POEM – Policy Effect Mapping

A framework to assess the effects of a targeted policy on the local health system

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Acronyms

ANC	Antenatal Care
ARTI	Acute Respiratory Tract Infections
C/S	Caesarean section
CFR	Case Fatality Rate
DALYs	Disability Adjusted Life Years
D&C	Dilatation and Curettage
EmONC	Emergency Obstetrical and Neonatal Care
EU	European Union
FEMHealth	Fee Exemption for Maternal Health
FP	Family Planning
GP	General Practitioner
HMIS	Health Management Information System
HIV	Human Immunodeficiency Virus
LHS	Local Health System
LMIC	Low- and Middle Income Countries
MDG	Millennium Development Goals
MOH	Ministry of Health
MVA	Manual Vacuum Aspiration
NGO	Non-Governmental Organization
OPD	Out-Patient Department
PBF	Performance Based Financing
PHCC	Primary Health Care Centre
PMTCT	Prevention of Mother To Child Transmission (of HIV)
POEM	Policy Effect Mapping
TB	Tuberculosis
TFC	Therapeutic Feeding Centre
UON	Unmet Obstetrical Need
WHO	World Health Organisation

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Summary

In the last decade, in a sprint to reach the Millennium Development Goals, many governments and international agencies have put in place targeted policies for specific health problems (e.g. HIV, tuberculosis, malaria) or for vulnerable groups (children under 5 years old, pregnant women, the elderly). Most of the evaluations of these targeted policies measure the effects on the group(s) or services targeted by the policy (e.g. workload or quality of care). Few have assessed the system-wide effects and the effects on non-targeted groups or services. Each new policy or programme, even if developed by the Ministry of Health, enters the local health system (LHS) as an external element that needs to be adopted, adapted and implemented. This process happens sometimes in short periods of time and is often accompanied by incomplete information.

Until now, no tools or analytic frameworks have been developed which can assess the effects of a targeted policy on the local health system. A well-known reference is the WHO model with its six essential functions or *building blocks* of a health system (service delivery; human resources; health information system; financial resources; drugs, vaccines and technologies; leadership/ governance). However, it focuses on the national level of the health system and it is a rather static model: every function is considered to be equivalent and linkages between the different elements are acknowledged but not explored.

In response, the FEMHealth research project developed and tested a tool for assessing the effects of a targeted policy on the different elements of local health systems, including non-targeted services and groups. At the heart of the resulting Policy Effects Mapping framework is a model of the local health system that is centred on the axis of *stewardship, health providers, health provision and community*. The underlying assumption is that policies and programmes impact upon both targeted and non-targeted services and that the response of the stewards, managers, providers and community will moderate that influence (or not). An extensive literature review preceded the POEM framework which, together with an experimental application in the FEMHealth project, allowed us to identify key dimensions and associated questions and indicators.

In the FEMHealth project, the POEM framework has been applied to user fee exemption policies for obstetric care in Benin, Burkina Faso, Mali and Morocco. However, given that its unit of analysis is the local health system and not a specific policy, it provides an approach to assess the effects of any targeted policy or programme.

Introduction

Fee exemption policies were introduced in a number of low- and middle-income countries on the assumption that abolition of user fees would significantly reduce financial barriers to the utilisation of maternal health services and would therefore reduce maternal morbidity and mortality.

FEMHealth, an EU-funded research project aiming to improve the knowledge base regarding effectiveness, cost and impact of the removal of user fees for delivery care, carried out comprehensive evaluations of these policies. One specific aim was to develop a framework to assess the system-wide effects of fee exemption policies on other non-targeted groups and services at the level of the whole district. To this end, we developed the Policy Effects Mapping tool (POEM), which we tested in a multi-country case study series in Benin, Burkina Faso, Mali and Morocco. Between six and eight study sites were chosen in each country.

The POEM framework uses the local health system (LHS) as its entry point. We define the local health system as all organisations, people and actions whose primary intent is to promote, restore or maintain health. A LHS is typically organized and coordinated at district level by a local body accountable to local (political and/or administrative) as well as central health authorities to ensure that healthcare is responding to public needs. In many contexts, LHS are mixed health systems, composed of public providers and a wide range of private non-for-profit, private for-profit and informal lay providers. The health district as defined by WHO's Harare declaration (WHO 1987) is the most common model for organization of a local health system.

Our initial literature review showed that there are few if any frameworks that can be used to assess the effects of a policy on a local health system. The WHO six building blocks model (WHO 2007) is one of the most frequently used frameworks in health systems strengthening literature. However, this model is too static to be used as a tool for an in-depth analysis of local health systems and the interaction between its different building blocks is insufficiently clear. Therefore, for POEM, we developed a model that describes the different functions and elements of a LHS and their linkages. Our conceptual framework is inspired by the dynamic health systems model by van Olmen et al. (2011).

The central axis of the POEM framework consists of the following central elements (Figure 1): stewardship, health providers, service delivery and community. We consider drugs and supplies, financial resources and the Health Management Information System (HMIS) as resources (or inputs) of this central axis. All these elements are interlinked, and effects of a policy targeting one element can have effects (expected or unexpected, positive or negative) on another element which reflects the complexity of the system (Marchal et al. 2013a).

According to the analytic framework, these effects can be moderated by the stewardship function.

More information on the FEMHealth project for which we originally developed the POEM framework and in which we have tested it, can be found in Appendix 1.

Figure 1 – POEM conceptual framework of a local health system
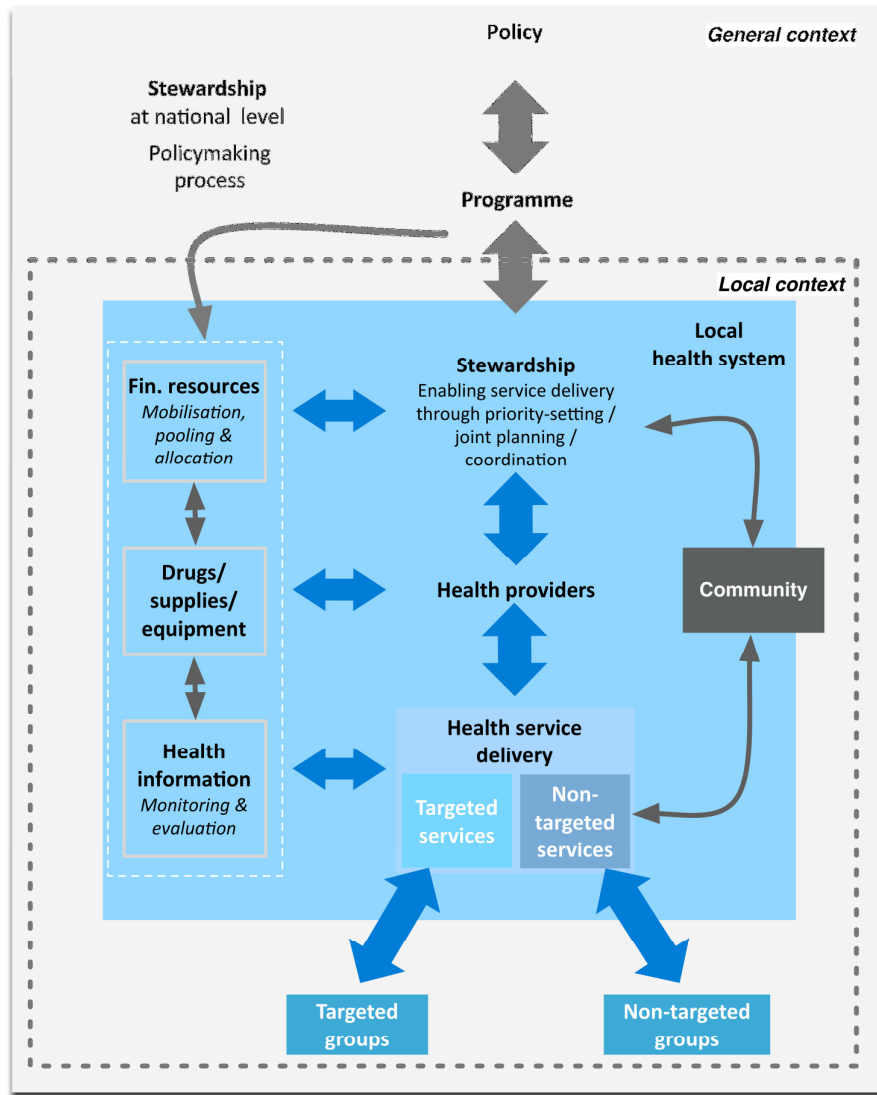
Why use the POEM framework?

The POEM framework has been developed by FEMHealth for the specific purpose of identifying and assessing the effects of the introduction of free obstetric care policies on both target and non-target groups and services, and on the local health system in general. While it is important to assess the effectiveness of a policy, POEM focuses specifically on its potential system-wide consequences. To do so, POEM covers not only the effects of the introduction of a health policy on each of the core elements and functions of a local health system, but also the interactions and linkages between these elements. The last chapter of the POEM framework addresses the potential spill-over effects a health policy might trigger when implemented at the local health system level.

Given that POEM starts from core elements and functions of a local health system, it can be applied to the analysis of the effects of any 'external' national or global policy or programme, including Global Health Initiatives.

Who can use the POEM framework?

POEM could be useful to anybody interested in assessing the effects of a policy or programme on the local health system. POEM can be used to identify and to anticipate potential system-wide effects, to monitor policy implementation and to assess or evaluate the effects. The potential users of POEM are:

- Decision-makers at Ministry of Health level
- District Health Management Teams
- NGOs
- Bilateral and multilateral agencies
- Researchers
- Other health stakeholders

How to use the POEM framework?

In this guide, we explain how the POEM framework can be used in practice. The POEM framework applies a step-wise approach:

- Step 1: Description of the health system
- Step 2: Description of the planned policy
- Step 3: Assessment of the policy implementation
- Step 4: Assessment of change in the resource functions of the LHS (financial resources, drugs/supplies/equipment, health information system)
- Step 5: Evaluation of changes in the information, competences, motivation, workload and remuneration of the health workforce
- Step 6: Description of effects of the policy on the stewardship function
- Step 7: Assessment of the policy effectiveness in terms of (1) expected and unexpected outcomes for the target group and (2) changes in the delivery of the targeted services
- Step 8: Assessment of policy effects on non-target groups / service delivery
- Step 9: Analysing the dynamics and linkages

The potential effects of the policy can be described and categorized according to the element of the LHS they affect. POEM goes a step further in trying to assess the dynamics or linkages between the elements. To do so, it uses information about the design and the implementation of the policy, the interactions between the different actors and the role of the stewards.

In essence, the POEM framework requires a mix-method approach. Hence the need to collect both quantitative and qualitative data, preferably by multidisciplinary teams (with public health, health economics, sociology, and political science expertise) and in a sample of sites representative of the country's diversity and the respective degree of policy implementation in different geographical areas. For example, for the FEMHealth research project, 6 to 8 study sites were selected per country.

Qualitative data are collected through documents review, in-depth interviews, focus group discussions and observation. Respondents include LHS managers, health facility directors, health service managers and health care providers from target and non-target services, and community representatives.

Sources of quantitative information include the HMIS, annual reports, policy documents, analysis of medical records and other relevant publications. Users of (target and non-target) services are approached through surveys or exit interviews. Examples of tools for the data collection can be found in the annexes. Through these tools, information is collected regarding:

- availability and volume of target and non-target services
- availability of inputs (drugs, equipment, supplies) for target and non-target services
- technical and perceived quality of target and non-target services
- availability, presence (versus absenteeism), workload (actual and perceived), remuneration, motivation, information and technical competences of human resources
- number and type of documents and guidelines related to the targeted policy
- number and content of information and/ or training sessions related to the targeted policy; number and contents of team meetings and supervision activities
- utilisation rates of target and non-target services over time and stratified by groups with different income, education level, place (rural/urban), age and sex
- cost of care for target and non-target service users over time and stratified by groups with different income, education level, place (rural/urban), age and sex

The analysis of collected data can be done at 3 levels: (1) at the level of the local health system, which is the original unit for analysis; (2) a comparative analysis between different sites of the same country and (3) a comparative analysis between the sites of all countries when a multi-country analysis is carried out.

The first level of analysis is essential and constitutes the prime focus of the POEM framework. The second level provides interesting information on how contextual elements may influence the potential effects of a national policy on the local health system. The third analysis level is specifically valuable for research purposes or for those seeking parallels between the study sites of different countries in the application and adaptation of different national policies.

Step 1: Description of the health system

Step 1a - Description of the overall organisation of the health system

In order to explain the observed effects of the introduction of the policy on the different elements of the local health system, it is essential to have a good insight into the overall structure and organisation of the national health system and its different stakeholders.

Questions can include (non-exhaustive list):

- Actors: Who are the main actors in service provision, policymaking and regulation? How is the collaboration between stakeholders?

- Structure: How is the health system structured (tiers)? What is the status of decentralization of the health system? How are management responsibilities distributed over the different levels of authority (subsidiarity)?

- Financing: How is the health system financed? E.g. share of public vs. private financing ; share of finances directed toward primary, secondary, tertiary levels of care.

- Workforce and service delivery: How is the health workforce and service delivery organized and distributed?

- Regulation: What are the main regulatory mechanisms in place: administrative, market-oriented or social controls? For instance, this can include information about national required standards in terms of services provided, health care providers employed, rotation of providers, …

- Policy implementation: Has a specific implementing body been created (or reinforced) for the relevant policy?

Step 1b - Description of the local health system

This step provides an overview of the local health system and its specific needs. The local health system is typically at district level (although the administrative name for this unit may differ from country to country: sub-district, department, zone, cercle, taluka, …).

Step 8 evaluates the possible effects of a health policy on the stewardship function. The description of the health system should include a definition of who were and are the stewards in the local health system. In practice, these are actors mandated to ensure the integration of the local health system or of the health care organisation. This is typically the responsibility of a district health management team or the hospital management team. However, the steward role can be played by a number of other actors: the local elected authorities, the hospital board, the district health board, etc. A key property is that they have a public mandate to serve the public interest.

In order to accurately describe the local health system, answers could be sought on the following questions (non-exhaustive list):

- Health facilities: How many and which type of health facilities (e.g. health centres, dispensaries, district hospital, regional hospital…) exist in the district? How are they connected (referral system)? To which referral levels outside the district will the health structures refer (regional/national level)?

- Service provision: What is the distribution of curative, preventive and health promotion services provided by sector (public, private for profit, private non-for-profit)?

- Financing: how is the local health system financed? What are the main sources of the district health budget (general government budget, basket funding), under which specific account, under what specific conditionality?

- Workforce: Which staff is available at which level? (skills, numbers and distribution among the different levels and facilities)

- Drugs and equipment: How is the provision of drugs and other resources organized?

- Management: What are the management and coordination structures?

- Stewardship: Who were and are the stewards of the local health system?

Step 2: Description of the planned policy

Step 2a - The origins of the policy

Understanding the origins of the policy, its development and formulation may provide insights in its implementation. The political climate in which the policy emerged and the drivers of the policy are briefly described. Other major policy initiatives that might affect the target group and the local health services in general should be included here. Possible questions are (non-exhaustive list): When did the policy issue come to the policy agenda? Was it framed within a larger sectorial or inter-sectorial policy framework? Was it part of a pre-election process? Which regional or international influences and agendas played a role?

- Who were the champions or advocates of this policy? Which other local or international actors were involved?

- What was the process during which this policy was developed? What was the political will underlying the policy? Which actors were involved (politicians, technical experts, providers, community, users, …)?

- Which parallel policies might contribute to the success or failure of the policy in question? A free obstetric care policy may be reinforced by the existence of a policy already exempting the costs of consultations for pregnant, lactating mothers and children under 5, or by a health insurance system.

Step 2b - Formulation of the policy

Before examining the effects of a policy on the local health system, the targeted policy should be described in detail (what, for whom, how and when). A multitude of official documents may (or may not) exist to source from: laws, decrees, ordinances, political documents and so forth. The existence and nature of these documents constitute a major indication of the importance of the target policy. Below, we use a fee exemption policy as example.

What?

Contents and intended benefits of the policy are described here. In case of a fee exemption policy, the type of services and the package exempted by the policy are specified. The package of care could be comprehensive (all services provided for free), limited to specific areas/activities (e.g. only preventive care but not curative care; only the screening/treatment for one specific disease) or limited to specific facilities (e.g. only in health centres or in district hospitals). The package of exemption of services could apply only for a confined episode (e.g. free care for postpartum and neonatal care until 6 weeks after delivery).

For whom?

The population benefiting from the policy needs to be described. The criteria for exemption of services for certain populations are mostly related to **age** (e.g. new-born, children under-5 years, adolescents, women in reproductive age), a **social category** (indigents, people with an income less than the poverty cut-off point, etc.), specific **events** (e.g. pregnancy and childbirth) or a specific **pathology** (e.g. HIV, TB, Malaria, leprosy).

How?

Here we describe how the policy has been put in place. For a cost exemption or cost sharing policy, questions could be as follow (non-exhaustive list):

- Patient/user perspective: Is the service free at the point of use or are the costs reimbursed to the patients at a later stage?

- Facilities: How are costs incurred by the facility reimbursed: through replacement of inputs through kits, flat fees per act, fee for service or fixed budget support to facilities?

- Regulation and control: Who is in charge of regulating the system (for instance, identification of the beneficiaries at point of care), of collecting the fees, and monitoring the reimbursement)?

When?

A short description is given of the timeline of the policy reform:

- When was the policy formulated?

- When and how was it communicated to the public and the users, the local health system managers, the health facilities and the health workforce?

- From which date onwards was the policy supposed to be implemented?

- From which date was the policy actually implemented in different areas?

Step 2c - Modalities of the policy

Funding

Funding sources and the mechanisms of transfer of financial resources to health facilities are described in this paragraph. Some key questions (non-exhaustive list) are:

- Sources: What are the sources of funding for the policy? What is the proportion of funding by source? Proportion of national versus international funding?

- Stability: How stable has the funding been? What is the length of the donor's financial commitment?

- Adequacy: Is the funding adequate in relation to: a) volume and reimbursements of services; b) prior fees earned by providers; c) production costs of services?

- Who is in charge of the financial resources transfer to health facilities? A specialized organism? What is the level of autonomy in financial decision making for the organism in charge of the policy management?

- What are the different steps in the funding process? Which conditions have to be fulfilled for a financial transfer to be carried out?

Description of accompanying measures

A set of accompanying measures aimed at successful implementation and improved efficacy may have been formulated. Questions include:

- What are the input-related accompanying measures of the policy: Have human resources been increased or strengthened in expectation of increased utilisation of services? Is improved drug procurement foreseen in the light of increased needs for inputs? Have adequate quality assurance mechanisms been introduced?

- Are there any simultaneously applied complimentary demand-side measures, such as a voucher system to enable equal utilisation of services by different population groups or financial or organizational support for transport of clients (e.g. women in labour) to the targeted services?

Step 3: Policy implementation assessment (POLIAS)

To assess to what extent the policy has been implemented at the local health system level, information is required on the actual start, the delivered package of services and the continuity. POLIAS also looks for answers l on the questions what, when, for whom, where and how of the policy.

Step 3a - Actual start of the implementation

First, the dates of the actual implementation of the different aspects of the health policy on-site are compared with the planned implementation dates (see Step 2b – Formulation of the policy). Second, explanation for any discrepancy is sought.

Step 3b - Delivered package of services

The package of services that has actually been delivered is compared to the package that was described in the policy. A score can be calculated on the basis of a comparison between the listed items/actions actually implemented and those that should have been implemented according to the policy. It may be that the implementation varies among study sites and it is therefore suggested that the range of implemented packages in the sample is shown – see Witter et al. (2014) for examples.

- Which of the components as described in the policy are effectively implemented?

- Has there been a modification in the package of activities covered by the policy? If so, in what specific aspect of the package, when and why?

Step 3c - Continuity

It is possible that since the introduction of the policy, interruptions may have occurred in service delivery. Interruptions in service delivery might have been there before and are not necessarily linked to policy implementation as such. However, they represent an underlying factor affecting its effectiveness. Some key questions are:

- Has there been an interruption in the provision of the package since the introduction of the policy?

- If so, in what specific aspect of the package, when and why?

Step 3d - Coverage

The geographical coverage of the policy may vary for different reasons and the actual coverage thus needs to be assessed in each study site. Some policy reforms target specific districts or operate as pilot projects, others are implemented nation-wide from the start. Also within the selected study sites (districts for instance), the geographical coverage may be variable. Even when a district implements the relevant policy in all its sub-districts, geographical barriers may impede access to health services in some areas, thereby rendering the policy ineffective. This is the case, for instance, in places with a poor road network during the rainy season. Coverage might also be hampered because of unequal access to health services for cultural or economic reasons, such as language barriers, income inequality and socio-cultural differences between caregivers and clients. This step therefore provides a short overview of the differences in implementation of the policy in the study site in terms of geographical, economic, cultural or social barriers.

Step 4: Assessment of the effects on the resource functions

In POEM, we consider financial resources, drugs and supplies, and health information as inputs or resources into the central axis of the local health care delivery system. As with the other functions of a LHS, each is required for successful policy implementation and each can be affected positively or negatively by the policy itself. The funding strategy used by the policy and its modalities of reimbursement can be important determinants of policy effectiveness.

As explained in Figure 1, the human resources (a dynamic element because they both act and influence what can be done with the inputs), have been taken out of the resource functions of the health system and placed instead as a separate element in the central axis of the LHS. Step 5 goes deeper into the human resources function and how the policy affects it.

Step 4a - Financial resources

POEM measures the effect of the policy on the financial resources of the facility by monitoring changes in the reimbursement and in the general revenues of facilities and health services (Table 1). Does the policy arrangement allow for timely and complete reimbursement or funding? Secondly, how does the policy affect funding and resource availability for both targeted and non-targeted services?

Assessing the reimbursement modalities

Fee exemption policies can use various funding modalities, each of which may influence the adequacy and timeliness of the reimbursement process. Facilities can be reimbursed in advance, based on an estimation of the expected volume of services, or *a posteriori* based on the actual outputs. While some policies include fixed reimbursement rates for each type of service, others reimburse actual costs. Drug and consumable kits may be an important component of the reimbursement of facilities.

Reimbursement rates can vary depending on the level of care (district/regional/national hospital), on the ownership of facilities (public/non-for-profit/for-profit), or on both. Since reimbursement rates are not always based on an accurate estimation of the real cost structure, it is important to estimate the difference between the actual cost of the services and the reimbursement rates (Richard et al. 2013).

Changes in the general revenue

The effect of a targeted policy on general revenue can be studied by looking at changes in revenue at the level of the targeted service, at facility level and/or district-level and by evaluation of the allocation of new revenue, which will be influenced by rules about how revenues can be used.

Table 1 - Indicators to assess the influence of a targeted policy on the financial resources *(examples are given in italic)*

Changes in the reimbursement of service costs	Timeliness of the reimbursement process
	Adequacy of the reimbursement process
	Comparison of the budget spent with the budget received
Changes in the general revenue	Change of revenue in the targeted service and at district level
	Allocation of new revenue:
	- *Proportion allocated to non-targeted services*
	- *Funding of new services, strengthening administrative services, etc.*

Step 4b - Drugs, supplies and infrastructure

The sustained availability of drugs, supplies and equipment is an essential condition for effective care. POEM assesses the availability of inputs for both targeted and non-targeted services (Table 2). In most settings, a targeted fee exemption policy is likely to lead to an increased need for these inputs. When no measures are put in place to deal with this increased need, stock-outs may occur as a result of increased service utilisation.

Non-targeted services are not necessarily negatively impacted by targeted policies. If for example the inputs foreseen for the targeted services are more than what is actually needed, the "leftovers" might provide additional input for non-targeted services. However, if there is a competition for limited resources, the targeted service might be advantaged, e.g. when in case of free C/S policies only one operating theatre is available for both obstetric and non-obstetric surgery.

Table 2 - Indicators to assess the influence of a targeted policy on the availability of drugs, supplies and infrastructure for targeted and non-targeted services *(examples are given in italic)*

Trends in the availability of drugs, supplies and infrastructure
 	
The examples given are related to the introduction of an obstetrical care policy. The targeted services are the labour ward and operating theatre, while non-targeted services might be the paediatric ward, the OPD or the gynaecology ward
	Changes in the (non-)availability of essential tracer drugs and products
	
	  - *For targeted services: changes in stock-outs for oxytocin, ampicillin IV, magnesium sulphate, blood products, anaesthesia and analgesia*
	  - *For non-targeted services: changes in stock-outs for antimalarial drugs, tracer antibiotics and insulin*
	
	Changes in the (non-)availability of essential consumables
	
	  - *For targeted services: changes in stock-outs for sterile gloves, IV giving sets, sutures, iodine*
	  - *For non-targeted services: changes in stock-outs for syringes, dressing material, alcoholic disinfectant*
	
	Changes in the (non-)availability of essential equipment
	
	  - *For targeted services: changes in the number of delivery kits, MVA/D&C sets, vacuum extractors, C/S kits*
	  - *For non-targeted services: changes in the number of laparotomy sets*

Step 4c - Health information system

In this section, the changes resulting from introduction of the policy on the health information system are described, as well as the effects of these changes on the administrative workload of HIS staff and managers (**Error! Reference source not found.**).

The administrative workload associated with the introduction of a targeted policy (*in casu* fee exemption policies) rather than the increased utilisation of services per se seems to increase the perceived workload among the health work force, and may represent a demotivating factor. This has been confirmed by studies conducted by FEMHealth, where health personnel suggested that the quantity of forms and reports they are asked to fill be limited, and that staff specifically committed to these tasks be recruited. However, paperwork is also an indicator for actual implementation and monitoring of the policy.

Table 3 - Indicators to assess the influence of a targeted policy on the health information system

Changes in the reporting system	Number of new documents introduced / new procedures imposed, control, audits, etc.
	Allocation of responsibility to newly created cadres
	Clarity of instructions, duplication of existing processes, documents, forms, etc.
Changes in the output of the HMIS	Effect of the reporting system on (1) service providers and (2) the HMIS staff in terms of additional workload and crowding out of other reporting tasks
	Effect of the reporting system in terms of strengthening the existing system
	Usefulness for decision-making (are the new tools used for clinical decision making and managerial decision making?)

# Step 5: Effects on the health workforce

Health managers and health care providers are key to the implementation of any policy. Effective adoption of the policy and its translation into practice depend on providers being informed about the policy, having the right competences, being motivated to implement it, and experiencing a conducive working environment. The policy and its accompanying measures may thus contribute to successful implementation or it might fail if the right conditions are not ensured.

POEM differentiates between mid-level managers and health care providers. The indicators suggested below can be used for both if adapted to the specific situation under study.

Health managers are potential facilitators in the translation of health policies into effective practice by service providers. Their attitude towards the policy is influenced by a multitude of factors: information they receive on the relevant policy, guidelines for its implementation, their competences and remuneration, work environment and working conditions, organizational culture, management policies and so forth. Among others, these factors might influence the motivation of health managers to adhere to the policy and strengthen its implementation in the intended modalities or in an adapted form. Discussions on how and why policies are implemented can be found in Marchal et al. 2013b, Marchal, Van Belle, De Brouwere, & Witter 2013a, Marchal et al. 2014 and Robert et al. 2012.

POEM categorises the effects of targeted policies on health care providers according to how they influence their performance: participation in decision-making, technical competences, remuneration, work environment and workload. Through these factors, a policy may affect the practices and attitudes of health staff (quality of work) and finally the performance. We also added motivation as a factor (Figure 2).

Figure 2 - Framework to analyze the effects of a policy on health workers (managers and providers). Inspired by Deci & Ryan 2010 and Marchal 2013.
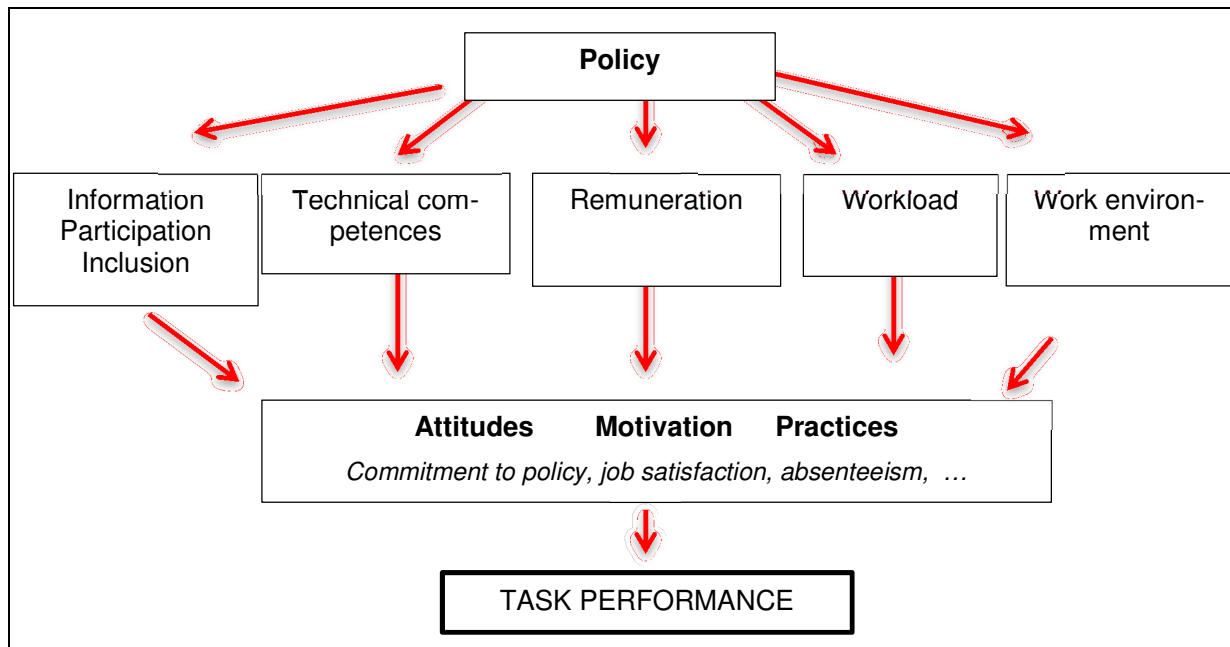
Source: inspired by Deci & Ryan 2010 and Marchal 2013

Changes in information

Here we examine whether information concerning the objectives, modalities and nuances of the relevant policy is provided to all health managers and service providers involved. For a free cae-sarean policy the providers involved are general practitioners practicing C/S, midwives, nurses, anaesthetists, nurse aids, pharmacists and laboratory technicians.

Indicators can include (non-exhaustive list):

- the presence and quality of the guidelines that have been developed to introduce the newly designed policy to the health work force

- the number of information (or training) sessions given on the policy

- the public targeted by the information sharing: e.g. have health staff at peripheral centres (not targeted by the policy) been informed , for example, on the referral modalities for caesarean sections?

FEMHealth studies have shown that when few information meetings have been organized or when health personnel have been informed about the policy through the same channels as the community (e.g. through the media), this can contribute to a limited understanding and owner-ship of the policy and consequently to a variable implementation of the policy.

Changes in technical competences

To be able to implement the new policy, both managers and providers require clear information on the policy and guidelines for its implementation, while health care providers may require addi-tional skills, e.g. a training on PMTCT in a situation where the policy requires the integration of HIV screening and treatment in antenatal care.

Questions can include (non-exhaustive list):

- Has policy implementation been accompanied by an assessment of training needs in the health work force?
- Has adequate training been provided? What, for whom, when, and how (including by whom)?

Changes in remuneration

Incentive arrangements may be introduced by the new policy, aiming to strengthen its implementation, to compensate for a potentially increased workload (administrative or other) or to compensate for lost revenue. In the case of policies that foresee a flat fee for each item of service, health facility managers may have an interest in reducing the use of inputs, thereby potentially affecting the quality of care. If the personal revenue of health care providers is affected negatively by the policy, its implementation may be skewed. Health staff may apply several mechanisms to cope with decreased revenue, such as selling items from the facility (drugs, consumables, equipment) on an informal market, demanding informal payments from service users and so forth.

Questions include:

- How does the policy affect the remuneration of managers?
- How does the policy affect the personal revenue of staff?
- What is the influence of the policy on the coping strategies of staff?
- How does the policy deal with a potential loss of revenue for the health work force?

Changes in working environment

The policy can affect the working environment of health managers positively or negatively. Issues to be assessed include the effect of the policy in terms of provision of additional equipment, computers, offices, stationary, etc. or the opposite, a relative decrease of the necessary supplies and services.

Similarly, the working environment of providers matters. Issues to assess include adequacy of infrastructure, equipment and supplies.

These elements can be documented through observations and interviews.

Changes in workload

A new policy may cause an increase in workload for managers and health care providers, depending on the number of newly introduced documents (see step 4c) and tasks. Availability of personnel and measures taken to ensure adequate staffing are key determinants (including hiring of additional staff).

The combination of a non-conducive work environment and an increased workload without a parallel increase in personnel, or financial or other advantages may lead to staff complaining of being overworked. It is possible that the workload is perceived differently before and after policy implementation without parallel observed changes in the actual workload. Changes in perceived workload may affect staff's motivation as much as the actual workload. Indicators measuring changes in workload might include

- changes in volume of procedures carried out and hours worked per health care provider
- changes in time spent on administrative tasks
- changes in the perceived workload of staff

Changes in motivation

The introduction of a new policy can affect staff motivation. The motivation of facility managers and health care providers can be assessed through interviews and surveys. Additional information can be derived from absenteeism rates (if available) or observation (presence and attitude of managers).

Table 4 – Indicators to assess the influence of a targeted policy on the health work force (managers and service providers) *(examples are given in italic)*

Changes in information availability	Presence and quality of information and guidelines regarding the relevant policy
	Number, contents and methods of information sessions regarding the relevant policy
Changes in technical competences	Number of competency assessments carried out in targeted services
	Number of service providers trained in the delivery of services targeted by the relevant policy
	Number of facility and service managers trained in the implementation of the relevant policy
Changes in remuneration	Presence of incentive arrangements in the new policy
	Changes in personal revenue
Changes in conducive working environment	Changes in the availability of computers, telephone, internet, and offices for administrative services
	Changes in the number of supervision activities (frequency, quality) by national, regional or district authorities
	Changes in the number of team meetings
Changes in workload	Time spent on administrative tasks related to the policy and changes in the proportion of administrative workload compared with the total workload
	Changes in workload and working hours:
	- *E.g. for free obstetric care policies: number of admissions/health staff, number of deliveries/midwife, number of C/S/obstetrician, surgeon or GP*
	Changes in absenteeism rates:
	- *E.g. for a TB control programme: total days of absence per year by the laboratory staff*
	Changes in turn-over rate:
	- *E.g. for a policy aiming to increase the number of community nurses: proportion of nurses leaving the assigned area for another area*
Changes in Motivation	Perceptions of staff concerning the effect of the policy on their commitment and motivation

Step 6: Effects on the stewardship function

The last assessment in POEM concerns the stewardship function, which might be positively or negatively affected by the policy in a number of ways. We consider the stewardship function to be more than a building block: within a local health system, it is one of the principal roles or functions that should ensure the public interest.

Key responsibilities of local health system stewards have been formulated as follows:

- Ensuring an adequate response to local needs and circumstances, in terms of provision of health services and wider health promoting activities

- Coordination of local actors

- Management of health services, activities and health workers

- Supervision and training of service providers

- Adaptation of national policy and guidelines to local circumstances

To this list of responsibilities that ensure a well-integrated local health system, we add the notion of safeguarding the public interest and holding all actors in the local health system accountable to the public as a key responsibility. Defined as such, the stewardship function requires specific skills and competences, including mediating and negotiating with all the relevant actors within the local health system and enforcing the governance arrangements for public accountability.

Furthermore, it functions only when several conditions are fulfilled:

- *Individual factors*: stewards should have a vision of public interest and a public service motivation, and master technical and public health related competences as well as interpersonal skills (leadership, negotiation, communication, conflict resolution)

- *Organisational factors*: conducive work conditions including time availability, resources, adequate decision making space and autonomy

- *Contextual factors*: effective governance arrangements include adequate decentralisation of responsibilities and power (means, moral authority or hierarchy); clear definitions of roles, expectations and authority; a public mandate and adequate accountability procedures and processes (including channels for citizen involvement at all levels)

In step 6 the policy's influence on the above described conditions for a functional stewardship is evaluated. Where there is no officially designated steward (cf. step 1b), description of the local health system), the main actors of the health system need to be identified, and the influence of the policy on their capacity to coordinate and manage all aspects of the LHS should be analysed.

Key questions to assess the influence of a health policy on the stewardship function of a local health system include:

- Do we observe a shift in stewardship after the introduction of the policy?

- Did the policy affect the autonomy of the stewards in terms of decision making space? Did it increase their autonomy or impose restrictions?

- Did the stewards feel deprived of their responsibilities or strengthened in their role?

- How did the policy change the stewards' perceptions of their own role and of the role of the local health system in improving the health status of the population for which they had responsibility?

Step 7: Assessment of the policy effectiveness

In order to assess the effectiveness of the fee exemption policy, the target groups and targeted services need to be identified. This information can be found in the description of the policy and the target groups (Step 2). (Nagel 1986) defines policy effectiveness as the extent to which the policy is achieving the benefits it is supposed to achieve and any unanticipated side benefits. Other authors include only the intended benefits in effectiveness evaluation. In the following section we assess all effects on the target groups and services, including unanticipated side effects, which might be beneficial as well as disadvantageous. To measure effects, time series have been developed for a variety of indicators.

The method of analysis of the collected data depends on the context and on whether control groups are possible. Where a national change is introduced simultaneously across all areas, time series are often the only possibility. However, changes in the indicators over time cannot be automatically attributed to the studied policy. A chain of logical arguments needs to be made to demonstrate whether or not the evaluated intervention is one of the causes of observed change, and to possibly rank the intervention among other contributions. Evidence supporting exploratory hypotheses, as well as evidence related to other explanations for the effects (external factors or other interventions), could be gathered from causal statements by interviewees, from in-depth inquiries and from findings of similar studies. Realist evaluation studies have proven to be a useful and compatible approach for this purpose (Marchal et al. 2013a, 2013b, 2014).

Step 7a - Effects on the target group

Many indicators can be used to assess policy outcomes, but the choice of indicators should be informed by the specific objectives of the policy under study. The general objective of all health policies is to achieve better health outcomes for the target population. However, since attribution of changes in health outcomes to specific policies can be difficult, it is useful to differentiate between the changes in outputs (e.g. an increase in number of women enrolled in PMTCT programmes after the implementation of a policy aiming at integrating systematic HIV screening and treatment in ANC) and health outcome (e.g. decrease in proportion of newborn infected with HIV). Some examples are given in Table 5. In practice, this means that indicators measuring actual outputs of facilities or service providers in terms of cost and utilisation need to be included. In order to have a clearer idea on the effectiveness of the policy, another essential factor to evaluate is equity and how a selected policy (often targeting the most vulnerable groups in society) has influenced it.

Changes in cost for care

The first indicator reflecting a potential output of the targeted policy, when the policy concerned is a fee exemption policy, is the cost of care for service users. Under fee exemption policies, the cost for targeted users is expected to decrease. The cost for clients consists of all direct and indirect costs related to accessing and completing treatment. Changes in both direct and indirect cost need to be assessed.

- Direct costs (e.g. user fees, informal payments, payment for drugs) can be assessed through questions in a survey or in interviews. Care should be taken to explore informal payments.

- Indirect costs such as lost income due to seeking care also require patient exit interviews or population-based surveys.

Changes in utilisation of services

Changes in service utilisation reflect the intermediate achievement of reduced financial barriers, necessary but not sufficient for the policy to effectively improve health outcomes. The first indicators monitored are thus the utilisation rate and the coverage of preventive activities.

- For obstetric care policies, changes in utilisation can be measured through time series of institutional delivery rates per type of delivery.

- Changes in coverage are useful to measure as well: one of the intermediate objectives to reach MDG 5 (related to the decrease of maternal mortality) for example is to have 90% of women delivering with a skilled birth attendant by 2015.

- For non-obstetric care policies, one could assess changes in the number of clients who have correctly taken their treatment, whether the number of referrals has increased or decreased, whether the number of operations performed has changed since the introduction of the policy and so forth. It is more convenient to describe utilisation as a proportion or as a % coverage based on a clear underlying objective. This enables comparison of the actual utilisation of a particular service with the expected need for this service. It is important to establish longer term trends for the observation of this indicator, since it is sensitive to confounding factors (e.g. the presence of NGOs or other health stakeholders implementing temporary, free services).

Changes in utilisation rate should be carefully interpreted for several reasons. First, it is an indicator influenced by many factors. A contextual analysis should accompany the POEM analysis in order to assess the contribution of the policy to utilisation of services. Second, utilisation does not necessarily reflect equity, often an objective of fee exemption policies. To assess the effect of the policy on equity, access to care and utilisation by different population groups as well as the distribution of associated costs of care should be assessed, stratified by educational level, income, place of origin (urban, rural, semi-urban), gender and age. Third, while it is important to evaluate changes in utilisation of services following a newly introduced health policy (especially when demand creation is one of the policy's explicit objectives), we should keep in mind that increased utilisation per *se* does not automatically lead to better health outcomes (Hadley 2011). Finally, to address usual variations in rates and coverage in the different study sites, sample size matters.

Changes in equity

Selected health policies may target specific diseases or specific groups considered as more vulnerable. Fee exemption policies, for example, aim to lift financial barriers to access high quality health services (barriers that are higher for the poorer segments in communities and/or for those living in hard-to-reach areas), in order to improve the health outcome for the targeted population. Changes in equity are hence an important indicator for monitoring and evaluation of the policy effectiveness.

- To measure changes in equity for target groups before and after the policy implementation, both cost of care and utilization of care for target groups can be stratified by income, residence (urban versus rural), educational level, ethnicity/caste, gender…

- Changes in coping strategies and wider socio-economic consequences at household level also need to be taken into account

Changes in health outcomes

While changes in health outcomes are often attributable to a combination of interventions and not to one specific targeted policy, their measurement over a period of time stretching from before to well after the implementation of the relevant policy may provide valuable information when cross checked with contextual elements. Well-known indicators measuring health outcome are morbidity and mortality rates per target group, e.g. maternal mortality rate, infant mortality rate, global acute malnutrition rate …

Table 5 - Indicators to assess the influence of a targeted policy on the target group *(examples are given in italic)*

Changes in cost of care for target group	Changes in direct costs for the user to access services, e.g. user fees, informal payments, payment for drugs, transport and so forth. Changes in indirect costs for the user to access services, e.g. loss of income, costs for care of children for the duration of a hospitalization, …
Changes in utilisation of care by or coverage of target group	Changes in utilisation rate of service, e.g.: - Institutional delivery rates over time (e.g. normal deliveries, caesarean sections) - Trends in nutritional screening: numbers of malnourished children screened for weight and height over time Change in coverage, e.g.: - Trends in ANC coverage - Trends in breast cancer screening coverage among 50-59 years old women - Changes in coverage of bed nets distributed in the community; of vaccination and deworming among children under 5y - Proportion of PHCC prepared for a cholera outbreak (equipped with emergency stock and trained in contingency planning)
Changes in equity for target group	Utilisation of care stratified by income, residence (urban vs rural), educational level, ethnicity/caste, gender,etc.: - C/S rate per wealth quintile, residence (urban vs rural), educational level, ethnicity/caste, gender… - Proportion of pneumonia diagnosed in children under-5 per geographical area or wealth quintile Cost of care stratified by income, residence (urban vs rural), educational level, ethnicity/caste, gender, etc: - Proportion of health expenditure for the target health problem of annual household income stratified by wealth quintile/ residence / … - Changes in direct and indirect costs for the user to access services, stratified by wealth quintile, residence …
Changes in health outcome for target group	Changes in health outcome, e.g.: - Trends in maternal / neonatal / infant mortality and morbidity rates or ratios - Trends in DALYs

Step 7b - Effects on the targeted service delivery

To understand how the policy contributed (or not) to the observed outputs and targeted outcomes, changes at the level of targeted service delivery are assessed. We use the dimensions of volume of services and quality of care (technical as well as perceived), through a number of trends in indicators (Table 6). This assessment starts by looking at the actual availability of services. The availability of targeted services depends on the availability of resources (human, financial, drugs, consumables, infrastructure…) but also on the organisation of the services (e.g. opening hours, triage, appropriate space for privacy, time spent per patient and so forth). The availability of inputs is discussed in steps 4 and 5 and some of the elements associated with organisation of care come back in the assessment of quality of care.

Changes in volume of services

The volume of targeted services needs to be assessed to see whether there have been positive changes, in terms of numbers but also appropriateness of services actually delivered. Fee exemption policies can represent a strong incentive for increasing services if that leads to higher revenue for providers or the facility. This can be measured through a time series of e.g. the number of procedures performed in each of the target services.

Changes in the quality of care

Several indicators to measure **technical quality of the services** can be used: the average delay between diagnosis and medical intervention, the quality of diagnosis, the adherence to quality standards, the average length of hospitalisation, the case fatality rate, etc.

- For a policy targeting obstetric care, it may be interesting to evaluate the distribution of severe acute maternal morbidity (or near-miss) cases[1] and maternal deaths in the different health facilities, the indications for caesarean section, and the quality of care in the postpartum, including the management of complications.

- Adherence to quality standards can be measured through a checklist with essential activities enhancing the quality of care: e.g. hygiene measures, regular monitoring of vital parameters and other acts as described in the protocol of the relevant procedure.

Although perceived and externally assessed technical quality is not necessarily the same, they do have some indicators in common, e.g. the waiting time between diagnosis and the treatment, time between the decision to perform a caesarean section and the operation). The **perceived changes in quality of care** since the introduction of the policy can be assessed through exit interviews with patients and their health care takers, through questions covering:

- Clients' satisfaction with cleanliness of the health facility, the time spent on them, the interaction with health staff etc.

- Would service users recommend the hospital? Have service users received an answer to their questions?

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[1] A tool for evaluation of the numbers and distribution of near-miss cases has been developed for FEMHealth and can be found on: www.abdn.ac.uk/femhealth.

Table 6 – Indicators to assess the influence of a targeted policy on the delivery of targeted services *(examples are given in italic)*

Changes in the volume of targeted services	Trends in numbers of facility-based procedures per defined period of time
	E.g. for obstetric care policies: time series of the numbers of normal deliveries, C/S, number of cases with obstetric complications such as post-partum haemorrhage, eclampsia, etc. managed in the respective facilities
Changes in the quality of care of targeted services	Changes in delays between diagnosis, decision and medical intervention
	- *E.g. for obstetric care policies: delay between arrival of patient referred for C/S / decision and the actual performance of the C/S*
	Changes in adherence to quality standards
	- *E.g. for a national policy on IMCI: quality of care checklist for consultations of children <5 years*
	- *E.g. for obstetric care policies: quality scores for normal delivery, C/S, management of post-partum haemorrhage and eclampsia*
	- *E.g. for obstetric care policies: average duration of hospitalisation for a C/S*
	- *E.g. for a nutritional policy: average duration of hospitalisation in the TFC*
	Changes in Case Fatality Rate (CFR)
	- *E.g. for obstetric care policies: CFR for C/S, post-partum haemorrhage, eclampsia*
	- *E.g. for policies targeting one specific pathology: CFR for malaria, ARTI, cholera*
	Perceived changes in quality since the introduction of the policy
	- *E.g.: Staff attitudes, waiting times, cleanliness of facility, etc.*
	Changes in the average length of hospitalisation

Step 8: Assessment of the effects on non-target groups and services

POEM aims to study not only the effect of the policy on the target population (policy effectiveness), but also on non-targeted groups and services in order to map the system-wide effects of the policy. To achieve this, a group of tracer clients and services among the non-target groups and services should be selected, since it would be extensive, time-consuming and costly to measure potential effects among all users of the health system. To select non-target groups and services a hypothesis is made of what might be the unintended effects and on which group (not targeted by the policy) the implementation of the policy could impact the most. In case of the introduction of a fee exemption policy targeting children under 5, for example, it could be interesting to study the effects on utilisation of care and coverage of adolescents. Possibly a decrease could be expected in the utilization of care by adolescents (or a longer first delay in health care seeking) because of overcrowding at primary health care facilities by the under 5 age groups and their adult escorts To study the effect on non-targeted services, consultations for children and adolescents (the age group between 5 and 18 years old) could be assessed looking at availability, volume and quality.

Step 8a - Effects on non-target groups

Similar to the assessment in Step 7a, we differentiate between outcome and output. Given the difficulty of assessing outcome-level indicators, in practice, often proxy indicators of output are used: utilisation of tracer services and in case of fee exemption policies, the actual cost of care for the users (Table 7).

Changes in cost of care for non-target groups

- Following a change in coping strategies by health staff experiencing loss of income, cost of care for non-target groups might increase. In Senegal, (Witter et al. 2010) there is evidence of providers increasing charges for children to make up for lost delivery revenues.

- Indicators to measure changes in cost of care for non-target groups are the same as for target groups (cf. Step 7a)

Changes in utilisation of services by or coverage of non-target groups

- Indicators for measuring changes on utilisation by non-targeted groups could include utilisation rates for a set of outpatient services by non-target groups (compared before and after the policy introduction) as well as trends in hospitalisation rates for non-target groups.

Changes in equity for non-target groups

- Changes in equity can be assessed in the same way as for the target group, i.e. by measuring the changes in utilisation and in cost of care for different population groups, categorized by wealth quintile, residence, educational level, gender, ethnicity/caste etc.

Changes in health outcome for non-target groups

- Indicators measuring health outcome of non-target groups will depend on the selection of tracer non-target groups

- E.g. for obstetrical care policies, changes in mortality rates for children under 5 years old could indicate changes in health outcome for non-target groups.

Step 8b - Effects on non-targeted service delivery

To assess how the policy affected the delivery of non-targeted services, we examine the volume and quality of some tracer services not targeted by the relevant policy (Table 8). As for step 7b (effects on targeted services), it is useful to have the paragraphs on changes in volume and quality of services preceded by a short assessment of the availability of (*in casu* non-targeted) services, which will depend on the availability of resources (human, financial, drugs, consumables, infrastructure...) but also on the organisation of the services (e.g. opening hours, triage, appropriate space allowing privacy, time spent per patient and so forth). The availability of inputs is discussed in steps 4 and 5 and some of the elements associated with organisation of care are also present in the indicators on quality of care.

For a POEM of maternal and neonatal fee exemption policies, respondents for interviews and observations concerning the effects on non-targeted service delivery could include paediatricians, general practitioners, ambulance staff, pharmacists, health information system staff, nurses from related services, users of the family planning services, the OPD, or other non-obstetrical related services.

Changes in volume of non-targeted services

In the case of a free caesarean section policy, examples of indicators for measuring changes in the volume of non-targeted services could be the trends in the numbers of non-obstetric surgical procedures performed, changes in the number of admissions/interventions for non-targeted services in relation to the number of admissions in targeted services, or changes in the volume (number of admissions/consultations per department on the total number of admissions/interactions in the health facility).

Table 7 - Indicators to assess the influence of a targeted policy on non-target groups *(examples are given in italic)*

Changes in cost of care for non-target groups	Changes in direct costs for the user to access non-target services, e.g. user fees, informal payments, payment for drugs, transport and so forth. Changes in indirect costs for the user to access non-target services, e.g. loss of income, costs for care of children for the duration of a hospitalization,…

Changes in utilisation of service by non-target groups	Changes in utilisation of services:
	  - *Number of women coming to OPD for curative services*
	  - *Hospitalisation rates in general medicine, surgery and paediatrics wards*
	Proportion of the non-targeted population turning to private sector (because of a perceived decrease in availability/quality of services they seek to attend*)*

Changes in equity for non-target groups	Utilisation of care by non-target groups stratified by wealth quintile, educational level, age, gender, ethnicity… Cost of care for non-target groups stratified by wealth quintile, residence, educational level, …
Changes in health outcome for non-target groups	- Evolution of tariffs of surgical procedures other than those covered by the policy - Evolution of tariffs for hospital admission not covered by the policy

Changes in the quality of care of non-targeted services

We suggest using the information collected through exit interviews with patients in non-targeted services to clarify the effect of fee exemption policies on these services. Some authors suggests that there may be a loss of attention for non-targeted services to the advantage of the targeted services (Hadley 2011), especially when the former are not generating income for the health structure.

Unintended benefits, however, could be expected as well: e.g. if service providers are trained in the aim of improved quality of care for target services, overall service quality (including quality of non-target services) might benefit from this, especially if trainees work in both target and non-target services.

Table 8 - Indicators to assess the influence of a targeted policy on the delivery of non-targeted services
(examples are given in italic)

Changes in the volume of non-targeted services	Trends in numbers of non-targeted facility based procedures/activity, e.g. for obstetrical care policies: - *Volume of elective and emergency operations* - *Peritonitis, hernia, hysterectomy for non-obstetrical cause (fibroma)* - *Number of admissions per department, % in relation to other departments*
Changes in the quality of care of non-targeted services	Case fatality rates - *E.g. for cerebral malaria, meningitis and other tracer conditions* Mortality rates in the different departments Average bed occupancy rate in the different departments Perceived changes in quality since introduction of the policy: - *E.g.: Staff attitudes, waiting times, cleanliness of facility, etc.*

Step 9: Assessing the dynamics

The model of a local health system on which the POEM framework is based presupposes that (1) a policy can have a potential influence on all the elements of the local health system, (2) that changes in one element may lead to changes in others and (3) that these influences can be moderated by the stewardship function.

Step 1 to 8 describe and assess the policy, its implementation and its effect on each of the core elements of the local health system. Step 9 uses that information and integrates it in the assessment of the dynamics. The aim is thus to explore how the policy as implemented in the study site contributed to the observed changes in outcomes and outputs, both for the target and non-target groups.

Such an analysis of a complex process cannot be codified in a series of fixed steps with formulaic instructions. It is, rather, an iterative process that demands good insight into the local health system and a keen eye for connections. The starting point of the analysis of the dynamics is the observed outcomes in terms of changes for the target and non-target group. The LHS model provides a structure to think though the pathways that fill in the 'black box' between policy and observed outcomes.

- First, the linkage between the observed outcomes and the outputs of the service delivery function are assessed.

- Second, the response of the health workforce to the policy and its influence on the service delivery function is analysed.

- Their response is then framed in the changes that occurred (or not) in the resource elements of financial resources, drugs, supplies and infrastructure and health management information system.

- This in turn requires that we explore how the implementation of the policy affected these resource functions.

- Finally, the stewardship function is examined to explore if and how it played a role in adopting the policy in the study site and in adapting it to the local context.

- The above sequence is best run *iteratively:* any change in one function and the response of managers, providers and stewards to it has the potential to influence the

> other elements. Such iterative analysis often leads to better understanding of the pathways between the policy and the observed outcomes

Error! Reference source not found. and **Error! Reference source not found.** present an example[2] of how to assess the effects of a fee exemption policy in two study sites of country X, using the POEM framework. In the country concerned, the fee exemption policy was introduced in 2009 and covered only caesarean sections. For each C/S carried out, health facilities (accredited to the policy) were reimbursed a flat fee of 100.000 FCFA.

In the first site (**Error! Reference source not found.**Figure 3), a worst case scenario is presented. Here the policy did indeed lead to a decrease in the formal direct costs for C/S for the targeted group. However, less, or no more direct costs is only one of the expected results of a fee exemption policies. There are also indirect costs to take into account, as well as aspects of equity. Because "gratuity is not for free", substantial informal payments were demanded of the patients, sometimes completely offsetting the fee exemption. Health providers and mid-level managers played the main role in the implementation of the policy. To make up for what was experienced as an additional administrative workload, they started selling unused items from the C/S kits to patients. Furthermore, communication regarding the supply of kits was badly managed and staff were not aware that the kits would only be supplied at the start of the policy. The number of C/S increased, at least in part to increase the staff's revenue. In parallel, both technical and perceived quality of care diminished. As a result, for the target group, the financial barriers did not decrease. The policy had negative effects for non-target groups: competition for the scarce resources led to prioritisation of C/S to the detriment of non-obstetric surgery. The volume of the latter interventions decreased. Gradually, the community lost confidence in the facility and the health work force and turned away from the services. This evolution was allowed to happen: in this site, there were no stewards to rein in individual providers and an organisational culture of laissez-faire.

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[2] The two scenarios presented in the example are based on evidence drawn from country studies in the FEMHealth project.

Figure 3 - Effects of a (nationwide implemented) free caesarean section policy on the local health system of study site A in country X
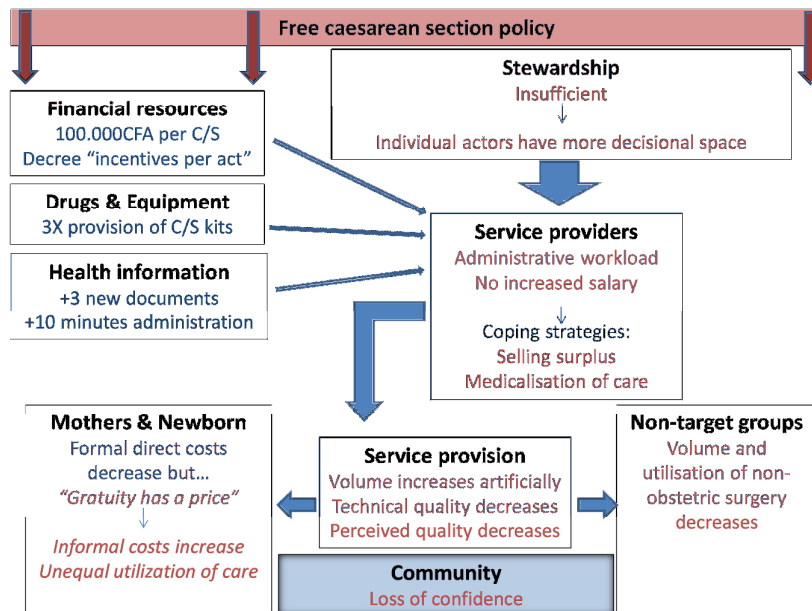
In site B (Figure 4), the same policy led to different results. Here, for example, the number of caesarean sections carried out did not change significantly. Facility managers and health care providers together assumed the stewardship role. They decided together on how to implement the free C/S policy in the most beneficial way for target and non-target population. From the reimbursements for the C/S, they set apart a budget to recruit additional human resources in order to manage the increased workload and to maintain staff motivation.

Figure 4 - Effects of a (nationwide implemented) free caesarean section policy on the local health system of study site B in country X
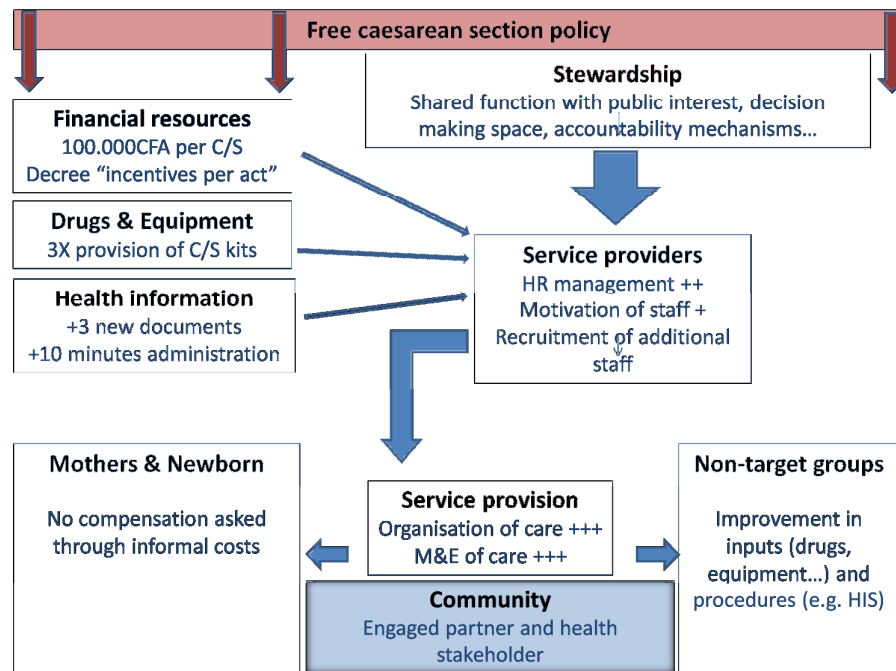
It was decided to integrate the C/S kits into the pharmacy and use their content for any unit if surplus items remained. Although informal payments existed also in this study site, they were lower than in site A. Whereas the number of C/S did not change much, the additional human resources absorbed the additional administrative workload. Both the technical as well as the perceived quality of care scored better than in the other study sites in the country.

Conclusion

In response to a lack of analytical frameworks to assess the effects of policies on local health systems, FEMHealth developed the Policy Effects Mapping tool (POEM).

Inspired by the dynamic health system model developed by van Olmen et al. (2011), POEM takes the WHO 6 building blocks model a step further by taking into account the dynamic interactions between the core elements of a local health system. For the analysis of selective policies, POEM allows assessment of the effect of the policy on non-targeted services and non-targeted groups.

By describing the policy and its actual implementation and the changes that occurred within each of the core elements of the local health system, the first part of the tool sets the scene for an analysis of the dynamics. The second phase integrates the information into an iterative cycle of assessment of the linkages between the elements to develop insights in the pathways of contribution of the policy to the observed outcomes.

In the FEMHealth project, the POEM framework has been applied specifically to user fee exemption policies for obstetric care in Benin, Burkina Faso, Mali and Morocco. However, given that its unit of analysis is the local health system and not a specific policy, it provides a generic approach to assess the effects of any policy or programme.

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Appendixes

1) Summary of the FEMHealth research project
2) Example interview guide (used for the FEMHealth project): www.abdn.ac.uk/femhealth
3) Examples quantitative data collection tools (used for the FEMHealth project): www.abdn.ac.uk/femhealth

FEMHealth: assessing the impact of fee exemption on maternal health in West-Africa and Morocco: new tools, new knowledge

Background: User fee exemption for normal deliveries, caesarean sections and other obstetric complications has been introduced by many governments, especially in West Africa, in recent years. However, the current evidence base regarding the impact of this policy is not well developed, in part because of evaluation designs that are not able to capture all the necessary information for policy-makers to make informed decisions.

FEMHealth goal and objectives: This programme aims to reduce this gap by developing research methodologies and tools that will lead to enhanced research on policy implementation, stronger evidence and improved dissemination.

The objectives of the project are:

(1) to develop new methodological approaches for the evaluation of complex interventions in low-income countries;

(2) to improve the health of mothers and their newborns by performing comprehensive impact-, cost- and effectiveness evaluations of the removal of user fees for obstetric care

(3) to facilitate a broad exchange of evidence between policy-makers, researchers and other stakeholders.

Research methods: FEMHealth takes a multidisciplinary and innovative approach to complex evaluations. Innovation relates to the following areas:

a. developing a *policy implementation measurement tool* that describes interventions in terms of their adherence to original objectives, their eventual scope and penetration;

b. developing *innovative methodologies for health policy analysis*, focusing on what drives policy change and how policy is transferred, both from international to national level (and back), but also regionally;

c. developing a *comparative case study design, based on realist evaluation* that focuses on adequacy and plausibility of effect of intervention rather than on probability and provides policy relevant information;

d. *testing the use of critical events (maternal, neonatal and health care near miss)* as an entry point for the evaluation of changes to quality of care and health outcomes;

e. piloting a new way of synthesising and disseminating results to policy-makers using a network beyond the four countries - a *'community of practice'* which encourages cross-learning between policy-makers, international organisations and researchers and between countries in the region.

Structure of programme: FEMHealth is funded by the EU under FP7. It runs from January 2011 to December 2013. The research consortium consists of eight partners operating across six countries: the University of Aberdeen (UK), the Institute of Tropical Medicine (Belgium), AFRICSanté (Burkina Faso), CERRHUD (Benin), CAREF (Mali), INAS (Morocco) and IRSS (Burkina Faso). The focal countries for the evaluations of national policy are Benin, Mali, Burkina Faso and Morocco. These countries were selected on the basis of having recently introduced national fee exemption policies for obstetric care and of having expressed an interest, at policy-making levels, in the research goals. Most face serious challenges in improving maternal health indicators.

Programme outputs: We expect to generate the following outputs:

1. A comprehensive multi-disciplinary understanding of the positive or negative impact of the policies on health outcomes for mothers and babies, quality of care, and access to emergency care in each of the countries
2. Cross-country learning and recommendations generated on how to improve policies to remove user fees
3. Methodological advancements in relation to health policy and financing tools, tools for mapping the effects of policies on the local health system, and the use of realist case studies and near miss events
4. A vibrant regional community of practice is in place and growing, involving major stakeholders

The FEMHealth project will impact on several main actors: women and their families in Africa and other resource-poor settings, national stakeholders at policy and health service levels, the global health and safe motherhood community and the scientific community working on complex health care evaluations. Dissemination will be carried out through well-maintained relationships and networks at local, national, regional and international levels.

For further information, see: www.abdn.ac.uk/femhealth