

Ulichaguliwa kwa kuwa ulipokea huduma hii kutoka kwa muuguzi aliyehitimu.

Fedha kutoka kwa Idara ya maendeleo ya kimataifa (DFID) inasaidia kufanya utafiti huu. Idhini ya kimaadili ilipokelewa kitoka kwa kamati ya utafiti na maadili ya Liverpool School of Tropical Medicine na kamati ya maadili na utafiti kutoka hospitali kuu ya rufaa ya Kenyatta.

LENGO LA UTAFITI

Utafiti huu unaendeshwa kuelewa kiwango cha huduma inayopeanwa kutoka kwa taasisi za afya na wauguzi amabo wamefunzwa kupeana huduma ya dharura inayohusisha uzazi. Shirika la wajawazito na watoto wachanga wanatekeleza mafunzo haya. Tunataka kuelewa matukio amabyo wewe hupokewa kutoka kwa huduma unayopata kutoka kwa wahudumu hawa.

Matokeo ya utafiti huu utakuwa wa muhimu kuelewa kiwango cha mafunzo haya inavyodhihirika kwa akina mama ambao wao ndio wanalegwa katika huduma hii.



UTARATIBU

Unaalikwa kushiriki katika majadiliano pamoja na watu wengine sita had inane waliona hulka sawa na wewe. Katika makundi hayo, mshiriki katika utafiti ataelekeza majadiliano. Kundi hilo litaanza na msimamizi wa kundi atakayehakikisha kila mmoja yuko sawa. Maswali ambayo huna kuhusu utafiti huo yatajiibiwa pale.

Kasha tutakuuliza ueleze matokeo ambayo yamekukumba kuambatana na huduma ya dharura ya afya ya uzazi kwa akina mama uliyopokea ulipojifungua mwisho. Pamoja , tutatengeze vitengo kuhusu matokeo hayo ambayo umeelezea. Kasha nitakuuliza ni kwa muda upi unaona matokeo hayo hudumu na manufaa yapi unapeana kwa matokeo yake aidha katika gharama ama kifedha. Mwisho tutazungumzia kiwango kipi cha huduma ulipokea kutoka kwa muuguzi aliyepaata mafunzo na ni lipi ambalo lingetendeka iwapo hungepokea huduma hiyo kwa maoni yako.

Majadiliano yatafanyika kaika sehemu ambayo hakuna mtu mwingine aktahusika ila wale wanaoshiriki katika majadiliano hayo, yule anayechukua rekodi na mimi nitakuwepo katika majadiliano hayo. Majadiliano hayo yatanaswa lakini hakuna yeyote atakayetambuliwa katika jina la rekodi. Rekodi iliyonaswa itahifadhiwa pahala slama na itamilikiwa na mimi kama mtafiti mkuu. Habari iliyonaswa ni siri. Habari hiyo itaharibiwa baada ya miaka mitano.

WAKATI

Makundi ya majadiliano yataandaliwa mara moja na yatajukuwa kati ya saa moja na nusu ama masaa mawili.

HATARI

Kuna hatari iwapo utapeana habari ya kibinafsi au habari ya siri au iwapo ungehisi kwamba unawasiwasi kuzungumzia maswala mengine. Hata hivyo, hatungependa hya kutendeka. Hufai kujibu maswali yote ama kushiriki katika majadiliano iwapo unahisi maswala mengine ni ya kibinafsi ama ukizungumzia anakuwa na wasiwasi

ATHARI YA UWEZO WASHIRIKI

Hakuna athari zozote wakati utafiti huu utakuwa ukiendeshwa.

FAIDA ZINAZOTARAJIWA KWA WASHIRIKI NA JAMII

Kwa kushiriki utakuwa unachagua habari mwafaka ya kuboresha huduma ya dharura ya uzazi kwa akina mama. Hakuna faida husika kwa mshiriki.

MALIPO

Hakuna malipo ya kujinufaisha itapeanwa kwa washiriki ijapo vinywaji vitapeanwa wakati wa mafunzo ya makundi.



USIRI

Tutakuuliza Wewe Na Wengine Katika Kikundi Msizungumze Na Watu Nje Ya Kundi Lenu Kile Kilichosemwa. Kwa njia nyingine, tutatarajia kwamba habari iliyosemwa iwe siri. Lazima uelewe kuwa hatuwezi zuia washiriki waliyo kuwa kwenye kundi kupeana habari iliyo siri.

Ujumbe wowote utakaopatikana kwenye majadiliano itakuwa siri. Habari yote itatiwa kwenye orodha itakoyowekwa pahala salama. Habari hiyo itasafirishwa kutoka Kenya hadi nchi Ya Britain kufanyiwa ugaguzi. Habari itatumiwa kwa minajili ya kutathminiwa.

KUSAMBAZA MATOKEO

Matokeo yatachapishwa kwenye nakala na kwa njia ya mtandao.

USHIRIKI NA KUJIONDOA

chaguo la kushiriki kwenye utafiti huu inakuhusu wewe mwenyewe. Katika wakati wowote utafiti ukiendelea, unaweza chagua kujiondoa bila athari yoyote. Unaweza pia kata kujibu swali lolote ambalo hulielewi na bado ushiriki kwenye utafiti.

HAKI ZA MSHIRIKI

Hupotezi haki zozote unapoendelea kushiriki kwenye utafiti.

WASILIANA

Tafadhali wasiliana na mtafiti mkuu kwa njia ya simu 08X XXX XXXX, iwapo unamaswahili kuhusu utafiti huu.

Pia unaweza wasiliana na kamatii ya maadili iwapo kuna jambo kuhusu uendeshaji wa utafiti huu.

Contact Details:

Research and Ethics Committee
Liverpool School of Tropical Medicine
1, Pembroke Place
L3 5QA
United Kingdom
+44(0)151 705 3100

Kenya Medical Research Institute
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+254 (0)20 2722541
0722-205901



CHETI CHA KUKUBALI

Habari iliyopojuu ilielezwa vikamilifu kwanu kwa Kiingereza/Kishwahili na msimamizi na ninaelewa lugha hiyo. Nilipewa frasa ya kuuliza maswali ambayo yalijibiwa vikamilifu.

Kwa hiari yangu nakubali kushiriki na nimepokea fomu kama hii.

Pia nafahamu majadiliano yatanaswa na nimepeana ridhaa.

Sahihi ya mshiriki/Tarehe
Sahihi ya kidole kwa wale wasiweza kusoma

Ya Msimamizi
Naidhinisha habari inayohusisha utafiti huu ulipeanwa kwa njia mwafaka kwa mshiriki.

Sahihi ya Msimamizi / Tarehe

Sehemu ya ujumbe huu utapeanwa utakapo rudisha fomu zilizojazwa.

ASANTE

Informed consent for key informants



INFORMED CONSENT FORM (*Generic*)

Name of Principal Researcher: Dr. Aduragbemi Banke-Thomas

Name of Organisation: Liverpool School of Tropical Medicine

Name of Project: Social Return on Investment on Emergency Obstetric Care Training in Kenya

Participant group: Stakeholder of Emergency Obstetric Care (EmONC) training package for health care providers or of the care that trained health care providers provide in the facilities

This informed consent form has two parts:

- Information Sheet (to share information about the research with you)
- Certificate of Consent (for signatures if you agree to take part)

INFORMATION SHEET

BACKGROUND

You are invited to participate in this research project, which is part of a doctoral thesis and an innovative evaluation of an Emergency Obstetric and Newborn Care (EmONC) training package for health care providers, which is aimed at improving capacity to provide quality EmONC. Before you decide, it is important for you to understand why the research is being done and what it entails. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you want more information. Take time to decide whether or not to participate.

You were chosen because you meet the criteria for participation, which are: you are considered a stakeholder of the EmONC training or of the care that trained health care providers offer in the facilities.

Department for International Development (DFID) funding is being used to support this research. Ethical approval was received from the research and ethics committee of the Liverpool School of Tropical Medicine and the Kenyatta National Hospital Ethics and Research Committee.

PURPOSE OF THE RESEARCH

The research is being conducted to understand the impact of an Emergency Obstetric and Newborn Care (EmONC) training package that you benefitted from in the recent past. The Centre for Maternal and Newborn Health implements this training alongside partners here in Kenya. We want to understand the outcomes that you derive from EmONC training and the value that you place on such outcomes.

The results of this research will be crucial in understanding the impact that this training intervention is having on women, who are the ultimate beneficiaries of care.



PROCEDURE

By now, you would have received a letter of invitation to take part in an interview. You can pull out of the interview at any time. Questions that you might have about the research can be answered at this point. The interview will be with the principal researcher. The interview will start by establishing your role as it relates to the EmONC training package.

Then I will ask you to describe outcomes that you experienced following your participation in the training. Together, we will develop indicators for these outcomes that you have described. Then I will ask you how long you reckon that the outcomes last for and what value you place on the outcomes, either as fixed costs or financial proxies. Finally, we will talk about what proportion of the impact you reckon is due to the EmONC training or the care itself and what would have happened without the training in your opinion.

The interview will take place at any location comfortable for you and no one else but I, will be present. The entire discussion will be recorded, with your permission, but no one will be identified by name on the recording. Recordings will be stored on a secure drive and will be in possession of the principal researcher only. Information recorded is confidential. The recordings will be destroyed after 5 years.

DURATION

The interview will be held once and will last about 40 minutes.

RISKS

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the discussion if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

POTENTIAL IMPACT ON PARTICIPANTS

There is no potential risk or discomfort in this research.

EXPECTED BENEFITS FOR PARTICIPANTS AND SOCIETY

By participating, you would be contributing invaluable feedback to be used in improving emergency obstetric care provision. There is no direct benefit to participant.

REIMBURSEMENTS

No financial incentive will be given to participants, though light refreshments will be provided during the focus group sessions.



CONFIDENTIALITY

We will ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know, however, that we cannot prevent participants who were in the group from sharing things that should be confidential.

Any information obtained from you during the discussion will be anonymised. All data will be entered into the database and securely stored. Data will be transported out of the country for analysis in the United Kingdom. Data will only be used for the purposes of this evaluation.

DISSEMINATION OF RESULTS

Results will be published in peer-reviewed journals and in print and e-thesis format.

PARTICIPATION AND WITHDRAWAL

Choice to participate in this study relies solely on you. At any time during the research, you can choose to withdraw without consequence to you. You can refuse to answer any question you do not want to answer and still be part of the study.

RIGHTS OF PARTICIPANTS

You do not lose legal rights while participating in this study.

CONTACT

Please contact the principal researcher on the telephone number 08X XXX XXXX, if you have questions or concerns about this study.

You can also contact the Ethics committee regarding any concerns you have about the conduct of the research, if you do not want to contact the principal researcher.

Contact Details:
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CERTIFICATE OF CONSENT

The above information was clearly explained to me in English/Swahili by the administrator of the instrument and I understand that language. I was given the opportunity to ask questions which were answered satisfactorily.

I hereby voluntarily consent to participate and have received a copy of this form.

I am also aware that the discussion will be recorded and I consent to this.

Signature of participant / Date
Thumbprints for illiterate participants

For administrator,
I certify that all information concerning the research was accurately provided to the participant.

Signature of administrator / Date

A copy of this information will be given when you return the completed form.

THANK YOU

Appendix 4: Materials relating to Making it Happen

Full training programme

Life Saving Skills – Essential Obstetric Care & Newborn Care Course

TRAINING PROGRAMME

DAY 1

Morning Session

08.00-10.30	Training preparation	All Faculty/Admin
10.30-10:50	Tea/Coffee Break	All Faculty/Admin
10:50-13.00	Training preparation	All Faculty/Admin
13.00-13.40	Lunch Break	

Afternoon Session

13.30-14.00	Registration of participants	Admin
14.05-14.15	Welcome and Introductions	County Health Directorate
	Pre-training Knowledge and Skills Assessment	LSTM Kenya
15:40-16:00	Introduction Lecture MoH/LSTM	DRH
16.00-16.20	Tea/Coffee Break	
16.20-16.50	Lecture	Infection Prevention & Control Kenya Faculty
17.00	End of day 1	
17.00-17.30	Faculty meeting and set up for day 2	All Faculty/Admin

DAY 2 –

Morning Session

07.30-08.00	Faculty meeting	All Faculty	
07.45-08.00	Registration	Admin	
08.00-08.15	Re-cap of Day 1	NM/OBGYN	
08.20-08.40	Lecture	Normal Pregnancy and ANC	Kenya Faculty
08.45	Breakout sessions	Antenatal Care	

Room	1	2	3	4
Faculty	NM	OBGYN/NM	KF/KF	KF/KF
Station	Booking ANC	Obstetric Examination	Rapid ANC Tests	Documentation in MCH booklet
08.45	A	B	C	D
09.00	D	A	B	C
09.15	C	D	A	B
09.30	B	C	D	A

09.45-10.05	Lecture	Newborn Care Examination of Newborn	NM
10.05-10.25	Tea/Coffee Break		
10.25	Breakout Sessions	Newborn Care	

Room	1	2	3	4
Faculty	NM	OBGYN/NM	NM	NM
Station	Preparation for Delivery	V/E in Labour	Normal Delivery & Immediate Care	Newborn Examination
10.25	A	B	C	D
10.40	D	A	B	C
10.55	C	D	A	B
11.10	B	C	D	A

11.25 – 11.40	Lecture	ABC Maternal Resuscitation	Kenya Faculty
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11.40 – 11.45 **Demonstration** ABC OBGYN/NM
 11.45 **Breakout Session** ABC Maternal Resuscitation

Room	1	2	3	4
Faculty	AW/KF	LC/KF	KF/KF	
Station	Airway Management	CPR	Blood Transfusion	Venous Cut-Down
11.45	A	B	C	D
12.05	D	A	B	C
12.25	C	D	A	B
12.45	B	C	D	A

13.05 – 13.55 **Lunch**

Afternoon Session

13.55-14.15 **Lecture** Neonatal Resuscitation *Kenya Faculty*
 14.15 **Breakout Session** Newborn Resuscitation

Room	1	2	3	4
Faculty	NM	AW/KF	NM/OBGYN	NM/OBGYN
Station	Assessment, Golden Minute	Difficulties in Breathing (Not Crying, Meconium aspiration, Gaspings, bag and mask)	Low, No HR	Newborn Resuscitation – all steps
14.15	A	B	C	D
14.35	D	A	B	C
14.55	C	D	A	B
15.15	B	C	D	A

15.15 – 15.35 Tea/Coffee Break

15.35 – 15.50 **Lecture** Communication *NM/OBGYN*
 15.50 – 16.20 **CTR Group Work** *All faculty*
 16.20 – 17.10 **CTR Group Work Feedback**
 17.10 – 17.40 **Faculty Meeting** *All Faculty*

End of Day 2

DAY 3 -

Morning Session

07:30-08:00 Faculty Meeting *All Faculty*
 07:45-08.00 Registration *Admin*
 08.00-08.15 Re-cap of Day 2 *NM/OBGYN*
 08.15-08.35 Lecture Shock and Unconscious Patients *NM/OBGYN*
 08.35 Breakout Sessions Shock and Unconsciousness

Room	1	2	3	4
Station	Unconscious	Hypovolaemia	Septic	Cardiogenic
Faculty	<i>NM/OBGYN</i>	<i>NM/OBGYN</i>	<i>NM/OBGYN</i>	<i>OBGYN</i>
08.35	A	B	C	D
08.55	D	A	B	C
09.15	C	D	A	B
09.35	B	C	D	A

10.00-10.20 Lecture Obstetric Haemorrhage *NM*
 10.20-10.25 DVD Active Management of 3rd Stage *NM*
 10.25-10.45 Tea/Coffee Break
 10.45 Breakout Sessions Obstetric Haemorrhage

Room	1	2	3	4
Station	Workshop: Volume replacement	Workshop: Atonic uterus	Scenario: Placenta abruption	Scenario: Ante partum haemorrhage
Faculty	<i>NM/OBGYN</i>	<i>NM</i>	<i>OBGYN</i>	<i>OBGYN</i>
10.45	A	B	C	D
11.05	D	A	B	C
11.25	C	D	A	B
11.45	B	C	D	A

12.10 – 13.00 - Lunch

DAY 4

Morning Session

07:30-08:00	Faculty Meeting				All Faculty
07:45-08:00	Registration				Admin
08:00-08.15	Re-cap of Day 3				NM/OBGYN
08.15-08.35	Lecture	Preventing Obstructed Labour			NM
08.35	Breakout Sessions	Preventing Obstructed Labour			

Room		1	2	3	4
Faculty		NM/OBGYN	NM/OBGYN	NM/OBGYN	NM/OBGYN
08.35	Partograph 1 & 2	A	B	C	D
08.55	Partograph 3	A	B	C	D
09.15	Partograph 4	A	B	C	D
09.35	Partograph 5	A	B	C	D

09.55	Tea/Coffee Break				
10.15-10.45	Lecture	Assisted Vaginal Delivery			OBGYN
	DVD	Assisted Vaginal Delivery (short version)			OBGYN
10.45	Breakout Sessions	Assisted Vaginal Delivery			

Room	1	2	3	4
Station	AVD Indications, Equipment, Prerequisites	AVD: Determining foetal position, cup application	AVD: Skill	Failed vacuum, complications
Faculty	NM/OBGYN	NM/OBGYN	OBGYN	NM/OBGYN
10.45	A	B	C	D
11.05	D	A	B	C
11.25	C	D	A	B
11.45	B	C	D	A

12.10 – 13.00 - Lunch

Afternoon Session

13.00-13.30	Lecture	Other obstetric emergencies	<i>OBGYN</i>
	DVD	Shoulder Dystocia	<i>OBGYN</i>
	Lecture cont.	Other obstetric emergencies	<i>OBGYN</i>
	DVD	Breech	<i>OBGYN</i>

13.30 Breakout Sessions Other obstetric emergencies

Room	1	2	3	4
Station	Breech Delivery	Shoulder Dystocia	Cord Prolapse	Twin Delivery
Faculty	<i>NM/OBGYN</i>	<i>NM/OBGYN</i>	<i>NM</i>	<i>NM</i>
13.30	A	B	C	D
13.50	D	A	B	C
14.10	C	D	A	B
14.30	B	C	D	A

14.30-14.50 Tea/Coffee Break

14.50-15.10	Lecture	Surgical Skills	<i>OBGYN</i>
	DVD	Caesarean Section	<i>OBGYN</i>

15.25 Breakout Sessions Surgical Skills

Room	1	2	3	4
Station	Manual Removal of Placenta	Pre-op CS: Indications and consent (+antibiotic use)	Difficulties at CS +peri-op care (Split groups into 2 groups Clinicians/Midwives)	Perineal Repair
Faculty	<i>NM</i>	<i>NM/OBGYN</i>	<i>OBGYN</i>	<i>NM/OBGYN</i>
15.25	A	B	C	D
15.45	D	A	B	C
16.05	C	D	A	B
16.25	B	C	D	A

16.45 End of Day 4

16.45 – 17.20 Faculty meeting *All Faculty*

DAY 5

Morning Session

07:30-08:00	Faculty Meeting		All Faculty
07:45-08:00	Registration		Admin
08:00-08:15	Re-cap of Day 4	NM/OBGYN	
08:15-08:35	Lecture	Post Abortion Care	Kenya Faculty
	DVD	Post Abortion Care (short version)	Kenya Faculty
08.35	Breakout Sessions	Post abortion care	

Room	1	2	3	4
Station	MVA: Procedure	PAC: Diagnosis and pre-procedure assessment	Assessment and treatment of Complications and care of equipment	PAC: Components of PAC
Faculty	KF/KF	OBGYN	NM/OBGYN	NM/OBGYN
08.35	A	B	C	D
08.55	D	A	B	C
09.15	C	D	A	B
09.35	B	C	D	A

10.00-10.20 **Lecture** Postnatal Care of Mother & Baby, Routine Care of the Newborn Kenya Faculty

10.20-10.40 **Tea/Coffee Break**

10.40 **Breakout Sessions** Postnatal Care of Mother & Baby

Room	1	2	3	4
Station	Maternal PN Danger signs: Drill scenario	Puerperal Sepsis	Newborn Drills: Danger signs, Postnatal	Special Cases and Newborn Sepsis
Faculty	NM/OBGYN	NM/OBGYN	NM	KF/KF
10.40	A	B	C	D
11.00	D	A	B	C
11.20	C	D	A	B
11.40	B	C	D	A

12.00-12.30 **Lecture** Preterm Baby, Neonatal Jaundice Kenya Faculty

12.30-13.30 **Lunch**

Appendix 5: Topic guides and value game

Topic guide: FGD Healthcare providers

HCP

FOCUS GROUP DISCUSSION TOPIC GUIDE: HEALTH CARE PROVIDER PERCEPTION OF OUTCOMES OF EmONC TRAINING

Staff

1. Moderator: responsible for coordination of the discussion
2. Assistant: responsible for taping and making notes, general logistics and planning.

Agenda

Introduction

We are meeting to discuss your perceptions of the outcomes of the EmONC training that you received some time ago. I will start by asking you to identify and describe your interaction regarding the training intervention. In addition, I will inquire about what you feel were positive or negative outcomes from the training. Then I would ask you to describe very briefly an experience that relates to the outcomes already identified, which you reckon relate directly to the impact of the training. We will then go on to discuss some of your experiences in more detail. The entire session will take between 1 and a half and two hours. During this time we will provide you with some light refreshments. We will tape the sessions but nothing you say on tape will be linked to you. What we discuss here will remain confidential. We are only taping the sessions because we need to have an accurate record of the discussions.

Let us set our ground rules to foster good discussions.

Questions to be discussed:

1. Can you please tell us your name and share something about your experience working in maternity.
2. Think back to the EmONC training that you attended some time back, what do you think about the organisation of the training?
3. What was your view about the training content?
4. What do you think your role is regarding the EmONC training that you attended?
5. How would you gauge yourself, comparing before and after the training?
Prompt Can you tell me more?
 - a. What do you consider as positive outcomes due to the training on you and your practice?
 - b. What do you consider as negative outcomes due to the training on you and your practice?

HCP

6. On the piece of paper in front of you, list three of these outcomes of the training that you consider most important to you. Separate the positives from negatives. Let us discuss afterwards.
7. On the piece of paper in front of you, please state how long do you think the effect of these outcomes that you received lasted or lasts for? And we will discuss your choice later.
 - a. *Probe* How long were you confident to do things you learnt?
 - b. *Probe* How long were you able to accurately remember what you were taught?
8. What are the other things that you think have contributed to the outcomes that you describe? (In the past and currently)
9. On the piece of paper in front of you, in your opinion, what portion of this outcome is due solely to this training? *Let us discuss afterwards*
10. *Probe* Are there other similar trainings that you have attended that you think may have also contributed to these outcomes that you have mentioned?
11. On the piece of paper in front of you, if you were to place a financial value on these outcomes that you listed, what would these be? We will use the value game for this. Why have you made this choice? *And we will discuss.*
12. Who else do you consider as a stakeholder of this intervention? And Why?

I would like to thank you all for participation.

Topic guide: KII Women (English)

Women

FOCUS GROUP DISCUSSION TOPIC GUIDE: WOMEN WHO RECEIVED CARE FROM HCPs TRAINED ON EmONC

Staff

1. Moderator: responsible for coordination of the discussion.
2. Assistant: responsible for taping and making notes, general logistics and planning.

Agenda

Introduction

There is an on-going training for health workers in this facility, so that they can deliver quality care to women when they access facility to deliver their baby in emergency. We are meeting to discuss your perceptions of the care that you received during your admission at a facility with trained health workers and the effect this care had on you. I will start by asking you to identify and describe your interaction and experience with the care you received. In addition, what you feel were positive or negative outcomes from this care. Then I would ask you to describe very briefly an experience that relates to the outcomes already identified, which you reckon relate directly to the impact of the training. We will then go on to discuss some of your experiences in more detail. The entire session will take between 1 and half and two hours. During this time we will provide you with some light refreshments. What we discuss here will remain confidential. We will tape the sessions but nothing you say on tape will be linked to you. We are taping the sessions because we need to have an accurate record of the discussions.

Let us set our ground rules to foster good discussions.

Questions to be discussed:

1. Tell us your name. How long have you been in the hospital? (Post-natal care) OR how long have you been visiting the hospital for antenatal care? (Ante-natal care)
2. Think back to this delivery that you just had, how was your experience with the staff that took care of you? (Post-natal care) OR How has your experience been thus far during this pregnancy? (Ante-natal care)
3. Can you compare your expectations(s) to your actual experience of care?
 - a. Probe: What was particularly nice about the person(s) who took care of you?
 - b. Probe: What was not particularly nice about the person(s) who took care of you when you had the delivery?

Women

4. What would make you regard a birthing process as successful?
 - a. Probe: What are the components of good quality care during pregnancy?
 - b. Probe: How about for your baby?
 - c. Probe: Do you know of any problems that women can have during pregnancy, during and after childbirth, specifically due to the person that took care of you?
 - d. Probe: In your opinion, is there a risk of dying due to pregnancy?
 - e. Probe: Do you know anyone who has died due to pregnancy related causes? What was the cause? Was the health care provider to blame?
5. On the piece of paper in front of you, list three of these items that we just mentioned that you consider most important as regards the care you received. Separate the good things that can happen during pregnancy, during and after childbirth, specifically due to the person that took care of you from the bad things. *Let us discuss afterwards.*
6. On the piece of paper in front of you, please state how long do you think the effect of these things that can happen specifically due to the person that took care of you lasted or lasts for? *And we will discuss your choice later.*
7. What portion of these birthing outcomes is due to having a trained health worker to take care of you?
8. On the piece of paper in front of you, how much would you be willing to pay for these items that you listed? Think of why have you made this choice. *And we will discuss.*
 - a. What material item do you think is what similarly to the effect of these things that can happen specifically due to the person that is taking care or took care of you?
9. Who else do you consider being affected by the fact that you received this care from a trained health care provider? And why?
10. Is there anything that we should have talked about, that we missed?

I would like to thank you all for your participation.

Topic guide: KII Women (Swahili)

Women

MUONGOZO WA MAJADILIANO MAONI KUTOKA KWA AKINA MAMA WALIOPOKEA HUDUMA KUTOKA KWA WATOA HUDUMA ZA AFYA WALIOPOKEA MAFUNZO YA DHARURA YA UZAZI

Washiriki

1. Mwelekezi: Wajibu wake ni kuelekeza majadiliano
2. Msaidizi: Wajibu wake ni kurekodi na kuandika yanayojadiliwa pia kuratibu na kufanya mipango yote inayohusika ili majadiliano yafanyike vizuri

Mada

Utangulizi

Kuna mafunzo yanayoendelea kutolewa kwa watoa huduma ya afya katika kituo hiki, mafunzo haya yana lengo la kuboresha upatikanaji wa huduma za dharula za uzazi endapo mama mjamzito atahitaji huduma hizo wakati wa ujauzito au wakati wa kujifungua.

Lengo la majadiliano haya ni kupata maoni yako juu ya huduma uliyopata ulipohudumiwa au ulipolazwa katika kituo hiki na matokeo ya huduma hiyo kwako. Nitaanza kwa kukuuliza utaje na kuelezea namna ulivyoongea na wahudumu na namna ulivyopata huduma hii ya dharula. Halafu baada ya hapo nitaomba ueleeze matokeo hasi au chanya yatokanayo na huduma uliyopata. Baada ya hapo nitaomba ueleeze mambo yaliyojitokeza wakati wa huduma ambayo unadhani yanauhusiano na matokeo ya huduma utakayoyaelezea ambayo unaamini kuwa yana uhusiano wa moja kwa moja na mafunzo ya huduma za dharura za mambo ya uzazi.

Baada ya hapo tutajadiliana kuhusu jinsi ulivyopokea huduma kwa kina zaidi. Muda wa majadiliano haya utakuwa kati ya saa 1 na nusu na masaa mawili. Wakati majadiliano yakiendelea tutaweza kuwapatia viburudisho kidogo. Majadiliano haya yatabakia kuwa siri. Na pia majadiliano haya yatarekodiwa lakini tutahakikisha kuwa tunafuta utambulisho wa mshiriki kiasi kwamba haitawezekana mtu kujua ni nani aliyekuwa antoa maoni wakati wa majadiliano. Sababu ya kurekodi majadiliano ni kwaajili ya kutunza kumbukumbu sahihi ya kilichoongelewa.

Kwa kuanza tutaweka bayana kanuni zitakzozingatiwa wakati tukiendelea na majadiliano:

Maswali yatayojadiliwa:

- a) Jina lako ni nani na umelazwa kwenye kituo hiki kwa muda gani sasa?
- b) Jaribu kufikiria yaliyojiri wakati wa kujifungua mtoto, ni mambo gani yaliyotokea juu ya wewe na mtoa huduma ya afya aliyekuhudumia?
- c) Je kuna ulinganifu kati ya uliyodhani yangetokea kabla hujaja hapa kituoni na

Women

yaliyojiri pindi ukipewa huduma?

- a. Ninini hasa kilikufurahisha juu ya mtoa huduma (watoa huduma) aliyekuhudumia wakati ukijifungua?
- b. Ninini hasa hakikukupendeza juu ya mtoa huduma (watoa huduma) aliyekuhudumia ulipokuwa unajifungua?
- d) Kuna karatasi hapa mbele yako, unaweza kuandika mambo matatu kati ya haya tuliyoyajadili hivi punde ambayo kwa mtazamo wako unaona ndio yalikuwa muhimu zaidi juu ya huduma uliyopewa.
Tenganisha yale mazuri kutoka kwa yale ambayo unadhani hayakuwa mazuri. Halafu baadae kidogo tutayajadili.
- e) Kwenye karatasi hii mbele yako, tafadhali elezea, unadhani matokeo ya huduma hizi ulizopokea yalidumu au hudumu kwa muda gani? Tutajadiliana kuhusu haya uliyayaandika baadae kidogo.
- f) Unadhani ni kiasi gani cha ubora wa huduma ya afya hutokana na mhadumu aliyepewa mafunzo?
- g) Unadhani ni mambo gani mengine yanatakiwa ili kuwepo na huduma bora ya afya?
- h) Kwenye karatasi mbele yako, kama ungeulizwa uthaminishe huduma hizi ulizoziandika kwa thamani ni kifedha ingekuwa ni kiasi gani? Fikiri ni kwasababu gani umechagua haya uliyoyachagua. Halafu baadae tutajadiliana.
- i) Ni nani zaidi yako ambaye unadhani matokeo ya huduma uliyopata yanamgusa? Na kwasababu gani?
- j) Je kuna lolote ambalo unadhani tulitakiwa kulijadili na hatujalijadili?

Napenda kuwashukuruni wote kwa ushiriki wenu

Topic guide: generic KII for training

KEY INFORMANT INTERVIEW TOPIC GUIDE: STAKEHOLDERS OF EMERGENCY OBSTETRIC AND NEWBORN CARE TRAINING

Staff

1. Interviewer: responsible for coordination of the discussion, taping and making notes, including context of the discussion. Also responsible for general logistics and planning.

Agenda

Introduction

Thank you very much for accepting to partake in this interview. We are meeting to discuss your perceptions of the outcomes of the EmOC training. What we discuss here will remain confidential. I will start by asking you to identify and describe your role(s) regarding the intervention and other possible stakeholders. If you consider yourself as a beneficiary, I will continue by asking what you feel are the positive or negative outcomes of this intervention. Then I would ask you to describe very briefly an experience that relates to the outcomes already identified, which you reckon relate directly to the impact of the training. We will then go on to discuss some of your experiences in more detail. The entire session will take about 40 minutes. During this time we will provide you with some light refreshments. I will tape the sessions but nothing you say on tape will be linked to you. I am taping the sessions because I need to have an accurate record of the discussions.

Questions to be discussed:

1. Can you please tell me a little bit about yourself and share some of your thoughts regarding maternal mortality, particularly in developing countries?
2. Can you describe your role(s) as regards this emergency obstetric and newborn care training package?

If interviewee considers himself or herself as a beneficiary, then interview will progress from (3), if not, then continue from (10):

3. What do you consider as positive outcomes of the training package?
4. What do you consider as negative outcomes of the training package?
5. How will you prioritise these outcomes? Separate the positives from negatives.
6. How long do you think impact of these outcomes that you received lasts for?
7. What portion of the outcome is due to the training package?
8. How do you think you can measure these outcomes?

9. If you were to place a financial value on these outcomes that you listed, what would these be? (In cash or in kind) Why have you made this choice?
10. What do you think about the emergency obstetric and newborn care training package as a whole?
 - a. Probe: At conception, what was the initial thinking and rationale for the MiH EmOC training programme?
 - b. Probe: Do you think there is still a valid case for emergency obstetric and newborn care training package? And how sustainable is the package?
 - c. Probe: In your opinion, what is the greatest risk that prevents emergency obstetric and newborn care training package in helping reduction in maternal mortality?
11. Can the training be sustained in the format it is being delivered at the moment?
12. How do you think this programme can be improved, particularly in Kenya?
13. Are you aware of any other similar training in the country?
14. Who else do you consider as stakeholder(s) of this intervention?

I would like to thank you all for participation.

Topic guide: generic KII for care (English)

Stakeholder care

KEY INFORMANT INTERVIEW TOPIC GUIDE: STAKEHOLDER OF EMERGENCY OBSTETRIC AND NEWBORN CARE RECEIVED FROM TRAINED HEALTH CARE PROVIDER

Staff

1. Interviewer: responsible for coordination of the discussion, taping and making notes, including context of the discussion. The interviewer is also responsible for general logistics and planning.

Agenda

Introduction

Thank you very much for accepting to take part in this interview. We are meeting to discuss your perceptions of the impact of emergency obstetric care received from trained health care providers. What we discuss here will remain confidential. I will start by asking you to identify and describe your role(s) regarding the intervention and other possible stakeholders. If you consider yourself as a beneficiary, I will continue by asking what you feel are the positive or negative outcomes of this intervention. Then I would ask you to describe very briefly an experience that relates to the outcomes already identified, which you reckon relate directly to the impact of the care received. I will then go on to ask about some of your experiences in more detail. The entire session will take about 40 minutes. I will tape the sessions but nothing you say on tape will be linked to you. I am taping the sessions because I need to have an accurate record of the discussions.

Questions to be discussed:

1. Can you describe your role(s) as regards emergency obstetric care received from a trained health care provider?
2. What sense of feeling do you have that your loved one has a baby or that you will soon have a baby?

If interviewee considers himself or herself as a beneficiary, then interview will progress from (3), if not, then continue from (10):

3. What do you consider as being particularly nice about the emergency care for pregnant women being provided by health workers in this facility, as it relates to you?
4. What was not particularly nice about the emergency care provided by health workers in this facility?
5. What would make you regard a birthing process as successful?
 - a. What do you gain from this directly yourself?

1

Stakeholder care

- b. What do you lose from this directly yourself?
6. Which of these items that you just mentioned do you consider most important as it relates to you? Separate the gains from the losses.
 7. Please tell me, how long do you think the effect of these items that you gained or lost lasted or lasts for? *Probe*, why?
 8. What portion of this gain or loss do you think is due to the care received? *Probe*, why?
 9. If you were to place a financial value on these outcomes that you listed, what would you be willing to pay? (In cash or in kind) Why have you made this choice?
 10. What do you think about emergency obstetric care provision in this facility?
 11. Would you encourage your relative to have her baby in a hospital?
 12. How do you think this care can be improved?
 13. Who else do you consider being affected by the fact that you received this care from a trained health care provider?
- I would like to thank you all for participation.

Topic guide: generic KII for care (Swahili)

MUONGOZO WA MAHOJIANO YA KINA NA MLENGWA WASHIRIKI WA WAHUDUMU WA AFYA WALIOPOKEA MAFUNZO YA DHARURA WAKATI WA UZAZI

Wafanyakazi

1. Anayehoji: Wajibu wake ni kuratibu mahojiano, kurekodi na kuandika maelezo yatokanayo na majadiliano. Anayehoji pia anawajibu wa kuhakikisha mipangilio yote inayohusu majadiliano hayo inaenda vizuri.

Agenda

Utangulizi

Napenda kukushukuru sana kukubali kushiriki katika mahojiano haya. Lengo la mahojiano haya ni kutaka kufahamu maoni yako juu ya tija ambayo mafunzo ya huduma za dharula kwa mama wakati wa ujauzito au kujifungua yanaweza kuleta katika utoaji wa huduma husika. Kitakachojadiliwa katika mahojiano haya kitabakia kuwa siri. Nitaanza kwa kukuliza utaje na kuelezea majukumu yako kuhusiana na mafunzo haya yaliyotolewa pamoja na majukumu ya washirikiengine. Kama unaamini kuwa wewe ni mmoja wa wanufaika wa mfunzo haya kwa namna moja au nyingine basi nitaendelea kukuuliza kuhusu maoni yako juu ya matokeo hasi na matokeo chanya ambayo unadhani mafunzo haya yamesababisha. Baada ya hapo nitaomba uelezee kwa ufupi mambo uliyokutana nayo binafsi ambayo yanauhusiano wa moja kwa moja na matokeo ambayo umeyaeleza amabyo unaamini kuwa yana uhusiano wa moja kwa moja na huduma uliyowahi kuipata. Mahojiano haya yatachukua takribani dakika 40 hivi. Nitarekodi mahojiano haya lakini yatafanywa kutokutambulika kuwa ni nani aliyeshiriki. Lengo la kurekodi mahojiano haya ni kutaka kuwa na kumbukumbu sahihi ya mahojiano yetu.

Maswali yatakayojadiliwa:

- a) Naomba uelezee jukumu/majukumu yako katika utoaji wa huduma za dharura kwa mama wajawazito na wakati wa kujifungua (kutoka kwa mahudumu walipata mafunzo)?
- b) Una hisia gani unapoona mpendwa wako amepata mtoto?

Kama anayehojiwa anadhani kuwa yeye ni mnufaika wa huduma hizi za dharula za uzazi, basi anayehoji ataendelea kutoka (b) ila kama sio, itabidi andeleee kutok (i)

- c) Je, wewe unadhani ni mambo gani mazuri kuhusiana na huduma za dharula za wamama wajawazito zinazotolewa katika kituo hiki?
- d) Je, ni mambo gani ambayo hayapendezi yanayofanywa na wahudu wa afya katika kituo hiki yanayohusu utoaji wa huduma za dharula kwa mama wajawazito na wakati wa kujifungua?

- e) Ni yapi katika mambo haya ambayo umeyaelezea hivi punde unadhani ndio muhimu zaidi juu ya huduma ya dharula ambayo ndugu yako aliipata? Tenganisha mazuri kutoka mabaya.
- f) Naomba uniambie, matokeo ya mambo hayo uliyoyaeleza unadhani yalidumu au hudumu kwa muda gani?
- g) Unadhani ni kiasi gani cha matokeo hayo kinatokana na huduma hiyo ambayo ilitolewa? Uliza zaidi kwanini?
- h) Kama ungeulizwa kuthaminisha matokeo hayo kifedha, ingekuwa kiasi gani? (kwa fedha au kwa msaada). Nisababu gani zilizofanya uchague haya?
- i) Unamaoni gani kuhusu utoaji wa huduma za dharula za mama wawazito katika kituo hiki?
- j) Je, unadhani ungemhimiza ndugu yako akajifungulie hospitali?
- k) Unadhani ni kwa namna gani huduma hii inaweza kuboreshwa?
- l) Je, ukiacha wewe, unadhani ni nani mwingine anaguswa na huduma hii ambayo ilipatikana kutokana na mhudumu wa afya aliyepitia mafunzo haya?

Napenda kuwashukuruni wote kwa kushiriki.

Value game

Descriptor: _____

Please rank the outcomes, separating positives from negatives

Positives

1.
2.
3.

Negatives

1.
2.
3.

How long do you think the outcomes last for?

Positives

- Outcome 1:
- Outcome 2:
- Outcome 3:

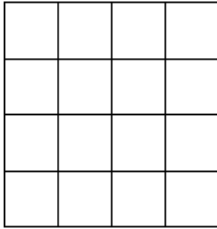
Negatives

- Outcome 1:
- Outcome 2:
- Outcome 3:

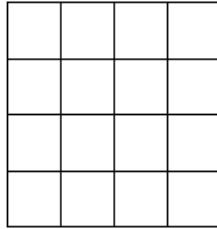
What portion of this outcome is due solely to the intervention?

Positive outcomes

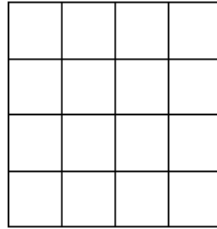
1



2

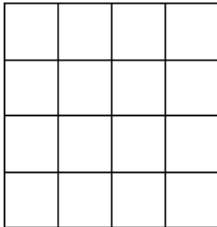


3

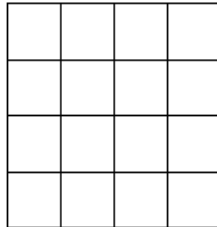


Negative outcomes

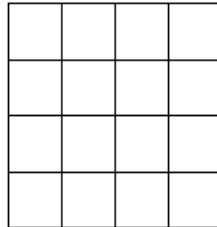
1



2



3



How much would you pay for this outcome? How much would you pay not to have this outcome?

Positives

Negatives

1..... 2..... 3.....

1..... 2..... 3.....

Appendix 6: Full breakdown of total direct implementation cost

Please contact the Centre for Maternal and Newborn Health for this dataset.

Centre for Maternal and Newborn Health

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Appendix 8: Publications in peer-reviewed literature from this research

Publication I: Systematic review of SROI application in public health

Banke-Thomas, A. O., Madaj, B., Charles, A. and van den Broek, N. (2015) 'Social Return on Investment (SROI) methodology to account for value for money of public health interventions: a systematic review.', *BMC Public Health*, 15, p. 582.

Banke-Thomas et al. *BMC Public Health* (2015) 15:582
DOI 10.1186/s12889-015-1935-7



RESEARCH ARTICLE

Open Access

Social Return on Investment (SROI) methodology to account for value for money of public health interventions: a systematic review



Aduragbemi Oluwabusayo Banke-Thomas*, Barbara Madaj, Ameh Charles and Nynke van den Broek

Abstract

Background: Increased scarcity of public resources has led to a concomitant drive to account for value-for-money of interventions. Traditionally, cost-effectiveness, cost-utility and cost-benefit analyses have been used to assess value-for-money of public health interventions. The social return on investment (SROI) methodology has capacity to measure broader socio-economic outcomes, analysing and computing views of multiple stakeholders in a singular monetary ratio. This review provides an overview of SROI application in public health, explores lessons learnt from previous studies and makes recommendations for future SROI application in public health.

Methods: A systematic review of peer-reviewed and grey literature to identify SROI studies published between January 1996 and December 2014 was conducted. All articles describing conduct of public health SROI studies and which reported a SROI ratio were included. An existing 12-point framework was used to assess study quality. Data were extracted using pre-developed codes: SROI type, type of commissioning organisation, study country, public health area in which SROI was conducted, stakeholders included in study, discount rate used, SROI ratio obtained, time horizon of analysis and reported lessons learnt.

Results: 40 SROI studies, of varying quality, including 33 from high-income countries and 7 from low middle-income countries, met the inclusion criteria. SROI application increased since its first use in 2005 until 2011, declining afterwards. SROI has been applied across different public health areas including health promotion (12 studies), mental health (11), sexual and reproductive health (6), child health (4), nutrition (3), healthcare management (2), health education and environmental health (1 each). Qualitative and quantitative methods have been used to gather information for public health SROI studies. However, there remains a lack of consensus on who to include as beneficiaries, how to account for counterfactual and appropriate study-time horizon. Reported SROI ratios vary widely (1.1:1 to 65:1).

Conclusions: SROI can be applied across healthcare settings. Best practices such as analysis involving only beneficiaries (not all stakeholders), providing justification for discount rates used in models, using purchasing power parity equivalents for monetary valuations and incorporating objective designs such as case-control or before-and-after designs for accounting for outcomes will improve robustness of public health SROI studies.

Keywords: Value for money, Health economics, SROI, Social impact, Impact evaluation, Evaluation research, Health inequalities, Blended value accounting, Triple bottom line, Public health

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Publication II: Assessing Value-for-Money in Maternal and Newborn Health

Banke-Thomas, A., Madaj, B., Kumar, S., Ameh, C. and van den Broek, N. (2017) 'Assessing Value-for-Money in Maternal and Newborn Health', *BMJ Global Health*, 2, p. e000310. doi: 10.1136/bmjgh-2017-000310.

Analysis

BMJ Global Health

Assessing value-for-money in maternal and newborn health

Aduragbemi Banke-Thomas,¹ Barbara Madaj,¹ Shubha Kumar,² Charles Ameh,¹ Nynke van den Broek¹

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ABSTRACT

Responding to increasing demands to demonstrate value-for-money (VfM) for maternal and newborn health interventions, and in the absence of VfM analysis in peer-reviewed literature, this paper reviews VfM components and methods, critiques their applicability, strengths and weakness and proposes how VfM assessments can be improved. VfM comprises four components: economy, efficiency, effectiveness and cost-effectiveness. Both 'economy' and 'efficiency' can be assessed with detailed cost analysis utilising costs obtained from programme accounting data or generic cost databases. Before-and-after studies, case-control studies or randomised controlled trials can be used to assess 'effectiveness'. To assess 'cost-effectiveness', cost-effectiveness analysis (CEA), cost-utility analysis (CUA), cost-benefit analysis (CBA) or social return on investment (SROI) analysis are applicable. Generally, costs can be obtained from programme accounting data or existing generic cost databases. As such 'economy' and 'efficiency' are relatively easy to assess. However, 'effectiveness' and 'cost-effectiveness' which require establishment of the counterfactual are more difficult to ascertain. Either a combination of CEA or CUA with tools for assessing other VfM components, or the independent use of CBA or SROI are alternative approaches proposed to strengthen VfM assessments. Cross-cutting themes such as equity, sustainability, scalability and cultural acceptability should also be assessed, as they provide critical contextual information for interpreting VfM assessments. To select an assessment approach, consideration should be given to the purpose, data availability, stakeholders requiring the findings and perspectives of programme beneficiaries. Implementers and researchers should work together to improve the quality of assessments. Standardisation around definitions, methodology and effectiveness measures to be assessed would help.

INTRODUCTION

There has been increasing demand by governments and international agencies for implementers and researchers to demonstrate value-for-money (VfM) of global health interventions.^{1,2} Specifically, in maternal and newborn health (MNH), where the focus is on improving pregnancy experience and outcomes for mothers and

Key questions**What is already known about this topic?**

- ▶ In maternal and newborn health, there have been increasing calls by stakeholders and donors for value-for-money (VfM) assessments of what are often quite complex interventions.
- ▶ VfM has been variably defined. However, the consensus is that VfM is an approach which aims at better use of resources for the wider good of people.
- ▶ The components of VfM include economy, effectiveness, efficiency and cost-effectiveness.

What are the new findings?

- ▶ Alternative approaches to strengthen VfM assessments are proposed: combine either a cost-effectiveness analysis or a cost-utility analysis with a detailed cost analysis and an effectiveness study or use either a cost-benefit analysis or social return on investment analysis independently.
- ▶ To provide critical contextual information to better understand and interpret VfM assessments, it is important to also assess and incorporate cross-cutting themes such as equity, sustainability, scalability and cultural acceptability of the intervention.

How might this influence practice?

- ▶ Researchers and implementers need to work closely together to ensure VfM is robustly and comprehensively assessed.
- ▶ Systematic sharing of experiences and best practices between organisations is important to ensure that the best quality assessments are conducted. Agreement and standardisation around definitions, methodology and effectiveness measures to be assessed would help to improve quality of VfM assessments.



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their newborns throughout the continuum of care, calls for stronger accountability and performance monitoring to ensure VfM have been made by multiple stakeholders.³ In low-income and middle-income countries (LMICs) where the burden of mortality and morbidity is highest, this call comes against the backdrop of increasing donor disbursements (US\$2500 million based on a 2013 estimate) for MNH interventions

Publication III: Economic Evaluation of EmOC Training: A Systematic Review

Banke-Thomas, A., Wilson-Johnson, M., Madaj, B. and van den Broek, N. (2017) 'Economic Evaluation of Emergency Obstetric Care Training: A Systematic Review', *BMC Pregnancy and Childbirth*, 17, p. 403.

Banke-Thomas et al. *BMC Pregnancy and Childbirth* (2017) 17:403
DOI 10.1186/s12884-017-1586-z

BMC Pregnancy and Childbirth

RESEARCH ARTICLE

Open Access



Economic evaluation of emergency obstetric care training: a systematic review

Aduragbemi Banke-Thomas, Megan Wilson-Jones, Barbara Madaj and Nynke van den Broek*

Abstract

Background: Training healthcare providers in Emergency Obstetric Care (EmOC) has been shown to be effective in improving their capacity to provide this critical care package for mothers and babies. However, little is known about the costs and cost-effectiveness of such training. Understanding costs and cost-effectiveness is essential in guaranteeing value-for-money in healthcare spending. This study systematically reviewed the available literature on cost and cost-effectiveness of EmOC trainings.

Methods: Peer-reviewed and grey literature was searched for relevant papers published after 1990. Studies were included if they described an economic evaluation of EmOC training and the training cost data were available. Two reviewers independently searched, screened, and selected studies that met the inclusion criteria, with disagreements resolved by a third reviewer. Quality of studies was assessed using the Consolidated Health Economic Evaluation Reporting Standards statement. For comparability, all costs in local currency were converted to International dollar (I\$) equivalents using purchasing power parity conversion factors. The cost per training per participant was calculated. Narrative synthesis was used to summarise the available evidence on cost effectiveness.

Results: Fourteen studies (five full and nine partial economic evaluations) met the inclusion criteria. All five and two of the nine partial economic evaluations were of high quality. The majority of studies (13/14) were from low- and middle-income countries. Training equipment, per diems and resource person allowance were the most expensive components. Cost of training per person per day ranged from I\$33 to I\$90 when accommodation was required and from I\$5 to I\$21 when training was facility-based. Cost-effectiveness of training was assessed in 5 studies with differing measures of effectiveness (knowledge, skills, procedure cost and lives saved) making comparison difficult.

Conclusions: Economic evaluations of EmOC training are limited. There is a need to scale-up and standardise processes that capture both cost and effectiveness of training and to agree on suitable economic evaluation models that allow for comparability across settings.

Trial registration: PROSPERO_CRD42016041911.

Keywords: Emergency obstetric care, Training, Economic evaluation, Cost analysis, Cost-effectiveness analysis, Cost-utility analysis, Cost-benefit analysis, Value-for-money

Background

Improving maternal and newborn health has been at the forefront of the global health agenda for more than two decades. However, despite a 44% drop in maternal mortality ratio between 2000 and 2015, an estimated 300,000 women still die each year due to complications of pregnancy and childbirth [1]. In addition, an estimated 2.6 million babies are stillborn and 2.7 million newborns die

within the first 28 days of life [2, 3]. Unlike many other public health concerns, maternal and newborn mortality is significantly influenced by institutionally-based clinical interventions [4, 5]. Evidence suggests that majority of these deaths could be prevented by timely and effective emergency obstetric care (EmOC) [6, 7]. However, recent evidence shows that more than half of all women with obstetric complications lack access to this life-saving intervention [8]. EmOC relies on the presence of suitably trained and competent healthcare providers. When carried out by a competent provider, it is estimated that EmOC

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Publications (In development)

Two research outputs of this study are currently under development, but, yet to be published at the time of submission of this thesis. These are:

- Perspectives of Stakeholders on Emergency Obstetric Care Training in Kenya: A Qualitative Study
- Social Return on Investment on Training Health Care Providers on Emergency Obstetric Care