Final Report Summary - MOMI (Missed Opportunities in Maternal and Infant Health: reducing maternal and newborn mortality and morbidity in the year after childbirth through combined facility- and community-based interventions)

Executive Summary:
The ‘Missed Opportunities in Maternal and Infant Health’ (MOMI) project focused on the need to upgrade postpartum care (PPC). The overall project objective was ‘to improve maternal and newborn health through a focus on the postpartum (PP) period, adopting context-specific strategies to strengthen health care delivery and services at both facility and community level in four sub-Saharan countries’. The study was implemented in Kaya district in Burkina Faso, Matuga constituency (Kwale county) in Kenya, Ntchisi district in Malawi and Chiuta district in Mozambique. It started in February 2011 and has run for 5 years.

Using participatory methods in each study site a package of PP interventions was designed and developed, tailored to the gaps in PPC identified by an initial situation analysis and participatory workshops. The situation analysis, including a policy analysis and analysis of local epidemiological data, showed that there was a lack of standardised and organised provision of PPC across all the sites as well as a general lack of awareness about the importance of PPC among health workers. PPC was not fully and routinely integrated into health services in the intervention settings. There was a general lack of capacity in the health facilities to manage obstetric complications.

Interventions were designed based on the data and information obtained through the situation analysis and on pre-existing knowledge. These were discussed at sequential meetings of relevant stakeholders in each country, held especially for this purpose and the final packages of PPC interventions that should be implemented at each study site were agreed upon. Selection criteria used by the stakeholders to decide on the final package of context specific interventions included feasibility (regarding finances, human resources...
and the availability of infrastructure, medical equipment and drugs), effectiveness, acceptability and sustainability. This led to the development of a stakeholder-led, context-specific package of interventions targeting newborns, infants and women in the PP period that would be delivered through a combined facility and community based approach. The package of activities varied across the sites but all sites had the following interventions in common: they focussed on upgrading immediate PPC; all sites but Kenya also worked on integrating routine PPC with infant services such as vaccination; increasing uptake of PP family planning (FP) was another common intervention across the sites; and community interventions varied across the sites but their primary objective was to strengthen the linkage between the community and the formal health system. Implementation strength of those interventions – measured in terms of the dose, duration, intensity, specificity and fidelity – varied across the sites.

At the time of the final evaluation, at each of the four study sites, the interventions implementation varied between 18-24 months. The evaluation used quantitative (using routinely available data) and qualitative (using realist evaluation approach) methods. Despite wide variation in intervention choice, design and delivery across settings and differences within the contexts and systems within which they were implemented there are four broad middle range theories – ‘Buzz Theory’, ‘Bridging Theory’, ‘Motivation by Accountabilities’ and ‘Together is Stronger’ – that appear to underpin whether or not the interventions implemented had an impact at the point of service delivery.

Sustainability and replicability of the interventions was an integral part of the project and was considered in the analysis of the project. Key sustainability factors identified were leadership, involvement of staff, resources and funding and the length of implementation, while the critical determinants of intervention replicability included identification of the appropriate core components, finding the balance between adaptation and fidelity, involvement of stakeholders and redefining the role of staff and their motivation.

**Project Context and Objectives:**

1. **Context**

Postpartum maternal and infant mortality is high in sub-Saharan Africa. Maternal mortality is highest during the first six weeks after birth but remains high throughout the first year after birth due to issues such as untreated anaemia or repeated pregnancies. In 2013, in sub-Saharan Africa, 17.6% of all maternal deaths occurred intrapartum and the first 24 hours postpartum, 47.8% occurred 24 hours to 42 days postpartum, and 13.1% 43 days to 1 year postpartum. In 2015, infant mortality (0-364 days) accounted for 68.5% of the under-5 mortality (0-4 years) in sub-Saharan Africa, and neonatal mortality (0-28 days) for 34.8% of the under-5 mortality. The same year, 66% (201,000) of all maternal and 45% (2.0 million) of all infant deaths occurred in this region, while only 13% of the total female world population and 24% of the global under-5 population live in sub-Saharan Africa.

The pattern of PP (postpartum) mortality and morbidity is clear, but compared to antenatal and childbirth care improvement of PPC (postpartum care) as a strategy to enhance maternal and infant health has been neglected. This is also recognised by the World Health Organisation (WHO) which recently published updated guidelines on PPC for mothers and newborns in resource-limited settings in low- and middle-income countries. The guidelines include recommendations on timing, number and place of postpartum contacts and on contents of PPC for mothers and babies for the first six weeks after birth. However, an essential package of services to support women throughout the first year after childbirth remains poorly defined, and the optimum service delivery configuration and number of routine visits for these services remain unclear. The 'Countdown to 2015, Maternal, Newborn & Child Survival - Fulfilling the Health Agenda for Women and Children' 2014 report published UNICEF and World Health Organization also shows the lesser attention to PPC by indicating that the coverage of PPC in selected low- and middle-income countries is lower than the coverage for antenatal and delivery care and for infant immunisation.

Community involvement in improving maternal and infant health in general and postpartum care specifically is important. Particularly the establishment of women's groups and the provision of home visits by community health workers, have shown positive effects on maternal and newborn health. The importance of upgrading PPC provided at health facilities is stressed in several studies and reports. A combined package including several interventions, adapted to local needs, has the potential to be most effective in improving maternal and child health outcomes. Integration of mother PPC services in child health clinics, which have generally high coverage, is an opportunity to provide the needed but at present often absent PPC for the mother. Involvement of stakeholders and good knowledge of the health system are recognised to be important when designing and introducing new interventions or strategies to improve care.

2. **Objectives**

The 'Missed Opportunities in Maternal and Infant Health' (MOMI) project focused on the need to upgrade PPC. The overall objective of the MOMI research was 'to improve maternal and newborn health through a focus on the postpartum (PP) period, adopting context-specific strategies to strengthen health care delivery and services at both facility and community level in four sub-Saharan countries',
namely Burkina Faso, Kenya, Malawi and Mozambique.

The specific scientific and technical objectives for the whole duration of the MOMI project were:
1. To assess the feasibility and practicability of integrating maternal and reproductive health services within child health clinics and of strengthening existing postpartum services for women;
2. To assess the feasibility and practicability of using participatory processes, involving local service delivery partners and the community in maternal and newborn health care delivery;
3. To design packages of postpartum interventions which are feasible, appropriate, sustainable, effective, scalable and tailored to the conditions of each study site, to improve maternal and newborn health in the postpartum period;
4. To implement and evaluate the site-specific packages of interventions to improve maternal and newborn health in the postpartum period through providing facility- and community-based services;
5. To evaluate the effectiveness of two years of strengthened facility- and community-based postpartum services and the health system variables that determine effectiveness, and conduct a cross-country analysis of outcomes of postpartum services and care; and
6. To engage policy makers from the outset in planning, but also in implementing and evaluating the project, to enhance sustainability and dissemination of the strategies at provincial and national level.

These objectives were reflected in ten work packages (WPs), including seven research and three supporting work packages (consortium and project management, capacity building and dissemination).

In MOMI we defined the PP period as the period that starts immediately after the birth of the baby and extends up to one year after birth, and PPC as the care provided for mother and infant during this period.

MOMI was implemented by a consortium of eight partners; five from sub-Saharan countries (Institut de Recherche en Sciences de la Santé, Burkina Faso; International Centre for Reproductive Health, Kenya; Parent and Child Health Initiative Trust, Malawi; International Centre for Reproductive Health, Mozambique; and Eduardo Mondlane University, Mozambique) and three from European countries (International Centre for Reproductive Health - Ghent University, Belgium; Faculdade de Medicina da Universidade do Porto, Portugal; and Institute for Global Health, University College London, United Kingdom). The International Centre for Reproductive Health, Gent University, coordinated the project.

Project Results:

1 Methods
1.1 Study setting
MOMI was conducted in four health districts: Kaya district in Burkina Faso, Matuga constituency (Kwale county) in Kenya, Ntchisi district in Malawi, and Chiúta district in Mozambique. Selection of districts was based on being typical for the country in terms of medical infrastructure, equipment and staffing. All levels of care, from community to referral level, were included in the study. While a minority of women in these districts receive PPC during the first week after childbirth, at least 70% of infants attended the health facility for Bacille de Calmette et Guérin (BCG) and 85% for measles vaccination. Demographic and health survey (DHS) data show that the uptake of family planning (FP) among women of child-bearing age in the respective study districts is low.

1.2 Study design
A cross-sectional study was conducted to identify opportunities and design, select, implement and evaluate interventions to improve postpartum care (PPC) in the four selected districts.

As overall research methodology in the MOMI project, the health system research approached was used. The different stages that are building up this research approach interact dynamically; after consideration of the results of the situation analysis, pre-existing knowledge, and the conceptualisation of the reference model, a change is introduced into the health system. This empirical decision is then investigated and validated, and translated into action. The next steps are the evaluation of the process and the evaluation of the results.

MOMI started with a comprehensive assessment of the policy context and current implementation of postpartum (PP) care and services at each of the four research sites. This assessment took place in spring 2012 (the final report was available in January 2013). Based on the assessment results context-specific packages of interventions to upgrade postpartum care were designs, selected and implemented. At each site, intervention implementation was initiated in summer 2013. Implementation of the intervention was regularly monitored and supervised and interventions were adapted based on the supervision and monitoring results. MOMI ended with the
evaluation of the effectiveness of the implemented interventions and an assessment of the health system factors affecting the intervention implementation. The evaluation field work took place from half June till September 2015. Evaluation results should inform policy makers and researchers on next steps and decisions to be taken to further upgrade PPC. As such, the outcome of the MOMI study contributed to upgrade the knowledge regarding PPC in the MOMI study countries and in the sub-Saharan region.

The next four chapters describe more detailed the methodology used in the different research steps of the MOMI project.

Health system research also means that all building blocks of the health system are considered, covered and address (The health system is defined by six building blocks – (1) service delivery, (2) health workforce; (3) health information system, (4) medical products, vaccines and technologies, (5) health financing and (6) leadership). This was also the case in the MOMI study.

1.2.1 Comprehensive needs assessment
The assessment objective was to identify present provision of PPC and gaps in this care and to understand how PP services could be more effectively organised. A mixed methods approach was used to collect data about national PP policy, factors that affect health system change, and barriers to provision of, and demand for, PPC.

The needs assessment included:
1. A stakeholders causal analysis workshop
2. A critical review of the maternal, newborn and child health (MNCH) policies at the four study countries through
   • document analysis of national, regional and local policies and guidelines,
   • semi-structured in-depth interviews with stakeholders at national, regional, and district levels and facility and community health health workers, and
   • focus group discussions with women and men from the local community
3. A detailed quantitative situation analysis of existing MNCH services and care at the four study sites using routinely collected and available data on MNCH at national and study site level.

For the document review Google, Google Scholar, PubMed, and individual sites were searched to identify major national and local documents, supplemented by advice from key local informants. Semi-structured interviews with between four and eight stakeholders at national, regional, and district levels, and two to three focus groups of ten to 15 participants were conducted at each site. Interviewees were selected on the basis that they would be able to provide the information that was needed. Data about current PPC processes and outcomes were collected for each site.

Checklist and interview guides to collect the needs assessment data were developed. Data collection took place between December 2011 and April 2012 and was performed by project research staff. In-depth interviews and focus group discussions were audio recorded, transcribed and translated if needed. Qualitative data was analysed by extracting themes and triangulating. Quantitative data was entered in an Access database, and checked for errors by the lead partner. A descriptive analysis of the quantitative data was undertaken using SPSS 20.

1.2.2 Design and selection of context-specific postpartum care intervention packages
To design and select the interventions we used the ‘systems thinking’ approach as described by de Savigny and Adam. Systems thinking provides a way forward for operating more successfully and effectively in complex, real-world settings. It can open powerful pathways to identifying and resolving health system challenges, and as such is a crucial ingredient for any health system strengthening effort. Regarding intervention design the approach has four steps, being; (1) identify and convene stakeholders, (2) collectively deliberate with stakeholders on proposed interventions and their possible system-wide effects, (3) describe how the proposed interventions will affect health and the health system, and (4) adapt and redesign interventions to optimise positive effects.

For ‘Step 1’ a stakeholder mapping to identify the main stakeholders within PPC and their importance in improving PPC was conducted. Stakeholders included implementers, managers, policy makers and members of the community and civil society.

For ‘Step 2’ a stakeholders causal analysis workshop was organised at each study site in which the local PPC situation and challenges and possible interventions were discussed.

In ‘Step 3’, for each study site, a list of potential interventions was developed by the study researchers. These lists were based on the synthesis of the findings from a comprehensive needs assessment conducted at each research site, the inputs from the stakeholders received through the causal analysis workshop and on internationally recognised evidence and guidelines on effective PPC. Using all this information local and international MOMI project researchers developed for each study site a list of proposed interventions,
described for each of these interventions health system challenges, opportunities and preconditions, and assessed the interventions for their suitability against the following criteria: acceptability, evidence-based, feasibility (taking into account financial and human resources and the availability of infrastructure, medical equipment and drugs), effectiveness, sustainability, and the degree to which the suggested intervention is already included in local MNCH policies. A report including this information (including the list of provisional recommended interventions) was compiled for each site to be used to guide stakeholders to agree upon final context-specific intervention packages. This agreement on and selection of final context-specific intervention packages is ‘Step 4’ of ‘systems thinking’ intervention design.

At each study site, Step 4 was conducted through two stakeholders meetings. In the first meeting, the needs assessment results and proposed interventions described in the country reports were discussed. These meetings took place in October 2012 (in Kenya and Mozambique), November 2012 (in Burkina Faso) and February 2013 (in Malawi). A second round of meetings took place in May 2013 in Burkina Faso and Kenya, in July 2013 in Mozambique and in September 2013 in Malawi. At these meetings the final packages of PPC interventions that should be implemented at each study site were agreed upon. Stakeholders decided on the final intervention packages in cooperation with the local study researchers. Stakeholders were free to adapt and select the interventions they wanted, however they had to take care that it was realistic and feasible to implement the selected interventions in the frame of the MOMI study. No financial resources were provided by the MOMI project to maintain and manage the selected interventions.

1.2.3 Implementation of context-specific postpartum care intervention packages

At each research site a detailed action plan was developed to support the implementation of the selected intervention package. In Ntchisi district, Malawi and Chiuta district, Mozambique all district health facilities were included in the MOMI PPC intervention implementation. This meant 11 health facilities in Ntchisi district and four facilities in Chiuta district. In Kaya district, Burkina Faso 12 of the 50 PHC facilities were included and in Matuga constituency, nine of the 19 PHC facilities. In Burkina Faso it was logistically not possible to cover all PHC facilities. For Kenya, only the PHC facilities having functional community units attached were included in the MOMI intervention implementation. Because the referral hospital in Kaya district, Burkina Faso, was a regional hospital, serving not only Kaya district but the whole region, it was decided not to include this hospital in the intervention implementation. Implementation was supported by regular supervision and monitoring. For monitoring a mixed methods approach was used, comprising qualitative and quantitative data collected. Quantitative data were collected through community health workers diaries, event logs, policy advisory board observations and scrutiny of meetings, papers and reports relevant to the project (e.g. supervision reports and reports of the field visits conducted by partners from the northern research institution to the project research sites). Quantitative indicators were collected at health facility and community level by MOMI staff in conjunction with facility and community health workers respectively. The indicators collected were based on routine data and specific to each site and were determined with respect to the processes and intended outcomes of the MOMI interventions at each site. Throughout the implementation period, interventions were adapted based on monitoring and supervision results.

At each research site, local MOMI researchers also kept track of the MOMI intervention implementation by regularly completing the MOMI interventions implementation timeline where they reported all the activities that were conducted to support the MOMI interventions implementation (e.g. training, refresher training, supervision visits, distribution of non-financial incentives).

1.2.4 End evaluation

The effectiveness and impact of the implemented intervention packages on the respective health systems as well as on maternal and newborn health outcomes was studied aiming to improve knowledge on health system options for delivery of PPC. The evaluation aimed to uncover how the interventions implemented resulted in increased uptake, frequency of delivery and quality of evidence based postpartum care and, in particular, what worked, for whom and within which contexts.

The objective of the MOMI end evaluation was to understand how integrating service delivery and strengthening health systems could improve the uptake and delivery of evidence-informed PPC both in the community and health facilities. The nature of the interventions themselves and the contexts within which they were implemented were complex requiring an evaluation strategy (rather than a single research method). The evaluation strategy thus, consisted of three parts. (1) The first part consisted of an impact evaluation, based on MOMI monitoring data for each site. A visual analysis was initially conducted relating the occurrence of particular events concerning MOMI intervention implementation to observed trends of relevant indicators on graphs. Findings from this impact evaluation were compared to the findings of a realist evaluation to determine if the programme theory was plausible given the data, and also to determine if the data was plausible given the programme theory. (2) The second part involved an evaluation of implementation strength where each of the four sites was scored on key domains: the dose, duration, intensity, specificity and fidelity of the intervention implemented. (3) The last part was the realist evaluation using an embedded multiple case study design whereby community and health facility observations were conducted and key stakeholders interviewed. Context – Mechanism – Outcome configurations to
describe the ways the programme worked were tested using the case studies findings and triangulated with supplementary data and the findings of the impact and the implementation strength evaluations.

Sustainability and replicability of the interventions was an integral part of the project and was considered in the analysis of the project.

1.3 Ethics
Ethics clearance for the MOMI project was granted by: (1) the Comité d’Éthique pour la Recherche en Santé of the Ministry of Health, Ouagadougou, Burkina Faso; (2) Kenyatta National Hospital, University of Nairobi – Ethics & Research Committee, Nairobi, Kenya; (3) the National Health Science Research Committee, Lilongwe, Malawi; (4) the Comité Nacional de Bioética para a Saúde, Maputo, Mozambique; (5) the Ethics Committee ‘Hospital se São João, E.P.E’ Faculdade de Medicina Universidade do Porto, Portugal; (6) the UCL Research Ethics Committee, London, UK; and (7) the Ethics Committee of the University of Ghent, Ghent, Belgium.

2 Results
2.1 Comprehensive needs assessment results
A detailed description of the needs assessment results is given in two project reports. Following is a summary of findings to show how these supported the design and selection of context-specific PPC interventions.

In all four study countries, maternal, infant, and child health was a national priority but specific policy for postpartum care, particularly for maternal health, was weak. All countries used a problem-driven approach to post-partum care; neither preventive care nor strategies that improve early identification of complications were prioritised. Emphasis on provision of evidence-based post-partum care varied between countries, with the most policy gaps in Burkina Faso. Dissemination of guidance at provincial to district levels was poor at all sites, which contributed to failure to implement, along with low staff capacity, poor quality of services, lack of knowledge in the community, and use of traditional practices that delay or inhibit care.

While a minority of women (25% in Kaya district - Burkina Faso, 33% in Kwale county - Kenya, 41% in Ntchisi district - Malawi, 40% in Chiúta district - Mozambique) received PPC during the first week after childbirth, at least 70% of infants attended the health facility for BCG and 85% for measles vaccination. For facility-based deliveries, immediate postpartum care was provided at almost all sites, usually by skilled health worker, although women were often discharged early. Few health facilities provided subsequent PPC; 53 of 86 health facilities at 72 h and 28 of 86 at 7 days. Care in the postpartum period was poorly integrated with other services, such as child immunisation services, family planning clinics and HIV clinics.

Involvement of the community and community health workers in PPC was poor.

Little attention was given to the opportunities presented in the postpartum period for effective FP at any of the sites, though FP utilisation was highlighted as a priority in all study countries. All facilities except one in Kaya, Burkina Faso, reported offering FP services. In most of these health facilities several FP methods were available, with pills, injectables and male condoms being the most commonly available methods. Despite the availability of these services, DHS data show that the uptake of FP among women of childbearing age in the respective study districts was low. Following contraception use is reported by the respective DHS: in Burkina Faso’s Central Northern region, in which Kaya district is located, among women aged 15-49 and currently married, 9.5% use any method of contraception and 9.3% use a modern method of contraception; in Kenya’s Coast province, in which Kwale county, Matuga constituency is located, these figures are 34.3% and 29.7% respectively; in Malawi 46.1% and 42.2%; and in Tete province, Mozambique, in which Chiúta district is located, 15.3% and 15.1%.

Stakeholders and health workers reported understaffing, high staff turnover, poor motivation and lack of staff knowledge and skills on PPC during the causal analysis workshops and the semi-structured interviews. These factors were identified as hampering provision of good quality PPC.

2.2 Results designs and selection of the context-specific intervention packages
At all four sites the intervention packages chosen include interventions to upgrade the PPC provided at the health facilities and the introduction or upgrading of community-based PPC.

Kaya district, Burkina Faso
In Kaya district three interventions were chosen: (1) upgrading immediate PPC provided at the health facilities with a focus on detection and management of postpartum haemorrhage and sepsis and immediate postpartum FP, (2) supporting mother and infant during the PP period by female community health workers and (3) integration of PPC in the child vaccination clinics. In order to implement the interventions, all facility health workers involved in providing maternal and child care and all female CHWs were trained backed-up by
the provision of guidelines and checklists (written for facility health workers and a picture book for CHWs) on PP care and services. The picture book also served to provide health education at PPC clients and in the community. To deal with the high staff turnover, yearly refresher training were organised. To support the implementation quarterly supervision visits of facility and community health workers were conducted in cooperation with the district health team. Information meetings with community leaders and male CHWs took place to inform them on the project and discuss with them cultural issues and beliefs regarding PPC and FP.

Matuga constituency, Kwale county, Kenya

In Matuga constituency the final selected package of interventions included two interventions: (1) strengthening immediate postpartum care for mother and newborn by upgrading knowledge and skills of facility and community health workers and (2) increasing knowledge on and uptake of postpartum FP during the first year after childbirth. As in Burkina Faso training, distribution of PPC guidelines and regular supervision were chosen as methods of delivering the interventions. To increase postpartum FP uptake it was planned to establish health education sessions using the community dialogue model will be established.

Ntchisi district, Malawi

In Ntchisi district three interventions were included in final intervention package: (1) strengthening clinical management of postpartum care during the postpartum period in the health facilities, (2) increasing utilization of postpartum FP, and (3) strengthening community PPC management. Unlike the other research sites, in Malawi they chose a system of on-the-job mentorship and training to upgrade PPC knowledge and skills (including knowledge on postpartum FP) of the facility health workers combined with, similar to the other sites, distribution of PPC guidelines and regular supervision visits. To further enhance postpartum FP utilisation, it was planned to organise health education sessions with a special focus on involving males at health facility and community level. Three villages were selected for implementation of the PPC community intervention. In these villages volunteers would be identified and community women, men and youth groups established. Volunteers would be trained to perform PPC home visits and facilitate community women, men and youth groups. In these groups PPC problems and local feasible solutions for these problems would be identified and discussed.

Chiuta district, Mozambique

In Chiuta district the final selected package of interventions included three interventions: (1) upgrading mother, newborn and infant postpartum risk assessment and management at community and facility level, (2) increasing access to and use of FP through making immediate PP IUD insertion available, and (3) improving access to and use of maternal PPC and services by integrating PPC in child clinics and by organising outreach activities. Training, supervision and the use of specially designed checklists to be completed by the facility or community health worker during each PPC consultation were used to upgrade PP risk assessment and management. A training session, including skills training, was organised on PP IUD insertion and availability of IUDs and equipment needed for the insertion would be provided by the authorities. During training and supervision sessions, integration of services were discussed, monitored and adjusted if needed.

From the start of the MOMI project the project researchers made it clear that CHWs would not receive a financial incentive at any of the study sites through the project, although non-financial incentives (among others bicycles, T-shirts and gowns, bags) could be used to motivate CHWs and support their work.

2.3 Implementation of the context-specific intervention packages

The implementation plans developed at each of the research sites were implemented and executed at the four MOMI research sites with mixed success. This resulted in different implementation strengths and had its impact on the end evaluation results.

The MOMI interventions implementation timeline with were used at each research site to keep track of the implementation process, gives an overview of all the activities that were conducted at each research site to support the MOMI interventions implementation. In Burkina Faso, the MOMI intervention implementation was executed almost entirely as planned including regular upgrading and adapting of the implementation activities based on the monitoring and supervision results. In Kenya, intervention implementation started as planned but supervision, monitoring and adaptation of the interventions was suboptimal. For example less supervision have been conducted than planned and supporting material to upgrade interventions (pictures to support the dialogue model sessions and individual provided health educations) were distributed rather late and without instructions/training on how to use this material. In Malawi, intervention implementation was delayed due to the quite ambitious approach relying totally on the local district authorities to initiate and implement MOMI and due to staff problems at the Malawian MOMI partner. This had particularly an impact on the community MOMI intervention in Malawi (the establishment of women, men and youth community groups following the WHO recommended community group approach) which never got fully implemented. In Mozambique the implementation of interventions at health facility level started as planned but intervention implementation at community level was delayed. Supervision and monitoring were rather weak the first implementation year but became very strong the second and last year of the intervention implementation,
after the employment of the new Mozambican MOMI project coordinator. During this last intervention implementation year, refresher training was organised for facility and community health workers, supervision was strengthen, and interventions adapted based on supervision and monitoring findings.

Coordination with local health authorities (district health management team, district healthcare director, district maternal and child health officer, etc.) during the implementation of the MOMI interventions was well established at the MOMI research sites in Burkina Faso, Malawi and Mozambique but less established at the site in Kenya.

Implementation strength and conditions required for full intervention implementation are also addressed in the next chapter as part of the process evaluation/realistic evaluation results.

2.4 End evaluation results

2.4.1 Evaluation Results (WP 6)

Interventions were carried out to various degrees of implementation across the sites. For instance, the intervention ‘dose’ was high in Burkina Faso and Kenya while it was relatively lower in Mozambique and particularly low in Malawi. After a long lead-in and design phase, most sites were able to implement the interventions over a period of 18-24 months although the intensity with which the interventions were applied varied across sites. Intervention fidelity was low amongst all sites except Burkina Faso, where interventions were executed as it was originally planned.

All study sites had a community component in their intervention packages with the aim of increasing the demand for postpartum care and family planning in a critical mass of women so that it becomes, through forces of social cohesion, the ‘norm’. Community health workers, chosen by their own community, were to support this change by building trust with postpartum women and by bridging the gap between the community and the formal health sector. This intervention was most successful in Burkina Faso where this change occurred. There was less success in other settings where community health workers could not reach a critical number of women due to various barriers such as low retention rate of community workers (Kenya), communities scattered over large and remote distances (Mozambique) and delayed implementation of the community intervention (Malawi).

Interventions directed at improving PPC delivery worked best when yearly refreshers and regular supervision were provided but were dependent upon the accountability systems operating in each setting. In Burkina Faso (Pay for Performance system available) and Kenya, the accountability system was favourable to MOMI implementation. On the other hand, accountability systems were a hindrance in Mozambique where healthcare workers fear looking incapable if they refer women with complications, and in Malawi where healthcare workers are not held accountable for leaving their clinical duties or for delivering PPC interventions. Furthermore, the lack of leadership and the fact that PPC is not as high of a priority at the national level than other aspects of maternal and child health had an impact on healthcare workers’ motivation to implement postpartum interventions in all countries.

Service integration between maternal and infant services was also included in the intervention packages of Burkina Faso, Mozambique and Malawi. It seemed to have been the most difficult component to implement in the three countries – where full implementation was not achieved – given the tight boundaries to healthcare workers’ responsibilities for delivering care, often compounded by separate managerial and financing arrangements for maternal care and infant care. Service integration was therefore more successful in smaller rural health facilities where responsibilities for maternal and infant care were already overlapping.

Increasing the demand for and provision of PP FP was a common component to all countries. A mixture of external factors (strategy highly supported at the national level and large presence of non-governmental organisations in this field) combined with MOMI community and health facility interventions led to changed perceptions of women and to an increase in demand for FP. However, in all countries, the main barrier to demand is the husband, who needs to provide permission, unless women are willing and able to get FP secretly. On the supply side in all countries, healthcare workers do not spend enough time explaining to women the advantages and disadvantages of each method, even when appropriate training was provided. As a result, Depo-Provera injections remain the most administered method, despite the availability of other long lasting methods, as women are more familiar with Depo-Provera injections and it is the most convenient for healthcare workers to administer.

Discussion

Four broad middle range theories - which have been named ‘Buzz Theory’, ‘Bridging Theory’, ‘Motivation by Accountabilities’ and ‘Together is Stronger’ – appeared to underpin whether or not the interventions implemented had an impact at the point of service delivery, despite wide variation in intervention choice, design and delivery across settings and differences within the contexts and systems within which they were implemented. Indeed, the results of the MOMI evaluation suggest that if community level interventions
lead to postpartum healthcare seeking for a critical mass of women, a “buzz” for change is created. Reinforced by social cohesion and local dialogue, norms shift and appear to create a critical tipping point leading to a social movement that holds a collective belief in the acceptability of and perceived value of attending for PPC that outweighs the costs. Our findings further supported the concepts of social capital as having an important effect on demand for PP services mediated through the community health workers who could bridge trust between communities and the formal health sector. The degree to which community health workers are linked to the formal health sector, the range of roles undertaken and the way in which they were incentivised varied across the sites. However, almost regardless of these factors, the community health workers in general held a strong intrinsic sense of responsibility to their communities and, in turn, were closely relied upon by them. For the supply side interventions, the impact of MOMI was dependent upon the accountability systems that operated and largely did not favour PPC. In general it was found that where integration had been attempted, the staff in the better resourced health facilities were observed to have more clearly defined professional roles with little overlap between maternal and infant healthcare and therefore the combined provision of the services was less easily achieved. In a smaller facility individual HCWs were often co-located, knew about each other’s roles and expected to perform overlapping functions to account for absences. The opportunity for maternal care created by infant vaccination was therefore perceived and performed more intuitively by HCWs in smaller rather than larger facilities.

2.4.2 Determinants of Sustainability and Replicability (WP 7)
Facilitators and hindrances of sustainability of implemented interventions were analysed. Generally, it was found that the activities must be owned by and included in the plans of the local health authorities, as strong leadership at higher hierarchical level emerged as fundamental to guarantee support and endorsement of activities. Effective collaboration among stakeholders is further needed to assure the success of interventions and enable sustainability. However, the district and/or national health authorities need to address the problem of high staff turnover, understaffing and stock outs that are barriers to sustainability. Concerns were further raised on whether health authorities will continue to focus on PPC and on the lack of good quality routine data to provide an actual picture of the situation on the field. In terms of replicability, one can be confident that opportunities exist to scale up the interventions using the MOMI approach. In particular, the involvement of the stakeholders from inception, often referred as very important, strengthens such belief.

Potential Impact:
1 Potential impact
The set-up of the MOMI project implied that at each of the four MOMI research sites all relevant stakeholders (healthcare policy makers, managers and providers and civil society) were involved in the project form the project start till the end. In practice, stakeholders involvement in MOMI was established through organising at each of the research sites a causal analysis stakeholders’ workshop at the start of the project, a participatory evaluation workshop at the end of the project and having established at each site a local MOMI policy advisory board that met at least once a year and in which MOMI interventions, progress and challenges were discussed. This contributed to the knowledge of health policy makers and managers on what is needed to improve PPC. Apart from involving stakeholders though these formal meetings, stakeholders were at each site also directly involved by the project implementation. For example by conducting the MOMI supervision visits together with a member of the local district health management team and by involving local stakeholders at national and district level by facilitation and participating in training organised in the frame of the MOMI project.

The MOMI end evaluation findings showed that this approach resulted in having better PPC, especially better PPC for mothers, as a topic or as a more prominent topic on the district and national health policy agendas and action plans.

This approach also resulted in the fact that the MOMI PPC interventions became really embedded in the packages of services provided by the government organised health services which increased the chance for sustainability of the intervention implementation after the end of the project.

At each of the four research sites, to support sustainability of the MOMI project initiated postpartum interventions and strategies actions were taken and arrangements made with the health authorities.

• In Burkina Faso, the local MOMI research team will continue to support the supervision of the formal MOMI health facilities and communities and help to identify local mechanism for community health workers motivation and to mobilize existing resources to continue activities and progressive upscale of MOMI interventions.

• In Kenya, the MOMI team plans a phase-over approach where responsibilities of the MOMI project will be taken over by the county government. This will be possible due to the embedded nature of the intervention implementation and the fact that Interventions are not resource intensive. The emphasis of the MOMI project on institutional capacity building and stakeholder involvement enables this process.
In Malawi, there are plans to integrate PPC mentorship and supervision into the routine monitoring and supervision activities of the Ntchisi district health management team. A national dissemination conference is planned to be held in Ntchisi for engagement of other district stakeholders.

In Mozambique, the ministry of health showed and expressed their willingness to continue the implementation of the MOMI interventions. Discussions of 'MOMI 2' (adapting interventions from MOMI and building on opportunities identified) with the ministry of health at district and provincial level and UNICEF started.

### 2 Main dissemination activities

Throughout the project, all partners actively participated in dissemination of the project information and results. Our dissemination activities aimed to reach the general public, health officials, health workers, and health policy makers in the four research countries, the international scientific community. This was achieved using a wide range of dissemination tools including the MOMI newsletter published twice a year, the MOMI website, MOMI presentations in the local media (TV, radio, and written press), articles on websites, and in newsletters from the MOMI project partners, MOMI policy briefs, policy advisory board meetings, presentation of results at national and international conferences, organization of local dissemination meetings, publication of results in peer review journals.

The general public was mainly informed about MOMI through the presentation of MOMI in the local media (TV, radio, and written press). Of course, people living in the catchment area of the health facilities and communities included in the MOMI project were also informed about MOMI through these health facilities and communities. The stakeholders directly involved in the MOMI project were specifically informed through the stakeholders meetings at the start and the end of the project and through the policy advisory board meetings. The MOMI website, MOMI newsletters, MOMI policy briefs, and the MOMI dissemination conference were another source of information for this group of stakeholders as it was also for the policy makers and managers at sub-national, national, and regional level.

Dissemination of information and results to international health policy makers and managers and the international scientific community was mainly done through the MOMI website, presentations at international and national conferences and publications in peer review journals. The following chapters include more information on the main dissemination tools we used in MOMI. Causal analysis and participatory evaluation workshops and policy advisory board meetings are not included here because they are already discussed in the ‘Main science & technology results’ chapter.

2.1 MOMI website

The website remained regularly updated throughout the project. The target population for the website are health policy makers, managers, implementers and researchers in the field of maternal and infant care at the MOMI research countries and beyond.

2.2 MOMI newsletter

Throughout the project nine newsletters were published; one newsletter in 2011 and two in 2012, 2013, 2104 and 2015. The newsletters were distributed among the stakeholders in each of the MOMI research countries and in the networks of each of the MOMI consortium partners.

2.3 MOMI policy briefs

During the project at each research site two policy briefs were designed and distributed. These policy briefs were mainly aimed to inform sub-national, national, and regional health policy makers, managers and implementers on the MOMI project, its progress and results. The policy briefs included also recommendations on how PPC could be upgraded in each of the MOMI research counties. A first set of policy briefs informed on the comprehensive needs assessment results, the second set of policy briefs reported the end evaluation findings.

2.4 Presentation of MOMI at national and international conferences

To present MOMI at a wider group of national and international health policy makers, managers, implementers and researchers and civil society organisations, presentations were made at national and international conferences. Throughout the project, ten MOMI oral presentations and one poster presentation were presented at national conferences and 13 oral and seven poster presentations at international conferences. An overview of the MOMI presentations at national and international conferences is given in the MOMI periodic reports.

2.5 International MOMI conference

An international MOMI conference took place the 22nd of January 2016 in Mombasa, Kenya. This conference was attended by MOMI project researchers, stakeholders from each of the MOMI research sites (Ministry of Health staff), MOMI policy advisory board members, MOMI scientific advisory board members, facility health workers based at the MOMI health facilities in Kenya and Burkina Faso, and Kenyan medical school students. At this conference, the MOMI project approach, implementation, results and project challenges and opportunities were presented by the MOMI researchers and discussed with the present stakeholders. A total of about 90 stakeholders attended the conference including also people from the press.

2.6 Papers in peer-reviewed scientific journals

Until now two peer-reviewed MOMI project papers were published:

- Duysburgh E, Kerstens E, Kouanda S et al. (2015) ‘Opportunities to improve postpartum care for mothers and infants: design of


Several papers reporting on MOMI project findings and assessment results are expected to be published in peer reviewed journals in 2016.

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