EVALUATION DEPARTMENT

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Norad

The Norway-India Partnership Initiative Phase II:
Impact Evaluation of Five Interventions

CONTENT

Commissioned by

the Evaluation Department

Carried out by

Oxford Policy Management Limited in cooperation with
Sambodhi Research and Communications

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Foreword

The Norway India Partnership Initiative is a bilateral programme that aims to improve maternal and child health in India. The partnership initiative tests out new solutions to improve health care delivery and health seeking behaviour. NIPI was established in 2006 and over NOK 800 million has been budgeted for the programme's three phases, the last of which will end in 2021.

The aim of this evaluation was to inform the international and Norwegian public about what works and what does not work (and why) of the interventions supported through NIPI phase II. The evaluation team did not aim to assess the overall contribution of the NIPI-phase II programme, rather they set out to assess the effectiveness of single interventions for the beneficiaries. This would be done by taking into consideration what would have happened without the intervention through the use of control or comparison groups.

The Evaluation Department commissioned Oxford Policy Management to undertake the evaluation. Due to the nature of the interventions and other constraints, Oxford Policy Management employed quantitative impact methods to assess the effects of NIPIs flagship intervention: Home Based Newborn Care plus. Four other interventions were also evaluated albeit without the use of control-groups.

The evaluation finds that while NIPI appears to have been successful in terms of implementation of health system strengthening interventions, outreach interventions have proven more difficult in terms of reaching high levels of coverage. Due to partial coverage rates, more information is needed about the effects of interventions on health outcomes.

Because of the complexity of the evaluation, the Evaluation Department has published an evaluation brief where the report's findings and limitations are further discussed.

The Evaluation Department believes the report provides useful findings and lessons for NIPIs partners and welcomes recent efforts through the NIPI writing group to conduct more research to find ways to improve health care delivery.

Oslo, October 2018

Per Øyvind Bastøe
Director, Evaluation Department

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Oxford Policy Management thank the implementing partners, the NIPI coordination unit, and the Norwegian Embassy in Delhi for their patience, insight and enthusiastic engagement, born from a clear passion for achieving the outcomes that NIPI Phase II sought to bring about. In particular, we thank Ida Lindkvist and Siv Lillestøl from the Evaluation Department in Norad for their generous support and continued intellectual engagement throughout the evaluation.

Executive Summary

THE NORWAY-INDIA PARTNERSHIP INITIATIVE
The Norway-India Partnership Initiative (NIPI) is a bilateral partnership between the Government of Norway and Government of India, with the intention to reduce child mortality and improve maternal health.

NIPI aims to provide catalytic support to the Government of India's flagship health programme, the National Health Mission, by piloting potential innovations in newborn and childcare, family planning, and maternal health through the public health system. The catalytic support to the National Health Mission by NIPI has three goals:

Goal #1: Improving, scaling up and introducing new quality continuum of care interventions at community and facility level in NIPI districts,

Goal #2: Establishing a mechanism for sustainable institutional collaboration between Norwegian and Indian public and private institutions in areas related to women's and children's health, and

Goal #3: Facilitating dialogue on global health between Norway and India.

The first phase of NIPI was completed in 2012 and several supported activities have been adopted and scaled up by the Government of India. The second phase (2013-2017) included introducing twelve new quality continuum of care interventions at the community and facility level in thirteen NIPI districts of the four focus states of Bihar, Odisha, Madhya Pradesh and Rajasthan. The implementing partners are the NIPI Newborn Project (IPE Global) and Jhpiego.

ABOUT THE EVALUATION
Oxford Policy Management, in partnership with Sambodhi Research and Communications, were commisioned by the Evaluation Department of the Norwegian Agency for Development Cooperation (Norad) to undertake an impact evaluation of the Norway-India Partnership Initiative (NIPI) Phase-II programme.

The evaluation is intended to inform the international and Norwegian public and government about what works and what does not work (and why) of the interventions supported through the NIPI Phase II.

The main users of the findings of the evaluations will be the Ministry of Foreign Affairs in Norway, the Government of India, the programme management and the government structure of the NIPI and other stakeholders who have direct or indirect interest in the subject of this evaluation.

The impact evaluation does not attempt to assess the overall contribution of the NIPI Phase-II programme towards maternal and child health outcomes; rather, it seeks to assess the effectiveness of five individual NIPI Phase-II interventions. These are:

1. Home Based Newborn Care Plus (HBNC+);
2. Revitalise and Scale-up Postpartum Family Planning (PPFP) Services;
3. Sick Newborn Care Unit Plus (SNCU+);
4. Regional resource centres for Facility Based Newborn Care (FBNC); and
5. Strengthening Pre-Service Education in Nursing and Midwifery.

This evaluation is not a programme evaluation and does not aim to capture the effectiveness of NIPI Phase-II programme in policy advocacy and adoption. It also does not assess achievements against the second and third programme goals.

The impact evaluation aims to answer key evaluation questions for each of the five interventions. These questions were formulated based on theories of change developed for the interventions, and in consultation with the implementing partners at stakeholder workshops.

For three of the interventions (HBNC+, SNCU+ and PPFP), the evaluation seeks to assess the impact at the population level. The evaluation of the other two interventions (regional resource centres and Strengthening Pre-Service Education) assesses their impact on service delivery.

The evaluation methodologies are specific to the different interventions. Overall, the evaluation uses a mixed-methods approach, involving both quantitative and qualitative methods. Baseline data collection was undertaken between December 2013 and January 2014, and a baseline report was completed in July 2014. Endline surveys were completed between January and March 2017. Cross-sectional study data was collected at baseline and endline through multiple tools, including a population survey administered to mothers of children of less than two years of age (with a sample of 4,680 at baseline and 4,656 at endline), health worker surveys, a follow up survey administered to children discharged from SNCUs, facility level service availability and readiness assessments, focus group discussions (FGDs) with mothers, in-depth interviews (IDIs) with health workers and structured assessments of training centres.

KEY FINDINGS AND RECOMMENDATIONS: HOME BASED NEWBORN CARE PLUS (HBNC+)

Intervention Design

The HBNC+ innovation packages multiple interventions for improving the survival and development of infants through incentivised, structured home visitations by village based community health mobilisers called Accredited Social Health Activists (ASHAs) at 3, 6, 9 and 12 months of age. HBNC+ targets the key causes of childhood deaths and aims to reduce pneumonia and diarrhoea related morbidity, and prevent malnutrition.

On the home visits, the ASHA promotes exclusive breastfeeding for six months, continued breastfeeding and complementary feeding from six months, routine immunisation, handwashing with soap, regular growth monitoring, Early Childhood Care and Development (ECCD) and the prophylactic distribution of oral rehydration solution (ORS) and iron and folic acid (IFA) syrup.

Before NIPI Phase II, ASHAs were already mandated to make monthly home visits to children under the age of two years in both treatment and control areas, although the effective coverage at baseline was low (with just over two fifths of children receiving at least one visit between the ages of three and twelve months).

Therefore, the additionality of HBNC+ appears to be a more focused push on ensuring that home visits happen at key moments with key target messages. This is achieved through training of ASHAs on HBNC+ protocol and the provision of incentives (Rs 250 per child, approximately $4) to ASHAs for the successful completion of four visits. The existing home visits were not incentivised. The addition of a focus on ECCD is also an innovation under HBNC+.

Evaluation Design

The effectiveness of HBNC+ is evaluated using a mixed methods approach. The quantitative evaluation uses a quasi-experimental method to attribute impact on key indicators to HBNC+ by comparing changes in indicators in treatment districts where HBNC+ has been implemented

between baseline and endline, to changes in matched control districts where HBNC+ has not been implemented. The cross-sectional population survey of mothers of children between 3-23 months of age is supplemented by a provider survey of ASHAs, focus group discussions with mothers, and in-depth interviews with, and direct observations of, ASHAs.

Evaluation Question 1: Do the NIPI inputs lead to changes in the knowledge of ASHAs?
The evaluation found that almost all ASHAs in the treatment areas report receiving HBNC+ training and this led to high levels of knowledge of the HBNC+ protocol (defined as knowing the timing and number of visits to be made). However, the training seems to be less effective at improving thematic knowledge related to intervention components.

If HBNC+ is scaled, the content and the modalities of the training should be revised to ensure ASHAs have the thematic knowledge required on the HBNC+ components.

Evaluation Question 2: Do the NIPI inputs lead to home visits by ASHAs according to HBNC+ protocol?
The evaluation shows a significant increase in the number of mothers receiving home visits and that these home visits became more closely aligned to the HBNC+ protocol with more mothers reporting receipt of counselling on HBNC+ topics. However, absolute levels of coverage remain partial, with only 39% of women reporting receipt of the full number of HBNC+ visits.

Operational research should be undertaken to find ways of delivering higher effective coverage of HBNC+ through government systems.

Evaluation Question 3: Do the home visits lead to improved outcomes (behavioural practices, use of products and service uptake)?
There is no detectable effect of HBNC+ on average levels of outcomes. The effect sizes are likely to be slightly underestimated due to an increase in home visits in control areas.

The lack of detected impact could be due to low effective coverage or low underlying efficacy of the intervention, which the evaluation is unable to formally test.

Additional correlation analysis shows that receiving the full set of visits is positively and significantly associated with effects on growth monitoring and iron and folic acid (IFA) supplementation but not other outcomes.

The evaluation is not able to detect sufficient impact to recommend the scaling of HBNC+. It is recommended that the pilot continues with implementation measures applied to increase effective coverage. A further evaluation round could formally test whether the intervention can deliver impact at higher levels of effective coverage, after which scaling decisions could be made.

Evaluation Question 4: Do the home visits lead to reduced incidence of pneumonia, other acute respiratory infections and diarrhoea?
There are no significant differences between treatment and control areas for morbidity indicators (prevalence of diarrhoea and pneumonia) but the evaluation is not powered to attribute changes to the intervention.

KEY FINDINGS AND RECOMMENDATIONS: REVITALISE AND SCALE-UP POSTPARTUM FAMILY PLANNING (PPFP/PPIUCD) SERVICES

Intervention Design

This intervention aims to revitalise and strengthen postpartum family planning (PPFP) services, especially the scaling up of postpartum intrauterine contraceptive devices (PPIUCD). It is predominantly a supply side intervention delivered at the facility level aiming to support the government to introduce postpartum family planning (PPFP/PPIUCD) services in district and sub-district facilities), with a complementary demand-side intervention at the community level (also implemented by government) to generate awareness and create demand for postpartum family planning (PPFP) services.

Evaluation Design

The evaluation at the population level involves comparing levels of outcomes in NIPI districts at endline with those at baseline ("pre-post"). It is not possible to compare this with trends in control districts because the intervention was scaled and the controls became contaminated. Due to the lack of counterfactual, it is not possible to robustly attribute observed changes to the intervention. Population data is supplemented by service availability and readiness assessments of health facilities, knowledge tests of health providers, focus group discussions with mothers, and in-depth interviews with, and direct observations of, ASHAs.

Evaluation Question 1: Does the support provided to facilities increase the service availability and readiness of postpartum family planning (PPFP) services, particularly PPIUCD?

The intervention has been successful at improving the availability of postpartum family planning (PPFP) services at targeted facilities, including intrauterine contraceptive devices inserted postpartum (PPIUCD), and processes within the control of the facility. However, infrastructure and equipment deficits at these facilities meant that many were not meeting the minimum quality standards for providing services as per government guidelines.

The programme should reconsider the relative merits of intervening purely at the service delivery point (the facility) without also intervening at the health systems level (particularly for supply chains); and the appropriate balance between objectives of service availability and service quality.

Evaluation Question 2: Does the training of providers in facilities increase their knowledge of postpartum family planning (PPFP) methods?

Facility providers felt that the trainings had improved their knowledge and counselling skills. Absolute knowledge levels at endline amongst providers were variable, with knowledge about the timing of the return of fertility for women who were not breastfeeding and after intrauterine contraceptive device (IUCD) removal, being particularly low.

If the intervention is replicated or scaled, the implementers should review training materials and approaches to see if it is possible to further improve the translation of training into knowledge and skills.

Evaluation Question 3: Does the training of ASHAs increase their knowledge of postpartum family planning (PPFP) messages?

Knowledge of ASHAs on relevant issues was limited, although basic knowledge improved between the baseline and endline and feedback on the trainings provided to ASHAs was positive.

If the intervention is replicated or scaled, the implementers should review training materials and approaches to see if it is possible to further improve the translation of training into knowledge and skills.

Evaluation Question 4: Does the training of ASHAs lead to increased coverage of post-partum family planning (PPFP) counselling of women?

The evaluation is not able to directly measure changes in the proportion of women who received counselling due to comparability issues between the baseline and endline. However, even at endline, coverage and quality issues remain, with over half of women not receiving any counselling and less than a third receiving counselling from an ASHA. Postpartum family planning (IUCD/PPIUCD) messages were received by only just over half of those women who received any counselling, and less than 14 percent of those, received counselling on side-effects.

If the intervention is replicated or scaled, the implementers should investigate ways of improving the effective coverage of counselling.

Evaluation Question 5: Does increased postpartum family planning (PPFP) counselling of women lead to improvement in knowledge of women on PPFP?

The evaluation found a statistically significant increase in the knowledge amongst mothers of postpartum family planning (IUCD/PPIUCD) and the importance of birth spacing. Absolute levels of knowledge on the details of some of the methods were low – for example only four percent of women were aware of the correct timings for IUCD insertion.

If the intervention is replicated or scaled, the implementers should investigate ways of improving the translation of counselling into knowledge.

Evaluation Question 6: Does the intervention lead to an increase in uptake of postpartum family planning (PPFP) services particularly IUCDs inserted postpartum (PPIUCD)? Does this translate into reduced unmet need in the postpartum period and changes in impact level indicators?

Overall, the uptake of family planning methods in the postpartum period increased significantly from 15 percent of mothers to 23 percent of mothers who had given birth in the last year. There was a significant increase in IUCD use (confirmed as driven by PPIUCD, that is IUCD inserted postpartum) from half a per cent of the sample to two percent of the sample, meaning that it now comprises eight percent of the method mix. This translated into a significant reduction in unmet need in the postpartum period. Due to the lack of a counterfactual, it is not possible to attribute these improvements solely to the intervention. However, the evaluation broadly validates the links in the theory of change which gives confidence that the intervention is a major contributor to the observed changes in outcomes.

The intervention has demonstrated impact and should be considered for replication/scaling.

KEY FINDINGS AND RECOMMENDATIONS: SICK NEWBORN CARE UNIT PLUS (SNCU+)

Intervention Design

SNCU+ involves three targeted home visits within the first 42 days to newborns discharged from SNCUs by a trained health worker, the Auxiliary Nurse Midwife (ANM), accompanied by the ASHA. The visits promote compliance with discharge instructions, kangaroo mother care (KMC), quality feeding for low birth weight children, counselling on handwashing practices, early childhood care and development (ECCD) behaviours, early identification of common signs of sickness and referrals of discharged newborns to higher health facilities. The intervention logic is that a clinically trained worker (the ANM) is required to identify danger signs in newborns, check adherence to discharge instructions, and make referrals which is beyond the competence of the ASHA who is not clinically trained.

These SNCU+ visits are additional to the six or seven home visits that ASHAs are expected to make in the first 42 days under the Home Based Newborn Care (HBNC) programme; of which ANMs are meant to join 10 percent for supportive supervision.

Evaluation Design
The quantitative evaluation assesses changes in outcome indicators for newborns discharged from SNCUs, but robust attribution to the intervention is not possible without the presence of a counterfactual. The evaluation utilises a repeated cross-sectional sample of newborns discharged from the SNCUs in 13 treatment districts. This is complemented by a survey of ASHAs and ANMs, in-depth interviews with mothers and ANMs and direct observations of ANMs.

Evaluation Question 1: Do the NIPI inputs (training and incentives) lead to changes in the knowledge of ANMs and ASHAs? Do the NIPI inputs lead to home visits by ANMs and ASHAs as per SNCU+ protocol?
The evaluation finds that the intervention was successful at significantly increasing the knowledge of ASHAs. The evaluation is unable to measure the effect on the knowledge of ANMs.

Whilst the knowledge of ANMs of the SNCU+ protocol was high, very few newborns discharged from SNCUs received a home visit by the ANM (four percent). Reasons included the removal of incentives, the high facility workload of ANMs, and their distance from communities.

Instead, home visits were predominantly made by ASHAs. Whilst the proportion of newborns who received at least one visit did not increase between the baseline and endline, the average number of visits for those who received at least one visit did increase significantly.

It is not recommended that the intervention is scaled because it has been demonstrated that ANMs do not make the home visits in the way that the intervention theory of change required.

Evaluation Question 2: Do the home visits by ASHAs/ANMs lead to increased knowledge of mothers, and improved behavioural practices?
Home visits did not have any detectable effect on maternal knowledge but did have statistically significant effects on the proportion of mothers practicing kangaroo mother care (KMC) and exclusively breastfeeding during the newborn period.

It may be possible to apply lessons from this experience to enable ASHAs to influence KMC and exclusive breastfeeding through other interventions.

Evaluation Question 3: Do the home visits lead to referral to facilities for further treatment of sicker newborns?
The proportion of newborns who were detected as being sick who were referred to facilities for treatment, and the proportion who were actually taken for treatment, fell between the baseline and endline. The theory of change of the intervention required outreach home visits by clinically trained, facility workers (ANMs) to diagnose danger signs, check adherence to discharge instructions, and refer sick children where necessary. It was believed that non-clinically trained ASHAs would not have the knowledge and skills to perform these tasks. The evaluation findings largely validate this theory of change.

It is not recommended to scale interventions that require ASHAs to perform activities that require clinical training.

KEY FINDINGS AND RECOMMENDATIONS: REGIONAL RESOURCE CENTRES FOR FACILITY BASED NEWBORN CARE (FBNC)

Intervention Design
The intervention focused on improving the quality of immediate newborn care in subdistrict facilities. To this end, at least one SNCU at divisional level has been identified to function as a regional resource centre, which provides both clinical care and hands-on training and supportive supervision to providers from Newborn Care Corners (NBCCs) and Newborn Stabilisation Units (NBSUs) located within Primary Health Centres and First Referral Units.

Evaluation Design
The evaluation is focused on the contribution of the resource centres towards the service delivery of NBSUs and NBCCs. Due to the lack of a counterfactual and a baseline, the evaluation builds a contribution story of the effects of the intervention. The evaluation uses data from service availability and readiness assessments of NBSUs and NBCCs, complemented by key informant interviews and provider knowledge assessments.

Evaluation Question 1: Are the resource centres and state-level structures functional according to the guidelines developed by NIPI?
The resource centres were found to be functioning, except for the one in Raisen, Madhya Pradesh, which the key informant reported to have closed down in early 2017.

Evaluation Question 2: What has been the contribution of NIPI (financing, equipment and support) to the functioning of the resource centres?
Key informants gave positive feedback on the contribution of the intervention on the resource centres, both directly and indirectly through trainings and observation/mentoring visits from the state resource centres. Improvements were reported in staff knowledge and skills, and clinical practice in their own SNCUs.

Evaluation Question 3: Are the NBSUs and NBCCs delivering adequate quality services?
Facilities lacked the equipment, supplies, commodities and infrastructure to deliver the routine, basic emergency and comprehensive emergency newborn care they were providing to government standards. This would have required complementary inputs from the broader health system, particularly the supply chain system, which was beyond the scope of the intervention.

The implication is that the intervention, which targeted processes at the service delivery level, was able to make tangible improvements but this was not sufficient to translate into quality service delivery without complementary reforms at the health systems level.

The programme should reconsider the relative merits of intervening at the service delivery level (the facility) without also intervening at the health systems level (particularly for supply chains); and the balance between objectives of service availability and service quality.

Evaluation Question 4: What has been the contribution of the resource centres to the service delivery of Newborn Stabilisation Units (NBSUs) and Newborn Care Corners (NBCCs)?
Respondents gave positive feedback on the contribution of the intervention on equipment maintenance, hygiene and infection prevention and staff skills. This suggests that the resource centres were successful at influencing processes that were within the control of facilities (hygiene and infection prevention, equipment maintenance) and augmenting the skills of existing staff.

The intervention has demonstrated success and can be considered for scaling/replication.

KEY FINDINGS AND RECOMMENDATIONS: STRENGTHENING PRE-SERVICE EDUCATION IN NURSING AND MIDWIFERY

Intervention Design
The intervention provided technical assistance towards improving the quality of pre-service education (PSE) for the nursing and midwifery cadre. The intervention strategy was to establish state nodal centres (SNCs) of Excellence, improve educational processes and infrastructure in 133 General Nurse Midwife (GNM) and ANM schools, strengthen clinical practice sites, improve teaching skills, knowledge and clinical skills of faculty, and strengthen the capacity building of State Nursing Councils.

Evaluation Design
The evaluation focuses on the contribution of the programme towards the functioning of

ANM and GNM schools. Due to the lack of a counterfactual and a baseline, the evaluation builds a contribution story of the effects of the intervention. The evaluation uses data from the application of standards checklists to schools, complemented by key informant interviews.

Evaluation Question 1: Are the state-level structures functional according to the Government of India guidelines?
The evaluation showed that the state nodal centres (SNCs) were either meeting, or very close to meeting, the standards threshold set by the Government of India. This matched the internal assessments conducted for Jhpiego, the implementing partner.

Evaluation Question 2: What has been the contribution of the NIPI inputs (financing, equipment and support) to the functioning of state-level structures?
Key informants gave consistent, positive feedback about the contribution of the intervention to the ability of state nodal centres (SNCs) to meet these standards and fulfil their mandate to support ANM and GNM schools. In particular, improvements to teaching methods, clinical practice sites, and infrastructure (especially skills labs, computer labs and libraries) were cited.

Evaluation Question 3: Are the ANM and GNM schools functional according to the Government of India's guidelines?
The evaluation data suggested that many of the ANM and GNM nursing schools were slightly falling short of the standards threshold.

Many informants reported that the skills labs, libraries and computer labs were not functional, which undermined the ability of schools to meet standards.

Future interventions should review approaches to improving functionality of skills labs, libraries and computer labs.

Evaluation Question 4: What has been the contribution of the NIPI inputs (support to training infrastructure, educational processes and clinical skills labs) to the: (i) faculty of, and (ii) training provided by ANM and GNM nursing schools?
The evaluation validates the more detailed internal assessments which have shown significant and positive change in the strength of the ANM and GNM schools. Key informants gave consistently positive feedback on the contribution of the intervention towards improvements in teaching methodology, patterns of examination, student assessments and teacher evaluations. They also gave positive feedback on the contribution of the intervention to improving clinical supervision, infection prevention and biomedical waste management practices.

The findings of the evaluation are consistent with the achievement of the expected project objectives and the theory of change.

The intervention has been shown to be successful and should be considered for replication/scaling.

SYNTHESIS LESSONS

Low community health worker coverage of interventions undermines effectiveness
Three interventions (HBNC+, SNCU+, and the demand generation component of PPFP) relied upon increasing the amount of contact time between community health workers (ASHAs and, for SNCU+, ANMs) and mothers and making this contact time more focused on targeted knowledge, behaviour and motivation to avail services.

For all interventions, coverage levels increased between baseline and endline but absolute levels were still partial in treatment areas at the endline. This undermined the potential of the interventions to deliver significant improvements in outcomes at the population level.

The evaluation therefore suggests that introducing innovations in the services provided by community health workers without addressing underlying system issues affecting their performance (such as incentives, supervision and workload) is unlikely to achieve high levels of effective coverage.

Interventions at facility level were more successful at making services available than ensuring the quality of these services

The postpartum family planning (PPFP/PPIUCD) and resource centres for Facility Based Newborn Care (FBNC) interventions operated through establishing Training/resource centres at the district level, and working through these to provide support to public facilities within the district.

This support was successful at increasing the availability of services at these facilities (including IUCD insertion postpartum and newborn care services), as well as some elements of service readiness. However, at the endline, the facilities systematically lacked the equipment, supplies and infrastructure to deliver these services to the standards mandated by the Government of India.

The evaluation therefore suggests that setting up district level training and resource centres may be effective at improving service availability at facilities but without addressing underlying system issues affecting the other inputs required for service delivery (such as supplies and equipment) this may not lead to services being made available at an acceptable quality.

The programme may want to consider the balance of focus between service delivery innovations and systems strengthening interventions. If it is not possible to intervene at the systems level, the level of ambition of what can be achieved at the service delivery level, as well as the ethical considerations of promoting services at substandard quality, need to be considered carefully.

1. Introduction

1.1 ABOUT THE NIPI PHASE-II PROGRAMME

The Norway-India Partnership Initiative (NIPI) is a bilateral partnership between the Government of Norway and Government of India, with the intention to reduce child mortality and improve maternal health.

NIPI aims to provide catalytic support to the Government of India's flagship health programme, the National Health Mission (NHM), by piloting potential innovations in newborn and childcare, family planning, and maternal health through the public health system. The catalytic support to NHM by NIPI has three goals:

Goal #1: Improving, scaling up and introducing new quality continuum of care interventions at community and facility level in NIPI districts,

Goal #2: Establishing a mechanism for sustainable institutional collaboration between Norwegian and Indian public and private institutions in areas related to women's and children's health, and

Goal #3: Facilitating dialogue on global health between Norway and India.

The first phase of NIPI was completed in 2012 and several supported activities have been adopted and scaled up by the Government of India. The second phase (2013-2017) included introducing twelve new quality continuum of care interventions at the community and facility level in thirteen NIPI districts of the four focus states of Bihar, Odisha, Madhya Pradesh and Rajasthan.

NIPI is governed by a Joint Steering Committee, chaired by the Secretary of Health and Family Welfare of the Ministry of Health and Family Welfare (MoHFW), Government of India and co-chaired by the Ambassador of Norway to India. The state secretaries are the members of the NIPI governing board. The Joint Steering Committee is guided by a Programme Advisory Group chaired by the Additional Secretary and Mission Director, National Health Mission (NHM) and receives inputs from the State Coordination Committee in each NIPI state. The NIPI Coordination Unit provides secretariat services to the governing board of NIPI. Implementing partners support the Government of India to implement the interventions through government systems. The implementing partners are the NIPI Newborn Project (IPE Global) and Jhpiego.

The total budget for the programme was estimated at 250 million Norwegian Krone.

1.2 ABOUT THE EVALUATION

1.2.1 Mandate of the evaluation

Oxford Policy Management (OPM), in partnership with Sambodhi Research and Communications, were commissioned by the Evaluation Department of the Norwegian Agency for Development Cooperation (Norad) to undertake an impact evaluation of the NIPI Phase-II programme.

The evaluation is intended to inform the international and Norwegian public and government about what works and what does not work and why of the interventions supported through the NIPI Phase II.

The main users of the findings of the evaluations will be the Ministry of Foreign Affairs in Norway (MFA), the Government of India, the

programme management and the government structure of the NIPI and other stakeholders who have direct or indirect interest in the subject of this evaluation. In this context, the MFA refers to its political leadership, its officials, the Norad. NIPI refers to the Secretariat, the Programme Management Group and the Joint Steering Committee. The stakeholders include implementing partners.

The impact evaluation does not attempt to assess the overall contribution of the NIPI Phase-II programme towards maternal and child health outcomes; rather, it seeks to assess the effectiveness of five individual NIPI Phase-II interventions. These are:

1. Home Based Newborn Care Plus (HBNC+);
2. Post-Partum Family Planning (PPFP);
3. Sick Newborn Care Unit Plus (SNCU+);
4. Regional resource centres for Facility Based Newborn Care (FBNC); and
5. Strengthening Pre-Service Education in Nursing and Midwifery.

This evaluation is not a programme evaluation and does not aim to capture the effectiveness of NIPI Phase-II programme in policy advocacy and adoption. It also does not assess achievements against the second and third programme goals. It also does not seek to assess the programme against other evaluation criteria such as sustainability and efficiency. It was not structured in a way to test unintended consequences.

It was intended for a cost-effectiveness analysis to be undertaken alongside the evaluation but, whilst this was designed, the cost data was not made available to undertake the analysis.

1.2.2 Overview of the evaluation

The impact evaluation aims to answer key evaluation questions for each of the five interventions. These questions were formulated based on theories of change developed for the interventions, and in consultation with the implementing partners at stakeholder workshops.

For three of the interventions (HBNC+, SNCU+ and PPFP), the evaluation seeks to assess the impact at the population level. The evaluation of the other two other interventions (regional resource centres and Strengthening Pre-Service Education) assesses their impact on service delivery.

For the three interventions where impact is evaluated at the population level, the evaluation uses the Intention to Treat (ITT) approach and not the Average Treatment effect on the Treated (ATT) approach. This means that the evaluation aims to assess the average effect on all of those who are eligible to receive the intervention – whether or not they actually receive the intervention. It is therefore not an evaluation of the efficacy of the interventions (i.e. what would be the effect if the intervention is received by the right people at the right time at the right dose and the right quality with complete coverage) but an evaluation of effectiveness (what is the average effect on eligible beneficiaries under real world conditions where the fidelity of implementation may not be perfect). This is because the evaluation seeks to inform the likely real world effects of the interventions if they were to be scaled.

The evaluation methodologies are specific to the different interventions and described in the dedicated chapters. Overall, the evaluation uses a mixed-methods approach, involving both quantitative and qualitative methods.

An evaluation inception report was completed in November 2013. Baseline data collection was undertaken between December 2013 and January 2014, and a baseline report was completed in July 2014. A mid-term assessment was

completed in July 2016, which was used as the basis for updating the evaluation design through a revised evaluation design report in December 2016. Endline surveys were completed between January and March 2017.

Cross-sectional study data was collected through multiple survey tools:

- A population survey administered to mothers of children less than two years of age (4,680 at baseline and 4,656 at endline) in both treatment and comparison areas;
- Health workers survey administered to Accredited Social Health Activists (ASHAs; 300 at baseline and 304 at endline in both treatment and comparison areas) and 13 Auxiliary Nurse Midwives (ANMs) in the treatment districts at endline;
- A SNCU+ Follow up Survey administered to newborns discharged from SNCUs in the 6 months preceding the survey (449 at baseline and 406 at endline) in treatment districts only;
- Qualitative data included 26 Focus Group Discussions (FGDs) with Mothers; 26 In-depth Interviews (IDIs) with ASHAs (which included Direct Observation for each ASHA); and 26 IDIs with ANMs (which included Direct Observation for each ANMs);
- Facility level data included 12 Service Availability and Readiness Assessments (SARAs) of health facilities, 24 knowledge tests of health providers, and 12 IDIs with health providers at the facility level;
- Teacher Training Centre data included in-depth interviews at 20 training centres and a standardized checklist applied to each of these.

1.2.3 A note on differences from the baseline

There are some differences in the sample size and indicator values for the baseline estimates presented in the baseline report of 2014 and this endline report.

The baseline report provided descriptive statistics for the whole of the sample. For the endline evaluation, some indicators are calculated with a restricted sample as only a part of the sample is relevant for answering an evaluation question.

Furthermore, there have been some minor changes in the approaches to calculate specific indicators. In this endline report, the same methods have been used to calculate baseline and endline values of indicators, and the same sample restrictions, to ensure comparability. However, this can lead to changes in the baseline levels of indicators from those presented in the baseline report.

1.3 STRUCTURE OF THE REPORT

The report has been structured in the following manner:

Chapters 2-6 are dedicated to each of the five interventions. Each chapter begins by a description of the intervention design and the evidence on which it is based. Then the key evaluation questions and a description of the methodology employed to address these questions are outlined, along with the limitations of the methodology. This is followed by presentation of the key findings for each question. A summary section provides conclusions and recommendations.

Chapter 7 consolidates the intervention specific conclusions and recommendations as well as synthesis lessons.

1.4 HOW TO READ TABLES

Tables in this report follow a uniform format. For population data, the unit of the analysis is the individual or the household within which the mother and child are located. For indicators calculated as proportions, mean estimates are reported as percent. Differences in means and impact estimates are interpreted as percentage points since almost all outcomes are binary indicators, so that an estimate of 10.48 equates to 10.48 percentage points.

All significant differences are denoted in these tables by three (***), two (**) or one (*) asterisks, signifying differences at 99%, 95% and 90% confidence – or 1%, 5%, and 10% statistical significance levels – respectively. It is important to note, however, that where results are not asterisked, it does not mean that there is no difference between the groups but rather that any difference cannot be asserted with a high degree of confidence (90% or more, i.e. at 10% statistical significance levels or lower).

Results are mostly presented in two standard formats:

1. *Diff-in-Diff:* These tables present the difference-in-differences impact measure, which is the difference between endline and baseline for treatment households minus the corresponding difference for comparison households. The specification controls for a vector of control variables which increases the specificity of the impact estimate. This impact estimate is provided in the last column of the table. For example, in the adjacent table, treatment households are ten percentage points more likely to receive a household visit from an ASHA to a child between the ages of 12-23 months, compared to a control group household.

EXAMPLE TABLE // DIFF-IN-DIFF

Indicator	Treatment			Control			Impact estimate (S.E.)
	BL	EL	Diff (BL-EL)	BL	EL	Diff (BL-EL)	
Visits during the HBNC+ period among children 12-23 months of age:							
Ever received a visit (%)	44.1	68.7	24.6***	42.3	54.9	12.6***	10.48*** (3.82)
N	953	1055		981	1100		

Unweighted estimates reported. Cluster-adjusted Standard Errors (SE) are reported in parentheses.
Impact estimates use difference-in-difference modelling and control for a vector of child, mother and household characteristics, and state fixed effects.
*significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017

Standard errors are clustered at the village level, and reported as proportions in parentheses below the estimate.

Results of t-tests for differences between baseline and endline values are presented separately for treatment and control groups preceding the impact estimate column. For example, in the table above, on average, 44% of treatment households receive a household visit at baseline compared to 69% at endline. This difference of 25 percentage points was statistically significant at the 1% significance level. Tables following this format are found in the HBNC+ chapter.

2. *Pre- vs Post:* These tables present levels of indicators at baseline and endline. Differences between pre-treatment and post-treatment estimates are obtained through weighted bivariate regressions. For example, in the table on the next page, the last column in the last row informs us that the percentage of mothers who had knowledge about condoms as a family planning method increased by six (coefficient of 0.057) percentage points from 75% at baseline to 81% at endline. In this case, the difference is statistically significant as denoted by the ***. In addition, the results of an adjusted chi-square test for detecting a statistically significant difference between endline and baseline are presented using significance stars on the estimate in the endline column. There are three stars displayed next to the statistic of 80.5% in this case, demonstrating high statistical significance. Tables following this format are contained in the PPFP and SNCU+ chapters.

EXAMPLE TABLE // PRE- VS POST

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	SE
Knowledge of family planning methods (%)						
Any family planning method	98.3%	2340	98.2%	2326	0.004	(0.01)
At least 3 family planning methods	96.1%	2340	96.0%	2326	0.003	(0.01)
Female sterilisation	96.1%	2340	96.0%	2326	0.003	(0.01)
IUCD/PPIUCD	74.8%	2340	79.5%**	2326	0.051**	(0.03)
Condoms	75.2%	2340	80.5%***	2326	0.057***	(0.02)

Note:
Weighted results reported. Standard Errors (SE) are reported in parentheses. Endline superscript refers to significance of adjusted chi-square test.
*significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017

2. Intervention: Home Based Newborn Care Plus

2.1 INTERVENTION DESIGN AND EVIDENCE BASE

The Home Based Newborn Care plus (HBNC+) innovation packages multiple interventions for improving the survival and development of infants through incentivised, structured home visitations by village based community health mobilisers called ASHAs at 3, 6, 9 and 12 months of age. HBNC+, targeting the key causes of childhood deaths, aims to reduce pneumonia and diarrhoea related morbidity and prevent malnutrition. The interventions are:

- Promoting exclusive breastfeeding for six months;
- Ensuring continued breastfeeding and complementary feeding from six months;
- Promoting routine immunisation;
- Providing counselling for handwashing;
- Facilitating prophylactic distribution of oral rehydration solution (ORS) and iron and folic acid (IFA) syrup;
- Ensuring regular growth monitoring; and
- Promoting Early Childhood Care and Development (ECCD).

Under the existing National Health Mission (NHM) protocol, ASHAs are already expected to make monthly home visits to households with children (in both treatment and control areas):

"For two to three hours each day, for least four or five days a week, the ASHA should visit the families living in her allotted area. Home visits should take place at least once in a month if not more…when there is a child below two years of age, she should visit the families at home for counselling them."
(National Rural Health Mission, 2011)[1]

For children, these home visits are meant to cover all of the interventions within the HBNC+ "package" (with the exception of ECCD, which is a new content area).

This protocol, and associated training modules, were introduced before the NIPI Phase II intervention of HBNC+, and therefore had some degree of implementation before the baseline survey, with 44 percent of children in the NIPI treatment blocks receiving at least one home visit between the age of three and twelve months and 42 percent in the control areas (Table 6).

Therefore, the additionality of HBNC+ appears to be a more focused push on ensuring that home visits happen at key moments with key target messages. This is achieved through training of ASHAs on HBNC+ protocol and the provision of incentives (Rs 250 per child, approximately $4) to ASHAs for the successful completion of four visits. The addition of a focus on ECCD is also an innovation under HBNC+. The home visits under the National Health Mission protocol before HBNC+ were not financially incentivised.

The interventions included in the HBNC+ package are widely promoted. Vaccinations, exclusive breastfeeding and complementary feeding are recommended as core preventive interventions against both pneumonia and diarrhoea, the leading causes of infant mortality (WHO,

1 ASHA Module 6: Skills that save lives, National Rural Health Mission, 2011.

Children: Reducing Mortality Fact Sheet, 2016)[2]. Handwashing with soap is also recommended as a preventive measure against diarrhoea, and the consumption of low osmolarity Oral Rehydration Solution (ORS) as a primary treatment method (alongside zinc supplements). Exclusive breastfeeding, complementary feeding, Iron and Folic Acid (IFA) supplementation, handwashing with soap and growth monitoring (to facilitate identification and treatment of malnutrition) are recommended as core interventions to combat child undernutrition (Bhutta, et al., 2013)[3]. Early childhood development has emerged as a priority area to ensure cognitive and physical development and good health in later years (Daelmans, et al., 2017)[4].

However, systematic reviews show that these interventions in isolation do not have significant impacts on rates of child stunting (Nair et al., 2017)[5], which can be interpreted as a composite impact measure of health and nutrition deficiencies. The innovation behind the HBNC+ intervention is to package a combination of interventions through one single delivery vector. The focus is therefore on both the vector as a means of increasing coverage of the individual interventions, but also to ensure that they are provided in combination.

The evidence base on the use of home visits in this way is primarily restricted to the neonatal period, and there are few studies of home visits promoting a combination of interventions in the infant post-neonatal period. The recent CARING trial in Jharkhand and Odisha engaged new community workers (called "Su-Poshan Karyakarta") to make monthly home visits with children until the age of two years (combined with organizing participatory group learning events for mothers) (Nair, et al., 2015). These visits included promotion of exclusive breastfeeding, referral of sick children, counselling on complementary feeding, handwashing with soap and the appropriate treatment of diarrhoea, and care for development. The CARING trial found no statistically significant effects on exclusive breastfeeding, the appropriate introduction of complementary feeding, care at home, care seeking behaviour or self-reported morbidity. However, it did find significant effects on handwashing with soap before feeding children and after helping a child with defecation, minimum diet diversity and meal frequency at 12 months, and a small effect on infant mortality.

Other studies have shown significant effects of home visits on complementary feeding in Haryana (Bhandari, et al., 2004)[6] and Bangladesh (Menon, et al., 2016)[7] (but not stunting) and developmental and nutrition outcomes (including stunting) in Pakistan (Yousafzai, et al., 2014)[8] but have not assessed impacts on other health outcomes that are a focus of HBNC+.

In summary, the evidence base is very limited, given the innovative nature of HBNC+, and is predominantly focused on nutrition outcomes. The few studies published have shown some positive impacts on a range of indicators, suggesting the potential for effectiveness. This evaluation will therefore be a valuable addition to the evidence base.

2 *Children: Reducing Mortality Fact Sheet,* World Health Organisation, September 2016.

3 Bhutta et al. (August 2013) 'Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?', *The Lancet,* (Volume 382, No. 9890), pp. 452-477.

4 Daelmans et al. (January 2017) 'Early childhood development: the foundation of sustainable development, *The Lancet* (Volume 389, No. 10064), pp. 9-11.

5 Nair et al. (2017) 'Effect of participatory women's groups and counselling through home visits on children's linear growth in rural eastern India (CARING trial): a cluster-randomised controlled trial, *The Lancet Global Health* (Volume 5, No. e), pp. 1004-16.

6 Bhandari et al. (September 2004) 'An educational intervention to promote appropriate complementary feeding practices and physical growth in infants and young children in rural Haryana, India, *J Nutr,* (Volume134,9), pp. 2342-8.

7 Menon et al. (2016) 'Combining Intensive Counselling by Frontline Workers with a Nationwide Mass Media Campaign Has Large Differential Impacts on Complementary Feeding Practices but Not on Child Growth: Results of a Cluster-Randomized Program Evaluation in Bangladesh, *J Nutr.* (Volume146, No 10), pp. 2075-2084.

8 Yousafzai et al. (October 2014) 'Effect of integrated responsive stimulation and nutrition interventions in the Lady Health Worker programme in Pakistan on child development, growth, and health outcomes: a cluster-randomised factorial effectiveness trial, *The Lancet* (Volume 384, No 9950), pp. 1282-93.

2.2 EVALUATION QUESTIONS AND METHODOLOGY

2.2.1 Key evaluation questions

The key evaluation questions were identified using the simplified results chain for the programme and its underlying assumptions illustrated in Figure 9 in Annex A1 (annexes A-I are published in a separate document at norad.no/evaluation). Although the final goal of the programme is to reduce disease morbidity and infant mortality, the evaluability of these indicators is constrained by long transmission mechanisms, small effect sizes and overarching confounding factors. Therefore, the evaluation investigates the impact of the programme until the outcome level (behavioural practices and service uptake) of the results chain. The key evaluation questions are:

1. Do the NIPI inputs lead to changes in the knowledge of ASHAs?

2. Do the NIPI inputs lead to home visits by ASHAs according to HBNC+ protocol?

3. Do the home visits lead to improved behavioural practices (handwashing, exclusive and continued breastfeeding, complementary feeding and early childcare and development), use of products (ORS and iron and folic acid supplementation) and service uptake (growth monitoring and full immunisation)?

4. Do the home visits lead to reduced incidence of pneumonia, other acute respiratory infections and diarrhoea?

The effectiveness of HBNC+ is evaluated using a mixed methods approach, i.e. use of both quantitative and qualitative techniques. These are described in the following sections.

2.2.2 Quantitative evaluation methodology

The quantitative evaluation uses a quasi-experimental method to attribute impact on key indicators to HBNC+ by comparing indicators in treatment districts where HBNC+ has been implemented, to matched control districts where HBNC+ has not been implemented (see Figure 9 in Annex A1). A Difference-in-Differences (Diff-in-Diff) specification compares changes in indicators over time for both treatment and control groups to remove biases that arise from time invariant group specific unobserved factors.

The quantitative evaluation includes a provider survey of ASHAs which answers evaluation question one. It measures their receipt of inputs, knowledge and reported levels of service and product availability. A cross-sectional population survey of mothers of children between 3-23 months of age[9] answers evaluation questions two and three. The study sample was created in the following manner:

9 The survey was administered to mothers of children under two years of age. However, we restrict the sample to mothers of children between 3-23 months of age for the evaluation of HBNC+.

- *Step 1:* Given the programme had already selected the treatment (or NIPI) districts, control districts were chosen from a matching exercise. Literacy rate, levels of urbanisation, proportion of Scheduled Castes and population density were used as factors for matching of districts and sub-districts. These factors were chosen to minimise the effect of confounding factors.

- *Step 2:* From each treatment district, two sub-districts were randomly sampled and matched with two sub-districts from the matched control district based on factors listed above (excluding population density) using the minimum difference approach.

- *Step 3:* From each sampled sub-district, six Primary Sampling Units (PSUs) (villages) were selected using Probability Proportional-to-Size (PPS) method[10].

- *Step 4:* From each PSU, 15 households with mothers of children less than 24 months of age were randomly selected.

The sampling strategy for the evaluation has been summarised in Table 1:

TABLE 1 // SUMMARY OF SAMPLING STRATEGY FOR POPULATION SURVEY FOR HBNC+

	Sample size	Sampling	Matching
State	Four states (Bihar, MP, Odisha, Rajasthan)	NA	NA
District	13 NIPI, or "treatment districts" and 13 control districts **Total = 26 districts**	NA	Matching of control districts with NIPI (or treatment) districts based on four indicators
Sub-district	Two sub-districts per treatment or control district **Total = 52 sub-districts**	Two sub-districts randomly selected per treatment district	Matching of randomly selected treatment sub-districts with sub-districts in control districts based on three indicators
PSU	6 PSUs per treatment or control sub-district Total = 312 PSUs **Actual number of PSUs = 308**	6 PSUs selected per sampled sub-district based on PPS method	NA
Households	15 households per PSU **Total = 4620 households**	Random selection	NA

10 PPS is a simple sampling technique whereby the probability of selection of a unit is proportional to its size. PPS greatly improves the representativeness of the sample if the sampling units vary in size.

Table 2 shows the actual sample achieved during the fieldwork taking into account non-response rates:

Note that while the total sample size of children between the ages of 3-23 months of age is (3,935 + 4,049 = 7984), the impact of the intervention is measured on certain key indicators, which are applicable to children only in certain age groups. Table 3 on next page, provides the rationale for restricting the sample size as applicable for each key indicator. In addition, there were missing values for some indicators, so the precise sample for calculation differs across indicators.

TABLE 2 // SAMPLE SIZES ACHIEVED BY THE QUANTITATIVE INSTRUMENTS FOR HBNC+

Sample	Baseline			Endline		
	Total	Treatment	Control	Total	Treatment	Control
Children between 3-23 months of age	3,935	1,948	1,987	4049	1,985	2064
ASHAs*	300	144	156	304	151	153

* Number of ASHAs do not correspond to the total number of PSUs due to non-availability of ASHAs or vacant positions at the time of the survey.
Source: NIPI-II Baseline (Dec 2013 – Jan 2014) and Endline (Jan 2017 – Feb 2017) surveys.

The impact of HBNC+ is estimated using the Diff-in-Diff estimation – estimating change between treatment and control groups over time – which can be represented as follows:

$$y_{ijts} = \beta_0 + \beta_1 dT_j + \beta_2 dPost_t + \beta_3 (dPost_t)(dT_j) + \beta_4 X_i + \beta_5 Strata_s + \varepsilon_{ijt}$$

where y_{ijts} is the outcome of interest for individual i at time t in PSU j and Strata s. The dummy variable dT captures the differences between the treatment and control groups. It equals '1' if the individual is residing in a treatment PSU. The time period dummy variable $dPost_t$ is an indicator that equals '1' if the time period is 2017. It captures aggregate factors that lead to change in y even in the absence of an intervention. The interaction term, $(dPost_t)(dT_j)$, represents the observations which received the intervention (i.e. treatment group) by the endline. X_i is a vector of individual characteristics of the mother and the household within which she resides, which include: age and gender of her child; her own age and education level (primary, secondary, or higher); number of the births she has had; whether she has had an institutional delivery; frequency of her ANC visits (whether it was between 1-3 visits or more than four); age, gender, education level, religion, and caste of the household head; number of females and total size of the household; household wealth index quintile category;

TABLE 3// RELEVANT SAMPLES FOR CONSTRUCTION OF KEY INDICATORS

Key Indicators	Age of Child	Number of such children in the sample, across baseline and endline	Rationale
Exclusively fed breastmilk	3-5 months	1404	Exclusive breastfeeding is recommended only until 6 months of age, and lowest age within our sample is 3 months.
Received minimum diet diversity	6-23 months	6577	Diet diversity below 6 months is NA. Highest age within our sample is 23 months.
Mothers who typically use soap to wash hands	3-23 months	7981	Includes our entire sample.
Growth monitored at least once in 3 months	3-23 months	7981	Includes our entire sample.
Received full immunization	12-23 months	4314	Full immunization can only be measured once the child has reached 12 months of age.
Consumed IFA twice in the last two weeks	6-23 months	6577	IFA is recommended to start at 6 months of age.
Treated with ORS	6-23 months	6577	ASHAs are trained to recommend this when the child reached 6 months of age.
Played with the child	3-23 months	7981	Includes our entire sample.
Visits during the HBNC+ period	12-23 months	4314	The full visitation schedule of HBNC+ is completed only at age 12 months.

and whether she finds distance to the health centre and seeking permission to visit it, to be barriers to healthcare access. Strata refer to state-specific fixed effects. Estimation is via Ordinary Least Squares (OLS) with standard errors clustered at the village level. Estimates apply to the impact estimation sample only since probability weights are not used. This is because non-probability, matching techniques were used for sampling control areas as described earlier. The unit of analysis is the individual/household.

Note that the treatment dummy variable indicates if the mother was residing in one of the thirteen NIPI treatment districts. As such, it indicates whether the mother is an eligible beneficiary of the HBNC+ intervention. It does not, however, indicate whether she received the full schedule of ASHA home visits. In addition, given the context of the intervention, it is possible to, and we do in fact, observe mothers of children in the control group also receiving 4+ ASHA home visits between 3-12 months of age. Home visits to young mothers are conducted by ASHAs for a multitude of reasons such as antenatal visits for pregnant mothers, newborn care, community mobilization for VHSNDs, routine monitoring for communicable and non-communicable diseases, etc. (National Health Systems Resource Centre, 2015)[11].

β_3 is the coefficient that represents the programme impact. The methodological approach to assessing the impact of NIPI on infant health makes use of the ***Intention to Treat (ITT) approach.*** The ITT nature of the analysis measures the average effect of the intervention on all households eligible to receive the intervention, whether or not they actually receive the intervention (for example, they may not receive home visits under HBNC+ if health workers do not deliver them) and hence, provides an unbiased estimate of effectiveness of NIPI. HBNC+ has been delivered by the implementing agencies according to the original plans and targets and the interventions' designs have not changed. In addition, sufficient time has elapsed since these inputs were expended for them to have had the opportunity to be translated into outputs.

Further to the Diff-in-Diff estimation, a ***correlation analysis*** has been conducted to understand the association between receiving home visits in the treatment areas at endline and the key outcomes. The unit of analysis for the correlation analysis is a household. The following multiple linear regression equation is estimated:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \bullet\bullet\bullet + \beta_n X_n + \varepsilon$$

- The *dependent variables, y,* used for this analysis are the key secondary outcome indicators of interest for example complementary feeding practices.
- The *key independent or explanatory variable, X_1,* is a dummy variable indicating whether a household received the full schedule of home visits by the ASHA under HBNC+.
- The specification also controls for a vector of household, mother, child and PSU characteristics.
- The correlation analysis is undertaken for children between 12-23 months who reside in treatment areas at endline, as the key coefficient of interest is the association between visits in HBNC+ areas and behavioural outcomes.

11 National Health Systems Resource Centre (2015). Evaluation of Accredited Social Health Activists (ASHA).

The following limitations of the quantitative evaluation methodology are to be acknowledged while interpreting its findings.

1. The evaluation is not powered to detect effects on morbidity or mortality; therefore, it can only measure up to the level of "outcomes" in the theory of change. Some outcome estimates are also hampered by small sample sizes (e.g. treatment of diarrhoea) and are therefore not powered to detect statistically significant changes.

2. The parallel trends assumption: The sampling strategy was defined in order to increase the likelihood of sound comparability between treatment and control groups by allowing for matching of districts and sub-divisions based on secondary data sources. The baseline study confirmed that there is no statistically significant difference between treatment and control areas for the key indicators, lending robustness to the evaluation (OPM, 2014). We are, therefore, now confident of the counterfactual validity and reliability of the Diff-in-Diff approach, provided that the parallel trends assumption is upheld. Though the parallel trends assumption cannot be formally tested, these do provide assurance and increase the likelihood of the assumption to hold true.

3. HBNC+ is being scaled nationally (to include control districts) to target LBW and pre-term babies which implies a degree of contamination of control districts and hence, undermining of the counterfactual evaluation approach. Contamination means that impact estimates are underestimated. For the sub-interventions of provision of prophylactic ORS to households which has been scaled up nationwide (as confirmed by the implementing partner), a pre-post analysis for ORS use rate is used.

4. Changes to the data collection tools between baseline and endline meaning for some indicators a Diff-in-Diff estimator is not possible. As a result, two outcome indicators rely on single difference estimates and therefore offer weaker causal attribution: (a) the ORS component of the programme was nationally scaled up, and as a result impact analysis is pre-post, and (b) the understanding that IFA distribution was part of the intervention was only understood by the evaluation team after the baseline data collection and consequently, the evaluation is ex-post. A full list of changes to the survey instruments is outlined in Annex A3.

5. Supportive supervision by ASHA supervisors is not included in the scope of the evaluation.

6. Early childhood care and development (ECCD) is difficult to measure and the indicator used in this report is fairly blunt, constructed from a straightforward question asked to the mother about the method of interaction with her child with options of talking/playing/listening (not mutually exclusive) to her child. There exists now substantive research in the field which has led to the construction of instruments such as the locally adapted Bayley Scales of Development which are the recommended methods of measuring early childhood development. Such technical measurement was outside the scope of this evaluation.

2.2.3 Qualitative evaluation methodology

The endline qualitative data collected has three data sources – focus group discussions (FGDs), in-depth interviews (IDIs) and direct observations.

Under the HBNC+ intervention, 26 focus group discussions were held with mothers who had children younger than two years of age. They were held in 13 treatment districts across the four states with two focus group discussions

being conducted per district. The focus groups explored themes such as the challenges of looking after infants, treatment seeking behaviour of mothers, perception of services provided by health workers, women's decision-making, status in the household and attitudes and practices related to family planning. A total of 170 women participated in focus group discussions across the four states and the size of the FGD ranged from 5 to 11 mothers.

IDIs were held with ASHAs to investigate issues such as her work-schedule, roles and responsibilities, motivation and incentives attitudes and practices related to family planning. The data was collected from 26 ASHAs, with two ASHAs being interviewed from each of the 13 districts.

Three direct observations were collected per ASHA for all 26 ASHAs, giving a total of 78[12]. The investigator observed the ASHA conducting the home visits. Direct observations need to be interpreted cautiously as people usually perform better when they know they are being observed (the Hawthorne Effect). Direct observations are also susceptible to observer bias.

TABLE 4 // PROGRAMME INPUTS AT ENDLINE

Indicator	Endline		
	T	C	T-C
ASHAs who received training regarding HBNC+ (%)	95.2	31.2	63.2***
ASHAs having knowledge of number home visits under HBNC+ (%)	93.2	33.3	59.8***
ASHAs having knowledge on the HBNC+ home visit schedule (%)	92.5	35.5	57.0***
N	146	141	

Unweighted estimates reported. *significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Endline Survey 2017.

Note that unlike quantitative research which focuses on statistical representativeness, qualitative research does not address issues of standardisation and representativeness (Corbetta, 2003). Qualitative research in this evaluation aims to assist in explaining and interpreting the quantitative findings. It aims to develop explanations, and capture perceptions pertinent to the study (Ritchie & Lewis, 2003).

2.3 KEY FINDINGS

2.3.1 Do the NIPI inputs lead to changes in the knowledge of ASHAs?

Trainings have led to high levels of knowledge of the HBNC+ protocol (defined as knowing the timing and number of visits to be made). However, the training seems to be less effective at improving thematic knowledge related to intervention components.

There is near universal coverage of HBNC+ trainings among ASHAs in treatment areas.
As shown in Table 4, almost all sampled ASHAs (95 per cent) in the programme area report having received HBNC+ training. The level of awareness about the number of home visits

12 Direct observations regarding 'ASHA behaviour and attitudes' are used to carry out analysis.

under HBNC+ and about the home visitation schedule is also high (over 90 per cent).

Approximately one third of ASHAs reported receiving HBNC+ training in the control areas at the endline. This suggests a degree of contamination that is discussed in more detail in subsequent sections.

The capacity building element of the HBNC+ programme aimed to equip ASHAs with the knowledge and skills required to deliver the HBNC+ activities, as well as knowledge about the HBNC+ protocol. The knowledge tests of ASHAs suggest that baseline, pre-intervention levels of knowledge of some key issues was already high (e.g. on exclusive breastfeeding, the correct timing for introducing complementary feeding). For other issues where knowledge was partial, such as handwashing, there was limited difference in knowledge levels between ASHAs in treatment and control areas at endline.

This suggests that the training, whilst successful at equipping ASHAs with knowledge on the HBNC+ protocol, was less effective at improving their thematic knowledge on key components of HBNC+ for those issues where knowledge was not already high.

TABLE 5 // ASHA KNOWLEDGE OF HBNC+ COMPONENTS

Indicator	Treatment			Control			Impact estimate (S.E.)
	BL	EL	Diff (BL-EL)	BL	EL	Diff (BL-EL)	
ASHAs aware of correct exclusive breastfeeding duration of six months (%)	96.5	98	1.5	91	95.4	4.4**	-2.06 (3.38)
ASHAs aware that child must be breastfed even when sick (%)	91	96	5.1*	91	93.5	2.4	2.70 (3.78)
ASHAs aware of correct age at which to start on solids/semi-solids (%)	86.8	99.3	12.5***	88.5	97.4	8.9**	2.36 (5.68)
ASHAs aware of immunizations to be given in 1 year (%)	55.6	77.5	21.9***	49.4	84.3	35***	-14.84 (9.63)
N	144	151		156	153		

Indicator	Endline*		
	Treatment	Control	Diff (T-C)
ASHAs aware of correct frequency of feeding a child (%)	73.1	66.2	6.9
N	134	145	
ASHAs aware that growth monitoring is to be done once in a month (%)	64.9	72.5	-7.6
N	134	142	
ASHAs aware of at least three critical handwashing moments (%)	54.5	55.2	-0.7
N	134	145	
ASHAs aware that 1 lt water should be mixed with ORS packet (%)	90.1	89.5	0.5
N	151	153	
ASHAs aware that ORS solution should be consumed within 24 hrs (%)	96	97.4	-1.4

* These were only included in the endline questionnaire so cannot be compared to baseline.

According to the qualitative findings, eight out 26 ASHAs felt that the trainings improved their counselling skills.

"Yes, [I am] satisfied with the training and got to learn very useful things. If more training had been given I would have taken it. Yes, training has helped me improve my counselling skills. I have learnt how to give advice and what to talk to mothers. It was helpful in taking good care of mother and baby."

(ASHA in in-depth interview, Bihar)

TABLE 5 CONTINUED // ASHA KNOWLEDGE OF HBNC+ COMPONENTS

Indicator	Endline*		
	Treatment	Control	Diff (T-C)
N	151	153	
ASHAs with correct knowledge of age at which IFA should be started (%)	60.3	47.1	13.2
N	151	153	
ASHAs aware that IFA syrup to be given twice a week (%)	52.3	41.8	10.5
N	151	153	
ASHAs with correct knowledge of IFA doses given in a year (%)	6.0	0.0	6.0***
N	151	153	
ASHAs with correct knowledge of IFA dosage (1 ml) (%)	35.1	21.4	13.7
N	134	145	

Unweighted estimates reported. Cluster-adjusted Standard Errors (SE) are reported in parentheses.
Impact estimates use difference-in-difference modelling and control for a vector of ASHA characteristics, and state fixed effects.
*significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

2.3.2 Do the NIPI inputs lead to home visits by ASHAs according to HBNC+ protocol?

The evaluation finds a significant increase in the proportion of children receiving home visits and that these home visits were more closely aligned to HBNC+ protocol. However, absolute levels of coverage are still partial.

The project target was for at least 80 percent of children to receive at least one HBNC+ visit. At endline, it was found that 69 percent of children in the treatment areas aged 12-23 months had received at least one visit between the ages of three and twelve months and 39 percent received all four visits, as shown in the adjacent table. This matches closely to the figures reported by the implementing team in their 2015 Annual Report (NIPI, 2015)[13], where 66 percent of children were reported to have received at least one visit (from government Mother and Child Tracking System data) and 34 percent all four visits. These two data sources would have covered the same time period due to the retrospective nature of the evaluation survey. This triangulation gives confidence to the estimates, which suggest that the coverage targets were nearly achieved. It may be that, if the survey had been undertaken one year later, so that an additional year's implementation had been delivered, that the coverage figures would have increased and the target met.

There is a methodological and conceptual challenge that arises from the fact that, before the HBNC+ intervention, ASHAs already made some home visits to mothers during the HBNC+

13 2015 Annual Progress Report, NIPI Newborn Project.

period (i.e. between the age of 3-12 months). As outlined earlier, home visits by ASHAs were already mandated by the National Health Mission. Over 40 percent of mothers reported receiving a home visit in the HBNC+ period in both treatment and control areas at baseline. This can be triangulated against the HBNC+ Rapid Assessment of 2015 (Sambodhi Research and Communications, 2015)[14] which found that 32 percent of infants in control areas in Rajasthan received at least one home visit in the HBNC+ period. The additive value of the HBNC+ intervention in terms of increasing the number of home visits (coverage) and changing the content of the home visits in line with HBNC+ protocol are addressed in turn.

TABLE 6 // DIFF-IN-DIFF IMPACT OF THE PROGRAMME ON HBNC+ COVERAGE

Indicator	Treatment			Control			Impact estimate (S.E.)
	BL	EL	Diff (BL-EL)	BL	EL	Diff (BL-EL)	
Visits during the HBNC+ period among children 12-23 months of age:							
Ever received a visit (%)	44.1	68.7	24.6***	42.3	54.9	12.6***	10.48*** (3.82)
Mean number of visits	1.6	2.6	1	1.4	1.8	0.5	0.54*** (0.18)
Received the full schedule of visits (%)	**18.8**	**39.1**	**20.4*****	**15.5**	**25.5**	**10*****	**9.41*** (3.35)**
N	953	1055		981	1100		
Mean number of visits conditional on being visited	3.5	3.8	0.3	3.3	3.3	0.1	0.21 (0.24)
N	420	725		415	604		

Unweighted estimates reported. Cluster-adjusted Standard Errors (SE) are reported in parentheses.
Impact estimates use difference-in-difference modelling and control for a vector of child, mother and household characteristics, and state fixed effects.
*significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

14 *Rapid assessment of NIPI's Home Based Newborn Care Plus (HBNC+) in Rajasthan,* Sambodhi Research and Communications (2015).

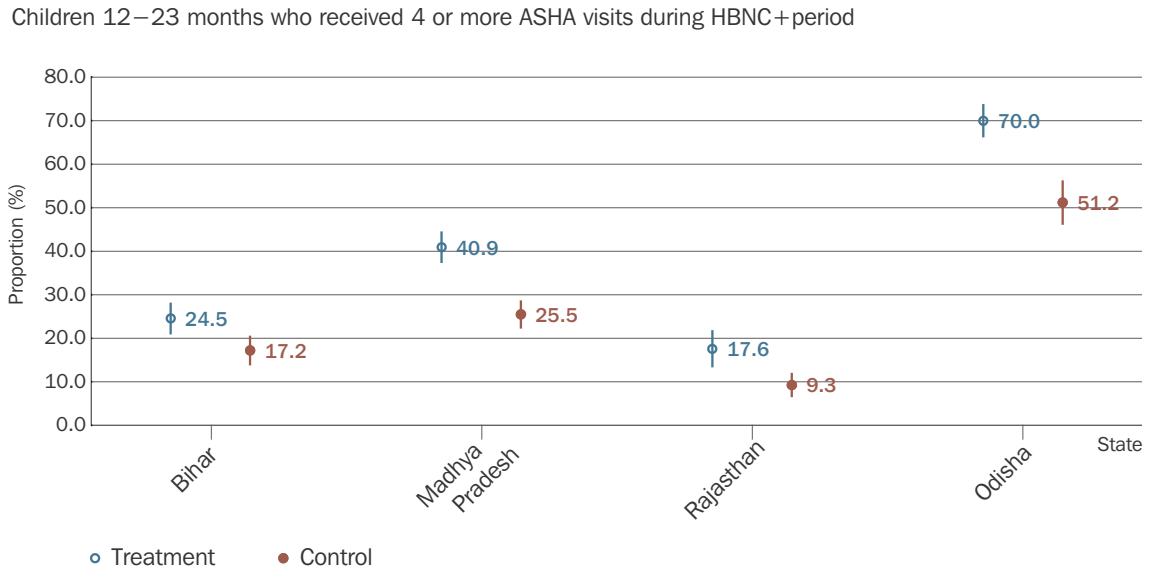
2.3.2.1 Coverage

The programme saw an increased proportion of households receiving home visits[15]. There was a significant increase in the proportion of children who received at least one visit in the treatment areas from 44 percent to 69 percent; and a significant increase in the proportion of children who received the full set of visits[16] (from 19 percent to 39 percent).

However, coverage is still partial. Nearly 32 percent of children did not receive any HBNC+ home visit in the treatment areas and 61% did not receive the full schedule of visits. As shown on the figure below, coverage varied across States from 18 percent of children receiving the full set of visits in Rajasthan to 70 percent in Odisha. A process evaluation would be required to understand the causes of this variation.

As shown in the adjacent table, the proportion of children receiving the four different age-specific visits (at 3, 6, 9 and 12 months) were similar so there was no particular age specific visit that was the main driver of children not receiving the full set of visits.

FIGURE 1 // STATE-WIDE COVERAGE OF HBNC+ VISITS



Base population: Children 12–23 months.
Total number of observations (N): 2,155. Bars represent 95% confidence interval.
Graphs only produced at endline.

15 The HBNC+ period is defined as the period between 3-12 months of children's age. In the survey, this is captured as the difference between visits between 0-12 months of age and visits between 0-6 weeks of age (the HBNC period).

16 A child is said to have received the full schedule of HBNC+ visits if he or she received four or more visits during the HBNC+ period.

TABLE 7 // AGE-SPECIFIC HOME VISITS AT ENDLINE

Indicator	Endline		
	T	C	T-C
Children 3-23 months of age who received a visit at 3 months (%)	58.9	49.8	9.1***
N	1978	2050	
Children 6-23 months of age who received a visit at 6 months (%)	55.8	45.4	10.4***
N	1650	1707	
Children 9-23 months of age who received a visit at 9 months (%)	56.5	45.2	11.3***
N	1372	1426	
Children 12-23 months of age who received a visit at 12 months (%)	55.5	42.5	13.0***
N	1067	1107	

Notes: *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Unweighted estimates.
'N' refers to the number of observations.
Source: NIPI-II Endline Survey. Additional questions at endline.

Issues with programme incentives were found to be a contributor to partial coverage. 28 percent of ASHAs reported receiving no HBNC+ incentives. The qualitative data suggests that low incentives, and a lack of understanding of incentives, affected motivation and coverage. For three out of 26 ASHAs interviewed, low incentives reportedly affected their motivation to conduct home visits. As an ASHA in an in-depth interview from Bihar says, *"Yes, it affects. We have to make home visits and we visit all homes and then we don't get incentives. We should get it so that we feel good about our work."* Another ASHA from Bihar in an in-depth interview also says, *"Yes, it affects. If we will get good incentive then only we would be happy in doing our work otherwise I don't feel like working..."*

Compared to incentives that ASHAs receive from other programmes such as institutional delivery and immunization, most of the ASHAs felt that under HBNC+ they receive low incentives and they were not satisfied with it. As an ASHA from Madhya Pradesh in an in-depth interview says, *"No, I am not satisfied with the incentives, it is very less as compared to my workload."* Some ASHAs say that they have expenses such as travel expenses and mobile phone expenses which are not reimbursed, *"...we have to bear our mobile expenses and conveyance."* (ASHA in an in-depth interview, Madhya Pradesh). They also say that they do not receive incentives on time in their bank account.

The qualitative findings show that most of the ASHAs are not clear about the amount of incentive that they should receive. Initially ASHAs were given Rs 500 but later during the programme, the incentives were reduced to Rs 250. Most of them believe that they should receive Rs 500 despite the reduction in the incentive amount. According to an ASHA from Bihar in an in-depth interview, "After completing four follow up visits we get the form ready and submit it. I am eligible for incentives. We face a lot of challenge. We don't understand for which service we are getting the incentives."

There is no evidence of systematic exclusion based on caste or wealth in treatment areas at endline. The evaluation also tests the possibility of differences in coverage based on birth order, given that traditionally mothers go to their natal home for the first birth and, consequently, slip through the ASHA service delivery net. No such

differential coverage between first-borns and later-borns is seen. The sub-group analysis is presented in Annex A5. Qualitative research on exclusion suggests more complex inter-group dynamics at play. According to a few mothers in a focus group discussion in Bihar, the ASHA does not visit all the communities equally and visits certain communities only when asked.

"ASHA doesn't visit all communities – she visits the Ravidas community the least and only visits when someone asks for help. She visits the Scheduled Caste community lesser than other communities."

(Mother in a focus group discussion, Bihar)

An evaluation limitation arises from the fact that children in control areas also saw an increase in home visits during the HBNC+ period, i.e. 3-12 months of age. The control areas saw approximately half the increase in the proportion of children receiving at least one visit, and receiving the full schedule of visits, than the treatment areas.

The evaluation explores a potential source of programme contamination. HBNC+ was, in theory, scaled up to cover low birth weight (LBW) children in control areas. However, there is no statistically significant difference in coverage between LBW children (28 percent) and non-LBW children (27 percent) at endline in control areas, so this does not seem a plausible explanation. Therefore, the evaluation is inconclusive on whether the upward shift in control areas is a result of contamination of HBNC+ or due to other reasons, such as a general strengthening of National Health Mission implementation.

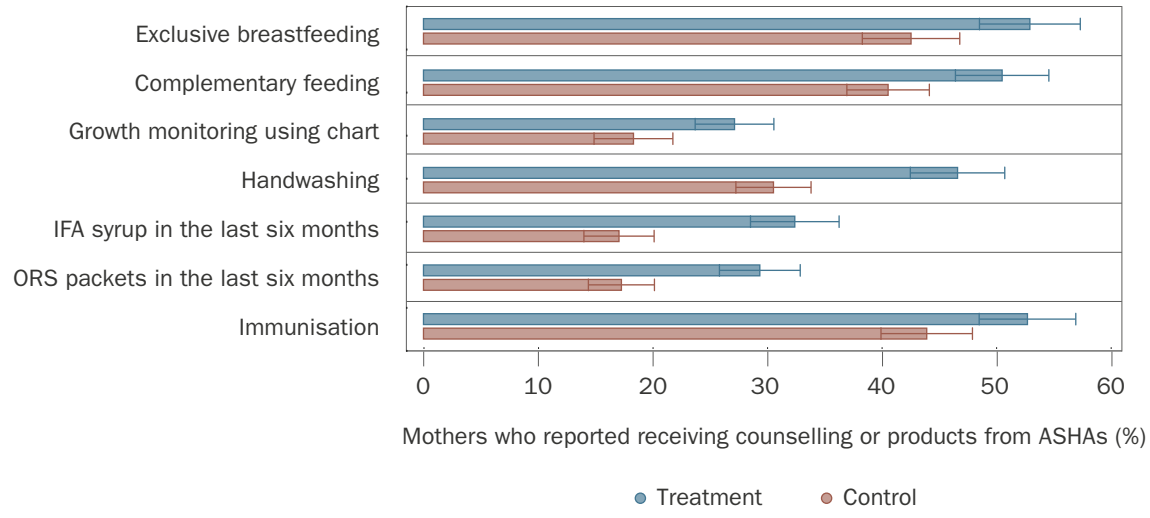
The increase in coverage is substantially higher in treatment areas than control areas. This is showed by the Diff-in-Diff calculations for the proportion of these children who ever received a home visit during the HBNC+ period, who received the full schedule of visits, and the mean number of visits received is statistically significant and positive. Furthermore, the additional home visits in the control areas are not HBNC+ visits.

This means that there is still a significant difference in the increase in effective programme coverage in the treatment areas compared to the increase in the control areas, and the Diff-in-Diff evaluation model remains valid. However, estimates of impact are likely to be underestimated and this remains an evaluation limitation.

2.3.2.2 Content

The home visits in the treatment areas were substantially more likely to adhere to HBNC+ protocol than the home visits in the control areas. As shown in figure 2, a significantly higher proportion of mothers in treatment areas reported receiving counselling on each HBNC+ component, and received supplies, during home visits in the treatment areas than in the control areas. However, even in the treatment areas, the absolute levels of growth monitoring and distribution of oral rehydration solution (ORS) and iron and folic acid (IFA) were below one third. The inclusion of early childhood care and development (ECCD) counselling during home visits was not captured in the questionnaire.

FIGURE 2 // CONTENT OF HOME VISITS AT ENDLINE



Base population: Children 12–23 months of age.
Treatment N = 950, Control N = 949.
Source: NIPI–II Endline survey.
95% confidence intervals plotted.

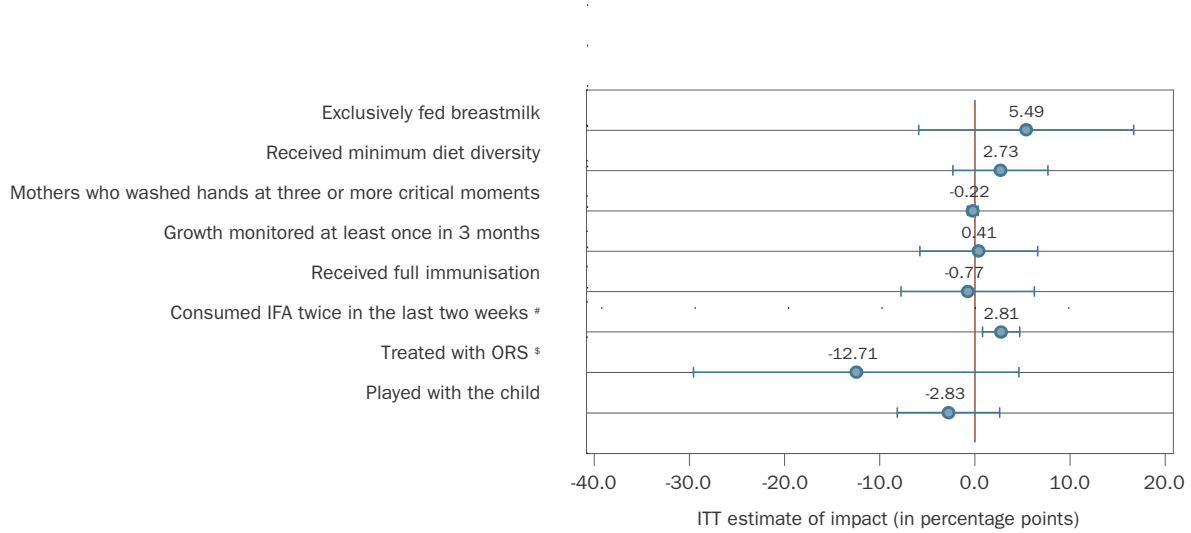
2.3.3 Do the home visits lead to improved behavioural practices and service uptake?

The evaluation finds no significant effect on the average levels of key outcomes that is attributable to the intervention. However, additional regression analysis suggests that receiving the full set of visits is correlated with improvements in some of the outcomes.

The core evaluation model (using the intention to treat (ITT) estimator) tests the effectiveness of the programme on average levels of outcomes in the treatment areas. Using this method, ***the impact of the programme on the key outcomes is not evident.*** As seen in figure 3, the ITT impact estimates cannot be distinguished from zero for most of the headline indicators. Although there is a statistically significant impact on iron and folic acid (IFA) consumption using a pre-post estimator, it is not possible to robustly attribute it to the programme due to the lack of a counterfactual for this component.

As outlined in the section above, it is likely that these estimates are underestimates due to the increase in general home visits observed in control areas leading to some contamination.

FIGURE 3 // IMPACT OF THE PROGRAMME ON KEY HBNC+ OUTCOMES



Source: NIPI–II baseline and endline surveys.
Note: Point estimates correspond to DID estimates with controls and cluster robust S.E. except for # and $
#: Ex–post single difference estimates with cluster robust S.E
$: Pre–post single difference estimates with cluster robust S.E
95% confidence intervals plotted.

The Rapid Assessment of HBNC+ (Sambodhi Research and Communications, 2015)[17] in Rajasthan found negligible or no differences in outcome levels between treatment and matched control areas in rates of exclusive breastfeeding, complementary feeding, immunisation, and hand-washing. It also found a statistically significant effect on iron and folic acid (IFA) consumption. These results successfully triangulate with the impact evaluation findings above and give confidence in the robustness of the findings.

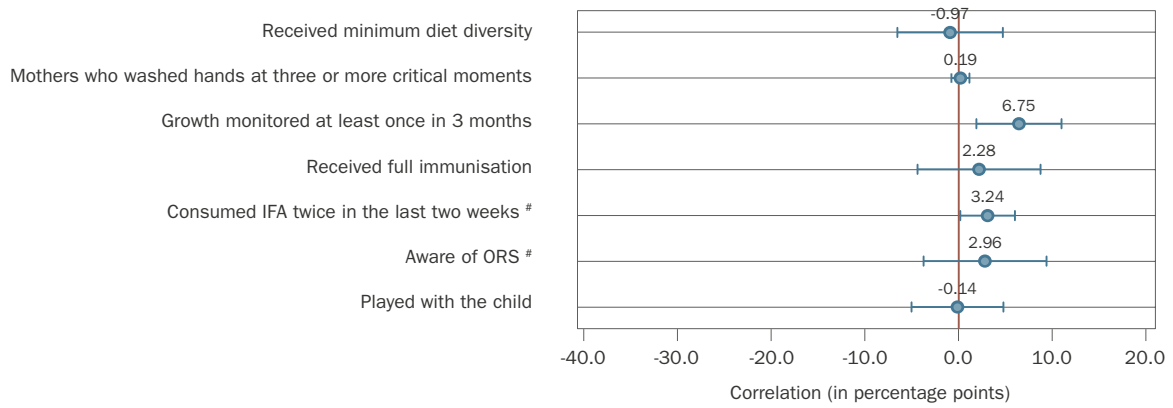
The evaluation is not able to calculate the average effect of the programme on only those who actually received the visits. It is not possible, therefore, to robustly test whether the lack of demonstrated effectiveness is due to low underlying efficacy (i.e. the intervention does not impact on those who receive it) or low effective coverage (the intervention has an impact on those who receive it but not enough people received it to detect changes at the population level).

Regression analysis is used to test whether there is a correlation between receiving HBNC+ visits and higher levels of outcomes in the treatment areas at endline. This is not a robust evaluation strategy because it cannot attribute higher outcomes to the intervention, but it provides some insight into the determinants of the lack of measured effectiveness.

17 *Rapid assessment of NIPI's Home Based Newborn Care Plus (HBNC+) in Rajasthan,* Sambodhi Research and Communications (2015).

In figure 4 each estimate in the figure corresponds to a separate regression run for each key outcome and refers to the coefficient on a dummy variable which takes on the value of one if the household has received the full schedule of visits, which is the main explanatory variable predicting variation in these outcomes. The error bars display the 95% confidence interval of the coefficient estimate. For example, if the child received the full schedule of four ASHA visits, then the child is 7 percentage points more likely to have their growth monitored compared to children residing in households that did not receive the full schedule of visits. The model controlled for a suite of explanatory variables. Annex A6 presents the full regression results. Choice of other controls used was theory-based and included mother, child, household characteristics, and contextual factors including state fixed effects as well as PSU (village) characteristics such as distance to primary health centre (PHC).

FIGURE 4 // CORRELATION BETWEEN RECEIVING THE FULL SCHEDULE OF HOME VISITS AND OUTCOMES *



Source: NIPI–II Endline Survey 2017.
Note: Point estimates correspond to the regression coeffcient on home visits
Base population: Children 12–23 months of age.
Standard errors clustered at the PSU level
#: Endline data only.
95% confidence intervals plotted.

* The figure uses awareness of ORS rather than use of ORS as an outcome indicator as the proportion of children with diarrhoea in the sample is too small to generate significant results. EBF is not reported as the sample does not cover children of the appropriate age range.

The results show that the full schedule of visits is positively associated with growth monitoring and iron and folic acid (IFA) supplementation at the five percent significance level. There is no significant relationship observed between home visits and other outcomes.

Beneficiaries and ASHAs cited practical challenges as a reason for not adhering to promoted behaviours. For example, some mothers could not exclusively breastfeed because they could not produce milk, or because they were not the sole caregiver. As an ASHA from Rajasthan in an in-depth interview stated,

"Some mothers do follow but not completely. Sometime when they go to field then their mother-in-law gives water and other things to the child."

Other constraints included the reliance on other health providers (for example, growth monitoring is undertaken by Anganwadi Workers not ASHAs) and a lack of supplies. Nearly half of ASHAs in treatment areas reported having no stock of iron and folic acid (IFA) syrup at endline (see Table 40 in Annex A8) and a quarter reported having no stock of oral rehydration solution (ORS) at endline (see Table 41 in the Annex).

2.3.4 Do the home visits lead to reduced incidence of pneumonia, other acute respiratory infections and diarrhoea?

The evaluation did not seek to attribute changes in disease morbidity to the intervention, as outlined in Section 2.2.1. Estimates are presented for context only.

There are no detected differences in trends of the prevalence of diarrhoea among children 3-23 months of age in treatment and control areas, as shown in table 8. The baseline and endline indicators for pneumonia are not directly comparable. At baseline, households were directly asked if their child suffered from pneumonia. However, the households' ability to distinguish pneumonia from other forms of fever is expected to be low, and therefore, the endline survey was modified to only capture 'suspected pneumonia' in line with the Demographic and Health Surveys (DHS). Suspected pneumonia is defined as illness with cough and difficulty breathing (Hazir, et al., 2013). Regardless, pneumonia indicators derived from non-clinical population data are usually found to be less reliable. There is no significant difference between treatment and control areas at baseline or endline, notwithstanding these challenges.

TABLE 8 // DIFFERENCES IN TRENDS OF DIARRHOEA AND PNEUMONIA PREVALENCE

Indicator	Treatment			Control			Impact estimate (S.E.)
	BL	EL	Diff (BL-EL)	BL	EL	Diff (BL-EL)	
Child suffered from diarrhoea in last 2 weeks (%)	3.3	5.3	2.0***	2.1	4.6	2.4***	-0.53 (0.92)
N	1948	1982		1987	2063		
Child suffered from pneumonia in the last 2 weeks (%) – Baseline	7.1	N.A.	N.A.	8.2	N.A.	N.A.	N.A.
N	1948	N.A.	N.A.	1987	N.A.	N.A.	N.A.
Child suffered from suspected pneumonia in the last two weeks (%) – Endline	N.A.	5.5	N.A.	N.A.	6.4	N.A.	N.A.
N	N.A.	1984	N.A.	N.A.	2063	N.A.	N.A.

Unweighted estimates reported. Cluster-adjusted Standard Errors (SE) are reported in parentheses.
Impact estimates use difference-in-difference modelling and control for a vector of child, mother and household characteristics, and state fixed effects.
*significant at 10%; ** significant at 5%; *** significant at 1%.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

2.4 CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question	Conclusion	Recommendation
1. Do the NIPI inputs lead to changes in the knowledge of ASHAs?	Almost all ASHAs in the treatment areas report receiving HBNC+ training and this led to high levels of knowledge of the HBNC+ protocol (defined as knowing the timing and number of visits to be made). However, the training seems to be less effective at improving thematic knowledge related to intervention components.	If HBNC+ is scaled, the content and the modalities of the training should be revised to ensure ASHAs have the thematic knowledge required on the HBNC+ components.
2. Do the NIPI inputs lead to home visits by ASHAs according to HBNC+ protocol?	The evaluation shows a significant increase in the number of mothers receiving home visits and that these home visits became more closely aligned to the HBNC+ protocol with more mothers reporting receipt of counselling on HBNC+ topics. However, absolute levels of coverage remain low, with only 39% of women reporting receipt of the full number of HBNC+ visits.	Operational research should be undertaken to find ways of delivering higher effective coverage of HBNC+ through government systems.
3. Do the home visits lead to improved outcomes (behavioural practices, use of products and service uptake)?	There is no detectable effect of HBNC+ on average levels of outcomes. The effect sizes are likely to be underestimated due to an increase in home visits in control areas. The lack of detected impact could be due to low effective coverage or low underlying efficacy of the intervention, which the evaluation is unable to formally test. Additional correlation analysis shows that receiving the full set of visits is positively and significantly associated with effects on growth monitoring and IFA supplementation but not other outcomes.	The evaluation is not able to detect sufficient impact to recommend the scaling of HBNC+. It is recommended that the pilot continues with implementation measures applied to increase effective coverage. A further evaluation round could formally test whether the intervention can deliver impact at higher levels of effective coverage, after which scaling decisions could be made.
4. Do the home visits lead to reduced incidence of pneumonia, other acute respiratory infections and diarrhoea?	There are no significant differences between treatment and control areas for morbidity indicators (prevalence of diarrhoea and pneumonia) but the evaluation is not powered to attribute changes to the intervention.	N/A

3. Intervention: Revitalise and Scale-up Postpartum Family Planning Services

3.1 INTERVENTION DESIGN AND EVIDENCE BASE

Globally, family planning is recognized as a key life-saving intervention for mothers and their children (WHO, 2012)[18]. Postpartum family planning (PPFP), focused on the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth, is acknowledged as especially important as postpartum women are amongst those with the greatest unmet need for family planning, and closely spaced pregnancies are drivers of maternal and child mortality and low birth weight babies (WHO, 2013)[19].

Programmatic frameworks suggest a holistic approach to PPFP that includes counselling during antenatal care at the community level and in facilities during birth, strengthening linkages between community counselling and service delivery points, ensuring high quality service availability, and integrating family planning issues into postnatal community care. There are examples of successful holistic approaches, with a combination of system, facility and community interventions doubling postpartum contraceptive prevalence in a pilot in Bangladesh (Ahmed, et al., 2013)[20]. A similar effect size was seen in a pilot in India where community based counselling increased the modern contraceptive prevalence rate at 9 months postpartum from 30 percent to 57 percent (Sebastian, Khan, Kumari, & Idnani, 2012)[21].

The insertion of a copper-bearing intra uterine contraceptive device (IUCD) immediately or up to 48 hours of birth, or any time after four weeks postpartum, is a particularly long lasting, effective and reversible method that can be promoted to increase PPFP (Grimes, et al., 2010)[22]. Interventions to make this available have demonstrated significant effects; a randomized cohort study in Peru showed that making IUCD available pre-discharge increased contraceptive use at 40 days (45 percent versus 26 percent) and at six months (82 percent versus 69 percent) (Foreit, et al., 1993)[23].

This intervention aims to revitalise and strengthen PPFP services, especially the scaling up of PPIUCD. It is predominantly a supply side intervention delivered at the facility level, with a complementary demand-side intervention at the community level. It has included the following elements (NIPI, NIPI Compendium of Innovations, 2016) (NIPI, 2013)[24,25]:

18 *Family planning: a health and development issue, a key intervention for the survival of women and children,* World Health Organisation, 2012.

19 *Programming strategies for postpartum family planning,* World Health Organisation, 2013.

20 Salahuddin, et al. (2012) *'Operations research to address unmet need for contraception in the postpartum period in Sylhet District, Bangladesh',* Submitted for publication, (http://apps.who.int/trialsearch/trial.aspxtrialid=NCT01702402).

21 Sebastian, et al. (2012) 'Increasing postpartum contraception in rural India: evaluation of a community-based behaviour change communication intervention', *International Perspectives on Sexual and Reproductive Health, (Volume 38, Issue 2),* pp. 68–77.

22 Grimes, et al, (2010) 'Immediate postpartum insertion of intrauterine devices', *Cochrane Database Systematic Review, (Volume, Issue 5).*

23 Foreit, et al. (1993) 'Effectiveness and cost-effectiveness of postpartum IUD insertion in Lima, Peru. *International Family Planning Perspectives, (Volume 19, Issue 1),* pp. 19–24, 33.

24 NIPI Compendium of Innovations, Norway India Partnership Initiative (http://www.nipi.org.in/wp-content/uploads/2016/08/39.pdf).

25 *Norway India Partnership Initiative Phase – II Program Document,* Norway India Partnership Initiative, 2013 (http://www.nipi.org.in/wp-content/uploads/2016/08/33.pdf).

- Developing 11 District level PPFP/PPIUD training sites, which have trained around 1200 providers
- Supporting the government to introduce PPFP/PPIUCD services in district and sub-district facilities
- Supporting the government in generating awareness and creating demand for PPFP services through community and facility based health workers
- Providing state level strategic and catalytic support for scaling beyond the NIPI focus districts

3.2 EVALUATION QUESTIONS AND METHODOLOGY

The evaluation reaches down to the outcome level of the results chain (Figure 14, annex B) by measuring coverage of postpartum family planning (PPFP) uptake at the population level. More detailed evaluation questions are:

1. Does the support provided to facilities increase the service availability and readiness of postpartum family planning (PPFP) services, particularly IUCDs inserted postpartum (PPIUCD)?
2. Does the training of providers in facilities increase their knowledge of postpartum family planning (PPFP) methods?
3. Does the training of ASHAs increase their knowledge of postpartum family planning (PPFP) messages?
4. Does the training of ASHAs lead to increased coverage of postpartum family planning (PPFP) counselling of women?
5. Does increased postpartum family planning (PPFP) counselling of women lead to improvement in knowledge of women on PPFP?
6. Does the intervention lead to increase in uptake of postpartum family planning (PPFP) services particularly IUCDs inserted postpartum (PPIUCD)? Does this translate into reduced unmet need in the postpartum period and changes in impact level indicators?

The first two evaluation questions at the facility level are answered through SARAs (Service Availability and Readiness Assessments) of health facilities and knowledge tests of health providers.

As there is no baseline for this information, the evaluation does not seek to measure the changes in knowledge and service availability and readiness over time. Instead, levels are established. It is therefore an ***adequacy study.*** Information about any changes and contribution of NIPI to these changes is through qualitative framework analysis to build a contribution story. The analysis was conducted through in-depth interviews with a facility manager per facility.

The SARA and qualitative tools were administered to one District Hospital and one Sub-District Hospital (SDH)/First Referral Unit (FRU) in each of the four states covered by the study. SDH/FRUs were chosen at random from these districts. The knowledge tests of providers on PPFP were administered to two providers per facility, selected at random.

Evaluation questions 3-6 at the ASHA and population level (on receipt of counselling, knowledge and attitudes and service uptake) are evaluated using a ***mixed methods approach.***

The quantitative assessment seeks to investigate and report differences in key indicators of the programme over time. The results presented here utilize data collected from surveys of households (mothers of children aged below two years within these households) and ASHA workers. For the analysis of PPFP/PPIUCD impact, a Diff-in-Diff estimation is not conducted as originally planned because the intervention has been taken to scale beyond treatment districts, into control districts. This has meant that the counterfactual approach essential to Diff-in-Diff estimations can no longer be applied. To account for this, the intervention has been evaluated using a ***pre-post treatment-only*** approach using a cross-section of households in the 13 treatment districts. Differences between pre-treatment and post-treatment estimates are validated by conducting an adjusted chi-square test and weighted bivariate regressions (the methodology for constructing sampling weights is described in Annex B4. Annex A-I are published in a separate document at norad.no/evaluation). This approach can assess changes in key indicators over time but cannot attribute specific changes to NIPI programming given the absence of a control group.

Data for this evaluation study was collected in 2017; two years after the intervention had come to an end. The implementation was completed in June 2015. There is a possibility that the lag between program delivery and data collection for this study may have caused recall bias to affect the analysis estimates. As a robustness check, sub-group analyses was run on women based on whether their child was younger or older than one year, to ascertain whether the two groups exhibit different knowledge or uptake of family planning methods. The analysis showed that there were no differences (except when calculating the contraceptive prevalence rate). In addition to the pre-post analysis, we also present a ***set of correlation analyses*** to report on the robustness of relationships between key inputs of the program and the intended outputs and outcomes. Without being attributional, the analyses can still elucidate the broad relationships that are central to NIPI's PPFP programming.

The sampling design and data collection strategy for this intervention is the same as explained in the HBNC+ section of this report. Table 42 in the Annex summarizes the district-wise sample sizes of the 13 treatment districts at both baseline and endline.

Qualitative data was elicited using three tools: Focus Group Discussions (FGDs), In-Depth interviews (IDIs) and direct observations. 26 FGDs were held with mothers who had children younger than two years of age and 26 in-depth interviews were conducted with ASHAs, in the 13 treatment districts, with two focus group discussions and two in-depth interviews being conducted per district. A total of 170 women participated in the focus group discussions across the four states and the size of the focus groups ranged from 5 to 11 mothers. Direct observations with ASHAs were also used for gaining familiarity with the context and broader physical environment that has an influence on people's behaviour and checking whether reported behaviour corresponds to actual behaviour. It was intended to capture three observations of home visits for two ASHAs from each of the 13 treatment districts, with a total of 78 observations. 31 observations were dropped due to low data quality at the analysis stage. Note again, that unlike quantitative research which focuses on statistical representativeness, qualitative research does not address issues of standardisation and representativeness (Corbetta, 2003). Qualitative research in this evaluation aims to assist in explaining and interpreting the quantitative findings. It aims to develop explanations, and capture perceptions pertinent to the study (Ritchie & Lewis, 2003).

In summary, the limitations of the evaluation are:

- A lack of baseline data from facilities and facility providers, meaning that only levels can be assessed against targets;
- A lack of a counterfactual as the evaluation has become a pre-post specification due to expected contamination in the control areas;
- The survey is not powered to measure discontinuation rates and side effects of IUCDs inserted postpartum (PPIUCDs) due to low uptake at the population level;
- Enumeration errors at baseline limiting the sample of women to whom questions on receipt of counselling were asked.

3.3 KEY FINDINGS

3.3.1 Does the support provided to facilities increase the service availability and readiness of postpartum family planning (PPFP) services, particularly IUCDs inserted postpartum (PPIUCD)?

The evaluation finds that whilst the intervention has increased the availability of PPFP services, particularly PPIUCD, and has led to some improvement in service readiness, facilities systematically lacked the infrastructure and equipment to be able to provide these services at an acceptable quality.

All the facilities surveyed in the four states provide postpartum family planning (PPFP) counselling and PPIUCD services and all sub-district hospitals and district hospitals have a family planning corner. However, many facilities lacked the basic infrastructure and equipment mandated for PPIUCD insertion. In terms of basic facilities, most had 24*7 electricity (through supply or backup), water supply, and potable water; but were lacking in toilets in good condition and proper biomedical waste disposal systems, core infrastructural requirements according to the PPIUCD reference manual of the Government of India (Table 43 in the Annex B). PPIUCD insertion also requires a flat surface for placing instruments and a light source. While all surveyed facilities had a table in the labour room, a light source in labour room was missing from about a quarter of the facilities, at both the district hospital and sub-district hospital level. Only one fifth of the facilities had all necessary equipment required to provide PPIUCD services. Half of facilities missed complete PPIUCD trays and antiseptic solution.

Despite this, key informants during in-depth interviews (IDIs) stated that the programme had been successful at improving the hygienic conditions of the facility, the supply of IUCDs, and record keeping. At the district hospital level (except for Bihar), and at the Sub-District Hospitals level (except for Madhya Pradesh), facility providers credited the programme for an improvement in hygiene. The in-depth interviews indicated that the programme has had influence on the supply of IUCDs. One key informant at a district hospital in Rajasthan noted, *"Supply of Copper-T is now more consistent and now comes in two varieties. New stock arrives on demand."* The district hospital and sub-district hospitals indicate a strong contribution made by the programme towards maintenance of records with Bihar being the only exception. Many key informants described limited staffing as a barrier to better record keeping.

The programme only intervened at the facility level and not at the broader health systems level. The findings suggest that the programme met with success at influencing what was in the control of the facility (what services were provided and within-facility processes such as record keeping and hygiene management). However, the provision of quality services would have needed improvements in infrastructure, supplies and equipment which are not fully within the control of the facility (i.e. they are reliant on broader supply chains).

The implication is that the programme would have needed to have intervened at the health systems level, not just at the point of service delivery, to be able to ensure quality service delivery. This is a lesson for a programme like NIPI that intervenes at the service delivery level but without a broader health systems strengthening focus.

3.2.2 Does the training of providers in facilities increase their knowledge of postpartum family planning (PPFP) methods?

Although the evaluation cannot test this directly due to the lack of a baseline, key informants attributed improvements in knowledge and counselling skills to the intervention. However, even at endline, knowledge levels were variable.

The in-depth interviews (IDIs) indicate that training of facility providers to impart proper counselling has led to an increase in knowledge of facility providers and improved their counselling skills. One key informant at a district hospital in Rajasthan stated that this had also improved their clinical skills: *"Now the ladies with IUCD insertions go to other ladies and tell them that the process is done properly in so and so hospital, as a result more ladies are going for family planning measures."*

Knowledge levels of providers were found to be variable at endline. From the knowledge tests administered, most providers had correct knowledge about the ideal spacing gap between two consecutive births, but one third were not aware of the ideal spacing gap after miscarriage or induced abortion. Only 15 percent of providers had correct knowledge about the return of fertility for women who are not exclusively breastfeeding after childbirth and only 35 percent of providers were aware that fertility can return immediately after IUCD removal. 75 percent of providers had knowledge of at least one correct method for postpartum contraception; 85 percent of providers knew the correct timing of IUCD (PPIUCD) insertion postpartum, and 60 percent of providers were aware of at least one common side effect.

Non-availability of staff for counselling is a significant barrier to counselling, limiting the effectiveness of the improved knowledge of facility staff. One key informant at a district hospital in Madhya Pradesh stated: *"The staff does not have so much time to give counselling. The counselling is to be done to the whole family at times. So this is the biggest barrier."*

3.3.3 Does the training of ASHAs increase their knowledge of postpartum family planning (PPFP) messages?

The evaluation found statistically significant increases in the knowledge of ASHAs, including on postpartum intrauterine contraceptive devices (PPIUCD).

There is an improvement in knowledge about postpartum family planning (PPFP) methods amongst ASHAs (see Table 9, next page). Condoms remain the most commonly known PPFP method, with 92 percent of ASHAs reporting knowledge of the method compared to 65 percent at baseline. Additionally, knowledge of IUCDs has improved quite significantly with 82 percent of ASHAs reporting knowledge of the method, compared to 59 percent at baseline. Knowledge of lactational amenorrhoea method (LAM) has increased from zero per cent to nine per cent.

While levels of method-mix knowledge are adequate, critical elements of knowledge regarding postpartum fertility range from low to moderate at best. This suggests that while ASHAs are able to recommend family planning options, they may be less effective in delivering family planning messaging regarding critical junctures in the postpartum period. For instance, only

nine per cent of ASHAs correctly reported that a woman can conceive 4 to 6 weeks after birth if not exclusively breastfeeding.

In-depth interviews (IDIs) with ASHAs show that 13 out of 26 ASHAs could elaborate on the training they received as part of the postpartum family planning (PPFP) program. One of the ASHAs from Madhya Pradesh recalled her PPFP training:

"Training took place in 2015 for three days. I don't know who gave the training; they came from outside and training was held in a school. NIPI was mentioned. They trained us about temporary and permanent methods. Yes, they asked us to recommend Copper-T mostly. They told us to recommend use of condoms to the newly-wed couple and to recommend Copper-T to the couples who have 1 or 2 children. Yes, they trained us how to talk to mothers regarding family planning. Yes, I speak to the mother and her husband."

In 11 of the 24 focus group discussions where mothers recalled that an ASHA had provided messages on family planning, Copper-T was mentioned as one of the methods described by ASHAs. One of the mothers in Madhya Pradesh stated,

"She [ASHA] advises us to get Copper-T inserted to keep gap between children. She advises us to maintain gap of 3 years and after 2 children she advises us for operation. She gives Mala N whenever we ask for."

TABLE 9 // ASHA KNOWLEDGE ON POSTPARTUM FAMILY PLANNING

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	SE
Knowledge of family planning methods that can be used within 6 months of delivery						
Female sterilisation/tubal ligation	39.7%	144	33.8%	151	-0.060	(0.07)
IUCD/Copper-T	59.4%	144	82.4%***	151	0.230***	(0.07)
Condom/Nirodh	65.2%	144	92.0%***	151	0.268***	(0.06)
LAM	0%	144	9.5%***	151	0.095***	(0.03)
ASHA knowledge on PPFP topics						
% ASHAs correctly reporting women can conceive 4 to 6 weeks after birth if not exclusively breast-feeding	NA	NA	9.4%	139		
% ASHAs correctly reporting Ideal gap between conception and miscarriage/induced abortion as 6 months	NA	NA	28.9%	151		
% ASHAs correctly reporting that a woman can conceive immediately after getting an IUCD removed	NA	NA	23.0%	151		

Note:
Weighted results reported. Standard Errors (SE) are reported in parentheses. Endline superscript refers to significance of adjusted chi-square test.
*significant at 10%; ** significant at 5%; *** significant at 1%.
NA signifies that estimates are not available for the indicator at baseline. The end line questionnaire collected more granular information compared to baseline. As a result, some indicators are only reported at end line and comparison estimates are unavailable for these.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

3.3.4 Does the training of ASHAs lead to increased coverage of postpartum family planning (PPFP) counselling of women?

Errors of enumeration at the baseline prevent direct comparisons between baseline and endline but figures for counselling coverage are significantly higher at endline, particularly on PPIUCD, which is consistent with the intervention theory of change. The figures for baseline and endline are reported in the adjacent table for context, but they cannot be compared directly.

Overall levels of family counselling[26] coverage remain moderate, with 47% of women in our sample reporting receiving any family counselling.

Just over half of women who received any counselling reported receiving messages on IUCD is general and insertion postpartum in particular (IUCD/PPIUCD). The quality of counselling appears a concern. 34 percent of women who received messages on IUCD/PPIUCD reported receiving counselling on at least one benefit of IUCD insertion after childbirth at a facility, and only 14 percent reported receiving counselling on at least one side effect. In the direct observations, one third of ASHAs did not discuss side-effects when discussing IUCD/PPICUD.

TABLE 10 // FAMILY PLANNING COUNSELLING

Indicator	Baseline		Endline	
	Mean	n	Mean	n
By anyone	30.4%	613	46.9%	2046
By a Yashoda/Mamta	6.1%	613	4.8%	2046
By a doctor	10.0%	613	9.9%	2046
By an ANM/Nurse	NA	NA	19.1%	2046
By a family planning counsellor	8.8%	613	1.6%	2046
By an ASHA	NA	NA	28.3%	2046
By anyone on Lactational amenorrhea (LAM)	13.3%	198	8.6%	1080
By anyone on IUCD	20.0%	198	55.5%	1080
PPIUCD Counselling				
% women who were counselled on at least one benefit of IUCD insertion after childbirth at a facility	33.2%	2011	33.9%	2056
% women counselled on at least one side-effect of IUCDs insertion at a facility	20.5%	2011	13.5%***	2056

Notes:
Weighted results reported. Standard Errors (SE) are reported in parentheses. Endline superscript refers to significance of adjusted chi-square test.
*significant at 10%; ** significant at 5%; *** significant at 1%.
NA signifies that estimates are not available for the indicator at baseline. The end line questionnaire collected more granular information compared to baseline. As a result, some indicators are only reported at end line and comparison estimates are unavailable for these.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

The findings reinforce the importance of ASHAs as crucial front-line vectors in disseminating FP/PPFP messages to the population. More than half of counselled women reported receiving family planning messages through ASHAs.

26 Note that the sample of women who were administered questions on family planning differ across baseline and endline (likely due to enumeration errors) resulting in the baseline sample (n=613) being much smaller, and likely systematically different from the endline sample. Consequently, indicators of family planning counselling should not be interpreted as direct comparisons of endline and baseline family planning counselling. Keeping this in mind, regression results for these indicators have not been reported.

Additionally, qualitative findings reveal that perceptions about counselling are largely positive amongst women, who indicate that they find discussions with ASHAs beneficial, not only because they are sources of information but also because they find it difficult to discuss family planning issues with members of their families. ***However, it is clear that coverage and quality issues remain after the intervention,*** even if the evaluation cannot accurately assess change from the baseline.

3.3.5 Does increased postpartum family planning (PPFP) counselling lead to improvement in knowledge of women on PPFP?
The evaluation finds statistically significant increases in the knowledge levels of women concerning the importance of birth spacing and the existence of IUCD/PPIUCD as a family planning method.

Basic knowledge of family planning methods amongst women, which was already near- universal, remains at similarly high levels at endline. The percentage of women reporting knowledge of at least one family planning method remains constant across baseline and endline at 98 percent. Moreover, knowledge of a variegated family planning method-mix is also very high across baseline and endline with 96% of women able to name at least three family planning methods.

Knowledge of IUCD/PPIUCDs registers a significant increase amongst women. 80 percent of women now report knowledge of IUCD/PPIUCD, compared to 75 percent at baseline.

Knowledge on birth spacing and related benefits have improved significantly amongst women with 91 percent of women correctly reporting an ideal birth-spacing of a minimum of two years, compared to 76 percent of women at baseline. Knowledge of specific birth spacing benefits has also improved. This is further substantiated with the qualitative data. In 14 out of the 26 focus group discussions, mothers spoke about birth spacing and its benefits. For example, one mother in a focus group discussion in Rajasthan said, *"Yes, family planning is needed because if we plan our second child two and a half to three years after first child, we can look after both the children well and the mother will also be healthy."*

The evaluation findings are in line with the theory of change that expected counselling at outreach and facility levels to translate into higher knowledge of mothers particularly on IUCD/PPIUCD and the importance of birth spacing. To support this conclusion, the supplementary correlation analysis described in Annex B6 suggests that family planning counselling is successful at improving knowledge of family planning methods, in line with the theory of change. Receipt of counselling is associated with a seven percentage points higher probability of knowing three or more family planning methods and a similar increase in knowledge of IUCD/PPIUCD.

However, knowledge of women on postpartum fertility-related topics is low to moderate, mirroring low levels of knowledge amongst ASHAs. Only four percent of women correctly report that fertility can return four to six weeks after childbirth if the woman is not exclusively breastfeeding. This number is also low for ASHAs (nine percent), suggesting that while knowledge of family planning methods is universally high, ***there is still a gap in counselling women on when family planning methods need to be used in order to be effective.*** A higher percentage of women (69%) correctly report a minimum six months ideal gap between conception and a miscarriage/induced abortion.

TABLE 11 // KNOWLEDGE ON FAMILY PLANNING/POSTPARTUM FAMILY PLANNING (PPFP) TOPICS AMONGST WOMEN

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	SE
Knowledge of family planning methods (%)						
Any family planning method	98.3%	2340	98.2%	2326	0.004	(0.01)
At least 3 family planning methods	96.1%	2340	96.0%	2326	0.003	(0.01)
Female sterilisation	96.1%	2340	96.0%	2326	0.003	(0.01)
IUCD/PPIUCD	74.8%	2340	79.5%**	2326	0.051**	(0.03)
Condoms	75.2%	2340	80.5%***	2326	0.057***	(0.02)
Knowledge of women on family planning						
Woman knows fertility can return 4-6 weeks after childbirth [WRA]	NA	NA	4.1%	2326	NA	NA
Woman knows there should be at least 6 months spacing after abort/misc. [WRA]	58.2%	2340	69.0%***	2326	0.112***	(0.02)
Women who know ideal gap of 2 years between two births (%)	76.7%	2340	90.8%***	2326	0.146***	(0.02)
Knowledge of Birth Spacing Benefits						
Woman knows at least one birth spacing benefit	67.7%	2340	87.8%***	2326	0.018***	(0.00)

Notes:
Weighted results reported. Standard Errors (SE) are reported in parentheses. Endline superscript refers to significance of adjusted chi-square test.
*significant at 10%; ** significant at 5%; *** significant at 1%.
NA signifies that estimates are not available for the indicator at baseline. The end line questionnaire collected more granular information compared to baseline. As a result, some indicators are only reported at end line and comparison estimates are unavailable for these.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

3.3.6 Does the intervention lead to increase in uptake of postpartum family planning (PPFP) services particularly PPIUCD? Does this translate into reduced unmet need and changes in impact level indicators?

The evaluation finds statistically significant increases in the overall postpartum contraceptive prevalence rate, the use of PPIUCD and postpartum unmet need in line with the intervention theory of change. The lack of a counterfactual limits the extent to which these effects can be attributed to the intervention.

The uptake of family planning methods – particularly IUCD/PPIUCDs – has improved significantly. Post-partum contraceptive prevalence has improved with 23 percent of couples who have had a baby in the last one year now reporting using any family planning method compared to 15 percent at baseline. IUCD uptake (including IUCDs inserted postpartum (PPIUCDs)) has also increased considerably – from half a per cent of the sample to two per cent. Increases in levels of uptake are accompanied by a shift in the family planning method-mix towards IUCDs/PPIUCDs which now account for eight per cent of the method-mix, compared to three per cent at baseline. 82 percent of the IUCD insertions recorded were in the postpartum period, confirming that the increase in IUCD uptake reflects an increase in PPIUCD uptake.

In-depth interviews (IDIs) conducted with facility providers similarly suggest an increase in uptake of PPIUCDs due to counselling of women and a simultaneous improvement in the availability of supplies at facilities. The facility providers suggested that the programme's approach to begin counselling during pregnancy and not until after childbirth was particularly beneficial. An earlier introduction to family planning methods enabled women to make informed decisions about PPIUCD and reduced their dependence on other members of the family to adopt PPIUCD.

The supplementary correlation analysis reported in Table 48 in the Annex shows that the receipt of counselling is associated with a 17 percentage points increase in the probability of currently using a family planning method. This provides more confidence that the intervention mechanisms are driving the changes in outcomes.

TABLE 12 // CURRENT USE & UNMET NEED OF FAMILY PLANNING FOR MOTHERS OF CHILDREN UNDER ONE YEAR OF AGE

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	SE
Women/their husbands who currently use any family planning methods (%)	14.9%	1302	22.5%***	1252	0.078***	(0.02)
Currently using female sterilisation (%)	6.6%	1302	11.3%***	1252	0.047***	(0.01)
Currently using IUCD/PPIUCD (%)	0.5%	1302	1.7%**	1252	0.012**	(0.01)
Unmet need for family planning^ (%)						
Unmet need for spacing	39.9%	1297	24.3%***	1247	-0.157***	(0.03)
Unmet need for limiting	35.4%	1297	11.9%***	1247	-0.235***	(0.03)
Unmet need (total)	75.4%	1297	36.2%***	1247	-0.392***	(0.03)

Notes:
Weighted results reported. Standard Errors (SE) are reported in parentheses. Endline superscript refers to significance of adjusted chi-square test.
*significant at 10%; ** significant at 5%; *** significant at 1%.
NA signifies that estimates are not available for the indicator at baseline. The end line questionnaire collected more granular information compared to baseline. As a result, some indicators are only reported at end line and comparison estimates are unavailable for these.
^ Calculated as a percentage of currently married women who didn't want their most recent pregnancy but are not using any family planning methods currently.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

Unmet need for family planning amongst currently married women in the postpartum period has decreased with unmet need for both spacing (temporary) and limiting methods registering significant declines. The overall level of unmet need in the postpartum period has declined from 75 percent to 36 percent with unmet need for limiting decreasing by 23 percentage points and for spacing by 16 percentage points.

Despite significant declines in unmet need, 36 percent of currently married women still exhibit an unmet need for family planning in the postpartum period, which indicates that there is still significant space to improve uptake of family planning methods. The construction of the unmet need indicator is described in greater detail in Annex B5.

2 of 26 in-depth interviews (IDIs) with ASHAs and 14 out of 26 focus group discussions (FGDs) with mothers reveal that resistance from family members continues to be a barrier towards the uptake of PPIUCD. Other barriers that women mentioned were: pressure from in-laws for more children/male child, women's preference for male children, and aversions to/misconceptions regarding IUCDs.

A mother from Odisha stated during a focus group discussion, *"Sometimes we face problem in doing so if someone has 2 girl children. Usually they are pressurized by mother-in-law or some people in society to have a male child. According to them a boy child is needed for the growth of our clan."* According to another woman, her in-laws also worry about the untimely mortality of the children and encourage them to have more children. A mother in a focus group discussion in Rajasthan stated, *"Yes, sometimes they say that if someday something will happen to the child what will you and when there are only daughters in the family they do not go for operation as they want son. My mother in law said that she won't allow me to have operation as I have 2 daughters. She says one boy child is necessary. They say one child is not a child. You should have more."*

In two of the focus group discussions mothers also stated that women get IUCDs inserted secretly. *"They go with ASHA and get Copper-T inserted secretly."* (Mother in an focus group discussion, Rajasthan). An ASHA in Madhya Pradesh in an in-depth interview elaborated,*"Yes, women in my village have got IUCD inserted after child birth. In the last three-four years, there has been a lot of change. Copper-T is inserted in the women secretively. In 2016, all those who had delivered had gone for Copper-T. Yes for 2-3 months their periods are disturbed but it becomes normal after some time. Nurses usually insert Copper-T immediately after delivery and then I explain woman that it will not create any problem and if they want to remove it then it can be removed anytime."*

15 out of 26 focus group discussions show that some women have misconceptions about the side effects of IUCD insertion, mentioning that the procedure is painful, that it can rupture the uterus or cause cancer. This could perhaps be linked by the low prevalence of counselling on side effects outlined above. One mother stated, *"Women in village don't use family planning methods (PPIUCD) as it does not suit to some women. They say it creates cancer. It creates problem in walking."* Other women were scared by learning other women's unpleasant experiences with Copper-T, such as stomach ache, bleeding, and discomfort during sex or while walking. A mother stated in focus group discussion in Madhya Pradesh elaborated on the side effects saying, *"There are some side effects also like stomach ache, white discharge, sores in uterus, continuous menstruation. When women share these experiences with other women, they tend to scare and misconceptions like painful procedure are spread."*

TABLE 13 // IMPACT INDICATORS FOR SELECT POSTPARTUM FAMILY PLANNING METHODS

Indicator	DALYs Averted	CYPs Provided	Unintended Pregnancies Averted	Maternal Deaths Averted
IUCD/PPIUCD (5-year)	5,021	20,942	7,545	7
Female sterilisation	91,913	323,115	142,239	83
Total	**96,934**	**344,057**	**149,784**	**90**

Notes: Calculated using PSI Impact Calculator, Population Services International, 2017. Available at: impactcalculator.psi.org
Source: NIPI Baseline Survey 2013, NIPI Endline Survey 2017, Census 2011: http://censusindia.gov.in/

It is possible to convert the changes in post-partum family planning uptake into downstream impact indicators using standard conversion factors. It is not possible to attribute these changes to the intervention given the lack of a counterfactual, but the analysis is presented as context. The changes over time observed in the evaluation would convert into, across the 13 districts, 344,057 Couple Years of Protection (CYP) and the aversion of 96,934 Disability Adjusted Life Years (DALYs), 149,784 unintended pregnancies and 90 maternal deaths a year. The Maternal Deaths Averted indicator estimates the reduction in maternal mortality as a function of the unwanted pregnancies averted by contraceptive use (Ahmed, et al., 2012).

3.4 CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question	Conclusion	Recommendation
1. Does the support provided to facilities increase the service availability and readiness of postpartum family planning (PPFP) services, particularly IUCDs inserted postpartum (PPIUCD)?	The intervention has been successful at improving the availability of PPFP services at targeted facilities, including PPIUCD and processes within the control of the facility. However, infrastructure and equipment deficits at these facilities meant that many were not meeting the minimum standards for providing services as per government guidelines.	Reconsider the relative merits of intervening purely at the service delivery point (the facility) without also intervening at the health systems level (particularly for supply chains); and the balance between objectives of service availability and service quality.
2. Does the training of providers in facilities increase their knowledge of postpartum family planning (PPFP) methods?	Facility providers felt that the trainings had improved their knowledge and counselling skills. Absolute knowledge levels at endline amongst providers were variable, with knowledge about the timing of the return to fertility for women who were not breastfeeding and after IUCD removal being particularly low.	Review training materials and approaches to see if it is possible to further improve knowledge and skills.
3. Does the training of ASHAs increase their knowledge of postpartum family planning (PPFP) messages?	Knowledge of ASHAs on relevant issues was limited, although basic knowledge improved between the baseline and endline and feedback on the trainings provided to ASHAs was positive.	Review training materials and approaches to see if it is possible to further improve knowledge and skills.
4. Does the training of ASHAs lead to increased coverage of postpartum family planning (PPFP) counselling of women?	The evaluation is not able to directly measure changes in the proportion of women who received counselling due to comparability issues between the baseline and endline. However, even at endline, coverage and quality issues remain, with over half of women not receiving any counselling and less than a third receiving counselling from an ASHA. IUCD/PPIUCD messages were received by only just over half of those women who received any counselling, and less than 14 % of those received counselling on side-effects.	Review approaches to see whether it possible to further increase effective coverage.

→

Evaluation Question	Conclusion	Recommendation
5. Does increased postpartum family planning (PPFP) counselling of women lead to improvement in knowledge of women on PPFP?	The evaluation found a statistically significant increase in the knowledge amongst mothers of IUCD/PPIUCD and the importance of birth spacing. Absolute levels of knowledge on the details of some of the methods were low – for example only 4% of women were aware of the correct timings for IUCD insertion.	Review approaches to see whether it is possible to further improve the translation of counselling into knowledge.
6. Does the intervention lead to increase in uptake of postpartum family planning (PPFP) services particularly IUCDs inserted postpartum (PPIUCD)? Does this translate into reduced unmet need in the postpartum period and changes in impact level indicators?	Overall, the uptake of family planning methods in the postpartum period increased significantly from 15% of mothers to 23% of mothers who had given birth in the last year. There was a significant increase in IUCD use (confirmed as driven by PPIUCD) from half a per cent of the sample to 2% of the sample, meaning that it now comprises 8% of the method mix. This translated into a significant reduction in unmet need in the postpartum period. Due to the lack of a counterfactual, it is not possible to attribute these improvements solely to the intervention. However, the evaluation broadly validates the links in the theory of change which gives some degree of confidence that the intervention is a major contributor to the observed changes in outcomes.	The intervention has demonstrated impact and should be considered for replication/scaling.

4. Intervention: Sick Newborn Care Unit Plus

4.1 INTERVENTION DESIGN AND EVIDENCE BASE

NIPI Phase-I focused on establishing Sick Newborn Care Units (SNCUs) at public health facilities at the district level to provide facility-based care for newborns at risk of death from preterm birth and intrapartum related complications or infections. SNCUs have been proven to reduce neonatal mortality (Sen, et al., 2009)[27].

Post-discharge, these newborns move into the care of community health workers who have limited competence in identifying danger signs in newborns and inadequate skills and knowledge for counselling mothers on essential newborn care, thus increasing the chances of morbidity and mortality. Some estimates show that the lack of a follow-up system for these newborns leads to nearly ten per cent dying after discharge within the first year of life[28].

SNCU+ intended to extend the continuum of care to sick newborns at home after they are discharged from the SNCU, by involving a trained health worker, the Auxiliary Nurse Midwife (ANM) in following up and caring for these infants. An ANM is a clinically trained nurse who is based at a sub centre and who undertakes outreach visits to villages within the catchment area of her sub centre to deliver services such as antenatal check-ups and vaccinations.

The ANM, along with the ASHA, was expected to make three home visits to newborns discharged from SNCUs within the first 42 days of life to provide special care and ensure:

- Compliance with discharge instructions;
- Kangaroo mother care (KMC) guidelines are adhered to;
- Quality feeding for low birth weight children;
- Mothers and other family members are counselled on handwashing practices to prevent infection or re-infection;
- Early childhood care and development (ECCD) for improving sensitivity and responsiveness of mothers;
- Early identification of common signs of sickness by ANMs and referrals of discharged newborns to higher health facilities in case of worsening condition; and
- Counselling and teaching mothers to identify early signs of sickness as well.

Before the SNCU+ intervention, ASHAs were mandated to make home visits to newborns during the same time period under the HBNC programme. HBNC mandates six visits in the first 42 days in the case of institutional delivery and seven in the case of home delivery. The SNCU+ visits are meant to be on top of these HBNC visits: *"three home visits additional to HBNC schedule (first as soon as possible, second a week later and third visit at six weeks"* (NIPI, Undated)[29]. The role of the ANM is also

27 Sen, et al. (2009) 'Impact of a district level sick newborn care unit on neonatal mortality rate: 2-year follow-up, *Journal of Perinatology (Volume 29),* pp. 150–155; doi:10.1038/jp.2008.177.

28 *NIPI Compendium of Innovations,* Norway India Partnership Initiative (http://www.nipi.org.in/wp-content/uploads/2016/08/39.pdf).

29 *Follow-up after training on HBNC+ and community follow up of SNCU discharged newborns, supportive supervision; Module for ASHA Supervisor,* NIPI, undated.

an additionality of the SNCU+ intervention. Prior to the intervention, ANMs were expected to accompany the ASHA on at least ten percent of her HBNC visits in her sub-centre area as a means of supportive supervision of the work of the ASHA, rather than as an intervention by the ANM herself. (Ministry of Health and Family Welfare, Government of India, 2014)[30].

Home visits in the neonatal period are globally recommended as a mechanism for increasing the coverage of evidence-based interventions and reducing inequities, when supplemented by developing and strengthening linkages with local health systems (Bhutta Z. A., et al., 2014)[31]. A systematic review by the Lancet Every Newborn Study Group found that home visits by community health workers that promote family contact with the health system at crucial times can reduce neonatal mortality by 40%. The evidence base is largely from South Asia, including India. For example, in Uttar Pradesh[32], a preventive package of interventions for essential newborn care (including skin-to-skin thermal care, breastfeeding promotion, and danger sign recognition) delivered by community health workers reduced the neonatal mortality rate by 54%. This was driven by improved practices (e.g. thermal care, breastfeeding) rather than increased care-seeking (Kumar, et al., 2008).

30 *Home Based Newborn Care Operational Guidelines (Revised 2014),* Ministry of Health and Family Welfare, Government of India.

31 Bhutta, et al. (July 2014) 'Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost?', *The Lancet (Volume 384, No. 9940),* pp. 347–370.

32 Kumar, et al, (September 2008) 'Effect of community based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh, India: a cluster-randomised controlled trial, *The Lancet (Volume 372, No. 9644),* pp. 1151–1162.

4.2 EVALUATION QUESTIONS AND METHODOLOGY

The evaluation team, in consultation with the NIPI Newborn Project (IPE Global) and the NIPI Coordination Unit, developed the theory of change, presented in Figure 16 in the Annex. Annexes A-I are published in a separate document at norad.no/evaluation. The evaluation goes to the outcome level of the theory of change. Additionally, post-discharge mortality (i.e. at the impact/goal level) is measured but this is too small a sample to be representative or draw evaluative conclusions from.

The detailed evaluation questions for SNCU+ based on the theory of change are:

1. Do the NIPI inputs (training and incentives) lead to changes in the knowledge of ANMs and ASHAs? Do the NIPI inputs lead to home visits by ANMs and ASHAs as per SNCU+ protocol?
2. Do the home visits by ASHAs/ANMs lead to increased knowledge of mothers, and improved behavioural practices?
3. Do the home visits lead to referral to facilities for further treatment of sicker newborns?

Given that the discharge instructions are specific to an illness, it is difficult to quantitatively measure the extent of a caregiver's compliance with discharge instructions. The evaluation uses a ***mixed methods approach,*** i.e. use of both quantitative and qualitative techniques.

4.2.1 Quantitative evaluation

The quantitative evaluation of SNCU+ consists of a ***pre-post treatment-only approach*** i.e. an evaluation of treatment areas over time. The evaluation assesses changes in outcome indicators for newborns discharged from SNCUs, but attribution to the intervention is not possible without the presence of a counterfactual. Differences between pre-treatment and post-treatment estimates are validated by conducting a chi-square test and bivariate regression estimates are reported in tables below.

The evaluation utilises a repeated cross-sectional sample of newborns discharged from the SNCUs[33] in 13 treatment districts (henceforth called the SNCU+ follow-up survey). The Management Information System created under the SNCU programme by the implementing partners was used to identify a sample of newborns discharged in the last 6 months preceding the date of survey. Out of this roster of discharged newborns, at least 30 newborns in each of the 13 treatment districts were selected randomly at both baseline and endline. The survey was then administered to the primary caregiver (almost always the mother) of discharged newborns, for a total sample of 449 mothers at baseline and 406 mothers at endline. At baseline only 11 districts were sampled since SNCUs were not operational in Sheikhpura and Jehanabad districts of Bihar at the time of the baseline survey. Note that it is not possible to assign sample weights because it was not possible to construct a sampling frame of the underlying population (newborns are discharged from the SNCU facility to different blocks across the district and it was not possible to carry out a listing exercise of all the discharged newborns).

33 Approximately 15% of newborns have been estimated to fall sick and require facility based intensive care, with around half of these seeking care from private facilities (within days of institutional delivery) (as per the assumptions laid down under the operational guidelines for SNCUs). These figures mean that a population survey would be unlikely to detect enough cases to generate a meaningful sample.

Further, a health worker survey was administered to ASHAs and ANMs to assess levels of workload, referral, diagnosis, and follow-up home visits conducted by them. The ASHA survey was administered to 144 ASHAs in treatment districts at baseline and 151 ASHAs at endline. The ANM survey, which was administered to 13 ANMS at endline (one in each of the treatment districts), captures information on knowledge and practices of ANMs.

The evaluation limitations include:

- Lack of a counterfactual with only a pre-post methodology possible;
- Non-representative sample due to practical considerations;
- Compliance with discharge instructions cannot be measured;
- No baseline for ANM survey (only included at endline) and a small ANM sample at endline.

4.2.2 Qualitative evaluation

Qualitative data was elicited using three tools: in-depth interviews with both mothers and ANMs and direct observations of ANMs. Two mothers and two ANMs from each of the 13 treatment districts were sampled. Direct observations of ANMs were also used for gaining familiarity with the content of the home visits. It was intended that three observations be carried out with each of the 26 ANMs for a total of 78 observations. However, a total of 44 such observations were completed due to low caseload per ANM.

Specifically, the qualitative evaluation aims to answer evaluation question one by understanding provider perspectives on the training and incentives provided by NIPI and the barriers and facilitators which help translate training into increased knowledge and quantity and quality of ANM home visits.

It aims to answer evaluation questions two and three by understanding beneficiary perspectives on the content and relevance of the home visits and the barriers and facilitators which help translate the visits into increased knowledge and improved practices by mothers.

4.3 KEY FINDINGS

4.3.1 Do the NIPI inputs lead to changes in the knowledge of ANMs and ASHAs?

The evaluation finds that the intervention was successful at significantly increasing the knowledge of ASHAs on SNCUs, SNCU+, and the component parts of SNCU+, between the baseline and the endline. However, absolute levels of knowledge for some of the components remained low.

For ANMs, the lack of a baseline means that it is not possible to answer this evaluation question; however, low levels of knowledge of some of the component parts is observed for the ANM sample at the endline.

ANMs were not covered at the baseline, and the sample at the endline (13 ANMs) is very small. Therefore, it is not possible to answer the evaluation questions for ANMs. In the small sample shown in table 14, 10 were aware of the need to make home visits once a newborn was discharged from a SNCU+ and 9 were aware of the number of home visits that they were required to make. However, only three were aware of the need to promote newborn care and communication and counsel mothers on the signs of newborn sickness; and four the need to check for danger signs and make referrals to SNCUs as needed. Only three had full knowledge of the common signs of sickness[34].

TABLE 14 // KNOWLEDGE OF ANMS

Indicator	Endline	
	Mean	n
% of ANMs aware of the presence of a SNCU	100.0%	13
% of ANMs trained in SNCU+	76.9%	13
% of ANMs with correct knowledge about number of visits to newborns after SNCU discharge	69.2%	13
% ANMs aware of what should be done when a newborn is discharged from an SNCU:		
Follow-up visits to sick newborns	76.9%	13
Detection of danger signs and referral to SNCU	30.8%	13
Promote kangaroo mother care	53.9%	13
Promote newborn care and child communication	23.1%	13
Provide awareness on common signs of sickness in newborns	23.1%	13
% of ANMs who knew all common signs of sickness in newborns	23.1%	13

Note:
'n' refers to the number of observations.
Source: NIPI-II Endline Survey 2017.

The qualitative interviews showed that those who had received SNCU+ training were better able to recount aspects of childcare that are specific to children discharged from SNCUs.

ANMs gave positive feedback on the trainings with respect to their counselling skills and their knowledge of when to make visits. Most wanted 'refresher' trainings to occur frequently and a few suggested that the training should include more demonstrations. As one ANM stated:
"According to me, the training that they give by speaking, if they give it by demonstrating, then it would be more effective."

34 The common signs of sickness, as per Integrated Management of Newborn and Childhood Illness (IMNCI) guidelines of NHM, that ANMs and ASHAs are trained on, are: lethargy or one or prolonged convulsions, too cold or hot to touch, blood in stools, fast or difficult breathing and yellowness of skin or soles.

The knowledge of ASHAs on SNCUs, their role in SNCU follow-up visits, and the component parts of these visits, all increased significantly between the baseline and the endline. 58 percent of ASHAs reported receiving training in SNCU+. Of these, over 80 percent knew about the fact that they were expected to make follow-up visits and detect danger signs and promote kangaroo mother care during these visits. A much smaller proportion were aware that they were expected to promote newborn care and child communication and compliance with discharge instructions on these visits shown in the adjacent table.

TABLE 15 // KNOWLEDGE OF ASHAS

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of ASHAs aware of the presence of a SNCU	51.4%	144	82.8%***	151	0.314***	(0.052)
% of ASHAs trained in SNCU+^	31.9%	144	57.6%***	151	0.257***	(0.056)
% ASHAs aware of follow-up visits post discharged from SNCUs	33.3%	144	48.3%***	151	0.150***	(0.057)
% of ASHAs aware of detecting danger signs on newborns and referring them to SNCUs	18.8%	144	53.0%***	151	0.342***	(0.052)
% of ASHAs aware of promoting kangaroo mother care	21.5%	144	52.3%***	151	0.308***	(0.053)
% ASHAs aware of promoting newborn care and child communication	8.3%	144	29.1%***	151	0.208***	(0.044)
% ASHAs aware of ensuring compliance with discharge instructions for sick newborns	4.9%	144	20.5%***	151	0.157***	(0.038)

Note:
*significant at 10%; **significant at 5%; ***significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
^Indicator constructed to capture those who indicated they were trained. Remaining obvs (including missing) set to zero.
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

4.3.2 Do the NIPI inputs lead to home visits by ASHAs and ANMs as per SNCU+ protocol?

The evaluation shows that the proportion of children receiving home visits did not change significantly between baseline and endline, but the average number of home visits did increase significantly, driven by more visits to those who were receiving at least one visit. However, these visits were being made by ASHAs, not ANMs. Only four percent of children reported receiving a home visit from an ANM.

TABLE 16 // FOLLOW-UP VISITS BY ANMS AND ASHAS

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
Average number of follow-up visits for newborns discharged from SNCU	1.6	387	2.2***	392	0.582***	(0.173)
At least one visit:						
% of newborns discharged from SNCU who received at least one follow up visit by health worker	49.7%	388	54.5%	393	0.047	(0.036)
% of newborns discharged from SNCU who received at least one follow up visit by ANM	2.1%	388	4.1%	393	0.020	(0.012)
% of newborns discharged from SNCU who received at least one follow up visit by ASHA	44.9%	388	45.3 %*	393	0.005	(0.036)
% of newborns discharged from SNCU who received at least one follow up visit by Other Health worker	2.6%	388	5.1%*	393	0.025*	(0.014)
At least three visits:						
% of newborns discharged from SNCU who have received at least three follow up visits	37.8%	323	45.9%**	331	0.082**	(0.038)
% of newborns discharged from SNCU who are six weeks or more and received at least three follow up visits by 6 weeks of age	33.2%	223	36.4%	247	0.033	(0.044)

Note:
*significant at 10%; **significant at 5%; ***significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

The findings are similar to those reported by the implementing partner in their 2015 Annual Report (NIPI, 2015)[35], where project monitoring data showed that 37 percent of infants discharged from SNCUs received at least one follow-up visit.

A challenge for the evaluation is to try to distinguish whether the home visits by ASHAs are SNCU+ home visits or general home visits under HBNC. Table 17 compares the home visit coverage in the first six weeks for the newborns discharged from SNCUs with the HBNC home visit coverage in the broader population survey that covers all children not just those discharged from SNCUs. The data shows that children discharged from SNCUs are more likely to receive at least three visits within the first six weeks, and received more visits on average, than the general population sample. This suggests that there are systematic differences in the coverage of home visits between the two samples and that the higher coverage of home visits in the sample of children discharged from SNCUs is due to SNCU+. Overall, this suggests that the increase in home visits from the baseline are SNCU+ home visits rather than general home visits.

TABLE 17 // COMPARING WITH HBNC COVERAGE

Indicator	Whole sample		SNCU discharged sample	
	Endline	Change from Baseline	Endline	Change from Baseline
Average number of follow-up visits for newborns	1.52	-0.468	2.2	0.582***
% of newborns who received at least three follow up visits by 6 weeks of age	21.6%	-0.139	36.4%	0.033

Note:
Not tested for significance as two different datasets
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

A second challenge arises in working out whether, for the four percent of newborns receiving at least one home visit from an ANM, the home visits are SNCU+ visits as the programme originally intended, or HBNC visits where the ANM is accompanying in a supportive supervision role. As outlined earlier, ANMs are meant to undertake *joint* home visits with ASHAs to at least ten percent of newborns in her sub-centre area as a means of quality assuring ASHA HBNC and HBNC+ home visits.

The evaluation is unable to discriminate between these two types of ANM visits. Even if all the reported ANM visits are SNCU+ visits and not supportive supervision visits, this implies negligible effective coverage of the intervention. The qualitative fieldwork triangulated the quantitative findings. Roughly half of mothers in the qualitative fieldwork reported receiving a home visit only from the ASHA and not the ANM, and others mentioned receiving no visits. The following quotation is indicative:

"ASHA is not posted in our area. ANM comes in the area but has never visited my house. We just met the nurse once when my child was admitted in the SNCU she asked for sweets that is it. She has not visited our home ever. Yes, she is aware that my child was admitted in the hospital."
(Mother, Bihar)

It is possible that the removal of incentives to ANMs during the project is a contributory factor to the low effective coverage. It was originally intended to provide incentives for

35 NIPI (2015) Annual Progress Report.

these outreach visits but this was not endorsed by the Government of India[36].

ANMs primarily attributed low coverage to their high workload as many of them have additional responsibilities like providing delivery care in Primary Health Centres (PHCs). Mothers attributed the lack of contact time with ANMs to the fact that they tended to live far away. Some mothers discussed discrimination but others said explicitly that this was not a factor. A mother from Madhya Pradesh stated, *"I don't know either the ASHA or the ANM. None of them have come to my house for a home visit. Our home is in a different corner from the rest of the village. Very few people come here or to this side of the village."*

In the direct observations of ANM visits made during the fieldwork, there was a variable adherence to protocol with seven of the expected 21 activities observed more than 75% of the time during observations. Six activities were covered less than half of the time.

TABLE 18 // ACTIVITIES COMPLETED DURING ANM HOME VISITS

Activity	Completion rate (%)
Asked if the mother has put the newborn to the breast	80%
Discussed correct positioning of child and attachment for breastfeeding	89%
Observed the mother breastfeed to check for correct positioning and attachment	75%
Assessed whether the newborn is unable to feed or has stopped feeding well	82%
Counted the number of breaths the newborn takes in 60 seconds to check for fast breathing	20%
Assessed if the baby had difficulty in breathing	59%
Looked at the movements of the newborn to check if he/she moves only on stimulation or does not move at all	25%
Checked the umbilicus for redness or draining pus	27%
Checked to skin for boils filled with pus	34%
Asked if the newborn has had blood in stools	68%
Asked if the newborn has had fits or convulsions since birth	57%
Asked if the mother has started playing and interacting with the newborn	84%
Encouraged the mother to interact and play with the newborn	89%
Asked for discharge slip	43%
Ask if the family has been given any special advice and check whether they are complying with the discharge instructions	84%
Provided home care advice	66%
Made appointment for next visit	80%
ANM washed hands before proceeding with assessment	75%
Measured the temperature of the newborn	43%*
Weighed the newborn	64%*

Note: *In 10 cases there was no equipment available to perform both activities. N= 44

36 As per communication from the implementing partners.

Overall, the findings suggest that the project is more able to affect service delivery (contact time with newborns discharged from SNCUs) of community health workers (ASHAs) than facility workers (ANMs) and was not successful at mobilising the latter for outreach home visits.

4.3.3 Do the home visits by ASHAs/ANMs lead to increased knowledge and improved behavioural practices of mothers?

Maternal knowledge and maternal practice on exclusive breastfeeding has increased significantly. Further, maternal practice of kangaroo mother care has also increased significantly. No positive impact was detected on early childhood care and development (ECCD) behaviours. The evaluation was unable to assess the effects on handwashing or adherence to discharge instructions.

For exclusive breastfeeding, the evaluation found that there was a significant increase in the proportion of mothers with correct knowledge (from a high baseline starting point) and this translated into a significant increase of 18% in the proportion of mothers who exclusively breastfed since birth.

TABLE 19 // EXCLUSIVE BREASTFEEDING PRACTICE

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of mothers with correct knowledge on the need for exclusive breastfeeding for first six months	89.1%	394	94.4%***	393	0.053***	(0.020)
% of mothers who exclusively breastfed newborns since birth	59.7%	390	78.1%***	393	0.184***	(0.033)

Note:
*significant at 10%; ** significant at 5%; *** significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

For kangaroo mother care, whilst there was no statistically significant increase in maternal knowledge (due to knowledge being almost universal at the baseline), there was a statistically significant increase of 12 percentage points in the proportion of mothers who adhered to the protocol.

In the qualitative data, several mothers mentioned that they were told to keep the child close to their body by the ANM or ASHA. A mother from Madhya Pradesh said, *"I was told to hold my child tightly and have a body contact so the body heat of the mother is transferred to the child as well. Also I was told to cover my child with a warm cloth."*

There was no significant effect detected on the knowledge of mothers about the importance of regular play and communication. This is because of a ceiling effect since nearly all mothers were aware of this across both survey waves. However, mothers who then engage in the specific activity of talking and playing have fallen slightly at end line.

TABLE 20 // KANGAROO MOTHER CARE

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of mothers who think that holding baby chest-to-chest in an upright position is important	98.2%	394	96.7%	393	-0.015	(0.011)
% of mothers who hold their baby in an upright position, between breasts, for 60 minutes or more in one session	0.8%	385	13.0%***	386	0.122***	(0.018)

Note:
*significant at 10%; ** significant at 5%; *** significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

TABLE 21 // REGULAR COMMUNICATION AND PLAY WITH NEWBORN

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of mothers who think that regular play and communication with newborn is important	97.0%	394	96.4%	393	-0.005	(0.013)
% of mothers who interact with their baby in certain ways – talk to the child	97.0%	394	87.0%***	393	-0.099***	(0.019)
% of mothers who interact with their baby in certain ways – play with the child	76.7%	394	71.5%*	393	-0.052*	(0.031)

Note:
*significant at 10%; ** significant at 5%; *** significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

Baseline data was not collected on handwashing indicators but the absolute levels at endline are high.

The evaluation was not able to measure changes in adherence to discharge guidelines as they are individualised.

The qualitative data suggests that the home visits, when they occur, had positive effects. Many mothers mentioned that they have become more aware of their newborn's needs due to the home visits conducted by the ANM and/or ASHA. Sometimes the influence extended to family members: *"ASHA, ANM and family members told me to breast feed my child for the first 6 months and not even give water in this duration. Previously, mother-in-law was against this but now she understands its importance. Hence, I don't face any problems or challenges while breastfeeding my child."*

Another mother located in Madhya Pradesh mentioned, *"My behaviour has changed a lot and I have now become more aware about taking care of my child. I follow all the instructions properly. I feel that I am doing something good for my child."* Similarly, *"It is my first child, so I didn't have all this information. I am satisfied with what they told me. Now my child is healthy as I am following their advices. So what they told was very useful. I liked it."*

TABLE 22 // HANDWASHING PRACTICES

Indicator	Endline	
	Mean	n
% mothers reported hand washing at least three critical times	99.2%	393
% mothers reported hand washing at critical times	100.0%	393
% mothers reported hand washing at critical times using soap	83.2%	393

Note:
'n' refers to the no. of observations
Source: NIPI Phase-II Endline Survey 2017.

The reiterative delivery of messages by multiple health workers also seems to be having a positive effect, *"They must have got instructions from the hospital, so they gave the same information that the hospital gave. The information is good and important that's why everyone is giving the same information."*

4.3.4 Do the home visits lead to referral to facilities for further treatment of sicker newborns?

The evaluation finds that referral rates fell between the baseline and endline, counter to the intervention theory of change.

The proportion of SNCU-discharged newborns in the sample who were detected with common signs of sickness decreased significantly from 29% to 11% at endline. ***However, the proportion of those detected with a common sign of sickness who were referred to a health facility by a health worker, and the proportion who were actually taken to a health facility, fell between baseline and endline.*** No cases of referrals by the ANMs/ASHAs were found during the qualitative fieldwork due to the small sample sizes, so the evaluation is unable to explain this finding.

4.3.5 Mortality amongst newborns discharged from SNCUs

Post-discharge mortality has reduced between baseline and endline. The proportion of newborns who died after discharge fell from 5% to 3% which is significant at the 10% level. This is consistent with the SNCU+ intervention having an effect but is not significant at the 5% level and cannot be attributed to the intervention.

TABLE 23 // DANGER SIGNS AND REFERRAL RATES

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of newborns detected with common signs of sickness after SNCU discharge	28.8%	392	11.2%***	393	-0.176***	(0.028)
% of newborns referred to health facility upon detection of common signs of sickness after SNCU discharge	57.7%	111	38.6%**	44	-0.190**	(0.088)
% of newborns taken to a health facility for treatment upon detection of common signs of sickness after SNCU discharge	79.5%	112	59.1%***	44	-0.204***	(0.084)

Note:
*significant at 10%; ** significant at 5%; *** significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

TABLE 24 // MORTALITY AMONG DISCHARGED NEWBORNS

Indicator	Baseline		Endline		Regression	
	Mean	n	Mean	n	Coeff	Robust SE
% of newborns who died after discharge from SNCUs	5.4%	449	2.7%*	406	-0.026*	(0.013)
Mean age at which a sick newborn died (in days)	12.2	55	18.8***	13	6.569	(5.522)

Note:
*significant at 10%; ** significant at 5%; *** significant at 1%.
Endline superscript refers to significance of chi-square test. 'n' refers to the no. of observations
Source: NIPI Phase-II Baseline Survey 2013; NIPI Phase-II Endline Survey 2017.

4.4 CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question	Conclusion	Recommendation
1. Do the NIPI inputs (training and incentives) lead to changes in the knowledge of auxiliary nurse midwifes (ANMs) and community health workers (ASHAs)? Do the NIPI inputs lead to home visits by ANMs and ASHAs as per Sick Newborn Care Unit Plus (SNCU+) protocol?	The evaluation finds that the intervention was successful at significantly increasing the knowledge of ASHAs. The evaluation is unable to measure the effect on the knowledge of ANMs. Whilst the knowledge of ANMs of the SNCU+ protocol was high, very few newborns discharged from SNCUs received a home visit by the ANM. Reasons included the removal of incentives, the high facility workload of ANMs, and their distance from communities. Instead, home visits were predominantly made by ASHAs. Whilst the proportion of newborns who received at least one visit did not increase between the baseline and endline, the average number of visits for those who received at least one visit did increase significantly.	It is not recommended that the intervention is scaled because it has been demonstrated that ANMs do not make the home visits in the way that the intervention requires.
2. Do the home visits by ASHAs/ANMs lead to increased knowledge of mothers, and improved behavioural practices?	Home visits did not have any detectable effect on maternal knowledge but did have statistically significant effects on the proportion of mothers practicing kangaroo mother care (KMC) and exclusively breastfeeding during the newborn period.	Consider the lessons for improving the performance of ASHA home visit interventions such as HBNC.
3. Do the home visits lead to referral to facilities for further treatment of sicker newborns?	The proportion of newborns who were detected as being sick who were referred to facilities for treatment, and the proportion who were actually taken for treatment, fell between the baseline and endline. The theory of change of the intervention required outreach home visits by clinically trained, facility workers (ANMs) to diagnose danger signs, check adherence to discharge instructions, and refer sick children where necessary. It was believed that non-clinically trained ASHAs would not have the knowledge and skills to perform these tasks. The evaluation findings largely validate this theory of change. ASHA home visits were successful at increasing promotive behaviours of mothers (breastfeeding, continued KMC) which are in line with the ASHA's normal remit (and within HBNC guidelines) but not at increasing referrals which required more clinical knowledge and skills.	Consider the lessons for improving the performance of ASHA home visit interventions such as HBNC.

5. Intervention: Regional Resource Centres for Facility Based Newborn Care (FBNC)

5.1 INTERVENTION DESIGN

NIPI Phase-I focused on supporting the establishment of Newborn Care Corners (NBCCs) at Primary Health Centres, Newborn Stabilisation Units (NBSUs) at First Referral Units (FRUs) and SNCUs at district hospitals. These units were set up to equip facilities to provide the emergency neonatal care required to combat the high proportion of neonatal mortality that occurs in the first couple of days after birth.

The Phase-II intervention focused on improving the quality of immediate newborn care in sub-district facilities. According to the programme, *"quality of care at birth through NBCC and Newborn Stabilisation Unit (NBSU) is critical to the survival of newborns as prevention of fatal conditions such as birth asphyxia is a more cost-effective option than treatment of complications in SNCU"* (NIPI, 2016). To this end, at least one SNCU at divisional level has been identified to function as a regional resource centre, which provides both clinical care and hands-on training and supportive supervision to providers from NBCCs and NBSUs in the district.

Five resource centres have been established at Raisen and Hoshangabad in Madhya Pradesh, Nalanda in Bihar, Alwar in Rajasthan and Sambalpur[37] in Odisha. The project provided "human resource, gap support in infrastructure and maintenance, and travel support for mentoring and supportive supervision to NBSUs and NBCCs by doctors and staff nurses. Hands-on training of NBSU and NBCC staff was conducted" (NIPI, 2016)[38]. Score-based checklists have been developed to enable quality checks of various aspects of care during mentoring visits.

State resource centres (SRCs) have also been established in three states – J.K. Lone Hospital in Rajasthan, Nalanda Medical College Hospital in Bihar, and Shishu Bhawan in Odisha. These resource centres provided FBNC training and a two-week SNCU observership.

In addition, at the SNCU level, an online platform has been developed which generates data from all SNCUs across the states. Reporting of data focuses on admissions, deaths and causes of admissions. A composite index for quality of care in SNCUs has been developed, which provides a performance overview of all SNCUs at a glance on a single sheet and allows for identifying domains where corrective actions need to be taken.

5.2 EVALUATION QUESTIONS AND METHODOLOGY

The evaluation is focused on the effects of the resource centres on the service delivery of NBSUs and NBCCs. Due to the lack of a counterfactual and a baseline, the evaluation builds a ***contribution*** story of the effects of the intervention. As the intervention only involves the provision of support at higher levels of the health system, it only has an indirect influence on outcomes and impact. Therefore, the evaluation is focused on inputs, processes and outputs in the Theory of Change outlined in Figure 16 in the Annex, published in a separate document at norad.no/evaluation. This translates into four evaluation questions:

37 One of the visited Regional Resource Centres for FBNC in Sambalpur, is according to partners (see Annex H) not a NIPI resource centre. The evaluation team went to this site because it was included in NIPI programme documentation as a NIPI site and confirmed as such by NIPI staff. The evaluation team's source: NIPI. (2016). *NIPI Compendium of Innovations.* Retrieved from Norway India Partnership Initiative: http://www.nipi.org.in/wp-content/uploads/2016/08/39.pdf.

38 Compendium of Innovations, Norway India Partnership Initiative, 2016.

Input to processes

1. Are the resource centres and state-level structures functional according to the guidelines developed by NIPI?

2. What has been the contribution of NIPI (financing, equipment and support) to the functioning of the resource centres?

Process to output

3. Are the NBSUs and NBCCs delivering adequate quality services?

4. What has been the contribution of the resource centres to the service delivery of NBSUs and NBCCs?

The third evaluation question is answered by applying a SARA (Services Availability a Readiness Assessment). This is a standard means of assessing the ability of a facility to provide services to the requisite standard. It is a methodology of the World Health Organisation (WHO) and can be adapted to individual services (WHO, 2015)[39].

As there is no baseline information, the evaluation does not seek to measure changes in service availability and readiness; rather levels are compared to government guidelines. The theory of change assumption is that the intervention will ensure that NBSUs and NBCCs will have been supported to have all the inputs they need to deliver adequate quality services. The evaluation therefore uses an ***adequacy study*** approach.

The first, second and fourth evaluation questions are answered by applying Qualitative Impact Protocol (QUIP) analysis to develop a contribution story. QUIP is a means of assessing the weight of evidence against key hypotheses related to links in the theory of change, or issue under study (Copestake, 2014)[40]. It works well for retrospective contribution analysis because key informants are asked about what changes have occurred in key areas, and what has contributed towards these changes.

39 Service Availability and Readiness Assessment (SARA): An annual monitoring system for service delivery, World Health Organization, 2015.

40 Copestake, J. G. (2014) 'Full guidelines for the Qualitative Impact Protocol (QUIP), 2014. Working Paper. Bath: Centre for Development Studies, University of Bath.

The evaluation carried out in-depth interviews with key informants at the resource centres, NBSUs and NBCCs to understand the support received by resource centres from the programme as well as the support received by NBSUs and NBCCs from the resource centres. The main hypothesis was that positive changes were brought about in the NBSUs and NBCCs owing to support received from resource centres. The adapted Qualitative Impact Protocol (QUIP) analysis is illustrated in Figure 5.

The sample of facilities includes all five resource centres (located within a district hospital (DH)) as well as one sub-district hospital (SDH) and one primary health centre (PHC) CHC (Community Health Centre) in the case of Odisha) from each state in the districts where the resource centres are located.

For each of the sampled facilities, a facility assessment survey, a key informant interview and two provider knowledge assessments were carried out. The total sample was therefore 13 facility assessments, 13 provider interviews and 26 knowledge tests.

FIGURE 5 // ILLUSTRATION OF ANALYSIS

State	District	Filter Respondent	QUIP	Change	Hypothesis			
					Change 1	Change 2	Change 3	Change 4
Bihar	Bihar-Nalanda-Biharsharif	SNCU-In-Charge	Explicitly supports the hypothesis	Positive: Programme	✔			
Bihar	Bihar-Nalanda-Biharsharif	SNCU-In-Charge	Implicitly supports the hypothesis	Positive: Non Programme		✔		
Bihar	Bihar-Nalanda-Biharsharif	SNCU-In-Charge	Neither supports nor rejects the hypothesis	No Change				
Bihar	Bihar-Nalanda-Biharsharif	SNCU-In-Charge	Implicitly rejects the hypothesis	Negative: Programme				
Bihar	Bihar-Nalanda-Biharsharif	SNCU-In-Charge	Explicitly rejects the hypothesis	Negative: Non-Programme				

Limitations to the evaluation include:

- Only evaluating up to the level of outputs in the results chain;
- Not being able to observe service delivery directly;
- Lack of a counterfactual;
- Lack of a baseline limiting ability to directly assess change;
- Small number of sampled facilities;
- No direct observations of the SRCs.

5.3 KEY FINDINGS

5.3.1 Evaluation questions 1 and 2: Are the resource centres and state-level structures functional according to the guidelines developed by NIPI? What has been the contribution of NIPI to the functioning of the resource centres?

The evaluation found that the programme had been able to positively contribute to the functioning of the resource centres.

The resource centres were found to be functioning, except for the one in Raisen, which the key informant reported to have shut down in early 2017. The evaluation did not assess them against the guidelines developed by NIPI. This remains an evaluation limitation.

The respondents in Rajasthan, Odisha and Bihar reported receiving support from their respective state resource centres in the form of staff trainings and observation/mentoring visits. Respondents were primarily trained in the Facility Based Newborn Care (FBNC) curriculum in all three states. These visits consisted of (i) case studies where staff from state resource centres observe management for specific patients and provide an assessment of the shortcomings in the management, (ii) checklists where clinical practices as well as the Operation Theatre, Labour Room and SNCU, NBSU, NBCC (as the case maybe) are observed and assessed, (iii) feedback and guidance on processes and clinical practices, and (iv) guidance and handholding on sterilization protocols and machine management.

The support from the state resource centres was reported to have made positive contributions towards service provision and quality of care at the SNCUs in the resource centres. The resource centre staff in Bihar attributed improvements in the skills of the staff to the trainings provided by the state resource centre. This increase in capacity was reflected in reductions in referrals, and an improvement in proper handling of equipment such as the radiant warmer. The resource centre staff in Rajasthan attributed improvements in staff knowledge, better practice and improvement in performance of staff to trainings provided by the state resource centre. Improvements in the practice of recording cases of birth asphyxia are attributed to observation and mentoring visits from the state resource centre.

Aside from the support provided by state resource centres, key informants also reported contribution from the direct support of NIPI. Staff at the resource centre in Odisha considered trainings provided to staff as the largest contribution of NIPI, followed by infrastructure and funds.

"Whenever they visit the facility they look after how we have done the case study and case management. Whatever shortcomings are there, they try to remove it, they also provide help and support to us."
(Key Informant, District Hospital, Bihar)

"Earlier in cases of Birth Asphyxia we didn't record the grade, but now after the visit we have started recording the grade 1, 2, or 3."
(Key Informant, District Hospital, Rajasthan)

5.3.2 Evaluation question 3: Are the NBSUs and NBCCs delivering adequate quality services?

The evaluation found that NBSUs and NBCCs were providing services but not at an adequate quality.

Both NBSUs and NBCCs in the sample were found to be lacking the infrastructure, basic supplies and equipment, laboratory tests, medicines and commodities as per the Indian Public Health Standards (IPHS) guidelines when assessed on the standard tracer items across these domains using the availability component of the SARA (Service Availability and Readiness Assessments) (Table 50 until Table 57 in the Annex).

For NBCCs at primary health centres, only one in four of the sampled facilities met standards for basic amenities (rooms, power and communication), all four had less than 80% of necessary equipment (with baby incubators and nebulisers available in only one primary health centre), all four had less than 80% of necessary drugs and consumables, and only one was following protocols for disposal of anatomical waste.

For NBSUs at sub-district hospitals, only one met all the criteria for necessary basic amenities, only one had more than 80% of necessary equipment (with pump suction, infantometers, BP apparatus and baby weighing machines available in only one of the four sub-district hospitals), and not all had 80% of required drugs.

Despite this, the sub-district hospitals, were providing almost all core routine, basic emergency and comprehensive emergency newborn care services as measured by an expanded set of signal functions (Gabrysch, et al., 2012)[41] (Table 58 in the Annex). All four sub-district hospitals were undertaking neonatal resuscitation with bag and mask, thermal protection, immediate and exclusive breastfeeding, infection prevention including hygienic cord care, administration of antibiotics to preterm babies to prevent infection, kangaroo mother care for premature babies, administration of injectable antibiotics for neonatal sepsis, administration of intravenous fluids and administration of oxygen. One sub-district hospital was not providing alternative feeding for babies unable to breastfeed, and two were not administering corticosteroids for preterm labour.

Primary health centres were providing less services but this is expected due to protocols to refer complications to higher facilities (Table 58 in the Annex).

Despite this, all primary health centres sampled had undergone neonatal resuscitation with a bag and mask and administration of oxygen, showing their ability to deliver emergency care. One primary health centre was not providing basic services in the form of kangaroo mother care and hygienic cord care.

Knowledge of providers was found to be variable. It was high on the equipment required to perform neonatal resuscitation, danger signs among newborns, and newborn care. Knowledge was low among providers across facilities on advice to be provided to new mothers, recognizing danger signs of pregnancy, and indications of diagnosing a pregnant woman with pre-eclampsia. (Table 59 in the Annex).

5.3.3 Evaluation question 4: What has been the contribution of the resource centres to the service delivery of NBSUs and NBCCs?

The evaluation found that the resource centres had made positive contributions to NBSUs and NBCCs.

Among the four NBCCs in our sample, only two NBCCs in Bihar and Madhya Pradesh confidently described the support received from their resource centre. Respondents at the NBCC in Bihar indicated maintenance of equipment, hygiene and infection prevention practices and improvement in the skills of the nursing staff as positive changes that have taken place in the facilities owing to support from the resource centres.

Our respondents reported that support was provided in the form of visits every four months. The staff who visited the NBCC used score-based checklists which involved observing and checking the availability and functionality of equipment, supplies and drugs in the labour room and NBCC. The checklist also included questions around case management and knowledge of providers at the facility.

41 Gabrysch et al. (2012) 'New Signal Functions to Measure the Ability of Health Facilities to Provide Routine and Emergency New-born Care, *PLoS Med* (Volume 9, No 11e): e1001340.

Among the four NBSUs in our sample, only one NBSU in Rajasthan could describe the support received from the resource centre. The support received in this context was also in form of visits made by the resource centre staff who provided guidance on the correct techniques of handwashing and infection prevention practices such as use of gloves, sterilization and operation of the autoclave. The staff nurse in-charge of the NBSU attributed increases in the count of functional equipment, and improvements in the adherence to hygiene and infection prevention practices to the support provided by the resource centre.

"…Cleanliness in NBCC ….. Earlier no proper attention to cleanliness was given. But since regular visits are made and ANM are trained, they ensured the proper cleanliness in NBCC. Chances of infections and other side effect(s) are minimised."

(Key Informant, PHC, Bihar)

5.4 CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question	Conclusion	Recommendation
1. Are the resource centres and state-level structures functional according to the guidelines developed by NIPI?	The resource centres were found to be functioning, except for the one in Raisen, Madhya Pradesh, which the key informant reported to have closed down in early 2017.	N/A
2. What has been the contribution of NIPI (financing, equipment and support) to the functioning of the resource centres?	Key informants gave positive feedback on the contribution of the intervention to the resource centres, both directly and indirectly through trainings and observation/mentoring visits from the state resource centres. Improvements were reported in staff knowledge and skills, and clinical practice in their own SNCUs.	N/A
3. Are the Newborn Stabilisation Units (NBSUs) and the Newborn Care Corners (NBCCs) delivering adequate quality services?	Facilities lacked the equipment, supplies, commodities and infrastructure to deliver the routine, basic emergency and comprehensive emergency newborn care they were providing to government standards. This would have required complementary inputs from the broader health system, particularly the supply chain system. The implication is that the intervention, which targeted processes at the service delivery level, was able to make tangible improvements but this was not sufficient to translate into quality service delivery without complementary reforms at the health systems level.	Reconsider the relative merits of intervening at the service delivery level (the facility) without also intervening at the health systems level (particularly for supply chains); and the balance between objectives of service availability and service quality.
4. What has been the contribution of the resource centres to the service delivery of NBSUs and NBCCs?	Respondents gave positive feedback on the contribution of the intervention on equipment maintenance, hygiene and infection prevention and staff skills at NBCCs. This suggests that the resource centres were successful at influencing processes that were within the control of facilities (hygiene and infection prevention, equipment maintenance) and augmenting the skills of existing staff.	The intervention has demonstrated success and can be considered for scaling/replication.

6. Intervention: Strengthening Pre-Service Education in Nursing and Midwifery

6.1 INTERVENTION DESIGN

NIPI, in collaboration with Jhpiego, provided technical assistance to the states of Bihar, Madhya Pradesh, Odisha and Rajasthan towards improving the quality of pre-service education (PSE) at scale for the nursing and midwifery cadre. The intervention seeks to address the low levels of provider knowledge and competence proven to exist in public health facilities in India (Malhotra, et al., 2014)[42].

The intervention strategy was to:

- Establish state nodal centres (SNC) of Excellence in each of the four states;
- Improve educational processes and infrastructure in 135 public General Nurse Midwifery (GNM) and Auxiliary Nurse Midwife (ANM) schools (this evolved to 133-80 ANM schools, 48 GNM Schools and 5 SNCs);
- Strengthen clinical skills development of GNM and ANM students by strengthening clinical practice sites;
- Improving teaching skills, Maternal, Newborn and Child Health (MNCH) and Family Planning/(FP) knowledge and clinical skills of GNM and ANM faculty through a customised six weeks training at the National Nodal Centre (NNC)/SNC;
- Strengthen capacity building of the state nursing councils;
- Support a pilot of a six month internship for ANM graduates passing out after 18 months of training in Bihar.

6.2 EVALUATION QUESTIONS AND METHODOLOGY

As the intervention is one of technical assistance at the higher level of the health system, it only has indirect influence on outcomes and impact. Therefore, the evaluation only focuses on inputs, processes and outputs of the intervention along the results chain. The theory of change is presented in Figure 17 in the Annex, published in a separate document at norad.no/evaluation.

The evaluation does not attempt to evaluate the effects of teaching or internships on graduates. This is primarily because of the time constraints faced in the project, as the ANM and GNM courses are of different lengths – one year and six months of teaching and six months of internship for ANMs and three years of teaching and six months of internship for the GNM respectively. This makes it unlikely for a large enough sample of ANMs and GNMs to get absorbed in the workforce by the end of the study period. This, and their likely broad diffusion, makes surveying graduates infeasible. Even at the process level, attribution is not possible

42 Malhotra, et al. (March 2014) 'Assessment of Essential Newborn Care Services in Secondary-level Facilities from Two Districts of India, *Journal of Health, Population and Nutrition,* (32:1), pp. 130-141.

due to the lack of a baseline and the lack of a counterfactual that arises from the state-wide remit of these centres and schools. A ***contribution story*** is generated. This translates into four main evaluation questions:

1. Are the state-level structures functional according to the Government of India (GoI) guidelines (GOI, 2013)[43]?

2. What has been the contribution of the NIPI inputs (financing, equipment and support) to the functioning of state-level structures?

3. Are the ANM and GNM schools functional according to the Government of India guidelines?

4. What has been the contribution of the NIPI inputs (support to training infrastructure, educational processes and clinical skills labs) to the: (i) faculty of, and (ii) training provided by ANM and GNM schools?

This evaluation was conducted using a mixed methods approach. An SNC, two ANM schools and two GNM schools were selected randomly from all the government-run nursing training institutions from each of the four states. The sample size and chosen methodology is presented in Table 62 in the Annex. At the state level, only state nodal centres were covered and not State Nursing Councils.

Questions one and three were assessed using a structured checklist developed based on Government of India guidelines on strengthening pre-service education for the nursing and midwifery cadre in India. The 31 standards (see Table 63 in the Annex) are selected from a total of 79-81 performance standards given in the GoI guidelines. The five domains for assessment are educational processes, clinical practices, capacity of faculty, training infrastructure and leadership capacity. The 31 standards selected were those that did not require direct observations of teaching. This 31 standards checklist was applied to the 20 sampled schools. As the sample of standards were selected based on convenience (not requiring direct observations), they are not necessarily representative of the full performance standards mandated by the Government of India.

A qualitative interview guide was developed to specifically evaluate NIPI's contribution. Questions two and four were analysed with framework analysis applied to in-depth interviews, conducted with faculty of all the training institutes. There were a total of 39 in-depth interviews. 15 nursing tutors were interviewed from eight GNM schools. 16 nursing tutors were interviewed from the eight ANM schools. Eight tutors were interviewed from the state nodal centres.

Limitations to the evaluation include:

- Only evaluating up to the level of outputs in the results chain;
- Not covering State Nursing Councils;
- Not being able to assess the knowledge and skills of trained graduates;
- Not being able to assess changes in knowledge of faculty members;
- Not being able to observe training directly, limiting the number of standards that can be assessed;
- Lack of a counterfactual due to the state-wide remit of the evaluation;
- Lack of a baseline limiting ability to directly assess change.

43 Strengthening Pre-Service Education for the Nursing and Midwifery Cadre In India, Operational Guidelines, January 2013, Maternal Health Division Ministry of Health & Family Welfare Government of India.

6.3 KEY FINDINGS

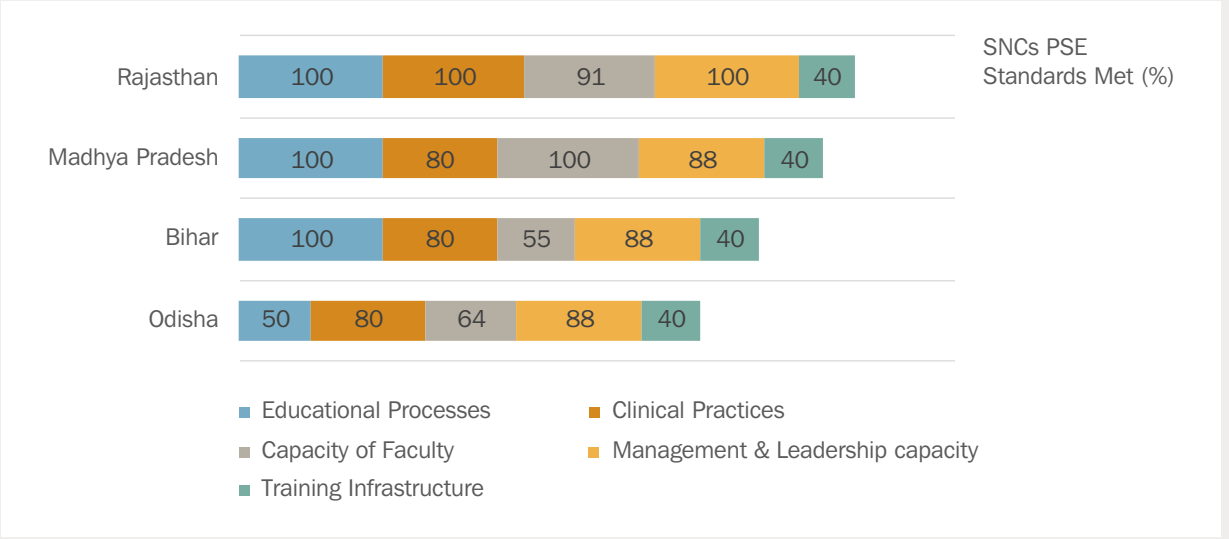
6.3.1 Are the state level structures functional according to Government of India guidelines?

The evaluation is consistent with the internal assessments that show that state nodal centres are either just above or very close to the threshold of "strengthened" as defined by the Government of India. The internal assessments undertaken for Jhpiego in early 2017 found that all state nodal centres had achieved over 70% of the standards (the Government of India threshold) and were ready to start functioning as state nodal centres. The evaluation found that the state nodal centres in Rajasthan and Madhya Pradesh were exceeding the 70% threshold and the state nodal centres in Bihar and Odisha were very slightly below. As the evaluation used a subset of standards, and are not necessarily representative, the findings are consistent with the internal assessments.

6.3.2 What has been the contribution of the NIPI inputs (financing, equipment and support) to the functioning of state-level structures?

There was consistent, positive feedback from key informants on the contribution of the intervention to improvements in state nodal centres and their ability to support ANM and GNM schools.

FIGURE 6 // PERFORMANCE STANDARDS MET BY STATE NODAL CENTRES



Tutors at state nodal centres reported learning many new teaching methods from the intervention that made the process of teaching and learning more interesting and engaging, citing the use of projectors, internet and role plays. They reported regularising the use of lesson plans and course objectives as per Indian Nursing Council's guidelines. A respondent from Odisha stated that *"Earlier, lecture and demonstrations were our routine teaching methods, but they were neither advanced nor lively. Now, after we give lecture, we make it livelier by adding roleplay or demonstration to it. If we teach about a disease, we conduct a roleplay based on that disease. This method is more effective."* Although tutors expressed satisfaction over the current 6 weeks training, they have requested for more refresher trainings and have shared concern over continued nursing education.

Particularly strong feedback was given on the effects on clinical practice areas. A respondent from the Madhya Pradesh state nodal centre (SNC) stated *"there is now a new labour hospital with 450 beds. This SNC practice site labour room has 16 labour tables and 2 separate rooms. It is air-conditioned and has a separate examination area. Earlier, the labour room was too congested and not hygienic. The examination area was inside the labour room. Hence, too many people entered the labour room."* Respondents from Bihar reported improvements in practices, including the adoption of Active Management of Third Stage of Labour (AMTSL) and the use of partographs. Clinical teaching and supervision was also reported to have improved, with regular monitoring visits to ANM and GNM schools.

Key informants documented improvements in infrastructure, with a new state nodal centre building which was well suited to teaching constructed in Madhya Pradesh and renovations of classrooms in Bihar reported. ANM schools in Bihar reported that the state nodal centre was better able to provide them with equipment.

All SNCs reported improvements in skills labs adhering to INC recommendations. Changes included procuring more anatomical models and instruments and expansion of space in labs. The nursing tutors explicitly described how the intervention helped upgrade and establish the skills lab and provided training to the faculty at state nodal centre. The trained state nodal centre faculty then helped upgrade the skills labs at the different ANM and GNM schools.

State nodal centres also reported improvements in libraries. A key informant in MP stated that *"Last year, we bought books worth five lakh rupees. We now have 4,000 books in the library, bought as per GoI guidelines. There are books on Midwifery, Research, Integrated Maternal, Newborn and Child Health (IMNCH), etc. We have a separate referrals bookcase. We bought about 30 bookcase last year. Furniture like tables, etc. were also bought. We have subscription to three international journals and many other national journals. We do not have a librarian as of now, but are in process to recruit one."* This has helped students who could not afford to buy books. The teachers stay updated with regular use of these textbooks, journals and internet.

Every state nodal centre reported either constructing a new computer lab or renovating a pre-existing one. The Madhya Pradesh state nodal centre reported an increase in computers from five to 20. The Bihar SNC received computers, air conditioning, internet connectivity and an external computer class teacher as a result of the intervention.

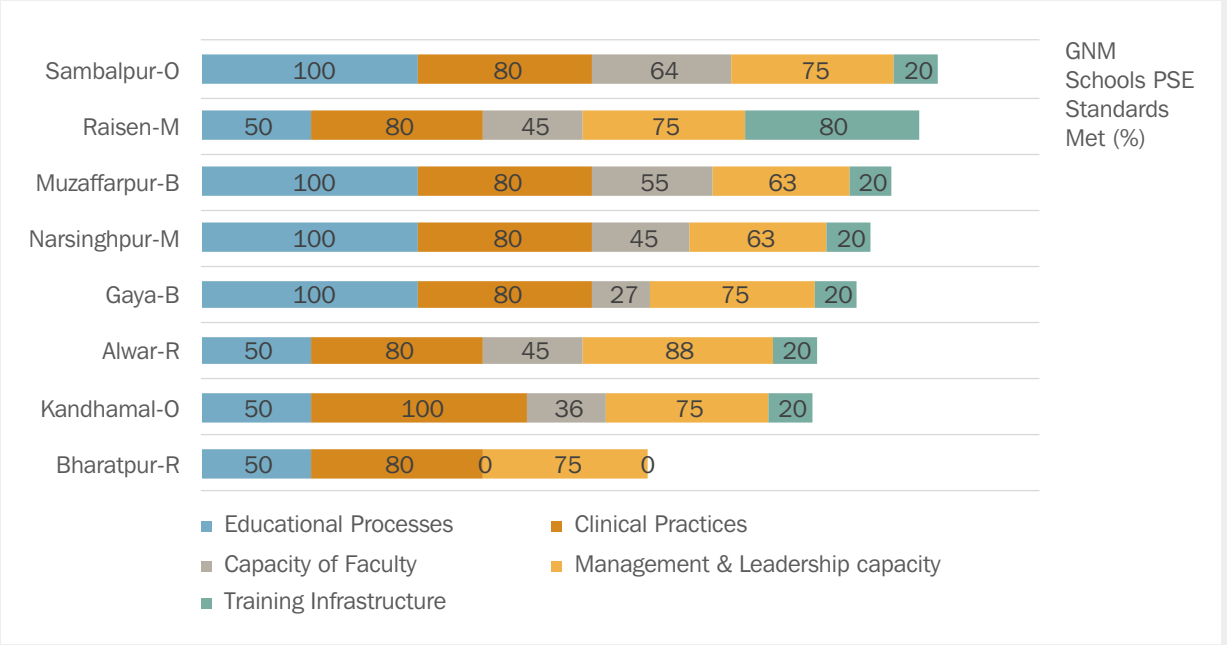
6.3.3 Are the ANMs and GNM schools functional according to the Government of India guidelines?

The evaluation findings are not fully consistent with the internal assessments that show that nearly half of ANM and GNM schools are meeting the minimum Government of India thresholds of "strengthened".

The NIPI Annual Report of 2016 found that 45% of the ANM/GNM schools had achieved over 70% of the performance standards, with 42% meeting between 50% and 69% of the standards. This is an improvement from the Annual Report of 2015 where the comparative figures were eight percent and 47%. The overall project target is for half of the ANM/GNM schools to meet at least 70% of standards.

The evaluation data finds that only two of the ANM schools and none of the GNM schools meet the 70 percent target. The evaluation, as outlined above, only uses a subset of the total standards that may not be fully representative.

FIGURE 7 // PERFORMANCE STANDARDS MET BY GNM SCHOOLS



However, the findings suggest that there is still significant room for improvement particularly in the domains of faculty capacity (for ANM schools)[44] and training infrastructure (for GNM schools).

44 As direct observations of teaching were not undertaken for the evaluation, the subset of performance standards for this domain is unlikely to be representative of the full set of standards.

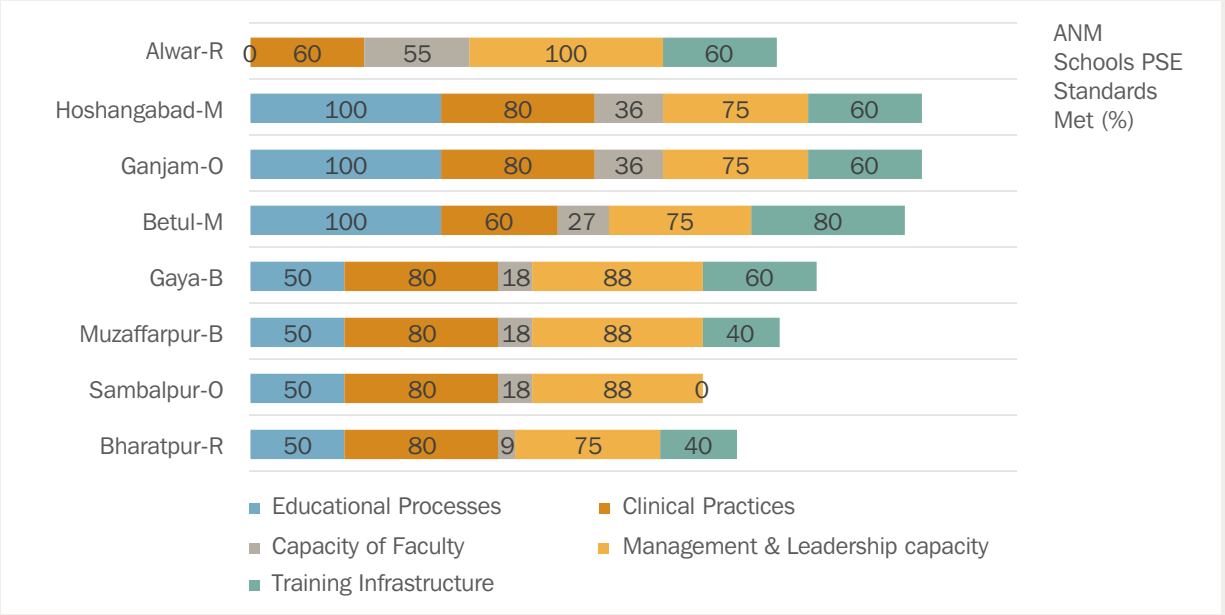
6.3.4 What has been the contribution of the NIPI inputs to the functioning of ANMs and GNM schools?

6.3.4.1 Educational Processes

Key informants gave consistently positive feedback on the contribution of the intervention to improvements in teaching methodology, patterns of examination, student assessments and teacher evaluations, either directly or indirectly through the support to the Indian Nursing Council.

The six-week training was credited with improving the process of teaching through more systematic use of standardised lesson plans and clinical log books and the replacement of nursing care plans with checklists with simple measurable steps which improved practice.

FIGURE 8 // PERFORMANCE STANDARDS MET BY ANM SCHOOLS



Teachers are now using power point presentations, other audio, visual aids and virtual classroom which are all new efforts that have been positive in providing better education to students. The virtual classes are *"… online classes and a 72-hour curriculum is prepared for this. 2nd year Midwifery students can revise and learn about important topics online through these classes, after they have been taught in class. Experts take these virtual classes and students and teachers can clarify their doubts too. These classes allow better student teacher communication"* (in-depth interview). An ANM tutor from Bihar shared that the theory and practise sessions have become more interactive now. Teachers complained about high teacher student ratio as one of the key challenges of effective education. They also stated lack of opportunities for career progression as a key factor for demotivation.

Examination patterns were reported to have improved. Objective Structured Clinical Examination (OSCE) is now used as a key assessment method for practical skills. The written examination system now includes three internal and one annual examination. The answer sheets have barcodes, which increases transparency and reduces the potential for tampering. The pattern of questions also changed towards more objective questions. Lauding this change in the pattern of setting examination papers a tutor said, *"Only students who study in-depth will be able to answer these questions."* Jhpiego in their six weeks training also taught how to prepare Objective Structured Clinical Examinations and prepare questions according to the new pattern.

A further development was the participation of students in the evaluation of teachers. Seven ANM schools reported introducing a performance evaluation system.

6.3.4.2 Clinical practices and clinical teaching capacity

Key informants report that the intervention has led to an increase in clinical supervision, better infection prevention and biomedical waste management practices, and the improvement of practice sites.

The GNM and ANM schools have practice site labour rooms attached which were reported to have improved. In Bihar and Odisha there were reports that the number of beds had increased which allowed more nursing students to practice. The effect of this was limited in Odisha where students were reported as only being allowed to assist doctors (preventing independent practice) and in Madhya Pradesh by supply shortages. One ANM school tutor from Madhya Pradesh stated that *"we were taught during training that we have to use different gloves for different patients, but many a times there is not enough supply of gloves, so we have to use same glove."* Infection prevention and biomedical waste management practices have reportedly improved in all states. Examples include disposal of placentas and syringes in Odisha, the use of colour coded bins and the preparation of chlorine solution in Bihar, and the procurement of new equipment to improve the management of complications.

According to a new directive by Indian Nursing Council, clinical instructors are supposed to spend at least four hours performing clinical supervision every day. This has been implemented in all four states at GNM and ANM schools and tutors from Bihar, Rajasthan and Odisha have confirmed to its positive impact on student's performance. A tutor from Madhya Pradesh shares, *"The outlook of teaching faculty has changed towards clinical practice. Now they know that their role is not restricted to teaching in classroom, but also in clinical practice. They accompany students to supervise them at the clinical site regularly."*

A tutor from Odisha shared, *"Now we go to clinical site and guide students, earlier this was not happening. We were also not able to know what the students were doing over there, without any supervision."*

6.3.4.3 Training infrastructure at ANM and GNM schools

Overall, some positive changes were reported with respect to training infrastructure but not all schools had functional skills labs, libraries and computer labs. Many of the ANM and GNM schools remained too small and inadequately equipped. A tutor from Madhya Pradesh suggests, *"…equipment are made available to us only at the time when someone comes on a supervision and monitoring visit. We have projector but don't have laptop, which renders the projector useless. Hostels are very far from training centre, so students can't be here when required. Students are more and space in classes is very less. That hospital is very small where we take our students for clinical practice. These are all barriers to effective teaching."*

Several schools reported the establishment of skills labs but some stated that they were not functional due to a lack of equipment. A tutor from an ANM school in Odisha stated *"we don't have our own mannequins and equipment, we are using equipment provided by NRHM* [National Rural Health Mission]. *We bring equipment from NRHM's office and then every time after practicing, return them."*

The feedback on the development of libraries was consistently positive through the provision of more books, journal subscriptions and physical infrastructure. For example, one school in Madhya Pradesh reported receiving more than 1,000 books. However, only about half of schools had libraries that were adequately equipped and organised and many did not meet Indian Nursing Council guidelines.

Similarly, the GNM and ANM schools reported that the intervention helped introduce computer labs but in some of the schools they were not equipped and functional. A tutor from Madhya Pradesh praised this change saying, *"Computer lab is very essential nowadays, we search study material from internet. It has become easier for teachers to prepare report card. Knowledge of computers is now essential to work smoothly."*

It was reported that the intervention was able to support 11 ANM schools in Madhya Pradesh be upgraded to GNM schools.

6.4 CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question	Conclusion	Recommendation
1. Are the state-level structures functional according to the Government of India (GoI) guidelines (GOI, 2013)?	The evaluation showed that the state nodal centres (SNCs) were either meeting, or very close to meeting, the standards threshold set by the Government of India. This matched the internal assessments conducted for Jhpiego.	N/A
2. What has been the contribution of the NIPI inputs (financing, equipment and support) to the functioning of state-level structures?	Key informants gave consistent, positive feedback about the contribution of the intervention to the ability of SNCs to meet these standards and fulfil their mandate to support Auxiliary Nurse Midwife (ANM) and General Nurse Midwife (GNM) schools. In particular, improvements to teaching methods, clinical practice sites, and infrastructure (especially skills labs, computer labs and libraries) were cited.	N/A
3. Are the ANM and GNM schools functional according to the Government of India guidelines?	The evaluation data suggested that many of the ANM and GNM schools were slightly falling short of the standards threshold. Many informants reported that the skills labs, libraries and computer labs were not functional, which undermined the ability of schools to meet standards.	Review approaches to improving functionality of skills labs, libraries and computer labs.
4. What has been the contribution of the NIPI inputs (support to training infrastructure, educational processes and clinical skills labs) to the: (i) faculty of, and (ii) training provided by ANM and GNM schools?	The evaluation validates the more detailed internal assessments which have shown significant and positive change in the strength of the ANM and GNM schools. Key informants gave consistently positive feedback on the contribution of the intervention to improvements in teaching methodology, patterns of examination, student assessments and teacher evaluations. They also gave positive feedback on the contribution of the intervention to improving clinical supervision, infection prevention and biomedical waste management practices. The findings of the evaluation are consistent with the achievement of the expected project objectives and the theory of change.	The intervention has been shown to be successful and should be considered for replication/scaling.

7. Conclusions and Recommendations

In this section, the intervention specific conclusions and recommendations are summarized, and then two synthesis lessons are presented.

7.1 INTERVENTION SPECIFIC CONCLUSIONS AND RECOMMENDATIONS

7.1.1 Home Based Newborn Care Plus

The evaluation assessed the effectiveness of the Home Based Newborn Care Plus (HBNC+) intervention on average levels of outcomes (behaviours and uptake of services) amongst mothers of children aged under two. No significant effect was detected on any of the key indicators related to exclusive breastfeeding, diet diversity, handwashing with soap, growth monitoring, immunisation, the use of oral rehydration solution to treat diarrhoea or early childhood care development behaviours.
A small effect was observed for iron and folic acid consumption using only a pre-post analysis.

Evaluation Question	Conclusion	Recommendation
1. Do the NIPI inputs lead to changes in the knowledge of ASHAs?	Almost all ASHAs in the treatment areas report receiving HBNC+ training and this led to high levels of knowledge of the HBNC+ protocol (defined as knowing the timing and number of visits to be made). However, the training seems to be less effective at improving thematic knowledge related to intervention components.	If HBNC+ is scaled, the content and the modalities of the training should be revised to ensure ASHAs have the thematic knowledge required on the HBNC+ components.
2. Do the NIPI inputs lead to home visits by ASHAs according to HBNC+ protocol?	The evaluation shows a significant increase in the number of mothers receiving home visits and that these home visits became more closely aligned to the HBNC+ protocol with more mothers reporting receipt of counselling on HBNC+ topics. However, absolute levels of coverage remain low, with only 39% of women reporting receipt of the full number of HBNC+ visits.	Operational research should be undertaken to find ways of delivering higher effective coverage of HBNC+ through government systems.

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Evaluation Question	Conclusion	Recommendation
3. Do the home visits lead to improved outcomes (behavioural practices, use of products and service uptake)?	There is no detectable effect of HBNC+ on average levels of outcomes. The effect sizes are likely to be slightly underestimated due to an increase in home visits in control areas. The lack of detected impact could be due to low effective coverage or low underlying efficacy of the intervention, which the evaluation is unable to formally test. Additional correlation analysis shows that receiving the full set of visits is positively and significantly associated with effects on growth monitoring and IFA supplementation but not other outcomes.	The evaluation is not able to detect sufficient impact to recommend the scaling of HBNC+. It is recommended that the pilot continues with implementation measures applied to increase effective coverage. A further evaluation round could formally test whether the intervention can deliver impact at higher levels of effective coverage, after which scaling decisions could be made.
4. Do the home visits lead to reduced incidence of pneumonia, other acute respiratory infections and diarrhoea?	There are no significant differences between treatment and control areas for morbidity indicators (prevalence of diarrhoea and pneumonia) but the evaluation is not powered to attribute changes to the intervention.	N/A

7.1.2 Revitalise and Scale-up PPIUCD/PPFP Services

Evaluation Question	Conclusion	Recommendation
1. Does the support provided to facilities increase the service availability and readiness of postpartum family planning (PPFP) services, particularly postpartum intrauterine contraceptive devices (PPIUCD)?	The intervention has been successful at improving the availability of PPFP services at targeted facilities, including PPIUCD and processes within the control of the facility. However, infrastructure and equipment deficits at these facilities meant that many were not meeting the minimum standards for providing services as per government guidelines.	Reconsider the relative merits of intervening purely at the service delivery point (the facility) without also intervening at the health systems level (particularly for supply chains); and the balance between objectives of service availability and service quality.
2. Does the training of providers in facilities increase their knowledge of postpartum family planning (PPFP) methods?	Facility providers felt that the trainings had improved their knowledge and counselling skills. Absolute knowledge levels at endline amongst providers were variable, with knowledge about the timing of the return to fertility for women who were not breastfeeding and after IUCD removal being particularly low.	Review training materials and approaches to see if it is possible to further improve knowledge and skills.
3. Does the training of ASHAs increase their knowledge of postpartum family planning (PPFP) messages?	Knowledge of ASHAs on relevant issues was limited, although basic knowledge improved between the baseline and endline and feedback on the trainings provided to ASHAs was positive.	Review training materials and approaches to see if it is possible to further improve knowledge and skills.
4. Does the training of ASHAs lead to increased coverage of postpartum family planning (PPFP) counselling of women?	The evaluation is not able to directly measure changes in the proportion of women who received counselling due to comparability issues between the baseline and endline. However, even at endline, coverage and quality issues remain, with over half of women not receiving any counselling and less than a third receiving counselling from an ASHA. IUCD/PPIUCD messages were received by only just over half of those women who received any counselling, and less than 14% of those received counselling on side-effects.	Review approaches to see whether it possible to further increase effective coverage.

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Evaluation Question	Conclusion	Recommendation
5. Does increased postpartum family planning (PPFP) counselling of women lead to improvement in knowledge of women on PPFP?	The evaluation found a statistically significant increase in the knowledge amongst mothers of IUCD/PPIUCD and the importance of birth spacing. Absolute levels of knowledge on the details of some of the methods were low – for example only 4% of women were aware of the correct timings for IUCD insertion.	Review approaches to see whether it is possible to further improve the translation of counselling into knowledge.
6. Does the intervention lead to increase in uptake of postpartum family planning (PPFP) services particularly PPIUCD? Does this translate into reduced unmet need in the postpartum period and changes in impact level indicators?	Overall, the uptake of family planning methods in the postpartum period increased significantly from 15% of mothers to 23% of mothers who had given birth in the last year. There was a significant increase in IUCD use (confirmed as driven by PPIUCD) from half a per cent of the sample to 2% of the sample, meaning that it now comprises 8% of the method mix. This translated into a significant reduction in unmet need in the postpartum period. Due to the lack of a counterfactual, it is not possible to attribute these improvements solely to the intervention. However, the evaluation broadly validates the links in the theory of change which gives some degree of confidence that the intervention is a major contributor to the observed changes in outcomes.	The intervention has demonstrated impact and should be considered for replication/scaling.

7.1.3 Sick Newborn Care Units Plus

Evaluation Question	Conclusion	Recommendation
1. Do the NIPI inputs (training and incentives) lead to changes in the knowledge of auxiliary nurse midwifes (ANMs) and community health workers (ASHAs)? Do the NIPI inputs lead to home visits by ANMs and ASHAs as per Sick Newborn Care Unit Plus (SNCU+) protocol?	The evaluation finds that the intervention was successful at significantly increasing the knowledge of ASHAs. The evaluation is unable to measure the effect on the knowledge of ANMs. Whilst the knowledge of ANMs of the SNCU+ protocol was high, very few newborns discharged from SNCUs received a home visit by the ANM. Reasons included the removal of incentives, the high facility workload of ANMs, and their distance from communities. Instead, home visits were predominantly made by ASHAs. Whilst the proportion of newborns who received at least one visit did not increase between the baseline and endline, the average number of visits for those who received at least one visit did increase significantly.	It is not recommended that the intervention is scaled because it has been demonstrated that ANMs do not make the home visits in the way that the intervention requires.
2. Do the home visits by ASHAs/ANMs lead to increased knowledge of mothers, and improved behavioural practices?	Home visits did not have any detectable effect on maternal knowledge but did have statistically significant effects on the proportion of mothers practicing kangaroo mother care (KMC) and exclusively breastfeeding during the newborn period.	Consider the lessons for improving the performance of ASHA home visit interventions such as HBNC.
3. Do the home visits lead to referral to facilities for further treatment of sicker newborns?	The proportion of newborns who were detected as being sick who were referred to facilities for treatment, and the proportion who were actually taken for treatment, fell between the baseline and endline. The theory of change of the intervention required outreach home visits by clinically trained, facility workers (ANMs) to diagnose danger signs, check adherence to discharge instructions, and refer sick children where necessary. It was believed that non-clinically trained ASHAs would not have the knowledge and skills to perform these tasks. The evaluation findings largely validate this theory of change. ASHA home visits were successful at increasing promotive behaviours of mothers (breastfeeding, continued KMC) which are in line with the ASHA's normal remit (and within HBNC guidelines) but not at increasing referrals which required more clinical knowledge and skills.	Consider the lessons for improving the performance of ASHA home visit interventions such as HBNC.

7.1.4 Regional resource centres for FBNCs

Evaluation Question	Conclusion	Recommendation
1. Are the resource centres and state-level structures functional according to the guidelines developed by NIPI?	The resource centres were found to be functioning, except for the one in Raisen, Madhya Pradesh, which the key informant reported to have closed down in early 2017.	N/A
2. What has been the contribution of NIPI (financing, equipment and support) to the functioning of the resource centres?	Key informants gave positive feedback on the contribution of the intervention on the resource centres, both directly and indirectly through trainings and observation/mentoring visits from the SRCs. Improvements were reported in staff knowledge and skills, and clinical practice in their own SNCUs.	N/A
3. Are the Newborn Stabilisation Units (NBSUs) and the Newborn Care Corners (NBCCs) delivering adequate quality services?	Facilities lacked the equipment, supplies, commodities and infrastructure to deliver the routine, basic emergency and comprehensive emergency newborn care they were providing to government standards. This would have required complementary inputs from the broader health system, particularly the supply chain system. The implication is that the intervention, which targeted processes at the service delivery level, was able to make tangible improvements but this was not sufficient to translate into quality service delivery without complementary reforms at the health systems level.	Reconsider the relative merits of intervening at the service delivery level (the facility) without also intervening at the health systems level (particularly for supply chains); and the balance between objectives of service availability and service quality.
4. What has been the contribution of the resource centres to the service delivery of NBSUs and NBCCs?	Respondents gave positive feedback on the contribution of the intervention to equipment maintenance, hygiene and infection prevention and staff skills at NBCCs. This suggests that the resource centres were successful at influencing processes that were within the control of facilities (hygiene and infection prevention, equipment maintenance) and augmenting the skills of existing staff.	The intervention has demonstrated success and can be considered for scaling/replication.

7.1.5 Strengthening Pre-Service Education in Nursing and Midwifery

Evaluation Question	Conclusion	Recommendation
1. Are the state-level structures functional according to the Government of India (GoI) guidelines (GOI, 2013)?	The evaluation showed that the state nodal centres (SNCs) were either meeting, or very close to meeting, the standards threshold set by the Government of India. This matched the internal assessments conducted for Jhpiego.	N/A
2. What has been the contribution of the NIPI inputs (financing, equipment and support) to the functioning of state-level structures?	Key informants gave consistent, positive feedback about the contribution of the intervention to the ability of SNCs to meet these standards and fulfil their mandate to support Auxiliary Nurse Midwife (ANM) and General Nurse Midwife (GNM) schools. In particular, improvements to teaching methods, clinical practice sites, and infrastructure (especially skills labs, computer labs and libraries) were cited.	N/A
3. Are the ANM and GNM schools functional according to the Government of India guidelines?	The evaluation data suggested that many of the ANM and GNM schools were slightly falling short of the standards threshold. Many informants reported that the skills labs, libraries and computer labs were not functional, which undermined the ability of schools to meet standards.	Review approaches to improving functionality of skills labs, libraries and computer labs.
4. What has been the contribution of the NIPI inputs (support to training infrastructure, educational processes and clinical skills labs) to the: (i) faculty of, and (ii) training provided by ANM and GNM schools?	The evaluation validates the more detailed internal assessments which have shown significant and positive change in the strength of the ANM and GNM schools. Key informants gave consistently positive feedback on the contribution of the intervention to improvements in teaching methodology, patterns of examination, student assessments and teacher evaluations. They also gave positive feedback on the contribution of the intervention to improving clinical supervision, infection prevention and biomedical waste management practices. The findings of the evaluation are consistent with the achievement of the expected project objectives and the theory of change.	The intervention has been shown to be successful and should be considered for replication/scaling.

7.2 SYNTHESIS LESSONS

7.2.1 Low community health worker coverage of interventions undermines effectiveness

Three interventions (HBNC+, SNCU+, and the demand generation component of postpartum family planning(PPFP)) relied upon increasing the amount of contact time between Community Health Workers (ASHAs and, for SNCU+, ANMs) and mothers and making this contact time more focused on targeted knowledge, behaviour and motivation to avail services.

For all interventions, coverage levels increased between baseline and endline but absolute levels were still low in treatment areas at the endline, with 39% of mothers receiving the complete set of HBNC+ home visits, 46% of children discharged from SNCUs receiving at least three home visits and 28% of mothers reporting having received counselling on family planning from an ASHA. This undermined the potential of the interventions to deliver significant improvements in outcomes at the population level.

The evaluation therefore suggests that introducing innovations in the services provided by Community Health Workers without addressing underlying system issues affecting their performance (such as incentives, supervision and workload) is unlikely to achieve high levels of effective coverage. This undermines the potential for efficacious interventions to translate into effectiveness.

7.2.2 The interventions at facility level were more successful at making services available than ensuring the quality of these services

The PPFP/PPIUCD and resource centres for FBNC interventions operated through establishing Training/Resource centres at the District level, and working through these to provide support to public facilities within the District.

This support was successful at increasing the availability of services at these facilities (including PPIUCD insertion and newborn care services), as well as some elements of service readiness. However, at the endline, the facilities systematically lacked the equipment, supplies and infrastructure to deliver these services to the standards mandated by the Government of India.

The evaluation therefore suggests that setting up district level training and resource centres may be effective at improving service availability at facilities but without addressing underlying system issues affecting the other inputs required for service delivery (such as supplies and equipment) this may not lead to services being made available at an acceptable quality.

The programme may want to consider the balance of focus between service delivery innovations and systems strengthening interventions. If it is not possible to intervene at the systems level, the level of ambition of what can be achieved at the service delivery level, as well as the ethical considerations of promoting services at substandard quality, need to be considered carefully.

References

Ahmed, S., Li, Q., Liu, L., & Tsui, A. O. (2012). Maternal deaths averted by contraceptive use: An analysis of 172 countries. *The Lancet* (380: 9837), 111-125.

Ahmed, S., Norton, M., Williams, E., Ahmed, S., Shah, R., Begum, N., … Baqui, A. H. (2013). Operations research to add postpartum family planning to maternal and neonatal health to improve birth spacing in Sylhet District, Bangladesh. *Global Health: Science and Practice* (1:2), 262-276.

Bhandari, N., Mazumder, S., Bahl, R., Martines, J., Black, R., & Bhan, M. (2004). An educational intervention to promote appropriate complementary feeding practices and physical growth in infants and young children in rural Haryana, India. *J Nutr* (134:9), 2342-8.

Bhutta, Z. A., Das, J. K., Rizvi, A., Gaffey, M. F., Walker, N., Horton, S., & Webb, P. (2013). Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *The Lancet, Volume 382*, 452-477.

Bhutta, Z. A., Das, J., Bahl, R., Lawn, J., Salam, R., Paul, V., … Group, L. E. (2014). Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? *The Lancet* (384:9940), 347-370.

Copestake, J. (2014). *Full guidelines for the Qualitative Impact Protocol (QUIP) Working Paper*. Bath: Centre for Development Studies, University of Bath.

Corbetta, P. (2003). *Social Research: Theory, Methods and Techniques*. Sage Publications.

Daelmans, B., Darmstadt, G. L., Lombardi, J., Black, M. M., Britto, P. R., Lye, S., … Richter, L. M. (2017). Early childhood development: the foundation of sustainable development. *The Lancet,* Volume 389, 9-11.

Foreit, K., Foreit, J., Lagos, G., & Guzman, A. (1993). Effectiveness and Cost-Effectiveness Of Postpartum IUD Insertion in Lima, Peru. *International Family Planning Perspectives* (19:1), 19-24.

Gabrysch, S., Civitelli, G., Edmond, K., Mathai, M., Ali, M., Bhutta, Z., & Campbell, O. M. (2012). New Signal Functions to Measure the Ability of Health Facilities to Provide Routine and Emergency Newborn Care. *PLoS Med* (9:11).

GOI. (2013). *Strengthening Pre-Service Education for the Nursery and Mid-wifery Cadre in India*. Retrieved from Nursing and Midwifery – Government of India (GOI): http://nursingand-midwifery.gov.in/preservice/Operational%20Guideline-Final%20Compiled-Jan,%202013%202nd%20edition.pdf

Grimes, Schulz, D., K, Van Vliet, H., & Stanwood, N. (2010). Immediate postpartum insertion of intrauterine devices. *Cochrane Database Systematic Review* Issue 5.

Hazir, T., Begum, K., Shams El Arifeen, Khan, A., Hamidul Huque, M., Kazmi, N., & Roy, S. (2013). Measuring coverage in MNCH: A prospective validation study in Pakistan and Bangladesh on measuring correct treatment of childhood pneumonia. *PLoS Medicine*.

Kumar, V., Mohanty, S., Kumar, A., Rajendra, M., Misra, P., Santosham, M., … Singh, J. (2008). Effect of community-based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh, India: a cluster-randomised controlled trial. *The Lancet* (372:9644), 1151-1162.

Malhotra, S., Zodpey, S., Vidyasagaran, A., Sharma, K., Raj, S., Neogi, S., … Saraf, A. (2014). Assessment of essential newborn care services in secondary-level facilities from two districts of India. *Journal of Health, Population and Nutrition* (32:1), 130-141.

Menon, P., H, N. P., Saha, K. K., Khaled, A., Sanghvi, T., Baker, J., … Rawat, R. (2016). Combining Intensive Counselling by Frontline Workers with a Nationwide Mass Media Campaign Has Large Differential Impacts on Complementary Feeding Practices but Not on Child Growth: Results of a Cluster-Randomized Program Evaluation in Bangladesh. *J Nutr* (146:10), 2075-2084.

Ministry of Health and Family Welfare, Government of India. (2014). *Home Based Newborn Care Operational Guidelines*.

Nair, N., Tripathy, P., Sachdev, H., Bhattacharyya, S., Gope, R., Gagrai, S., Prost, A. (2015). Participatory women's groups and counselling through home visits to improve child growth in rural eastern India: protocol for a cluster randomised controlled trial. *BMC Public Health* (15:384).

Nair, N., Tripathy, P., Sachdev, H., Pradhan, H., Bhattacharyya, S., Gope, R., … Saville, N. (2017). Effect of participatory women's groups and counselling through home visits on children's linear growth in rural eastern India (CARING trial): a cluster-randomised controlled trial. *The Lancet Global Health*, 1004-1016.

National Health Systems Resource Centre. (2015). *Evaluation of Accredited Social Health Activitists (ASHAs)*. http://pib.nic.in/newsite/PrintRelease.aspx?relid=116029.

National Rural Health Mission. (2011). *ASHA Module 6: Skills that save lives*. New Delhi: Government of India.

NIPI. (2013). *Norway India Partnership Initiative Phase-II Programme Document*. Retrieved from Norway India Partnership Initiative: http://www.nipi.org.in/wp-content/uploads/2016/08/33.pdf

NIPI. (2015). *Annual Progress Report – NIPI Newborn Project*.

NIPI. (2016). *NIPI Compendium of Innovations*. Retrieved from Norway India Partnership Initiative: http://www.nipi.org.in/wp-content/uploads/2016/08/39.pdf

NIPI. (Undated). *Follow-up after training on HBNC+ and community follow up of SNCU discharged newborns, supportive supervision; Module for ASHA Supervisor*.

OPM. (2014). *NIPI Phase-II Baseline Report*. New Delhi: Oxford Policy Management.

Ritchie, J., & Lewis, J. (2003). *Qualitative Research Practice*. Sage Publications.

Sambodhi Research and Communications. (2015). *Rapid Assessment of NIPI's Home Based Newborn Care Plus (HBNC+) in Rajasthan*.

Sebastian, M., Khan, M., Kumari, K., & Idnani, R. (2012). Increasing postpartum contraception in rural India: evaluation of a community-based behavior change communication intervention. *International Perspectives on Sexual and Reproductive Health (38:2)*, 68-77.

Sen, A., Mahalanabis, D., Singh, A., Som, T., & Bandyopadhyay, S. (2009). Impact of a d istrict level sick newborn care unit on neonatal mortality rate: 2-year follow-up. *Journal of Perinatology Issue 29*, 150-155.

USAID. (2012). *Unmet Need for Family Planning*. Retrieved from The DHS Program: https://dhsprogram.com/topics/unmet-need.cfm

USAID. (2014). *Couple Years of Protection (CYP)*. Retrieved from USAID Website: https://www.usaid.gov/what-we-do/global-health/family-planning/couple-years-protection-cyp

WHO. (2012). *Family planning: a health and development issue, a key intervention for the survival of women and children*. Retrieved from World Health Organisation: https://assets.publishing.service.gov.uk/media/57a08a7340f0b649740005d4/WHO_RHR_HRP_12.23_eng.pdf

WHO. (2013). *Programming strategies for post-partum family planning*. Retrieved from World Health Organisation: http://apps.who.int/iris/bitstream/10665/93680/1/9789241506496_eng.pdf?ua=1

WHO. (2015). *Service Availability and Readiness Assessment (SARA): An annual monitoring system for service delivery*. Retrieved from World Health Organization: http://www.who.int/healthinfo/systems/SARA_Reference_Manual_Full.pdf

WHO. (2016). *Children: Reducing Mortality Fact Sheet*. Retrieved from World Health Organization.

Yousafzai, A., Rasheed, M., Rizvi, A., Armstrong, R., & Bhutta, Z. (2014). Effect of integrated responsive stimulation and nutrition interventions in the Lady Health Worker programme in Pakistan on child development, growth, and health outcomes: a cluster-randomised factorial effectiveness trial. *The Lancet Vol. 384 Issue 9950*, 1282-1293.

Annex 1: Terms of Reference

Impact Evaluation of the Norway-India Partnership Initiative

1. Introduction

The Evaluation Department in Norad issues a request for proposals from researchers/ consultants interested in designing and conducting an impact evaluation of the Norway-India Partnership Initiative (NIPI) Phase-II. This tender defines impact evaluation as a study of the *attribution of changes* in the *outcome* to the *intervention.* Impact evaluations have either an *experimental* or *quasi-experimental design.*[45]

The NIPI is one out of five bilateral partnerships the Norwegian government has entered into with the intention to contribute to the achievement of the Millennium Development Goals 4 and 5; to reduce child mortality and improve maternal health.

Phase I of NIPI is coming to an end (2006-2012) and the scope of Phase-II (2013-2017) is currently being developed. NIPI phase I (planned to invest NOK 500 million (US $ 81.1 million) in support of the National Rural Health Mission (NRHM) in four states in India (Bihar, Rajasthan, Madhya Pradesh and Odisha). [46] [47] The funding is channelled through multiple partners including United Nations Office for Project Services (UNOPS), United Nations Children Fund (UNICEF) and World Health Organisation (WHO). No funds were received directly by the Government.

Phase-II of the partnership initiative will continue to support activities in the same states channelled through multiple partners, although some of the partners will be replaced by new ones. The total budget estimated for Phase-II is NOK 250 million. Phase-II of the initiative will focus on the following:

- Improve and scale up quality continuum of care interventions at community and facility level in NIPI and selected non-NIPI districts;
- Establish a mechanism for sustainable institutional collaboration between Norwegian and Indian public and private institutions in areas related to women's and children's health;
- Facilitate linkages between NRHM and selected relevant global health initiatives.

45 See http://www.3ieimpact.org/media/filer/2012/07/11/impact_evaluation_glossary_-_july_2012_3.pdf.

46 Actual investments in the period 2006-2012 amounts to NOK 330 million.

47 The Norway-India Partnership Initiative phase I intended to start up in five states, but only started in four.

In 2010, both a mid-term review of the NIPI partnership and an evaluability study were conducted. The latter was done in order to assess the extent to which the NIPI activities can be evaluated in a reliable and credible fashion. The study pointed out the existence of numerous sources of data. In November 2011, a technical report "Assessing and Supporting NIPI interventions" was published by the Public Health Foundation of India/University of Oslo.

2. Purpose

The purpose of this tender is to evaluate the impact and effectiveness of the types of interventions financed by the Norwegian government initiative for support to the achievement of the Millennium Development Goals 4 and 5. The case to be evaluated is the Norway-India Partnership Initiative Phase-II.

The evaluation is intended to inform the international and Norwegian public and government about what works and what does not work and why of the interventions supported through the Norway-India Partnership Initiative. This will also be an important contribution to the international debate around the post-2015 MDGs.

The main users of the findings of the evaluations will be the Ministry of Foreign Affairs (MFA) in Norway, the Government of India, the programme management and the government structure of the NIPI and other stakeholders who have direct or indirect interest in the subject of this evaluation. In this context, the MFA refers to its political leadership, its officials, the Norwegian Embassy in New Delhi and the Norwegian Agency for Development Cooperation (Norad). NIPI refers to the Secretariat, the Programme Management Group and the Joint Steering Committee. The stakeholders include implementing partners (United Nations programmes and non-governmental organisations).

3. Objectives and scope

The evaluation will be conducted in two steps that build on each other cumulatively. The main objectives are:

- *Step 1:* To develop an impact evaluation design for the NIPI Phase-II, and:
- *Step 2:* To conduct the impact evaluation of NIPI Phase-II including a cost benefit or a cost effectiveness analysis.

Step 2 will be initiated only subject to a final approval of the methodological inception report proposed evaluation design by Norad's evaluation department. Norad reserves the right to approve only parts of the proposal, the remuneration shall then be reduced accordingly. The time period covered by the impact evaluation will be specified by the researchers as part of the evaluation design proposal. It is however expected that the timelines specified under *Part 1: Tender Specification* in this document, will be respected.

4. Methodological Comments and Work Plan

The tenderer is expected to propose a preliminary technical proposal with regard to the impact evaluation design of NIPI Phase-II, on the basis of the information in the ToR and the background documents/underlying documents attached to this tender.[48] The Evaluation department recognizes that the background documents are not sufficient to propose a detailed design. The proposals will be assessed on the basis of the discussions around the evaluation questions, proposed design, choice of methods and estimated sample size.

It is expected that the proposed evaluation questions and indicators be closely linked to the main project objectives and indicators[49]. The tenderers are also encouraged to look at potential unintended effects of the program. The tenderer should describe briefly the evaluation question(s) to be addressed, and how the proposed evaluation design will establish attribution through the use of quasi-experimental approaches (e.g. regression discontinuity, matching techniques, instrumental variable, *difference* in *differences).* As far as possible, the description should also explain how the design will address a) confounding factors; b) selection bias; c) spill-over effects; and d) impact heterogeneity. The tenderer is further expected to propose the use of mixed methods, and supplement the quantitative analysis of program effects with qualitative data to better understand how the program functioned The tender is expected to address cross-cutting issues related to gender, equity, quality and sustainability. In addition the tenderer should perform a cost benefit or a cost effectiveness analysis.

The selected tenderer will be requested to further develop the proposed impact evaluation design which will be presented in the inception report and validated in a workshop in India with the relevant stakeholders.

The workshop is expected to build capacity in the use, design and understanding of impact evaluations and to develop a common understanding of the key impact evaluation questions. The methodological inception report for the approval by Norad's evaluation department.

The evaluation team is required to identify local researchers to participate in the evaluation team.

The proposals shall follow relevant DAC evaluation guidelines, including a demonstration of how triangulation of methods, and multiple information sources are being used to substantiate findings and assessments. Poorly substantiated findings will not be accepted. In connection with questions where the team does not find sufficient information to make meaningful assessments, the team will list the sources sought and not found and / or describe the type of information sources they would have required to carry out such an assessment. In addition, the 3ie principles of impact evaluation will apply".[50]

48 Evaluability Study of Partnerships Initiatives, Report 9/2010 Study, Evaluation department, Norad; Final report of the Mid Term Review, 2010. Ashok Dutta, Rani Gera, Antoinette Pirie, Stein-Erik Kruse; Assessing and Supporting NIPI interventions, Technical report, November 2011, Public Health Foundation of India/University of Oslo; Summary Norway India Partnership Initiative (NIPI) Phase II, November 2012.

49 Indicators to be continued from phase I: Infant mortality rate, neonatal mortality rate, children fully immunized, Institutional births (%), Average retention period (hours) in case of institutional delivery (hours), Postnatal care provided to mothers and neonates, Children had checkup within 10 days after delivery (%), New born babies – breastfed within 1 hour of birth (%), Referral done for pregnant mothers with illness and complications (%), Labour rooms with a newborn corner matching existing standards (%), State level allocation of NRHM funds for Maternal Child Health (MCH).

50 http://www.3ieimpact.org/media/filer_public/2012/04/20/principles-for-impact-evaluation.pdf.

5. Budget and Deliverables

The maximum budget for the overall assignment is NOK 3 millions.

The tenderer shall provide a total budget for the assignment including daily rates for the principal investigators, the time allocated to the local team members and the time/cost for the stakeholder workshop, data collection including estimated sample size, preliminary checking of administrative data, piloting surveys, site visits, researcher time and compensation for travel time used in intercontinental travel (maximum 7 hrs. travel time per intercontinental journey).

The ***deliverables*** in the consultancy consist of the following outputs:

- ***Methodological Inception Report:*** The inception report will include the proposed designs including questionnaire and sample selection, a summary of all other activities completed during the inception phase, a note on any problems that have occurred and how they were resolved; and a list of any products (for example, training materials) produced, to be included as annexes to the report. The report should also contain a full annotated list over available data. The inception report shall be prepared and discussed with the stakeholders before approval by Norad's evaluation department.

- ***Baseline report***

- ***Prècis of the baseline report*** (2 pages)

- ***Midterm/progress report:*** A brief note on progress including information about problems that have occurred, if any, and how they were resolved (4 pages).

- ***Draft Impact Evaluation Report*** for preliminary approval by EVAL for circulation to the stakeholders. The stakeholders shall provide feedback that will include comments on structure, facts, content, and conclusions.

- ***Final Impact Evaluation Report***

- ***Prècis of the final report*** (2 pages)

- ***Seminar*** for dissemination of the final impact evaluation report in Oslo/Norway and in New Delhi/India.

Direct travel-cost related to dissemination in India, will be covered separately on need basis, and are not to be included in the tender budget.

All presentations and reports (to be prepared in accordance with EVAL's guidelines given in *Annex A-3 Guidelines for Reports* of this document) are to be submitted in electronic form in accordance with the deadlines set in the time-schedule specified under *Section 2 Administrative Conditions in Part 1 Tender specification* of this document. The data collected during the study shall be submitted in EXCEL format. EVAL retains the sole rights with respect to all distribution, dissemination and publication of the deliverables.

List of tables

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The following figures can be found in the annexes:

List of Abbreviations

AMTSL	Active Management of Third Stage of Labour
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ANMTC	Auxiliary Nurse Midwife Training Centre
ASHA	Accredited Social Health Activist
ATT	Average Treatment Effect on the Treated
AWW	Anganwadi Worker
BP	Blood Pressure
CHC	Community Health Centre
CLE	Continued Learning Education
CPR	Contraceptive Prevalence Rate
CYP	Couple Years of Protection
DALY	Disability Adjusted Life Year
DH	District Hospital
DHS	Demographics and Health Services
Diff-in-Diff	Difference-in-Differences
DPT	Diphtheria, Pertussis, Tetanus
ECCD	Early Childhood Care and Development
EH	Engender Health
EmONC	Emergency Obstetric and Newborn Care
ETAT	Emergency Triage and Treatment
FBNC	Facility Based Newborn Care
FCC	Family Centred Care
FGD	Focus Group Discussion
FP	Family Planning
FRU	First Referral Unit
GNM	General Nurse Midwife
GOI	Government of India
GPS	Global Positioning System
HBNC	Home Based Newborn Care
HBNC+	Home Based Newborn Care Plus
HMIS	Health Management Information System
IDI	In Depth Interview
IFA	Iron and Folic Acid
IMNCH	Integrated Maternal, Newborn and Child Health
IMNCI	Integrated Management of Newborn and Childhood Illness
IMR	Infant Mortality Rate
INAP	India Newborn Action Plan
INC	Indian Nursing Council
IPHS	Indian Public Health Standards
ITT	Intention to Treat
IUCD	Intrauterine Contraceptive Device
KII	Key Informant Interview
KMC	Kangaroo mother care
LAM	Lactational Amenorrhoea Method
LBW	Low Birth Weight
MCP	Mother and Child Protection Card
MCTS	Mother and Child Tracking System
MDE	Minimum Detectable Effect
MFA	Ministry of Foreign Affairs
MNCH	Maternal, Newborn and Child Health
MoHFW	Ministry of Health and Family Welfare
MP	Madhya Pradesh
MSI	Marie Stopes International
MTR	Mid-Term Review
NBCC	Newborn Care Corner
NBSU	Newborn Stabilisation Unit
NFHS	National Family Health Survey
NHM	National Health Mission
NIPI	Norway-India Partnership Initiative
NMR	Neonatal Mortality Rate
NNC	National Nodal Centre
Norad	Norwegian Agency for Development Cooperation
NRHM	National Rural Health Mission
OLS	Ordinary Least Square

OPM	Oxford Policy Management
ORS	Oral Rehydration Solution
OSCE	Objective Structured Clinical Examination
PHC	Primary Health Centre
PIP	Program Implementation Plan
PNC	Post-Natal Care
PPFP	Post-Partum Family Planning
PPIUCD	Post-Partum Intra Uterine Contraceptive Device
PPS	Probability Proportional to Size
PSE	Pre-Service Education
PSU	Primary Sampling Unit
QOC	Quality of Care
QUIP	Qualitative Impact Protocol
RMNCH+A	Reproductive, Maternal, Newborn and Child Health + Adolescent
SARA	Services Availability and Readiness Assessment
SBM-R	Standards Based Management and Recognition
SDH	Sub-District Hospital
SNC	State Nodal Centre
SNCU	Sick Newborn Care Unit
SNCU+	Sick Newborn Care Unit Plus
SNCU-TTC	Sick Newborn Care Unit Teaching and Training Centre
SRC	State Resource Centre
SRS	Sample Registration System
TFR	Total Fertility Rate
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
VHSND	Village Health, Sanitation and Nutrition Day
VIF	Variance Inflation Factor
WHO	World Health Organisation

List of Annexes

ANNEXES

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