



A guide and tools for
maternal mortality programme assessment

MODULE 1

Introduction for policy makers and programme managers

Version 2.0

Module 1 contains an introduction to the toolkit, setting out the case for research evaluation of complex or composite interventions. It contains general information on the Impact approach to evaluation of safe motherhood programmes, with a summary description of Impact tools and how they may be used to conduct composite evaluations. Module 1 is primarily aimed toward decision-makers and senior managers who would like to understand the concepts behind an Impact evaluation before making a decision to use Impact tools. It is also recommended that anyone intending to use the tools provided in this toolkit should read this first module, in order to understand the context within which Impact tools can be used.

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INTRODUCTION

The late 20th century saw maternal mortality reduced to insignificant levels in most developed countries. But, as we advance into the 21st century, too many mothers and babies in the developing world are still dying during pregnancy and childbirth (Ronsmans and Graham, 2006).

Yet many of these tragedies could have been prevented with appropriate, effective and timely health care. In this century such care *must* become available to the entire world's population, and particularly to the poorest women and their families and communities in the poorest countries.

Addressing the problem of unsafe motherhood requires difficult decisions to be made about the allocation of scarce resources and the setting of priorities. Currently these decisions often have to be made without evidence, based on judgements of what actions are likely to work best in terms of ensuring health during pregnancy and childbirth for that particular country context (Campbell and Graham, 2006).

What we know:

- Maternal mortality is unacceptably high in the developing world.
- Specific clinical interventions, such as blood replacement for bleeding or using magnesium sulphate for eclampsia, are highly efficacious at preventing maternal death. This knowledge is sufficient to define best clinical practice.
- These clinical interventions depend on the supply of other services, such as the availability of health care providers, health system infrastructure and supplies. The efficacy of a specific clinical intervention is thus dependent on the supporting system factors, making effective delivery of that and many other clinical interventions in combination, a complex intervention.

What we need to know:

- What works best in specific country contexts. More knowledge matters because scarce resources may be wasted on strategies or programmes if these are not specific to local situations. Context-relevant knowledge is crucial because interventions work differently in different settings depending on epidemiological factors, health system profiles and broader social, political and economic factors.
- How best to implement or deliver programmes to scale in specific country contexts. Insufficient knowledge matters because scaling-up of programmes to national level could undermine equity goals for gender or wealth, as well as sustainability.
- Practical approaches to measuring maternal health outcomes. Insufficient knowledge about the effect of programmes on health outcomes and other key indicators may make global targets such as the Millennium Development Goal 5 on maternal mortality reduction difficult to track.

The challenges involved in generating this evidence-base are significant, but they are not insurmountable (Graham, 2002). Complex outcome evaluation of safe motherhood programmes can provide the robust evidence needed in order to achieve a transition to evidence-based resource allocation for safe motherhood.

The challenge of building sustainable evaluation capacity at the country level and of satisfying a greater demand for reliable measurement of maternal mortality and severe morbidity remains. Meeting this challenge has required, and will continue to need, methodological innovation. A crucial complement is creating and maintaining strong partnerships that attend to the needs of practitioners, managers and policy-makers.

1.1 About Immpact

The **Initiative for Maternal Mortality Programme Assessment (Immpact)** is a global research initiative whose ultimate goal is to improve maternal health and survival in developing countries. Immpact aims to achieve this by providing decision-makers in governments and the international community with rigorous evidence of the effectiveness and cost-effectiveness of safe motherhood programmes; the various ways in which maternal health during pregnancy and childbirth can be improved; and their implications for equitable and sustainable development.

Launched in September 2002, this programme is being undertaken in partnership with research institutions, ministries of health and other key stakeholder groups, including bilateral and international agencies, non-governmental bodies and professional associations. Immpact's focus during the first phase of research was in three countries: Burkina Faso, Ghana and Indonesia.

Immpact aims to meet its goal through research activities conducted alongside major new and existing safe motherhood intervention programmes. The research programme has three principal outputs:

- 1 Enhanced **methods and tools** for measuring and attributing outcomes to intervention strategies;
- 2 New **evidence** on the cost-effectiveness of intervention strategies;
- 3 Strengthened **capacity** to use evaluation tools and methods, and for evidence-based decision-making.

1.2 Aims and objectives of this toolkit

The Immpact toolkit is a set of data collection and assessment tools and methods designed to measure various aspects of safe motherhood programmes. The resource supports the design and management of country- and programme-specific evaluations. It aims to provide direction on the use of different combinations of tools to be used depending on the setting and on particular needs. It supports the processes by which good-quality evaluations of safe motherhood programmes can be achieved and to make a valuable contribution to generating robust evidence of their effectiveness and cost-effectiveness.

The overall aims of this toolkit are:

- To specify a **systematic process** by means of which good-quality, rigorous, stakeholder-focused and context-appropriate, complex outcome evaluation will be ensured.
- To provide **practical multi-disciplinary means of conducting evaluations, utilizing qualitative and quantitative techniques** to generate robust evidence of effectiveness and cost-effectiveness of safe motherhood programmes.

The toolkit enables the sharing of lessons learned by relating experiences from conducting Immpact evaluations, and will continue to enable this process in future through feedback from those who use Immpact tools. It strengthens capacity for evaluation, as a resource for designing context-specific, composite evaluations and also through the application of specific tools. The toolkit consolidates the use of existing knowledge, by directing users to complementary techniques, and by relating case studies of experiences in applying various tools in Immpact's three initial focus countries.

The focus is on evaluation rather than monitoring, in order to establish the impact or effects on health outcomes of large-scale, complex safe motherhood programmes. Evaluation is the systematic investigation required to determine the value and worth, in terms of effectiveness, cost-effectiveness, equity and sustainability, of safe motherhood programmes. Evaluation is also a process involving the active participation of a wide spectrum of stakeholders and end-users (Øvretveit, 1998). A crucial part of the evaluation process is the identification of opportunities for enhancement of existing and new programmes.

Emphasis in the toolkit is on health sector programmes rather than, for example, women's education, as a strategy for reducing maternal mortality. Although the focus is not specifically conceptualized as a contribution to gender equality, this, and equity considerations are inherent in it and are highlighted where relevant.

The toolkit aims to provide information in sufficient depth to direct users in the overall design and conduct of outcome evaluation of safe motherhood programmes. For generic issues such as sampling, data capture and evaluation design we have referred to other resources, but provide brief technical annexes in these areas.

1.3 Audience

The toolkit is designed with two main user groups in mind:

- **Policy-makers, regional and country programme and project managers, safe motherhood officers in international and national NGOs and agencies, and heads of safe motherhood-related organizations:** this group will find this first module of the toolkit especially useful for appreciating the nature and importance of conducting composite outcome evaluations.
- **Implementers of evaluations (for example monitoring and evaluation officers and researchers from a variety of institutions involved in evaluations of safe motherhood programmes):** this group will find the general technical guidance and Modules 2, 3, 4 and 5 of use.

1.4 The Impact approach to evaluation

Impact evaluates safe motherhood programmes. These programmes are a composite of several individual interventions which tend to be carried out at national level or in major regions, and are usually delivered through routine health services. To reflect the complexity of the programme interventions, the evaluations themselves are composite in nature and take a pluralist perspective on evaluation. This structure promotes the use of evidence from multiple disciplines, using combinations of qualitative and quantitative techniques, so providing a comprehensive view of how and whether effectiveness and cost-effectiveness was achieved (Patton, 1987; Øvretveit, 1998; Milne et al, 2004).

To ensure that safe motherhood as a goal, a right or an aspiration, is achieved, improvements are needed across the entire health system. The Impact approach to evaluation is grounded in a conceptual framework on maternal health and survival which provides a refined paradigm for safe motherhood (see [figure 1.1](#)). The emphasis is on both the **supply** aspect (for example, availability and quality of services) and the **demand** aspect (such as utilization and financial access) of the health system, and on the importance of equilibrium between these two aspects. The framework introduces demand as part of the health system but differentiates this expressed demand from need, in so far as women who have a need for care may not be able, for various reasons, to express that need.

The Impact approach also encourages greater incorporation of economic principles into safe motherhood, encouraging a more comprehensive view of influences and contextual factors such as poverty, equity, and the effects of financial reforms on health systems. The market outcomes, which include time or monetary costs paid to obtain care, and quantities of health care services observed, can be measured for example in terms of uptake of services. This in turn affects health outcomes such as maternal mortality and severe morbidity, and defines the effectiveness and cost-effectiveness of health programmes.

The framework is discussed in greater depth in the conceptual framework web resource on the Impact website www.impact-international.org/resources/framework.



Figure 1.1: Impact Conceptual Framework diagram

1.5 Impact tools

In this toolkit, an Impact evaluation tool is any technique, method, instrument or approach used during the process of evaluation of safe motherhood programmes. The tools presented in this edition of the toolkit have been derived from the priority evaluation questions and field settings of three Impact focus countries (Burkina Faso, Ghana and Indonesia). The combination of tools to be used in any given context will depend on a number of factors related to the economic and socio-cultural environment and the overall evaluation question. The tools include qualitative and quantitative techniques for application in the community or in health facilities. Whereas some are 'ready-made' instruments that can be applied with minimal adaptation to take account of new contextual factors, others do not really take their final shape until they are applied in each new context. Some tools are themselves adaptations of existing and well-used research tools or approaches.

The Impact tools provided in this toolkit address the measurement or description of the various components of the conceptual framework, described in [figure 1.1](#). A composite evaluation of safe motherhood programmes will utilize research tools that address each part of this framework. These different Impact tools are described in [table 1.1](#) with an explanation of their utility within the conceptual framework. [Table 1.2](#) includes *other* Impact tools under development. These tools are not yet available in this toolkit, but some will be added in future editions. [Table 1.3](#) presents tools that have been used within the Impact programme, but which are available elsewhere.

Table 1.1 Summary of Immpact evaluation tools available in this toolkit

Tool Name and Number	Tool Type	Description	Relationship to Immpact conceptual framework
1. Sampling at Service Sites (SSS)	Measurement of maternal mortality	An approach to capturing data on maternal deaths, in which researchers visit locations where women gather in large numbers, such as health facilities and markets.	Health outcome
2. Rapid Ascertainment Process for Institutional Death (RAPID)	Measurement of maternal mortality	A method of improved monitoring of pregnancy-related deaths in hospitals by retrospectively identifying deaths that have been missed during routine reporting.	Health outcome
3. Tracing Adverse and Favourable Events in Pregnancy Care (TRACE)	Measurement and description of maternal mortality, morbidity and the quality of maternal health care services.	An enquiry to trace adverse and favourable events in pregnancy care: gathers qualitative information on care for cases of maternal death, cases of severe, short-term illness or disability (near misses), and if required, normal cases and other complications.	Health outcome and health system supply (quality)
4. Perceptions of Quality of Care (PQOC)	Measurement and description of the quality of maternal health care services	Qualitative methods employed to study perceptions of community members and providers regarding barriers and facilitators to good quality of care: provides contextual information about factors that may affect skilled care at delivery.	Need and Health system demand (utilization, quality and access)
5. Health Worker Incentives Survey (HWIS)*	Evaluation of health systems factors	Questions to survey motivational factors in health workers and other aspects of human resources contexts in order to feed into the functionality measurement of facilities (or community midwifery services in Indonesia).	Health system supply (availability and quality)
6. Productivity Costs Survey	Evaluation of economic outcomes	Household interviews that focus on the impact of maternal ill health on productivity: provides better evidence of the economic impact of different health care interventions.	Market outcomes and health system demand (financial access)
7. Household Costs Survey	Evaluation of economic outcomes	A household questionnaire that assesses the costs of maternal health paid by households.	Market outcomes and health system demand (financial access)
8. Outcomes after Pregnancy (OAP)	Measurement of maternal morbidity	A multi-module tool designed for use in surveys, such as the Demographic and Health Surveys. This tool assesses depression, sexual health, social functioning, social support, physical health, baby health, economic consequences, and disabilities.	Health Outcome
9. Maternal deaths from informants (MADE-IN) and Maternal death follow on review (MADE-FOR)	Measurement of Maternal Mortality	MADE-IN is a questionnaire completed jointly by village informants, listing deaths of women of reproductive age in the village in the specified period, together with a cause, and whether pregnancy-related, and giving contact details of a relative. MADE-FOR is for follow-up interviews with a relative of a pregnancy-related death listed by MADE-IN. After confirming a death as pregnancy-related and in the specified period, questions are asked about the circumstances and cause of death and about the socio-economic circumstances of the dead woman. With appropriate 'denominator' information, MADE-IN / MADE-FOR contributes to estimation of MMRate, MMRatio, PMDF and relative risks for individual and village 'risk-factors.	Health Outcome

* HWIS is also presented in a Technical Paper in Module 4, which discusses a composite evaluation of health systems factors within the Ghana Immpact evaluation. HWIS was undertaken in conjunction with two other approaches, also described in this paper: Key Informant Interviews and Financial Flows Tracking.

Table 1.2 Other Impact tools not yet available in the toolkit

Tool Name	Tool Type	Description	Relationship to Impact conceptual framework
Near miss/met need questionnaire	Measurement of maternal morbidity	A questionnaire to assess maternal cases of near miss and the need for life-saving obstetric surgery by reviewing data on all obstetric admissions to hospitals. This tool measures the magnitude and causes of near miss and the proportion of caesarean sections that are performed to save the life of the mother	Health outcome
Accompanying anthropological interview guide	Measurement of maternal morbidity	Interviews to complement Outcomes after Pregnancy survey (see table 1.1 in Tool 8) to contextualize and interpret findings. The guide can also be used on its own to document the outcomes after pregnancy.	Health outcome
Facility-based data collection for perinatal outcomes	Measurement of perinatal mortality	Facility-based studies to provide information on cause and risk of perinatal death	Health outcome
Referral interview guide	Measurement and Description of the Quality of Maternal Health Care services	Qualitative individual interview guide to investigate barriers and facilitators in effective referral to emergency obstetric care facilities of (i) women who suffer cases of severe, short-term illness or disability related to pregnancy (near misses) and (ii) maternal deaths.	Need and Health system supply and demand (availability, quality and utilization)
Record review of quality of care	Measurement and Description of the Quality of Maternal Health Care services	A quantitative approach to assess quality of obstetric care in health centres and hospitals	Health system supply (availability and quality)
Midwifery questionnaire	Measurement and Description of the Quality of Maternal Health Care services	A questionnaire to map midwifery services by describing both the providers and the environment in which they offer care.	Health system supply (availability and quality)
Willingness to pay survey of maternal outcomes	Evaluation of Economic Outcomes	A survey used to assign a value to maternal health outcomes and consider the extent to which patients are willing to pay for particular services: provides information on how to assess the value community members place on prevention of maternal death and disability.	Market outcomes and health system demand (financial access)
Willingness to pay survey of maternal and perinatal outcomes	Evaluation of Economic Outcomes	Builds upon the preceding survey. Enables research into the joint properties of maternal and perinatal health by assigning value to perinatal health outcomes.	Market outcomes and health system demand (financial access)
Discrete choice experiment (DCE)	Evaluation of Economic Outcomes	A discrete choice experiment is a method which can be used to elicit preferences for health and health care, for example, to elicit community preferences over the distribution of maternal health gains; to elicit preferences of policy-makers in developing countries for safe motherhood intervention strategies; and for evaluations of strategies.	Environment, need, health system demand and supply
Measurement of facility functionality	Evaluation of Health Systems Factors	Questions to help inform the functionality measurement of facilities (or community midwife services in Indonesia) by surveying the physical environment (buildings, equipment and drugs).	Health system supply (availability)

Table 1.3: Tools used by Impact available elsewhere

Tool Name	Tool Type	Description	Relationship to Impact conceptual framework
Interpretation of verbal autopsy – maternal (InterVA–M)	Measurement of Maternal Mortality	A computer model that interprets data from interviews with relatives of women who died from pregnancy-related causes (verbal autopsies) in order to classify and determine cause of death among women of reproductive age. This tool is available at www.interva.net .	Health outcome
Familial technique	Measurement of Maternal Mortality	An analytical technique that uses secondary data to demonstrate poverty gradients in maternal mortality. This is available at www.impact-international.org .	Link of health outcome to environment
Gender index	Measurement of link between gender and maternal mortality	A composite measure of gender status (relative level of autonomy and empowerment) used to analyse the relationship with maternal health outcomes and access to care. The method uses an adaptation of the Familial Technique for maternal mortality. The tool is under development and will be made available at www.impact-international.org .	Link of health outcome to environment
Unmet obstetric need (UON)	Measurement of Maternal Morbidity	This measure compares the need for obstetric care with the capacity of the health service to provide this care. The tool is available at www.uonn.org/uonn/ .	Health outcome
Global stillbirth estimates	Measurement of perinatal mortality	A modelling technique to advance the understanding of the importance of measuring stillbirths and improve estimates. Published in Stanton et al, 2006, available at www.thelancet.com/journals/lancet/article/PIIS0140673606685863/fulltext	Health outcome
Basic guide to Geographic Information Systems (GIS)	Description and use of GIS resources in relation to access and barriers to maternal health services	A guide developed by Impact to illustrate how GIS can be used in relation to maternal health. It provides information on mapping resources, and examples of how to map health facilities and villages in developing countries. This is available at www.impact-international.org .	Health system demand (access)

Case Study: Combining tools to conduct an evaluation

To illustrate the way in which a combination of tools was used to conduct an evaluation within the Immpact conceptual framework, we take a case study of the Immpact evaluation in Ghana in 2005–6. The goal of the safe motherhood national policy in Ghana is to improve women's health and to contribute to the reduction of maternal and perinatal mortality. In order to achieve this aim, the government introduced a universal fee exemption policy for delivery care, with the aim of reducing the financial barriers to use of maternity services. Implementation of the policy started in 2003 in four regions, and was extended nationally in 2005. Immpact was asked to evaluate the effects of this policy in 2005, after the policy implementation had commenced. The objective of the evaluation was to determine the effectiveness of the fee exemption policy on increasing uptake and on the reduction of institutional maternal mortality. We will describe in Module 3 the process of selection of the various tools, but for the purposes of this section, we intend to illustrate how the combination of research tools was used to address all parts of the Immpact conceptual framework.

1) Environment

Aim: To describe environmental factors such as the distal determinants of maternal health including women's status, fertility, education and poverty (box 1, [figure 1.2](#)).

Tools used: A general situation analysis, no specific Immpact tools

2) Need and general health system

Aim: To describe implementation of the policy and the way in which the policy translated into practice (box 2, [figure 1.2](#)).

Tools used: To do this we first described the implementation of the policy, using the health systems approaches (see Technical Paper in Module 4). We also assessed how the policy might have affected health worker incentives using **HWIS**. Knowledge of whether the policy had reached the consumers was assessed using **PQOC**. This tool was also used to identify the degree of need for free services as perceived by women.

3) Demand

Aim: To identify changes in women's health care-seeking behaviour (box 3 [figure 1.2](#))

Tools used: **PQOC**, to assess women's attitudes towards services and a standard household survey to measure utilization of health facilities by women.

4) Supply

Aim: To describe and quantify changes to the availability and quality of services (box 4 [figure 1.2](#))

Tools used: A combination of qualitative and quantitative tools (**PQOC**, **TRACE** and review of records).

5) Market outcomes

Aim: To determine the time and monetary costs paid for health services and quantities of services observed as a consequence of the fee exemption policy (box 5 [figure 1.2](#)).

Tools used: **Productivity Costs** and **Household Cost Surveys**, to measure a social perspective of economic costs

6) Health outcomes

Aim: To measure health consequences of the policy (box 6, [figure 1.2](#)).

Tools used: **RAPID** and **TRACE** to quantify maternal deaths and to describe why these deaths occurred; and a facility-based data collection for perinatal outcome measurement.

The field costs for this evaluation in Ghana were in the region of US\$200 000. Further information on resource requirements is provided in Module 3 (Step 8), and also in each tool in Module 4.

Ghana Evaluation objective: To determine the effectiveness of the fee exemption policy on increasing uptake of services and reducing institutional health outcomes

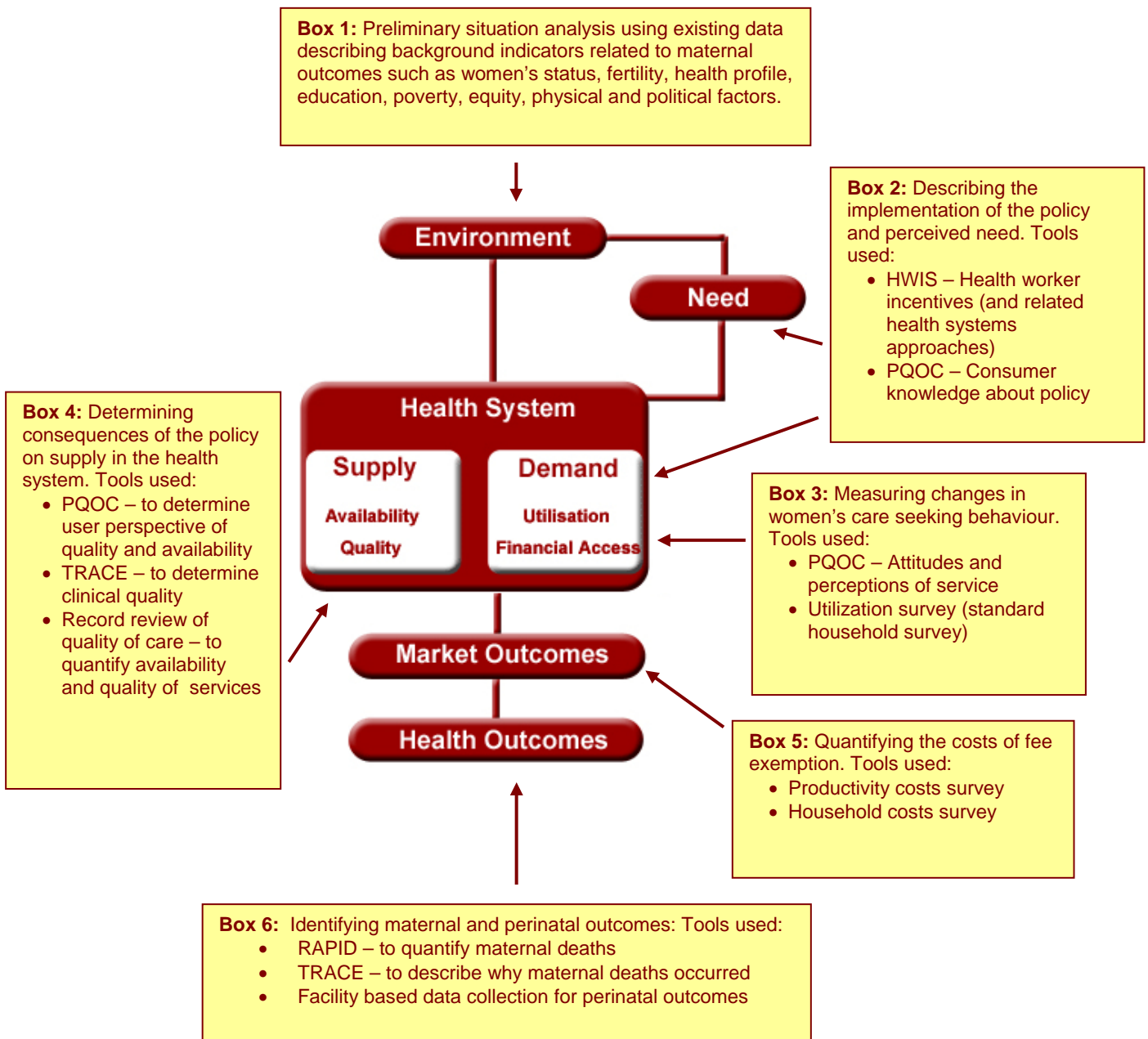


Figure 1.2: Impact Conceptual Framework diagram with evaluation tools used in Ghana

From this case study, two main points can be taken to illustrate the value of composite evaluations:

- Firstly, the major events associated with a policy change are measured or described: the implementation environment; the inputs required for implementation; the intermediate consequences of the change and the different types of outcome.
- Secondly, a number of methods can be used to measure one major change, for example, quality of care, the measurement of which benefits from social, clinical, qualitative and quantitative approaches. This multi-disciplinary perspective allows for the triangulation of findings in order to interpret, verify and strengthen the conclusions that can be drawn on the true effects of the policy.

It should be noted that this toolkit is grounded in context-specific experience of how Impact has conducted its evaluations. We use this case study as broad guidance on the design and selection of Impact tools but emphasize that each evaluation will be different, requiring its own fit-for-purpose study designs and tools. Local adaptation, flexibility and interpretation specific to each situation will always be needed.

1.6 Setting up an evaluation study

From the description above, where we have provided a recommended way of approaching the design of a complex evaluation, it is clear that composite evaluations require research experience and a mixture of skills which are unlikely to be found in one person. Furthermore, the evaluation has multiple components which will usually need to be implemented within a certain period of time, making it unmanageable for one person to supervise comprehensively. Identification of an evaluation team with the necessary research skills which can work together closely for some time and manage a number of complex tasks is crucial.

Impact recommends the involvement of policy-makers, programme managers and researchers early in the evaluation process. As will be seen in Module 2, this process starts even before the evaluation question is defined, because all parties will need to understand and accept the reasons for, and limitations inherent in the identification of a particular evaluation objective. When the evaluation objectives have been specified, continued interaction between the evaluation team and programme managers or policy-makers is necessary.

1.7 Conclusion

The aim of any evaluation is to generate findings that give clear indications of how well a strategy is working, and how interventions could be improved to make the strategy work better. Evaluations to identify cost-effective intervention strategies are needed to provide information for decision-making on future investments in safe motherhood programmes. This toolkit aims to strengthen the design of evaluations to capture the necessary information by making available, and promoting the use of, suitable tools to measure and describe the effects of safe motherhood programmes in specific contexts and settings.

Major evaluations require the capture and management of a wide range of types of information, both primary (new) and secondary (existing), which can be viewed from a variety of perspectives. Evidence from these sources needs to be pieced together to create a coherent story about the effectiveness and cost-effectiveness of alternative programmes in reducing maternal and perinatal death and disability, and on the pathways or mechanisms by which these benefits are achieved.

Measurement and evidence gaps need to be addressed together. Improving the quality and scope of evidence must happen alongside promoting use of the 'best' evidence *available at the time* to inform policy and programme decision-making. It is also vital that international and national political champions advocate for means of reducing this gap between advice and evidence, by openly recognizing the uncertainties about 'what works' (AbouZahr 1998). It is in this spirit of addressing measurement and evidence gaps together, to find out more about 'what works', that the Impact toolkit has been developed, providing the means of measuring and thus the evidence to inform policy and programme decision-making for the reduction of maternal mortality globally.

Module 2 describes a consultative process to identify key priorities for evaluation. The module provides guidance and instruments on how to conduct a reiterative and participatory exercise which culminates in the development and refinement of a widely agreed country-specific safe motherhood evaluation question.

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