Measuring interactions and intervention coverage for mothers and newborns in Gombe State, Nigeria

November 2015 Facility and Birth Attendant survey protocol

TABLE OF CONTENTS

BACKGROUND INFORMATION

IDEAS is a 5 and a half year (December 2010 - May 2016) measurement, learning, and evaluation grant implemented by the London School of Hygiene and Tropical Medicine and funded by the Bill & Melinda Gates Foundation (BMGF). IDEAS aimed to determine whether enhanced interactions between families and front line workers lead to better coverage of critical interventions for mothers and newborns. In addition, in 2015 IDEAS has worked with BMGF funded grantees in Gombe State to develop and refine a results framework that can be used to track desired outcomes in the State. The IDEAS grant measurement, learning and evaluation quantitative data partners are Data Research and Mapping Consult Limited.

It is estimated that 500,000 women die each year from complications of pregnancy and childbirth and about 55,000 of these occur in Nigeria. This means that 10% of all maternal deaths in the world occur in Nigeria, making Nigeria second only to India in terms of total maternal deaths. Within Nigeria, maternal mortality is highest in the Northeastern region of the country with a maternal mortality ratio of 576 deaths per 100,000 live births[1]. Some factors that contribute to the high maternal mortality include: lack of antenatal care and skilled attendance at birth, delays in the treatment of pregnancy-related complications, poverty, and the low status of women. Added to this burden, neonatal mortality (deaths in the first 28 days of life) is also high in Nigeria and estimated to be 37 neonatal deaths per 1,000 live births (again with higher rates in the Northeastern region, 43 per 1,000)[2].

STUDY SETTING FOR THIS WORK

IDEAS works with four implementation grantees in Gombe State. These are the Society for Family Health (SFH), PACT, Evidence4Action (E4A) and Champions for Change (C4C). Collectively these grantees implement innovations to increase demand for care, to improve supply of quality care, and to advocate for better maternal and newborn care in the State.

INDICATORS OF INTERVENTIONS, CONTACTS, AND INNOVATIONS

A results framework for Gombe State has been developed that incorporates indicators relevant to track targets set by grantees, and relevant to the State. Multiple data collection methods are required across the list of indicators, and those using survey methodologies to be implemented by IDEAS are detailed in annex 1. Two tables are presented: one for coverage of life saving interventions, one for indicators of contacts with the health service and with grantee innovations. Note that indicators derived from household surveys are included in order to present the complete survey measurement matrix - but this protocol only outlines data to be collected at the health facility level in November 2015.

IDEAS OBJECTIVE

To gather, analyse and synthesise evidence in Gombe State to inform the results framework, and to test and validate methodologies for estimating coverage of life saving interventions for mothers and newborns.

IDEAS STUDY DESIGN

The study design in November 2015 is based on a facility survey with four linked elements.

[1] Nigeria DHS 2013

[2] Nigeria DHS 2013

First, in a sample of 106 primary health facilities plus 19 secondary health facilities a facility readiness survey will be carried out using standard survey tools (compatible for example with the SARA and SPA survey instruments).

Second, at each facility a data extraction process will take place to collate information from antenatal and maternity registers as required. This information will be used both to determine the volume of antenatal and delivery events at each facility, and to ascertain quality and completeness of routine reporting.

Third, at each facility an interview will be carried out with the birth attendant who attended the last woman to have delivered a baby in that facility. The birth attendant interview will provide information about training and supervision, about capabilities and skills, and about behaviour during the last birth attended.

Finally, in four high volume facilities, observations of labour and delivery will be carried out as part of the testing and validation work on intrapartum interventions.

SAMPLE SELECTION

Health facilities

In 2012 and 2015 the IDEAS project implemented a measurement protocol in Gombe State that included a State-wide population level sample of 80 household clusters, each with a linked primary health facility and a secondary health facility where available: as such in the May 2015 survey IDEAS surveyed 80 primary facilities that were linked to household clusters plus 19 secondary facilities.

In October 2015 the PACT project purposively selected 57 facilities in which to implement its innovations to improve the quality of maternal and newborn health care, and the SFH grant demand-generation activities were aligned to the same communities that access these 57 facilities.

A mapping exercise revealed that the IDEAS sample of facilities overlapped with 20 of the PACT 57 facilities, the remainder being in other wards and local government areas of the State. In order to maximize the analytic potential to track change in areas where PACT and SFH are working compared to areas where these grants are not present, IDEAS has retained its original sample of 80 PHC facilities and in addition has added all other PACT facilities to its sampling frame. Thus the November 2015 facility sample represents a census of the 57 PACT facilities, plus a sample of the PHC and secondary facilities accessed by a representative sample of the population of Gombe State.

Frontline workers

In each sampled facility, the health worker who conducted the last delivery will be invited for interview. Where maternity registers exist this birth attendant will be identified from the register; where registers do not exist the in-charge of the facility will be asked who performed the last delivery.

Observation of labour and delivery

Interventions to save maternal and newborn lives can be delivered by skilled birth attendants but to date the measurement of these life saving interventions is weak and our understanding of coverage is poor. By conducting observations of births we aim to generate gold standard measures of intervention coverage that can also be used to validate the quality of evidence generated using other facility measures (for example using routine records or using birth attendant reports).

Four high volume health facilities in Gombe State will be selected on the basis of the volume of births during the previous six month period. It is estimated that a sample of 160 observed births will be sufficient to estimate the coverage of routine intra-partum interventions, and will provide vital pilot data to inform future measurement approaches for rare intra-partum interventions. This number is also sufficient to reduce the impact of the anticipated Hawthorne Effect (whereby health workers change their behaviour during observations so that recordings may not be typical) which has been observed to diminish after the first eight observations.

In each health facility, two observer-midwives from Gombe State (but not from that health facility) will be posted to observe a sample of births occurring there for a period of 10 days. Because we anticipate that care may differ by day or night hours, or by day of the week, the observer-midwives will work on a shift rotation so that during the first five days one midwife will observe births occurring in 8 day light hours, the other observer-midwife observing births occurring during an 8-hour night shift. After five days they will swop rotations to complete the 10 day observation period.

At all times during the observation the observer-midwife will prioritise safety of the mother and newborn over data collection and clear protocols will be provided to stop the observation in the event of any life threatening occurrence. The first action will be to call for a supervisor or other colleague who is authorized to work in that facility. In the event that no supervisor or other colleague is available, the second action of the midwife-observer will be to assess whether s/he is able to provide the necessary emergency care and stop the observation. The final protocol for emergency care will be defined in collaboration with the Gombe State Primary Healthcare Agency. Midwives conducting observations will be supervised in this activity by an experienced data collector who will check on the consent process and on completeness of all work.

The selection of four facilities with a high volume of births was based on data collected in the June 2015 facility survey. Health facilities were ranked by volume of births in the previous six months and eight facilities identified to have volume of four or more births per day on average (required to meet our desired sample size of 160 observations within 10 days of fieldwork[3]). By local government area there was: 1 high volume facility in Yamaltu/Deba, 2 in Gombe Town, 1 in Funakaye, and 4 in Akko. To maximize the distribution of observation data across the State the high volume facility in Yamaltu/Deba and in Funakaye were selected, and 1 high volume facility from each of Gombe Town and Akko were selected based on closest proximity to existing household survey clusters.

SAMPLE SIZE FOR FACILITY SURVEY

Because of the purposive nature of the census of 57 facilities for the PACT grant, a retrospective sample size calculation has been done to illustrate the percentage point increases that can be detected between two points in time. The same information is also provided for the size of facility sample as a whole. To estimate change in a range of illustrative indicators at 5% significance and with 80% power, a sample of 125 facilities will be sufficient to detect changes between surveys at two points in time of between 12-18 percentage points depending on the indicator. The sample of 57 PACT facilities is sufficient to detect changes of between 22-26 percentage points.

[3] We estimate that with 160 observations, of which 128 would be used for analysis, we will be able to estimate coverage of any indicator to within plus or minus 9 percentage points.

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Table 4. Sample size to detect change between two points for a range of illustrative facility indicators: (based on estimates from IDEAS facility survey, 2015)

Sample Indicator	**Expected level at 2015 %**	**Sample size (PHC facilities surveyed to detect percentage point increases of:**	
		125 facilities	57 facilities
% of PHCs with a trained nurse/midwife employed	50	18	26
% of facilities with uterotonics in stock on day of survey	83	12	23
% of birth attendants who had all items of a clean birth kit at last delivery	10	13	22

TIMING OF IDEAS NOVEMBER 2015 SURVEY IN GOMBE

Precise details of the implementation timetable for the IDEAS household and frontline worker baseline survey will be determined in partnership with the IDEAS Nigeria Measurement, Learning and Evaluation Partner Data Research and Mapping Consult Ltd. However a guide schedule of survey development and implementation is shown in the table below.

Table : Proposed dates for the IDEAS endline survey in Gombe State

Activity	**Completion date**
Data Research and Mapping Consult Ltd contract with IDEAS	Sept 2015
Submit ethical approval applications	Oct 2015
Discussion and agreement of responsibilities and timetabling	Oct 2015
Revise list of facilities to be visited	Oct 2015
Pre test survey tools in Gombe State	Oct 2015
Produce final survey tools and protocol	2nd Nov 2015
Prepare training manual for survey team	Nov 2015
Check all approvals in place	Nov 2015
Train survey teams	16th Nov 2015
Implement facility and frontline worker survey	23rd Nov 2015
Complete data collection	7th Dec 2015
Complete data entry and cleaning	21st Dec 2015
Preliminary results available for dissemination	Jan 2015

ETHICAL APPROVAL

Ethical approval has been sought from the Federal level in Nigeria and subsequently will be sought at the State level. In addition, an amendment to existing ethics approval at the London School of Hygiene and Tropical Medicine to cover the observation work has been submitted.

ANONYMISING DATA

At the end of the data collection period, all data will be anonymised prior to analysis. The lowest unit of identification for each data point will be the Ward.

WRITTEN INFORMED CONSENT

Written informed voluntary consent must be obtained from all respondents interviewed. This includes written informed voluntary consent from birth attendants being interviewed and, in the four high volume facilities, those being observed during their care of labour and childbirth; and from all women attending the four high-volume facilities for delivery to explain the purpose of the work and to ask for written informed consent for their delivery to be observed. If an individual does not give consent then the observation or interview will not take place and the individual will not be affected in anyway. The consent form will be read exactly as it is written. The form explains the purpose of the survey. It assures the respondent her participation in the survey is completely voluntary and that she can refuse to answer any questions or stop the interview/observation at any point. After reading the statement, the respondent must sign in the space provided to affirm that the form has been read out. In cases where respondents are not able to sign, the respondent should put a thumb print on the form and a literate witness sign to confirm that the full consent process took place. English versions of the consent forms are provided but these will be translated to Hausa for the purpose of implementation.

ANNEX. INDICATORS FROM THE GOMBE RESULTS FRAMEWORK THAT USE FACILITY OR HOUSEHOLD METHODS

Table A1 . Measurement approaches for life saving interventions

Item	Indicator summary	Denominator	6 mth	12 mth	Data source(s)	**C**ore or **A**spirational*
Magnesium Sulfate (MgSo4)	% of facilities with MgS04 available	# of facilities surveyed	X		6-monthly facility survey	C
	% of women with pre-eclampsia who are treated with IV/IM MgS04	# of women admitted to surveyed facilities with pre-eclampsia	X		Explore potential of routine facility records	A
Newborn Resuscitation	% of facilities with a bag and mask for resuscitation	# of facilities surveyed	X		6-monthly facility survey	C
	% of newborns delivered in a facility with breathing problems who are resuscitated with bag and mask	# of live births in a facility in the last 6 months	X		Explore potential of routine facility records	A
		# of live births observed	X		6-monthly observations	A
		# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	A
		# of women aged 15-49 with a live birth		X	Household survey	A
		Est. population level		X	Linking household access and 6-monthly facility/FLW surveys	A
	# of birth attendants with capability of resuscitation	# birth attendants doing skills assessment	X		6-monthly FLW survey	A
Uterotonics	% of facilities with uterotonics available	# of facilities surveyed	X		6-monthly facility survey	C
		# of live births in a facility in the last 6 months	X		Explore potential of routine facility records	A

	% of women who received prophylactic uterotonics at their last delivery	# of live births observed	X		6-monthly observations	A
		# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	A
		# of women aged 15-49 with a live birth in last 12m		X	Household survey	A
		Est. population level		X	Linking household access and 6-monthly facility/FLW surveys	A
pPRoM	% of facilities with oral or injectable antibiotic	# of facilities surveyed	X		6-monthly facility survey	C
	% of facilities with erythromycin in stock	# of facilities surveyed	X		6-monthly facility survey	A
	% of pregnant women with pPRoM who are not in labour and are given oral erythromycin\other appropriate	# of women admitted to facility with pPRoM in last 6m	X		Explore potential of routine facility records	A
Thermal care	% of newborns receiving skin-to-skin contact in the delivery room/place [revised from within 30 min of birth]	# of women aged 15-49 with a live birth in last 12m		X	HH survey	A
		# of live births observed	X		6-monthly observations	A
		# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	A
		Est. population level		X	Linking household access and 6-monthly facility/FLW surveys	A
	% newborns with delayed bathing for the first 24 hours of life	# of mothers aged 15-49 with a live birth		X	HH survey	C
		# of women aged 15-49 with a live birth in last 12m		X	HH survey	A

	% of newborns dried within 1 minute of birth (immediately)	# of live births observed	X		6-monthly observations	A
		# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	A
		Est. population level		X	Linking household access and 6-monthly facility/FLW surveys	A
Chlorhexidine	% of facilities with CHX available	# of facilities surveyed	X		6-monthly facility survey	C
	% of newborns receiving chlorhexidine	# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	A
	% of newborns receiving clean cord care	# of mothers aged 15-49 with a live birth		X	HH survey	C
	% of newborns having CHX 7.1% w/v (of an appropriate formulation) applied to the cord stump within the first 24 hours of life	# of mothers aged 15-49 with a live birth		X	HH survey	A
Immediate Breast-feeding	% of newborns breastfeeding within 1 hour of delivery	# of women aged 15-49 with a live birth		X	HH survey	C
		# of live births observed	X		6-monthly observations	A
Exclusive breast-feeding	% of infants receiving exclusive breastfeeding through first six months	# of infants under 6 months of age		X	HH survey	C
	% of newborns exclusively breastfed for first 28 days	# of live births in the last 12 months.		X	HH survey	C

	% of newborns exclusively breastfed for first 3 days	# of live births in the last 12 months.		X	HH survey	C
Infection Prevention	% women who received a test result for syphillis during their last pregnancy	# of women age 15-49 with a live birth in the last 12m		X	HH survey	C
	% of facilities with test kits in stock	# of facilities surveyed	X		6-monthly facility survey	C
	% of facilities with treatment in stock	# of facilities surveyed	X		6-monthly facility survey	C
	% of women tested for syphillis during their last pregnancy and given treatment if needed	# of pregnant women testing positive	X		Explore potential of routine facility records	A
		Est. population level		X	Linking household access and 6-monthly facility surveys	A
	% of newborns with suspected sepsis treated with anitibiotics	# of newborns with reported danger signs		X	HH survey	A
		# of newborns attending facility with danger signs	X		Explore potential of routine facility records	A
	% of facilities with treatment in stock	# of facilities surveyed	X		6-monthly facility survey	C
		Est. population level		X	Linking household access and 6-monthly facility surveys	A
	% women who received a full course of IPTp per national guidelines during their most recent pregnancy	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of women age 15-49 attending ANC in last 6m	X		Explore potential of routine facility records	A

	% facilities with benzathine penicillin in stock	# of facilities surveyed	X		6-monthly facility survey	C
	% of birth attendants who had all items of a clean delivery kit available at the last birth attended	# of FLWs interviewed about last birth attended	X		6-monthly FLW survey	C
		# of live births observed	X		6-monthly observations	A
	% women with a live birth in the last 12 months who delivered in a facility and used a CDK at the last delivery	# women with a live birth in a facility [Note this indicator is still not clear]		X	HH survey	A
	% of facilities with soap and running water or alcohol based hand rub	# of facilities surveyed	X		6-monthly facility survey	C
	% deliveries where delivery attendant washed hands with soap	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of live births observed	X		6-monthly observations	A
Kangaroo Mother Care	% of facilities where space is identified for KMC and at least one staff member has received training	# of facilities surveyed	X		6-monthly facility survey	C
	% of preterm or low birth weight infants put on KMC in facilities	# of preterm or low birth weight infants in facilities last 6 m	X		Explore potential of routine facility records	A

*Core: indicators for which a robust measurement approach is already established
*Aspirational: indicators for which no robust measurement has been established, part of the testing and validation work

Table A2. Measurement approaches for quality of contacts and exposure to innovations

Item	Indicator summary	Denominator	6 mth	12 mth	Data source(s)	**C**ore/ **A**spirational/ **I**nnovation
ANC	% of women who were attended at least four times during their last pregnancy by any provider for reasons related to the pregnancy	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of women attending ANC last 6 m	X		Explore potential of routine facility records	A
	% women who received a urine test during their last pregnancy	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of women attending ANC last 6 m	X		Explore potential of routine facility records	A
	% women who received a blood test during their last pregnancy	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of women attending ANC last 6 m	X		Explore potential of routine facility records	A
	% women who had their BP measured during their last pregnancy	# of women age 15-49 with a live birth in the last 12 m		X	HH survey	C
		# of women attending ANC last 6 m	X		Explore potential of routine facility records	A
SBA	% of live births with a skilled attendant (doctor, nurse midwife, and auxiliary nurse/ midwife)	# of women age 15-49 with a live birth in the last 12 months		X	HH survey	C

	% of deliveries assisted by a skilled provider (doctor, nurse midwife, and auxiliary nurse/ midwife)	# births in facility last 6m	X		Explore potential of routine facility records	A
	% facilities with a trained midwife (i.e. newborn resuscitation, etc [see Jhpeigo curriculum)) available 24/7.	# of facilities surveyed [Note this indicator still needs some work]	X		6-monthly facility survey	C
PPC	% of women who had a post-partum check-up within 2 days of birth	# of women age 15-49 with a live birth in last 12m		X	HH survey	C
PNC	% of newborns who had a post-natal check-up within 2 days of birth	# of women age 15-49 with a live birth in last 12m		X	HH survey	C
Institutional delivery	% of live births in facilities (public & private)	# of women age 15-49 with a live birth in last 12m		X	HH survey	C
	% members of mothers' group with a live birth in the last 12 months who delivered in health facility	# of mothers' group members aged 15-49 with a live birth in the last 12m		X	HH survey	C
BEmONC	% of health facilities providing all BEmONC signal functions (ready for use)	# facilities surveyed	X		6-monthly facility survey	C
CEmONC	% of district hospitals providing all CEmONC signal functions (ready for use)	# facilities surveyed	X		6-monthly facility survey	C
HCW capability	% of FLW able to correctly manage following complications as assessed by simulation or clinical vignette: pre-eclampsia, neonatal resuscitation, pPRoM, neonatal sepsis, PPH, [to be finalized]	# FLWs surveyed/observed [Note indicator still to be worked on – no tested tools currently exist for most of these]	X		?6-monthly FLW/Facility survey linked to observations	

	% of FLW trained in newborn resuscitation	# FLWs surveyed	X		6 monthly facility/FLW surveys	C
	% CHEWs trained under the State Task Shifting policy	# CHEWs employed in the State [Note indicator still to be worked on – doesn't fit survey]	X		??Facility survey, FLW survey, HMIS??	
Mothers' Group membership	% women aged 15-49 participating in Mothers' Groups (registered and attending at least 80% of Health Education sessions in last 3 months)	# of women age 15-49		X	HH survey [Note ability to measure this is dependent on number of women in mothers groups at time of survey]	I
Home visit by FLW	% of women reached by Village Health Workers volunteers during their last pregnancy	# of women age 15-49 with a live birth in the last 12 months		X	HH survey	I
	% women who delivered in the last 12 months who were visited by a VHW at least four times during pregnancy and at least twice during the first week after delivery.	# women who delivered in the last 12 months		X	HH survey	I
ETS	% women who reported using ETS for their last delivery.	# of women age 15-49 with a live birth in the last 12 months		X	HH survey	I
	% women aged 15-49 with a live birth in the last 12 months who reported that they had heard of ETS.	# of women age 15-49 with a live birth in the last 12 months		X	HH survey	I

Call center	% women with a live birth in the last 12 months who have ever used the Call Centre	# of women age 15-49 with a live birth in the last 12m [Note may not be relevant]		X	HH survey	I
	% women aged 15-49 with a live birth in the last 12 months who reported that they had heard of the call centre.	# of women age 15-49 with a live birth in the last 12m [Note may not be relevant]		X	HH survey	I
Respectful care	% facilities with a written policy available on respectful maternity care	# facilities surveyed.	X		6-monthly facility survey	C
	TBD [Note indicator still needs work]	Women	?	?	Can be integrated in HH survey &/ fac survey &/ observations	A
	% of clients / patients satisfied with the quality of intrapartum care in PHCs	# of women with a live birth in a facility in the last 12m [Note indicator still needs work]		X	HH survey	A
	% facilities with a labour ward providing private space for the women and her companion of choice at time of birth	# facilities surveyed	X		6-monthly facility survey	C
SFH specific	% women with a live birth who registered for maternal care at a facility as a result of contact with a village health worker	# women with a live birth who registered for maternal care at a facility [Not sure what this means for the HH survey]		?	SFH monitoring. HH Survey	I
	% neonates delivered in the last 12 months referred to a facility by a village health worker for newborn complications	# neonates delivered in the last 12 months with NB complications [Not sure what this means for the HH survey]		?	HH Survey	I

	% facilities with at least one health care provider trained in ENC, KMC, NB resuscitation and AMSTL, and Misoprostol use, available 24/7.	# facilities surveyed	X		6-monthly facility survey	I
Mothers' groups	% mothers' group members who intend to deliver in a health facility for their next pregnancy	# mothers' group members who report that they intend to get pregnant [Note indicator still needs work]		X	??HH survey; SAQIP Monitoring	I
	% of mothers' group members with knowledge of at least two danger signs relating to pregnancy, labour and the postnatal period	# mothers' group members		X	HH survey, SAQIP Monitoring [Note ability to measure this is dependent on number of women in mothers groups at time of survey]	I
	% members of mothers groups who participate in household decision-making.	# mothers' group members		X	HH survey, SAQIP Monitoring [Note as above]	I
Knowledge of women	% of women with a delivery in the last 12 months with knowledge of at least two danger signs relating to pregnancy, labour and the postnatal period	# of women age 15-49 with a live birth in last 12m		X	HH survey	I
Data Management	% of facilities providing complete reports on time	# facilities surveyed/ reporting [Note this indicator still needs work]	?	?	?HMIS log, summary completeness	I
Supervision	% of health facilities receiving at least one supportive supervision visit in the last 6 months	# facilities surveyed	X		6-monthly facility survey; (+explore HMIS options)	I