



Royal Tropical Institute

Mobile health: Connecting managers, service providers and clients in Bombali district, Sierra Leone

**Intervention study on mHealth for maternal
and newborn health in resource-poor community
and health system settings, Sierra Leone**

Final report – Annexes

DFID New and Emerging Technologies

Research Competition, Phase 2

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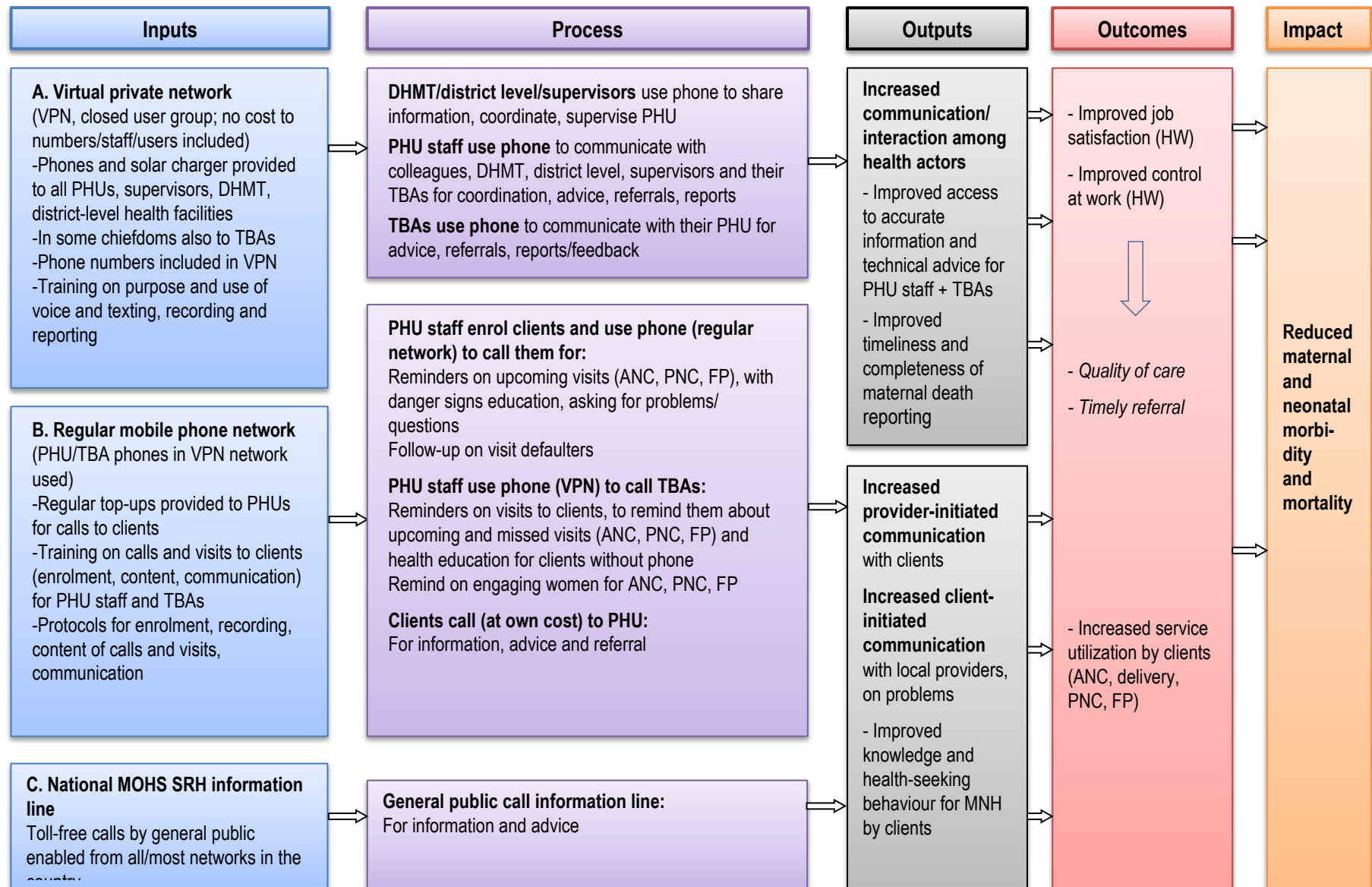
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Annex 1 – Key indicators



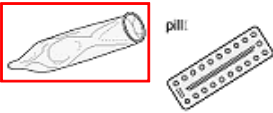
Key indicators for Bombali district and national level (at start of intervention study)			
Indicator	Bombali district	National	Source
Total fertility rate	4.0	4.3	MICS 2010
% women 15-49 year currently married or in union who are using (or whose partner is using) a modern contraceptive method	12.8%	10.0%	MICS 2010
% women 15-49 year currently married or in union with an unmet need for family planning			
spacing	11.8%	17.7%	MICS 2010
limiting	7.3%	9.7%	MICS 2010
total	19.1%	27.4%	MICS 2010
% women 15-49 years who were visited in past 12 months by a fieldworker discussing family planning	11.3%	16.2%	SLDHSBS 2009
% women 15-49 with a birth in last 2 years who have had ANC at least once by a skilled provider	97.3%	93.0%	MICS 2010
% women who had a live birth in last 2 years by number of ANC visits			
no ANC	2.4%	4.0%	MICS 2010
1 or more ANC visits	80.1%	86.6%	MICS 2010
2 or more ANC visits	78.0%	85.9%	MICS 2010
3 or more ANC visits	75.1%	83.0%	MICS 2010
4 or more ANC visits	58.6%	74.7%	MICS 2010
median months pregnant at first ANC visit	Not available	4.5	SLDHSBS 2009
% women 15-49 years with a live birth in last 2 years who had assistance at delivery of a skilled personnel	61.0%	62.5%	MICS 2010
% women 15-49 years with a live birth in last 2 years who delivered in a health facility	44.6%	50.1%	MICS 2010
Timing of first Post Natal Care visit			
< 4 hours	24.1%	46.7%	SLDHSBS 2009
4-23 hours	7.3%	3.4%	SLDHSBS 2009
2 days	9.5%	9.4%	SLDHSBS 2009
3-41 days	3.9%	6.5%	SLDHSBS 2009
no visit	39.7%	27.0%	SLDHSBS 2009
% women 15-24 years who are literate	53.3%	48.3%	MICS 2010
% women 15-49 years who are literate	25.4%	32.1%	SLDHSBS 2009
% men 15-49 years who are literate	45.2%	51.0%	SLDHSBS 2009
% women 15-49 years who at least once a week			
read a newspaper	3.3%	7.2%	SLDHSBS 2009
watch television	1.1%	9.8%	SLDHSBS 2009
listen to the radio	53.2%	58.7%	SLDHSBS 2009
% men 15-49 years who at least once a week			
read a newspaper	16.7%	21.7%	SLDHSBS 2009
watch television	6.6%	11.9%	SLDHSBS 2009
listen to the radio	73.0%	78.8%	SLDHSBS 2009
Sources:			
- SLDHSBS 2009 = Sierra Leone District Health Services Baseline Survey 2009 (see Statistics Sierra Leone and MoHS 2010)			
- MICS 2010 = Multiple Indicator Cluster Survey 2010 (see Thomas 2010)			

Annex 2 – Intervention logic diagram



Annex 3 – mHealth scheme TBA reporting form

This is the simplified version used in stage2.

mHealth TBA report form					
Name	.....	Village	.....	Month	.....
PHU	.....	Phone nr	.....	Year	.....
ANC reminder		PNC reminder		FP reminder	
					
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0

Annex 4 – Intervention study research table

Objectives	Indicators, variables, issues	Research methods	Data collection tools	Research participants
<p>1. To assess changes in MNH/FP service utilization by clients, associated with expanded options for client-initiated and provider-initiated mobile communication:</p> <p>a. for entire district (engaging all PHUs and through the national information line)</p> <p>b. in the selected chiefdoms that implement the intervention involving TBAs</p>	Average gestation stage of pregnant woman at first ANC visit	PHU records analysis and calculations	DAT-1 Data collection tool for PHU/DHMT records	All PHUs in one TBA intervention chiefdom and one TBA comparison (non-intervention) chiefdom. Purposive sampling of TBA intervention chiefdom, pairing with comparable comparison chiefdom.
	Percentage of pregnant women having 1, 2, 3 or 4 ANC visits	HMIS data analysis and calculations	District-level HMIS data records	All PHUs in Bombali district
	Percentage of pregnant women with delivery at health facility	HMIS data analysis and calculations	District-level HMIS data records	All PHUs in Bombali district
	Percentage of pregnant women having 1,2 or 3 PNC visits	HMIS data analysis and calculations	District-level HMIS data records	All PHUs in Bombali district
	Number of new FP clients enrolled and existing clients who continue	HMIS data analysis	District-level HMIS data records	All PHUs in Bombali district
	Number of clients enrolling in mobile phone reminders (with registry of being contacted and their response)	PHU records analysis and calculations	DAT-3 Data collection tool for PHU/DHMT records	All intervention PHUs (step-Wedge sequence)
	Client views on client-initiated and provider-initiated communication; and related improvements in access to information, advice and referral and perceived changes in health-seeking behaviour (including national information line, client calls to PHUs and interaction/communication)	Semi-structured interview	SSI-1 Interview guide clients enrolled mobile phone reminders	Total 25–30 clients enrolled in mobile phone reminders, divided over responders (clients who could be reached) and non-responders (clients who could not be reached by phone or who were reached but declined to talk to the HW); from 8 different PHU catchment areas (2 urban, 2 semi-urban, 2 remote, 2 near the feeder road)

Objective 1 (see above)	Community views on client-initiated and provider-initiated communication; and related improvements in access to information, advice and referral and perceived changes in health-seeking behaviour (including national information line, client calls to PHUs and interaction/communication)	Focus group discussion	FGD-1 Topic guide community	4 PHUs catchment areas selected (1 urban, 1 semi-urban, 1 remote, 1 near the feeder road). Each area 1 male and 1 female FGD, total 4 F + 4 M = 8 FGDs; each with about 8–10 participants
	Non-enrolled women's views on improved communication options, whether they have made use of them, whether have been reached by HW/TBAs, and why this has not led to them using relevant services	Semi-structured interview	SSI-6 Topic guide non-enrolled clients	20–25 pregnant women who were eligible (=having (access to) a phone) but declined, from same 8 different PHU catchment areas as SSI-1.
	TBA views on usefulness of phones to strengthen their work and improve clients' earlier use of services and self-reported changes (including national information line, client calls to PHUs and interaction/communication)	Semi-structured interview	SSI-2 Interview guide TBAs	15 TBAs with intervention phone in TBA intervention area (from 4–6 different PHUs)
	HW views on client-initiated and provider-initiated communication; and related options to improve clients' use of services and self-reported changes	Semi-structured interview	SSI-3 Interview guide HW	Total 15–20 health staff (working at PHUs, various levels of staff; from same chiefdoms of SSI-1, SSI-6 and FGD-1) until no new information emerges for both intervention and non-intervention areas
		Survey	SUR-1 Questionnaire HW	All PHU clinical health workers in Bombali District (includes MCH Aides, SECHNs, CHOs, CHAs), total around 150

Objective 1 (see above)	Health manager (HM) views on client-initiated and provider-initiated communication; and related options to improve clients' use of services and self-reported changes	Semi-structured interview	SSI-4 Interview guide HM	Total 5 district health managers (various types, e.g. DMO, DHS, M&E officer, Hospital manager etc.)
	Male partners' perspectives on benefits and issues regarding their wives' more intense involvement in communication with health staff	Semi-structured interview	SSI-5 Interview guide male partners	Total 20–25 male partners of female clients enrolled in mobile phone reminders (but not partners of female clients interviewed)
2. To assess changes in health workers' job satisfaction and control at work, and self-reported changes due to expanded options for provider–provider communication	HW use of mobile communication options; perceptions on benefits and challenges of the new options available; on improvements in their job satisfaction and control at work; and ultimate benefits to clients	Survey	SUR-1 Questionnaire HW	All PHU clinical health workers in Bombali district (includes MCH Aides, SECHNs, CHOs, CHAs)
	Same – more in-depth	Semi-structured interview	SSI-3 Interview guide HW	Total 15–20 health staff (working at PHUs, various levels of staff; from same chiefdoms of SSI-1, SSI-6 and FGD-1) until no new information emerges for both intervention and non-interventions areas
		Semi-structured interview	SSI-4 Interview guide HM	Total 5 district health managers (various types, e.g. DMO, DHS, M&E officer, Hospital manager etc.)
3. To assess changes in MNH referral systems due to expanded mobile communication options	Perceptions of clients, HW and health managers	Semi-structured interview	SSI-1 Interview guide clients	Total 25–30 clients enrolled in mobile phone reminders, divided between responders (clients who could be reached) and non-responders (clients who could not be reached by phone or who were reached but declined to talk to the HW); from 8 different PHU catchment areas (2 urban, 2 semi-urban, 2 remote, 2 near the feeder road)

		Semi-structured interview	SSI-2 Interview guide TBAs	15 TBAs with intervention phone in TBA intervention area (from 4–6 PHUs)
		Semi-structured interview	SSI-3 Interview guide HW	Total 15–20 health staff (working at PHUs, various levels of staff; from same chiefdoms of SSI-1, SSI-6 and FGD-1) until no new information emerges for both intervention and non-interventions areas
4. To assess changes in maternal death reporting	Number of maternal deaths reported	PHU/DHMT records analysis and calculations	DAT-2 Data collection tool for PHU/DHMT records	All PHUs and DHMT M&E office
	TBA views and self-reported changes in reporting of maternal deaths	Semi-structured interview	SSI-2 Interview guide TBAs	15 TBAs with intervention phone in TBA intervention area (from 4–6 PHUs)
	HW views and self-reported changes in reporting of maternal deaths (including timeliness)	Semi-structured interview	SSI-3 Interview guide HW	Total 15–20 health staff (working at PHUs, various levels of staff; from same chiefdoms of SSI-1, SSI-6 and FGD-1) until no new information emerges for both intervention and non-interventions areas
	HM views and self-reported changes in reporting of maternal death (including timeliness)	Semi-structured interview	SSI-4 Interview guide HM	Total 5 district health managers (various types, e.g. DMO, DHS, M&E officer, Hospital manager etc.)
5. To identify implications for the health system of mobile communication initiatives	Facilitating and constraining factors in implementation of the various mHealth applications	Semi-structured interview	SSI-3 Interview guide HW	Total 15–20 health staff (working at PHUs, various levels of staff; from same chiefdoms of SSI-1, SSI-6 and FGD-1) until no new information emerges for both intervention and non-interventions areas
		Semi-structured interview	SSI-4 Interview guide HM	Total 4–5 district health managers (various types, e.g. DMO, DHS, M&E officer, Hospital manager etc.)
		Semi-structured interview	SSI-4 Interview guide HM	Total 2–3 mHealth system managers (from RH/FP programme and Department of Planning and Information)

Annex 5 – Calculation sample size health worker survey

As presented in the research protocol, the district has about 120 health facilities. Standard sample size calculations (see below) showed that we need to use the 'take all' approach: for a one-sample problem, to detect a difference in outcome from 80% to 88% (10% diff), sample size is 225.

The one-sample Problem

two-sided alpha	
90% Confidence	1,645
95% Confidence	1,96
99% Confidence	2,576

Beta	
80 % Confidence	1,28

Fill in	
Po	0,80
Pa	0,88
alpha level	1,96
beta level	1,28
Sample Size	225

$$n = \left[\frac{Z_{\alpha} \sqrt{\pi_0 (1-\pi_0)} + Z_{\beta} \sqrt{\pi_1 (1-\pi_1)}}{\pi_0 - \pi_1} \right]^2$$

Null hypothesis		P- alternative													
Start P ₀	Increment P	P ₀	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80
0,1	0,05	0,10	121	58	35	23	16	12	9	7	6	5	4	3	2
		0,15	588	157	74	43	28	20	15	11	9	7	5	4	3
		0,20		717	188	87	50	32	23	17	12	10	8	6	5
		0,25	741		825	213	97	55	36	25	18	13	10	8	6
		0,30	199	845		912	233	105	59	38	26	19	14	10	8
		0,35	93	222	927		977	247	110	62	39	27	19	14	10
		0,40	54	102	240	988		1021	256	113	63	40	27	19	14
		0,45	35	59	109	252	1028		1045	260	114	63	39	26	18
		0,50	25	38	61	113	259	1047		1047	259	113	61	38	25
		0,55	18	26	39	63	114	260	1045		1028	252	109	59	35
		0,60	14	19	27	40	63	113	256	1021		988	240	102	54
		0,65	10	14	19	27	39	62	110	247	977		927	222	93
		0,70	8	10	14	19	26	38	59	105	233	912		845	199
		0,75	6	8	10	13	18	25	36	55	97	213	825		741
		0,80	5	6	8	10	12	17	23	32	50	87	188	717	
		0,85	3	4	5	7	9	11	15	20	28	43	74	157	588
		0,90	2	3	4	5	6	7	9	12	16	23	35	58	121
		0,95	2	2	2	3	4	5	6	7	9	12	16	24	39

Annex 6 – Endline health workers’ questionnaire

HW Questionnaire for Endline FINAL July 2013		CODE:.....	
Interview Code:			
		Interviewer's initials:	
<h3 style="text-align: center;">Health Workers Questionnaire for Endline</h3> <h4 style="text-align: center;">SUR 1-Mhealth phase 2</h4>			
Date:	Write DD/MM/YYYY	|_|_| / |_|_| / |_|_|_|_|	
Chiefdom:	1= Bombali Sebor 2= Makari Gbanti 3= Libiesaygahun 4= Paki Masabong 5= Safroko Limba 6= Biriwa	7= Gbendembu Ngowahun 8= Magbaimba Ndowahun 9= Sanda Tendaren 10= Sanda Loko 11= Sella Limba 12= Tambaka 13= Gbanti Kamaranka	|_|_|
Name of facility:	(please write carefully, spell correctly)		.....
Type of health facility:	<input type="radio"/> 1=CHC <input type="radio"/> 2=CHP <input type="radio"/> 3=MCHP <input type="radio"/> 9=Other, specify .....	|_|	
Section I: Information Health Worker			
1.1	Type of (clinical)health worker <i>This category includes health workers who provide antenatal, delivery, postnatal and Family Planning services and does <u>not</u> include Community Health Workers, porter, vaccinators etc.</i>	<input type="radio"/> 1=CHO <input type="radio"/> 2=CHA <input type="radio"/> 3=SECHN <input type="radio"/> 4=MCH Aide <input type="radio"/> 5=EDCU Assistant <input type="radio"/> 6=Nursing Aide <input type="radio"/> 9=Other, specify .....	|_|
1.2	Are you the in-charge of the facility?	<input type="radio"/> 1=YES <input type="radio"/> 2=NO	|_|
1.3	Are you on the government payroll?	<input type="radio"/> 1=YES <input type="radio"/> 2=NO	|_|
1.4	Sex of respondent	<input type="radio"/> 1= Female <input type="radio"/> 2=Male	|_|
1.5	Age of respondent	In whole years at last birthday	|_|||_|
1.6	Do you have children?	<input type="radio"/> 1=YES → Go to 1.6.1 <input type="radio"/> 2=NO → Go to 1.6.4	|_|

1.6.1	How many children do you have?	Fill in number		<u> </u> <u> </u> <u> </u>
1.6.2	How many children are below the age of 18?	Fill in number		<u> </u>
1.6.3	How many children below the age of 18 are <u>NOT</u> living with you?	Fill in number		<u> </u>
1.6.4	How many months have you worked in this facility?	<input type="radio"/> 1= less than one month <input type="radio"/> 2= between 1-3 months <input type="radio"/> 3= 3 months or more	<u> </u> <u> </u> <u> </u>	
Section II: Mobile Phone Use				
2.1	What mobile phone network is available in your PHU area? (multiple answers allowed)	<input type="radio"/> 1= Airtel <input type="radio"/> 2= Africell <input type="radio"/> 3= Comium <input type="radio"/> 4= Sierratel	<u> </u> <u> </u> <u> </u> <u> </u> Fill in code if ticked	
2.2	Are you able to make/send and receive phone calls and text messages <u>inside the PHU</u> ?	<input type="radio"/> 1=YES → Go to 2.3 <input type="radio"/> 2=NO → Go to 2.2.1	<u> </u>	
2.2.1	How many minutes do you need to walk to reach a place with network coverage?	Number of minutes / <u> </u> / <u> </u> /		
2.3	Indicate how often you have network coverage at your normal calling spot.	<input type="radio"/> 1= all the time <input type="radio"/> 2= most of the time <input type="radio"/> 3= sometimes <input type="radio"/> 4= almost never	<u> </u>	
2.4	Indicate which statement reflects your work related use of the telephone	<input type="radio"/> 1= I call more often than I send text messages <input type="radio"/> 2= I call and send text messages about the same amount of times <input type="radio"/> 3= I send text messages more often than I call	<u> </u>	
2.5	Do you make use of a phone that is provided to the facility (this is not a personally owned phone) for work related calls and text messages?	<input type="radio"/> 1=YES → Go to 3.1 <input type="radio"/> 2=NO → Go to 2.5.1	<u> </u>	
2.5.1	If you are <u>not</u> using a facility phone, how do you make work-related phone calls and text messages? (multiple answers allowed)	<input type="radio"/> 1= Do not make them <input type="radio"/> 2= <u>Personal phone</u> <input type="radio"/> 3= <u>Phone from other health worker /volunteer in clinic</u> <input type="radio"/> 4= <u>Phone from someone else</u> <input type="radio"/> 9= <u>Other, specify</u>	<u> </u> <u> </u> <u> </u> <u> </u> <u> </u> Fill in code if ticked	
2.5.2	If you are <u>not</u> using a facility phone, how do you receive work related phone calls and text messages?	<input type="radio"/> 1= Do not receive them <input type="radio"/> 2= <u>Personal phone</u>	<u> </u> <u> </u>	

	(multiple answers allowed)	<input type="radio"/> 3= <u>Phone from other health worker /volunteer in clinic</u> <input type="radio"/> 4= <u>Phone from someone else</u> <input type="radio"/> 9= <u>Other, specify</u>	<input type="text"/> <input type="text"/> <input type="text"/> Fill in code if ticked
NOTE: If 2.5.1 AND 2.5.2 are BOLD ANSWERS →Go to 5.1 If 2.5.1 is BOLD ANSWER and 2.5.2 is <u>underlined answer</u> →Go to 4.1a Otherwise continue to next section → 3.1a			
Section III: Making calls and text messages			
3.1a	How often do you make work related phone calls <i>in the past 3 months?</i>	<input type="radio"/> 1= <i>daily</i> <input type="radio"/> 2= <i>several times a week</i> <input type="radio"/> 3= <i>once a week</i> <input type="radio"/> 4= <i>once every two weeks</i> <input type="radio"/> 5= <i>less than every two weeks (includes never)</i> <input type="radio"/> 6= <i>do not know/not sure</i>	<input type="text"/>
3.1b	How often do you send work related text messages <i>in the past 3 months?</i>	<input type="radio"/> 1= <i>daily</i> <input type="radio"/> 2= <i>several times a week</i> <input type="radio"/> 3= <i>once a week</i> <input type="radio"/> 4= <i>once every two weeks</i> <input type="radio"/> 5= <i>less than every two weeks (includes never)</i> <input type="radio"/> 6= <i>do not know/not sure</i>	<input type="text"/>
District Level			
3.2	How often do you make work-related calls/text messages to someone at the district level <i>in the past 3 months?</i>	<input type="radio"/> 1= <i>daily</i> <input type="radio"/> 2= <i>several times a week</i> <input type="radio"/> 3= <i>once a week</i> <input type="radio"/> 4= <i>once every two weeks</i> <input type="radio"/> 5= <i>less than every two weeks</i> <input type="radio"/> 6= <i>never → Go to 3.3</i> <input type="radio"/> 7= <i>do not know/not sure</i>	<input type="text"/>
3.2.1	Who do you call/text at the district level <i>in the past 3 months?</i> (multiple answers allowed)	<input type="radio"/> 1= <i>DMO</i> <input type="radio"/> 2= <i>DHS</i> <input type="radio"/> 3= <i>M&E Officer</i> <input type="radio"/> 4= <i>Coordinator MCH Aide training</i> <input type="radio"/> 5= <i>Other DHMT member, specify</i> <input type="radio"/> 9= <i>Other person(s), specify</i>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Fill in code if ticked
3.2.2	For what reasons do you make work-related calls/text messages to someone at the district level <i>in the past 3 months?</i> (multiple answers allowed)	<input type="radio"/> 1= <i>Ambulance referral</i> <input type="radio"/> 2= <i>Clinical advice</i> <input type="radio"/> 3= <i>Surveillance (notifiable)</i>	<input type="text"/> <input type="text"/>

		<input type="radio"/> diseases) 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify .....	|_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_|
PHU Level			
If the respondent in an in-charge → Go to 3.4			
3.3	How often do you make work-related calls/text messages to your in-charge of your own PHU <i>in the past 3 months</i> ?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= never → Go to 3.4 <input type="radio"/> 7= do not know/not sure	|_|_|
3.3.1	For what reasons do you make work-related calls/text messages to the in-charge at your own PHU <i>in the past 3 months</i> ? (multiple answers allowed)	<input type="radio"/> 1= Ambulance referral <input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify .....	|_|_| |_|_| |_|_| |_|_| |_|_| |_|_| Fill in code if ticked
If the respondent is an in-charge at a CHC → Go to 3.5			
3.4	How often do you make work-related calls/text messages to your in-charge of the CHC in your chiefdom <i>in the past 3 months</i> ?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= never → Go to 3.5 <input type="radio"/> 7= do not know/not sure	|_|_|
3.4.1	For what reasons do you make work-related calls/text messages to the in-charge of the CHC in your chiefdom <i>in the past 3 months</i> ? (multiple answers allowed)	<input type="radio"/> 1= Ambulance referral <input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues	|_|_| |_|_| |_|_| |_|_| |_|_|

		<input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 3.8 <input type="radio"/> 7= do not know/not sure	
3.7.1	For what reasons do you make work-related calls/text messages to TBAs in the past 3 months? (multiple answers allowed)	<input type="radio"/> 1= inform about meetings and workshops <input type="radio"/> 2= Request for come help out at clinic <input type="radio"/> 9= Other, specify	/___/ /___/ /___/ Fill in code if ticked
3.8	Do you receive work related phone calls /text messages?	<input type="radio"/> 1=YES →Continue <input type="radio"/> 2=NO→ Go to 5.1	|___|
Section IV: Receiving calls and text messages			
4.1a	How often do you receive work related phone calls in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks (includes never) <input type="radio"/> 6= do not know/not sure	|___|
4.1b	How often do you receive work related text messages in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks (includes never) <input type="radio"/> 6= do not know/not sure	|___|
District Level			
4.2	How often do you receive work-related calls/text messages from someone at the district level in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 4.3 <input type="radio"/> 7= do not know/not sure	|___|
4.2.1	Who do you receive the work-related calls/text messages from at the district level in the past 3 months?	<input type="radio"/> 1= DMO <input type="radio"/> 2= DHS <input type="radio"/> 3= M&E Officer <input type="radio"/> 4= Coordinator MCN Aide training <input type="radio"/> 5= Other DHMT member, specify..... <input type="radio"/> 9= Other person(s), specify .....	|___| |___| |___| |___| |___| Fill in code if ticked

4.2.2	For what reasons do you receive work-related calls/text messages from someone at the district level <i>in the past 3 months?</i> (multiple answers allowed)	<input type="radio"/> 1= Ambulance referral <input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify	 /___/ /___/ /___/ /___/ /___/ /___/ /___/ fill in code if ticked
PHU Level			
If the respondent is an in-charge → Go to 4.4			
4.3	How often do you receive work-related calls/text messages from your in-charge of your own PHU <i>in the past 3 months?</i>	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 4.4 <input type="radio"/> 7= do not know/not sure	 /___/
4.3.1	For what reasons do you receive work-related calls/text messages from the in-charge at your own PHU <i>in the past 3 months?</i> (multiple answers allowed)	<input type="radio"/> 1= Ambulance referral <input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify	 /___/ /___/ /___/ /___/ /___/ /___/ /___/ Fill in code if ticked
If the respondent is an in-charge at a CHC → Go to 4.5			
4.4	How often do you receive work-related calls/text messages from your in-charge of the CHC in your chiefdom <i>in the past 3 months?</i>	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 4.5 <input type="radio"/> 7= do not know/not sure	 /___/
4.4.1	For what reasons do you receive work-related calls/text messages from the in-	<input type="radio"/> 1= Ambulance referral	 /___/

	charge of the CHC in your chiefdom in the past 3 months? (multiple answers allowed)	<input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify	/___/ /___/ /___/ /___/ /___/ /___/ /___/ Fill in code if ticked
4.5	How often to you receive calls/text messages from other PHU staff (others than mentioned above) in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 4.6 <input type="radio"/> 7= do not know/not sure	|___|
4.5.1	For what reasons do you receive calls/text messages from other PHU staff (others than mentioned above) in the past 3 months? (multiple answers allowed)	<input type="radio"/> 1= Ambulance referral <input type="radio"/> 2= Clinical advice <input type="radio"/> 3= Surveillance (notifiable diseases) <input type="radio"/> 4= HMIS information/data <input type="radio"/> 5= Drugs and supplies <input type="radio"/> 6= Informing about staff human resources issues (sickness, absence, leave) <input type="radio"/> 7= Reporting maternal death <input type="radio"/> 9= Other, specify	/___/ /___/ /___/ /___/ /___/ /___/ /___/ Fill in code if ticked
Community Level			
4.6	How often do you receive work-related phone calls/text messages from clients in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 4.7 <input type="radio"/> 7= do not know/not sure	|___|
4.6.1	For what reasons do you receive work-	<input type="radio"/> 1= Advice about illness	/___/

	related calls/text messages from clients <i>in the past 3 months?</i> <i>(multiple answers allowed)</i>	<input type="radio"/> 2= Inform about missed appointment <input type="radio"/> 3= Make appointment <input type="radio"/> 9= Other, specify .....	|_|_| |_|_| |_|_| Fill in code if ticked
4.7	How often do you receive work-related phone calls/text messages from TBAs in the past 3 months?	<input type="radio"/> 1= daily <input type="radio"/> 2= several times a week <input type="radio"/> 3= once a week <input type="radio"/> 4= once every two weeks <input type="radio"/> 5= less than every two weeks <input type="radio"/> 6= not at all → Go to 5.1 <input type="radio"/> 7= do not know/not sure	|_|_|
4.7.1	For what reasons do you receive work-related calls/text messages from TBAs in the past 3 months? <i>(multiple answers allowed)</i>	<input type="radio"/> 1= Request to help with difficult case (including referral) <input type="radio"/> 9= Other, specify .....	|_|_| |_|_| Fill in code if ticked
Section V: Mobile Phone Barriers			
5.1	Do you have to pay for work-related phone calls/text messages?	<input type="radio"/> 1=YES → Go to 5.1.1 <input type="radio"/> 2=NO → Go to 5.2	|_|_|
5.1.1	How much do you pay per week for work related phone calls/text messages	Le.....	
5.1.2	Who pays the costs of work-related phone calls/text messages? <i>(multiple answers allowed)</i>	<input type="radio"/> 1= myself <input type="radio"/> 2= PBF fund <input type="radio"/> 3= Other non-personal funds <input type="radio"/> 9= Other, specify .....	|_|_| |_|_| |_|_| |_|_| Fill in code if ticked
5.1.3	How do you buy credits (top-up) for the phone?	<input type="radio"/> 1= buying phone voucher <input type="radio"/> 2= buying top-up card <input type="radio"/> 3= both answers above <input type="radio"/> 4= Other, specify .....	|_|_|
5.1.4	How far do you have to walk to buy top up credits for the phone?	Number of minutes .....	|_|||_|
5.2	How can you charge the phone that you use for work related calls/text messages?	<input type="radio"/> 1=charge at PHU <input type="radio"/> 2=charge at home <input type="radio"/> 3= charge somewhere else	|_|_|
5.3	Do you pay to have the phoned charged?	<input type="radio"/> 1=YES →5.3.1 <input type="radio"/> 2=NO →6.1	|_|_|
5.3.1	How much do you pay to have the		

	phone charged?	Fill in SLL	.....
Section VI: Satisfaction and Communication				
6.1	My employer provides me with me with what I need to do my job effectively	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.2	It is easy for me to get information to the DHMT on time	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.3	I am more productive than other people who do a similar job to me	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.4	I am able to discuss difficult cases with other colleagues	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.5	The working conditions are satisfactory	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.6	Contacting DHMT members in no problem for me	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.7	The people who are important to me outside of my work support my work commitments	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.8	Patients show appreciation for what you do for them	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.9	I enjoy my work	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree		|__|
6.10	The facility I work in offers enough space to do the work	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree		|__|

		<input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	
6.11	I feel motivated to do my best in my current job	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.12	Communicating with other colleagues helps me in my work	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.13	Overall, taking everything into consideration, I am satisfied with my job as a whole	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.14	DHMT contacts me to get my input on certain issues	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.15	I work in a safe environment	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.16	Contacting individual clients in the community for ANC, FP and other services is easy	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.18	I am satisfied with the overall quality of my working life	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.19	Essential drugs are available	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.20	My colleagues contact me to get my opinion on certain issues	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i> <input type="radio"/> 3= <i>Neutral</i> <input type="radio"/> 4= <i>Agree</i> <input type="radio"/> 5= <i>Strongly agree</i>	|__|
6.21	I have the means to contact individual clients directly	<input type="radio"/> 1= <i>Strongly disagree</i> <input type="radio"/> 2= <i>Disagree</i>	|__|

		<input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree	
6.22	I am able to achieve a healthy balance between my work and home life	<input type="radio"/> 1= Strongly disagree <input type="radio"/> 2= Disagree <input type="radio"/> 3= Neutral <input type="radio"/> 4= Agree <input type="radio"/> 5= Strongly agree	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>

Section VII – End of Project – Additional Questions			
Functional phones			
7.1	Is your facility phone functional at the moment?	<input type="radio"/> 1=YES →7.2 <input type="radio"/> 2=NO →7.1.1	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
7.1.1	Since when is your facility phone not functioning? - Write DD/MM/YYYY	<div style="border: 1px solid black; width: 100%; height: 20px; margin: 0 auto;"></div>	
7.1.2	Why is your facility phone not functioning at the moment? (tick all that apply – DO NOT READ OUT)	<input type="radio"/> 1=Not charged <input type="radio"/> 2=No network <input type="radio"/> 3=Problem with phone <input type="radio"/> 4=Problem with sim-card <input type="radio"/> 5=Other, specify.....	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
7.2	For what amount of time has your facility phone been functional from the start of the project (August 2012)?	<input type="radio"/> 1=ALWAYS <input type="radio"/> 2=Most of the time <input type="radio"/> 3=Some of the time <input type="radio"/> 4=Never	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
7.3	QUESTION ONLY FOR TBA CHIEFDOMS , (FOR OTHER CHIEFDOMS → 7.4) For what amount of time have TBA phones been functional from the start of the HW to client scheme (Paki Masabong -August 2012 and Gbanti Kamaranka-Feb 2013)?	<input type="radio"/> 1=ALWAYS →7.4 <input type="radio"/> 2=Most of the time →7.3.1 <input type="radio"/> 3=Some of the time →7.3.1 <input type="radio"/> 4=Never→7.3.1	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
7.3.1	What were the reasons that your TBA phones were not always functional?	..... ..... .....
Health Worker to Client reminder scheme			
7.4	In the last week how many clients did you call for the Health Worker to Client reminder scheme?	Nr of clients: .....Fill in <input type="radio"/> Do not know	
-We would like to know the content of your last three Health Worker to Client phone calls			
7.5.1	Call 1 (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1=Reminder for upcoming visit <input type="radio"/> 2=Visit defaulter <input type="radio"/> 3=Follow-up on treatment <input type="radio"/> 4=Other, specify	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>

7.5.2	Call 2 (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1=Reminder for upcoming visit <input type="radio"/> 2=Visit defaulter <input type="radio"/> 3=Follow-up on treatment <input type="radio"/> 4=Other, specify	/___/ /___/ /___/ /___/ /___/
7.5.3	Call 3 (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1=Reminder for upcoming visit <input type="radio"/> 2=Visit defaulter <input type="radio"/> 3=Follow-up on treatment <input type="radio"/> 4=Other, specify	/___/ /___/ /___/ /___/ /___/
7.6	What do you perceive as barriers to client enrolment (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1=Client has no personal phone <input type="radio"/> 2=Client has no access to phone <input type="radio"/> 3=Client does not want husband/partner to know <input type="radio"/> 4=Other, specify..... <input type="radio"/> 5=Other, specify..... <input type="radio"/> 6=Other, specify.....	/___/ /___/ /___/ /___/ /___/ /___/
7.7	What do you perceive as barriers to contact with clients (reminders/follow-up) by health worker(s)? (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1= No credit in facility phone <input type="radio"/> 2 =No network coverage at PHU <input type="radio"/> 3=Client's phone is off <input type="radio"/> 4=Client does not have network coverage <input type="radio"/> 5=Client did not provide phone number <input type="radio"/> 6= Client's phone number is not functional <input type="radio"/> 7= Other, specify..... <input type="radio"/> 8= Other, specify.....	/___/ /___/ /___/ /___/ /___/ /___/ /___/ /___/
7.8	Did you have any client who joined the Health Worker to Client reminder scheme but later stopped?	<input type="radio"/> 1=YES →7.10.1 <input type="radio"/> 2=NO →7.11	|_|
7.8.1	How many clients discontinued the HW to client reminder scheme at your PHU?	Fill in (nr) <input type="radio"/> Do not know	
7.8.2	What were the reasons for clients to stop (tick all that apply, DO NOT READ OUT)	<input type="radio"/> 1=Client does not want husband/partner to know <input type="radio"/> 2=Client does not want parent(s) to know <input type="radio"/> 3=Client does not want other family members to know <input type="radio"/>	/___/ /___/

		○	4=Left the PHU catchment area 5=Other, specify.....	/___/ /___/ /___/
<i>We would like to get your suggestions on the way forward with the mobile health interventions of this project</i>				
7.9	Would you recommend to continue with the Closed User Group?	○ ○	1=YES 2=NO	|___|
7.9.1	Why do you recommend this?	..... .....	
7.10	Would you recommend to continue with the Health Worker to Client reminder scheme?	○ ○	1=YES 2=NO	|___|
7.10.1	Why do you recommend this?	..... .....	
7.11	Would you recommend to continue with the Health Worker to TBA to Client scheme (Involving TBAs to reach clients – TBA CHIEFDOMS ONLY)?	○ ○	1=YES 2=NO	|___|
7.11.1	Why do you recommend this?	..... .....	

Annex 7 – Reliability analysis job satisfaction and communication scale items

We carried out a reliability analysis of the health workers survey's scale items on job satisfaction communication, using Cronbach's Alpha test to determine the internal consistency of scale items for the following four domains:

- Quality of working life (9 items)
- Working conditions (5 items)
- Communication with clients (3 items)
- Communication with peers and seniors (5 items).

These items were rated by health workers on a 5-point Likert scale with the following answer categories: 1) strongly disagree, 2) disagree, 3) neutral, 4) agree, and 5) strongly agree. The Cronbach's Alpha test was used to measure internal consistency for scale items in order to conduct further analysis based on the composition of combined scores for each domain.

<i>Parameters used for Cronbach's Alpha</i>
< 0.6 is too low and unacceptable. The scale items are probably not measuring the same construct (domain), and revisions of questions may be needed
$\geq 0.6 - 0.8$ is good
$\geq 0.8 - <0.95$ is excellent
≥ 0.95 is not desirable because it indicates that questions are redundant

Three of the four domains scored well (see table below).

Further analysis in the domain *communication with clients* showed that if one statement were dropped, the internal consistency of the domain would score well. As this would leave the domain with the scores of only two statements to be calculated into a combined score, it was decided to analyse each statement separately.

Reliability analysis job satisfaction and communication domains' scale items (health worker survey)	
Construct (domain)	Cronbach's Alpha
Quality of working life (9 items) <ul style="list-style-type: none"> I am more productive than other people who do a similar job to me I am able to discuss difficult cases with other colleagues The people who are important to me outside my work support my work commitments Patients show appreciation for what I do for them I enjoy my work I feel motivated to do my best in my current job Overall, taking everything into consideration, I am satisfied with my job I am satisfied with the overall quality of my working life I am able to achieve a healthy balance between my work and home life 	0.678
Working Conditions (5 items) <ul style="list-style-type: none"> My employer provides me with what I need to do my job effectively The working conditions are satisfactory The facility I work in offers enough space to do the work I work in a safe environment Essential drugs are available 	0.623
Communication with clients (3 items) <ul style="list-style-type: none"> Contacting individual clients in the community for ANC, FP and other services is easy I am concerned that pregnant women do not sufficiently use the services (D) I have means to contact individual clients directly 	0.458*
Communication with peers and seniors (5 items) <ul style="list-style-type: none"> It is easy for me to get information to the DHMT on time Contacting DHMT members is no problem for me Communicating with other colleagues helps me in my work DHMT contacts me to get my input on certain issues My colleagues contact me to get my opinion on certain issues 	0.654
*Unreliable domain (D)=item dropped	

Annex 8 – Topic guide interview enrolled clients

Topic Guide SSI-1 with enrolled clients.

(NOTE TO INTERVIEWERS: Some questions are for all respondents and some are different depending on how the client receives calls from the health worker (question H on cover page). Follow the question numbers and use the question in the appropriate column where there is a choice of questions.

Mobile phone coverage and use (general)

1. How would you describe the mobile health network coverage in your area?
2. Which service provider/network is available in your area?

Own mobile phone	Someone else's phone	TBA phone
3. How is the phone you use being charged? Where can this be done? <i>(Probe how far away this is, and how much it costs and how they feel about this)</i>		
	4b. When you receive a phone call or text message from the health worker, whose phone is being used? Why this person's phone? <i>(Probe: for reasons why this phone number was used)</i>	4c. Why did you choose to receive calls on the TBA's phone? <i>(Probe why is this different than using a phone from someone in the family)</i>
	5b. What is good about being reached through someone else's phone?	5c. What is good about being reached through someone else's phone?
	6b. What is difficult about being reached through someone else's phone?	6c. What is difficult about being reached through someone else's phone?

Influence of partners and family

4. Did you discuss with your partner about taking part in this reminder scheme before agreeing to take part?

If no → go to question 7

If yes, could you tell me more about what did you partner said about it?

Probe:

- Did he think it was a good idea from the beginning? If not, what were his objections?
- Did you need to convince him that it was a good thing to do? What did you tell him to convince him?
- Did he agree to your taking part in the reminder scheme?

5. Does your partner know that you have agreed to take part in the reminder scheme?

If no, why did you not tell him?

Probe for clients who are enrolled for FP (if not already mentioned): is the reason because they are using FP and their husbands do not know?

6. How important is it for you that your partner agrees with your taking part in the reminder scheme? Why/why not?
7. Did you discuss with anyone else about taking part in this reminder scheme before agreeing to take part?

If no → go to question 8

If yes, who did you discuss this with?

Probe for each person mentioned above:

- Did they think it was a good idea from the beginning? If not, what were their objections?
- Did you need to convince them that it was a good thing to do? What did you tell them to convince him?
- Did they agree that it was a good idea for you to take part in the reminder scheme?
- Do they know that you have agreed to take part in the reminder scheme?

8. How important is it for you that others agree with your taking part in the reminder scheme? Why/why not?

9. Why did you want to enrol in the client reminder scheme? Can you tell me more about the why you think it is important for you to take part?

Probe:

- *Better health for women*
- *Better health for children*
- *Husband/other family told me to*
- *Health worker said it was good for me*

Receiving calls from health workers

7. Thinking back to before this client reminder scheme was here, did you ever get calls from a health worker before this scheme was started?

If yes, can you tell me what they called you for?

Probe reasons (if not yet mentioned by the client):

- *to inform you about health information*
- *to remind you about your next appointment*
- *to follow up with you after your last appointment*

Were you happy about the health worker calling you before the reminder scheme? Why/ why not?

Did you experience with health workers calling you help you with your decision to sign up for this reminder scheme If **yes**, why?

Now we are asking questions about what has happened since you signed up for the reminder scheme.

Own mobile phone	Someone else's phone	TBA phone
8a. Were you ever called by the health worker and you were not able to take the call? - If yes , why did this happen? - What did you do afterwards and why?	8b. Did it ever happen that you were called by the health worker and you did not get the message or got it much later? If yes , why did this happen - what did you do afterwards and why? - How did this make you feel when that happened? - Did it influence your health in any way?	8c. Did it ever happen that you were called by the health worker and you did not get the message or got it much later? If yes , - why did this happen, what did you do afterwards and why? - How did this make you feel when that happened? - Did it influence your health in any way?

10. When you are called by a health worker, how does it make you do something about you *well-bodi business*?

11. **If yes**, what do you do?

Probe (if not yet mentioned):

- *decided to go to clinic*
- *followed advice of health worker*

12. When the health worker calls, do you learn things from her?

If no→ go to question 13

If yes, could you tell me about something you learned from the health worker (and repeat this a few times as long as the respondent is giving you answers

Specifically probe asking if the respondent learned anything about the following things (as long as they are not mentioned previously):

- *Learned about danger signs in pregnancy and childbirth*
- *Learned about family planning methods*
- *Learned about better health, nutrition....*

(If they give answers) *What was the most important thing you learned from the calls from the health worker and tell me why this was important to you*

13. Is there anything else you can tell us about how being called by the health worker has affected your influenced your life/health?

(probe by asking them to give an example and tell the story)

14. Can you tell me what it means to you when a health worker calls you?

Probe:

- *Do you like the personal attention?*
- *Does it make you feel special?*
- *Do you like knowing that the health worker will meet you at the clinic?*
- *Do you not like being disturbed when you are working?*

Calling health workers

15. Since the start of the reminder scheme, did you ever use yours/or someone else's phone to call/text/flash the health worker?

If no, → go to question 18

Did you receive a telephone number to call the health worker?

If no, how did you find the number to call the health worker?

16. Could you tell me about a time **you** contacted the health worker by calling directly or flashing and the health worker and they called you back?

Probe:

- *About the reason for the call*
- *What the health worker said*
- *What the client did with the information from the health worker afterwards*

Did you get what you needed from the health worker during the call

Probe:

- *Advice*
- *Help*
- *Instructions*
- *Anything else*

Can you tell me about **another** time you contacted the health worker by calling directly or flashing the health worker and they called back (*repeat probing from question 15 above*)

Mama en pikin well-bodi phone line (117)

17. Have you ever heard about the free mama en pikin well-bodi phone line (117)?

- **If no**, → go to the next section either client-TBA relationship or general; **If yes**, continue
- Did you ever use it?
- **If no**, go to question 19; **If yes**, what question did you ask?
- How did you feel about the response you received from the person who answered the phone?
- In what way has the answer influenced what you did afterwards? *Probe why*

18. Do you know of anybody who has used the national information line?

If no → go to next section that is appropriate

If yes, continue with the following questions

- Do you know why they used it?
- Do you know if they were happy with it?
- Do you know why they were happy or unhappy with it?

Client-TBA relationship

This section is only for health workers in the TBA intervention chiefdoms (Paki Masabong and Gbanti Kamaranka)

For Sella Limba and Libiesaygahun → go to next section (General)

19. We are asking you to think back to before you were taking part in this reminder scheme and how often you spoke with or interacted with the TBAs in your community.....Now I want to think about how you 'meet' (relationship) with the TBAs in your community since you are part of the telephone reminder scheme. Can you tell me if this has changed from before compared to now?

If no, → go to next section (general)

If yes, Can you explain what kind of changes you are talking about?

Probe:

- *TBAs are more important. Why?*
- *TBAs know more. Why?*
- *I go more often to the TBA for advice. Why?*
- *TBA cares more about me. Why?*
- *I can talk better with the TBA. Why?*

Can you explain to me what has caused these changes?

Can you tell me how these changes make you feel. And why?

General

20. Is there anything else you would like to say about health workers having a mobile phone to call clients or be called by clients?

Thank you very much for your willingness to take part in the interview

Annex 9 – Topic guide interview TBAs

Topic Guide TBAs SSI-2

You are part of a client reminder scheme. You received a mobile phone so that you can call with health workers at the facility without any costs. The nurse at the facility can call you to ask you to give messages to clients. We want to ask you about this and we also want to ask you to think about what has changed for you since before, when you did not have the phone and now, that you are part of this scheme.

Mobile phone coverage and use

1. Before the client reminder scheme, in the past, did you ever use a mobile phone to call the health facility before you had this new phone?

If no → go to question 2

If yes, could you tell me:

- Who's phone was it
- Why did you call?
- How often did you call?

2. You have said that you received a work mobile phone to communicate with the PHU you are attached to. Has this phone worked the whole time since you received it?

a. **If no** → go to question 3

b. **If yes**, can you tell me more about the problems with the phone.

Probe about problems with:

- *Charging*
- *Coverage*
- *Losing it*
- *Broken (why)*
- *Not working properly (why)*remember: they might not know how to operate the phone well*

Can you tell me what things you have done to solve these problems. (*probe for each of the issues they mention: actions like, ask the health facility to fix it, ask someone else to fix it and how this worked*)

Do you expect these problem to happen again? Why/why not?

Making calls to health workers with the work phone

3. Have **you called a health worker** in the past three months?

If no, please tell me why not? → go to question 7

If yes, continue to question 4

4. Can you tell me about who **you have called** with the work phone in the past three months?

Probe for each answer (each person they say that they have called):

- Why did you call that person
- Did you get the response you wanted, needed or expected

Repeat for each person mentioned as answer for question 4

5. I am asking you to think back to before you received the training on how to use the mobile phone and how you worked then... Now we want to ask how worked has changed. Could you tell us about the changes since you are using the mobile phone to call with health workers.

Probe:

- *Learning more and getting more information from health workers*
- *Better relationship with health workers*
- *Better care to women*
- *More work*
- *More responsibilities*
- *Able to help more women*
- *Not arriving at empty facility*

6. Since you have a work phone, have you used it to refer clients?

If yes, where did you refer them to (closest facility, somewhere else?)

Could you tell me about a time you referred someone?

Probe:

- *follow the timeline asking what happened*
- *ask what they did for each event on the timeline*
- *ask what they would have done in the past with such a case (when they did not have a work phone)*

Could you tell me about another time you used the mobile phone for referral of a client?

Repeat question until the TBA has no more examples to give or repeats stories

7. Since you have your own mobile phone and are connected to the health facility with it, do you think that the care you give to women, babies and children is different than before you used the phone?

If no → go to question 8

If yes, can you tell me more about why the phone is important and how using it has made the care you give better?

Probe:

- a. Can ask for advice, if there is something I do not know
- b. Can inform the nurse that I am sending a women so that she does not have to wait to be seen
- c. Know better when there are refreshers or trainings

8. Do clients ever ask you to call the facility for them/or ask to use your phone to call themselves?

If yes, how does that make you feel?

Probe: do they feel passed by that the client wishes to speak with the health worker directly?

9. Do you know why clients call the PHU? (*probe for various answers*)

10. What does it mean to you personally for you as TBA that that health workers can now call you on your mobile phone? Can you explain to me why that is important to you?

Probe:

- *Belonging to a 'team'*
- *Being important enough to be given the phone*
- *Being important to clients because of the phone*

Receiving calls from health workers with the work phone

11. Have **you been called by a health worker** (note: anyone who is part of the VPN group) in the past three months?

If no, please tell me why not? → go to question 12

If yes, can you tell me **who has called you** on the work phone in the past three months

Probe for each answer (each person they say has called them):

- *Who called you*
- *What did they talk to you about*
- *Did you understand what the person called wanted from you*
- *What did you do after receiving this call*

Repeat for each person mentioned as answer for question 12

12. Does the health worker ever call you in order to get a message to an individual client?

If no → go to question 14

If yes, can you tell me about the last time that that a health worker called you in order to reach an individual client

Probe: what for, what was asked, what factors determine how fast they went to the client with the message, did the TBA think this was important to do

13. Does the health worker ever call you with a message for groups of women in your community?

If no → go to question 14

If yes, can you tell me about the last time that a health worker called you with a message for a group of women?

Probe: what kind of women, how did you pass the message to all the women

14. Again, I am asking you to think back to before you received the training on how to use the mobile phone. Now think about how you work now with the mobile phone.

Can you give me an example of how you work differently now compared to before because of the work phone.

Probe:

- *What has changed when you compare how you worked before and now*
- *How has the phone played a role in this (How?)*
- *Has it changed the amount of work you have (How?)*
- *Has it changed the kind of work you have (How?)*

Relationship TBA-client

15. Since you have been connected with health workers with the work mobile phone, do you think that this has changed how the community sees you in your role as TBA? Can you tell me more about this?

Probe all areas:

- *Has your relationship with clients changed? : can you explain how and why*
- *Has your relationship with partners of clients has changed?: can you explain how and why*
- *Has your relationship with other community members changed?: With whom and can you explain how and why?*

Changes in community because of health workers calling with clients

16. Since this client reminder scheme has started and women are being called by the health facility, do you see that more women are going to the health facility compared to the past, before the scheme was here for: .

Probe further:

- *ANC: how do you know this; why do you think this has happened*
- *Delivery: how do you know this; why do you think it happened*
- *Postnatal care: how do you know this; why do you think it happened*
- *Family Planning: C*
- *Other facility services? Which ones?, how do you know this; why do you think it happened*

General

17. Being part of this reminder scheme, programme, has that benefitted you or disadvantaged you in any way?

If yes, Can you give me an example of a benefit or disadvantage

Do you have another example for me?

Keep asking until the TBA gives no more examples

18. Do you think that TBAs in the future should be included in mHealth reminder schemes to help with communication between health workers and clients? Why do you think this?

Thank you for your willingness to take part in his interview

Annex 10 – Topic guide interview health workers

Topic guide for Health Workers (SSI-3)

Mobile phone use

1. Have you used the facility work phone to reach other health personnel in the closed user group (VPN)? If yes, how often
2. Have you used the facility work phone to reach clients (either directly or through TBAs)? If yes, how often?

End of interview for those who have not used the facility work phone (those respondents who have answered no to questions 1 and 2.

Access to and functionality of the facility phone

3. Can you always access the your facility's work-related mobile phone?

If yes → go to question 4

If no, could you tell me about the last time you could not access the facility phone when you needed it

Probe:

- *Why could it not be accessed*
- *Where was the phone*
- *What did you do about it*
- *How did this affect your work*

Could you tell me about a time you could not access the phone when you needed it; where was the phone, what did you do about it, what happened because of this?

Do you expect to face this problem again in the future? Why/why not?

4. Has the facility mobile phone from this reminder scheme worked the whole time you received it?

If yes → go to question 5

If no, can you tell me about the last time you had a problem with the facility phone..

Probe about the problem:

- *Charging*
- *Coverage*
- *No credits for calling clients*
- *Losing it*
- *Broken (how, what happened)*
- *Not working properly (why)*
- *How the problem was solved*

Do you expect to face this problem again in the future? Why/why not?

Making calls with facility phone to managers, in-charges and colleagues

5. Which other health personnel also on the closed user group have **you contacted** (called or texted) with the facility phone in the past three months?

For each answer probe:

- *what the call was about*
- *what response they received*

6. Think about the time before you had the facility work phone and how you carried out your work....and now how you work since you use the facility phone to reach other health personnel in the closed user group (*NOT CLIENTS*). Has the use of the facility phone to reach others using the closed user group changed anything in how you carry out your work?

If no → go to question 7

If yes: could you explain to me what has changed and give me an example of how the phone has made a difference now compared to in the past

7. I am asking you again to think about before you got the facility work phone and how you worked together with other health personnel....and now since you use the facility phone to reach other health personnel who are also in the closed user group. Has the use of the facility phone and the closed user group made any differences in your working together with other health personnel?

If no → go to question 8

If yes: (*ask each of the questions below and probe separately for each one of them*)

- Is your relationship different with members of the DHMT
- Is your relationship different with in-charges
- Is your relationship different with colleague health workers using the closed user group

Probe for each of the categories above:

- What is different
- Can you give an example of how it is different now compared to the past
- What does this mean to you

8. Think again about before you had the facility work phone and what happened when you saw complications during pregnancy and/or childbirth ...and now think about now that you have the facility phone. Has the use of the facility phone changed the way you now deal with these complications?

If no → go to question 8

If yes, could you explain to me what the changes are

Could you tell me about the last time you had to deal with complications during you work and how you used the facility phone.

Probe by following a time line of events:

- *What happened then*
- *What did you do then*
- *Who did you call then and what did they tell you to do and did this work*

Could you tell me what would have been different if this had been in the past before you had the facility work phone.

The next question specifically addresses what happens when calling for an ambulance for referral. It is possible that this has already been mentioned in the previous question and if this is the case, please refer to their previous answer

9. Since you use the facility phone, has the facility work phone made a difference between then and now in calling for an ambulance for referral cases?

If no → go to question 10

If yes, could you explain to me what this difference is and what the phone has to do with it.

Probe:

- *Call for free*
- *Easier and why?*
- *Faster and why?*

10. Do you think that having a facility phone with a closed user group has made a difference in the process of reporting maternal deaths now?

If no → go to question 11

If yes, could you explain to me what is now different and what the phone has to do with it.

Receiving calls with facility phone from other health workers in-charges and managers

11. Which other health personnel also on the closed user group have **contacted you** (call or text) on the facility phone in the past three months?

For each answer probe:

- *what the call was about*
- *did you understand what they asked or wanted*
- *were you able to respond sufficiently*

12. Think about the time before you could be reached by others in the closed user group and how you carried out your work....and now how you work since you are called and texted by others in the closed user group. Has this changed the way you carry out your work in any way?

If no → go to question 13

If yes: could you explain to me what has changed and give me an example of how the phone has made a difference in how you work now compared to in the past

Making and receiving calls with facility phone to/from clients

13. Have you used your facility phone to call clients in the community?

If no → go to question 19

If yes, was this calling directly or calling through others and if so, which others (husband, family members, TBA...)

14. Have you encountered any problems when calling clients with your facility phone?

If no → go to question 17

If yes, could you tell me about a time you had a problem contacting a client using your facility phone.

Probe:

- *What was the problem*
- *Why was this a problem*
- *What did you do about it*
- *Were you able to finally reach the client*

15. How many clients do you call on average per week? Can you tell me what these calls are about.
(Probe by asking: -are there any other reasons why you call clients)

16. Since you use the facility work phone, do you notice that a change between the past and now in the number of clients who contact you using the facility phone number?

If no → go to question 19

If yes, could you explain how clients reach you (calling, texting flashing)

For what reasons do clients call/flash you at the facility phone?

Could you tell me how this affects your work (positively/negatively)

Probe:

- Extra workload
- Always available to answer phone
- Being interrupted when doing other work

17. I am asking you again to think about before you had the facility work phone and your relationship with clientsand now since you use the facility phone to reach and to be reached by clients. Has the use of the facility phone made a difference in the contact between yourself and clients?

If no → go to question 18

If yes: could you explain how this is different now compared to in the past

Probe:

- *What is different (relationship, health outcomes...)*
- *Can you give an example of how it is different now compared to the past*
- *What does this mean to you*

18. Have you seen changes in the community that are caused by the use of the facility phone programme?

If no→ go to question 21

If yes, Probe further:

- *Change in the number of women going to ANC: how do you know this; why do you think this has happened*
- *Change in number of women delivering at the facility: how do you know this; why do you think it happened*
- *Change in number of women receiving postnatal care from health staff: how do you know this; why do you think it happened*
- *Change in the number of women using Family Planning services: how do you know this; why do you think it happened*
- *Other changes?*

The following section is only for health workers in the TBA intervention chiefdoms (Paki Masabong and Gbanti Kamaranka)

For Sella Limba and Libiesaygahun → go to question 25

Making and receiving calls with facility phone to/from TBAs

19. Have you used your facility phone to call TBAs in the community?

If no → go to question 23

If yes, how often do you call with TBAs in the community?

Can you tell me what some of the reasons are for you to call the TBA?

20. Have you encountered any problems when calling TBAs with your facility phone?

If no → go to question 21

If yes, could you tell me about a time you had a problem contacting a TBA using your facility phone.

Probe:

- What exactly was the problem
- Why was this a problem
- What did you do about it
- Were you able to finally reach the TBA (solve the problem), how?

21. Have you received calls on your facility phone from TBAs in the community?

If no → go to question 23

If yes, how often do you receive calls from TBAs in the community?

Can you tell me what some of the reasons are that TBAs call you?

22. I am asking you to think about before you had the facility work phone and your relationship with TBAs in the communityand now since you use the facility phone to reach and to be reached by TBAs. Has the use of the facility phone made a difference in the contact between yourself and the TBAs?

If no → go to question 24

If yes: could give me examples of what is different between now compared to in the past

Probe:

- What is different (relationship, health outcomes...)
- Can you give an example of how it is different now compared to the past
- What does this mean to you
- What do you think it means for clients

Job satisfaction and quality of care

23. Since you have the work facility phone, have your feelings changed about how you carry out your work? I mean about how having the phone as part of your 'work tools' now makes you feel personally about your job compared to in the past.

If no→ go to question 25

If yes, could you give explain to me what has changed in your feelings about work

Probe:

- *More satisfied/happier with work? why and ask example*
- *Feel more enabled to do work well and be in control? why and ask example*
- *Feel more motivated in my work*
- *Feel that others find my work so important that they provide me with what I need*

24. Since you use the facility work phone, do you think that it has contributed to improving the care you give to women and children?

If no→ why not?

If yes, could you explain to me or give me an example of how using the phone has led to better care provision.

Probe:

- *Access to technical information*
- *Discuss cases (also complicated cases) with colleague/superior*
- *Timely ordering and receiving of supplies*

General programme

25. What is the most important advantage of being part of the facility phone programme and the closed user group? Can you explain to me why you think that.

26. Can you think of any disadvantages to being part of the facility phone programme and the closed user group? If yes, can you explain to me why you think that.

Recommendations

27. What would you recommend to other PHU and districts who want to implement mobile phones to phone clients? Any other use you would recommend?

Thank you for your willingness to take part in this interview. It is much appreciated.

Annex 11 – Topic guide interview health managers

Topic guides health managers- SSI-4

FOR DISTRICT LEVEL ONLY: Explain at start of interview that interview has two parts: 1. Qualitative questions and 2. Mapping sheet by chiefdom.

1. Can you tell us what you do in the mobile health project? How where you personally involved in the various activities?

Probe:

- *training,*
- *supervision,*
- *helping with equipment problems*
- *data collection*
- *coordination*

2. Before the mHealth project started in Bombali District, were you / DHMT members ever called by health workers?

If yes, what were the calls about?

(Probe for reasons and keep asking until no new reasons emerge – referral, advice, Reporting maternal death, surveillance (notifiable diseases), HMIS information/data, drugs/supplies, HR issues, , others)

How did you (as manager) respond to these calls?

Were you able to answer to the needs, expectations of the caller?

3. What do you think about the mobile phone intervention?

Have you observed changes related to the use of the Closed User Group CUG/VPN network?

Probe: for each observation mentioned:

- *Types of changes;*
- *Give an example;*
 - *What things caused this?*
 - *How did this work? Why?*

Keep asking if they observed anything else.

- Do you think the use of the facility phones between providers has changed the way health workers deal with medical complications?

If yes, in what way? How did you observe this?

Why do you think this changed? What other new intervention or practice could have caused this change?

- Do you think the use of the facility phones between providers has changed the way health workers deal with ambulance referral?

If yes, in what way? How did you observe this?

Why do you think this changed? What other new intervention or practice could have caused this change?

- Do you think the use of the facility phones between providers has changed the way health workers report maternal deaths?
If yes, in what way? How did you observe this?
Why do you think this changed? What other new intervention or practice could have caused this change?
 - Do you think the use of mobile phones has changed the job satisfaction/control at work and the way health workers feel about their work? If yes, in what way? How did you observe this?
Why do you think this changed? What other new intervention or practice could have caused this change? *Probe for Quality of care provided.*
4. Have you observed any changes resulting from the use of the work phone to call clients?
Ask separately for the following:
- a. Changes in utilization of ANC: how did you observe this; why do you think it happened because of the mobile phone use? Were any other interventions implemented that may have caused the change?
 - b. Changes in facility delivery: how did you observe this; why do you think it happened because of the mobile phone use? Were any other interventions implemented that may have caused the change?
 - c. Changes in utilization of PNC, how did you observe this; why do you think it happened because of the mobile phone use? Were any other interventions implemented that may have caused the change?
 - d. Changes in utilization of Family planning services: how did you observe this; why do you think it happened because of the mobile phone use? Were any other interventions implemented that may have caused the change?
5. Have you observed any changes resulting from the use of the TBAs to reach clients (IN TBA CHIEFDOMS ONLY)?
Ask separately for the following:
- a. Utilization
 - ANC,
 - facility delivery,
 - PNC,
 - FP services
 - b. Job satisfaction/control at work and the way TBAs feel about their work
6. Have you observed any barriers in the use of the facility mobile phones? What kind of barriers?
(ask specifically for VPN and for health workers calling clients)
Can you give an example?
(probe further;
- why are there barriers, have anything been done to deal with them);

- *probe specifically about charging and top-ups if not mentioned spontaneously*
7. What would you recommend to other PHU and districts who want to implement CUG/VPN? Any other use you would recommend. *Probe for TBA (TBA chiefdoms only)*
 8. What would you recommend to other PHU and districts who want to implement mobile phones to phone clients? Any other use you would recommend. *Probe for TBA (TBA chiefdoms only)*
 9. Do you know about the mami en pikin well-bod phone line (117)? Do people in the towns/villages in Bombali know about this line? *Probe for cards that were given to clients (one side 117, one side PHU telephone nr.)*

Are people in Bombali District calling this line? Do you know what they call for? And if they were satisfied with the answers they got? *Probe for FHCI complaints and RCH advice.*

Do you get feedback from the national call centre of the line for Bombali District?
Probe for:

- *Presence of staff at PHUs*
- *Presence of drugs/supplies/ equipment at PHUs*
- *Charging for free health care services*
- *Medical advice given*

Have you seen changes in Bombali District because of the 117 phone line? How did you observe this; why do you think it happened because of the 117 phone line? Were any other interventions implemented that may have caused the change?

FOR DISTRICT LEVEL: FILL IN THE CHIEFDOM MAPPING SHEET.

Thank you for your willingness to take part in his interview

Annex 12 – Topic guide interview male partners of enrolled clients

Topic guide for Male Partners of Enrolled Clients¹

Thank you for speaking with us today. We understand that your partner is taking part in the client reminder scheme that means that she has agreed that the health worker can call her about *well-bodi* business. We are very interested in hearing from you what you know about this scheme and what you think about it.

1. Do you have a mobile telephone?

If no → go to question 2

If yes, do other people ever use your phone? **If no** → go to question 2

If yes:

- Does your wife use it at times?
- Do any other persons use it at times? **If yes**, who else uses your phone?

2. Could you describe the network reception in this area? *Probe: by asking about the reliability of reception (all the time?) and how far he has walk to get reception.*

3. Can you tell me what you know about the 'client reminder scheme' in this community? What does the scheme do? Who is involved in the scheme? What do you think about it?

Only in the TBA intervention chiefdoms Paki Masabong and Gbanti Kamaranka, probe for knowledge of TBA involvement: Can you tell me about the role of TBAs in this scheme?

If the respondents do not know about or have questions about the scheme, you need to explain further before continuing.

4. Since your wife is part of this client reminder scheme, do you know if she has been called by the health worker?

If yes, on whose phone does she receive calls from health workers? (*Own phone, partner's phone, TBA phone, other phone*)

5. Can you tell me if there is a reason why you would not be happy about the health worker calling your partner? (*Probe for male as opposed to female health worker*)

6. Do you know if your partner has called the health worker in the facility since she is part of this scheme? **If yes**, which phone does your partner use to call the health worker? (*Probe: own phone, partner's phone, TBA phone*)

7. Since your partner is taking part in this scheme, do you think that she is attending the facility more than before when she was not being called by the health worker?

If yes, could you explain to me what has motivated your partner to attend the clinic more now compared to before she signed up for the scheme/what makes her use the facility more than before?

8. Since your partner is taking part in this scheme, are there other things that have changed that you see/or she has told you about her *wel-bodi* business?

Probe:

- *Has learned more about wel-bodi*
- *Gets better care*
- *Has a better relationship with the nurse at the clinic/TBA (for TBA chiefdoms)*
- *Anything else*

Can you explain to me why these changes have taken place since the start of the client reminder scheme?

9. As part of the scheme, every health facility has received a phone and sufficient credits to call clients. Based on your knowledge of the client reminder scheme, do you think the money spent on this is well spent? Would you recommend that it be continued? Why/why not?

10. Can you tell me what the *mama en pikin well-bodi* phone line (117) is? (***explain if needed***)

¹ Topic guides used during the midline study are included in the midline report (Jalloh-Vos et al. 2013); since they did not suffer major changes they are not again included in this report.

11. Did anyone of you ever call this line or do you know someone who has called this line:
- To ask a question about *mama en pikin well-bodi*?
If yes, what did you/other person call about? How did you/other person feel about the response received from the person on the telephone line? Did it help? Were you or the other person happy with this?
 - To talk about a complaint with the Free Health Care Initiative?
If yes, what did you/other person call about? How did you/other person feel about the response received from the person on the telephone line? Did it help? Were you or the other person happy with this?

Thank you very much for your willingness to take part in the interview.

Annex 13 – Topic guide FGD with male and female community members

Topic guide for FGD with male and female community members

Introduction:

Welcome participants.

Provide information about the research as in the consent form.

Ask consent from every individual in the group and get the consent form signed.

Fill in the data sheet with details for each participant.

Agree on ground rules: no right or wrong answers; discussions and disagreements are okay if expressed with respect for the opinion of the other; everybody is important to express their views; do not talk about what is said in the group outside; do not talk about personal issues.

Mobile phone coverage and use (general)

1. For how long have people used mobile phone in your community?
2. Who are the people that own mobile phones in this community? (Probe for younger and older women and men)
3. And the people in this community who do not own a phone, what kind of people are they?
4. How do they feel about not having a phone (Probe: jealous, do not care etc.)
5. How would you describe the network coverage in this community? How many service providers are available?
6. What kinds of problems do people have with mobile phones? (Probe for charging, network coverage, costs, losing, stealing, breaking etc.)
7. How do they solve these problems?
8. How do people like to use the mobile phone? (call, text, flash)? Why is this?

Client reminder scheme (general recruitment)

9. Can you tell me about the 'client reminder scheme' in this community? What is and who is involved? What do you think about it?

REMINDER: In the TBA intervention chiefdoms Paki Masabong and Gbanti Kamaranka, probe for knowledge of TBA involvement

If the respondent does not know about or have questions about the scheme, you need to explain what it is before continuing.

10. Can you tell me what you know from yourself/your partner and from others why some women did not take part in this scheme when they were asked?

Probe: privacy (family), no phone, do not know how to use phone, family against it... and for new reasons until no new ones come up

11. How important is it for women to discuss with others before deciding to enrol in this kind of scheme? (probe: which persons to discuss with and why)

12. How important is it for women to get permission from partner/family before enrolling in this kind of scheme? Why/why not?

13. Do you know women who took part in this scheme? Do you know why these women decided to take part in the scheme?

Probe for reasons until no new ones come up.

Perceived results and changes

14. Think about in the past, before this scheme was started... and now think about now. Do you think that the scheme has made changes in :

- a. Health seeking behaviour of women
- b. Health promotion and information
- c. The quality of the service provision
- d. The number of women attending the health facility for :
 - d.i. ANC
 - d.ii. Delivery
 - d.iii. Postnatal Care
 - d.iv. Family Planning services
- e. The relationship between clients and the health workers
- f. How happy health workers are at their jobs

Probe each topic for what has changed, how this is caused by the scheme and how they feel about it = good or bad and why

For the following questions we want you to imagine that there is a new intervention in this community for women's *well-bodi* business. If a woman enrolls in the programme, she will be called by health workers at the facility for reminders of appointments and follow up of treatment. We want you to imagine that you/your partner is asked to be part of this.

For Women	For Men
15. If given the opportunity again, would you reconsider taking part in the client reminder scheme? Why/why not?	14. Would you want your partner to take part in a client reminder scheme, the next time? Why/why not?

16. Can you think of other initiatives in your community that could also have made changes in the number of women who go to the health facility for services? *Probe: Which ones and why do they influence facility attendance?*

National information line

17. Can you tell me what the *mama en pikin well-bodi* phone line (117) is?

18. Did anyone of you ever call this line or do you know someone who has called this line:

- To ask a question about *mama en pikin well-bodi*?

If yes, what did you/other person call about? How did you/other person feel about the response received from the person on the telephone line? Did it help? Were you or the other person happy with this?

- To talk about a complaint with the Free Health Care Initiative?

If yes, what did you/other person call about? How did you/other person feel about the response received from the person on the telephone line? Did it help? Were you or the other person happy with this?

Thank you very much for your willingness to take part in the interview.

Annex 14 – Sampling framework qualitative interviews

Overview table: sampling framework midline and endline qualitative research																	
			Midline							Endline							
Wedge	Chiefdom	Type facility	TBA SSI	HW SSI	Client-enrolled SSI		Client- non enrolled SSI		Hm ^{ar}	TBA SSI	HW SSI	Client-enrolled SSI		SSI Male partners	FDG Community (male/female)	MH	
					PW	FP	PW	FP	MT			PW	FP			MT	N ^C
1	TBA intervention chiefdom: Paki Masabong	CHC	2-3	2	1	1	1	1	2	1	1	0	0	0	1 m/ 1 f	2	2
		CHP	2-3	2	1	1	1	1		1	0	0	0	0			
		MCHP	2-3	1	1	1	1	1		1	0	0	0	1 m / 1f			
	Non TBA intervention chiefdom: Sella Lima	CHC	0	2	1	1	1	1		0	1	1	1	1	1 m / 1 f		
		CHP	0	2	1	1	1	1		0	1	0	0	0	0		
		MCHP	0	1	1	1	1	1		1	1	1	1	1	1m / 1 f		
	Sub-total			6-9	10	6	6	6		6	2	3	6	2	2			2	4m / 4 f
Totals per wedge			TOTAL WEDGE 1 SSIs = 42-45 respondents							TOTAL WEDGE 1 SSIs = 15 respondents							
2	TBA intervention chiefdom: Gbanti Kamaranka	CHC								2-3	2	1	1	1	0	2	2
		CHP								2-3	2	0	0	1	1m / 1f		
		MCHP								2-3	1	1	1	1	1m / 1f		
	Non TBA intervention chiefdom: Libyagahun	CHC								0	2	1	1	0	1 m / 1f		
		CHP								0	2	0	0	0	0		
		MCHP								0	1	1	1	1	1m / 1f		
	Sub-total									6-9	10	4	4	4	4m / 4f			2	2
Totals per wedge			TOTAL WEDGE 2 SSIs = 0 respondents							TOTAL WEDGE 2 SSIs = 28-31 respondents							
Total			6-9	10	6	6	6	6	2	9-12	16	6	6	6	8m / 8f	2	2
^a HM = health managers, ^b DMT = district management team members, ^c N = National, ^d Males partners = male partners of enrolled clients																	

Criteria for selection (maximum variation sampling)

	Midline	Endline
Chiefdoms	Paki Masabong: TBA intervention chiefdom) Sella Limba: highest contrast with Paki Masabong in PHU density	Gbanti Kamaranka: TBA intervention chiefdom) Libiesaygahun: highest contrast with Gbanti Kamaranka in PHU density
Type of facility	Use all types of facilities (CHC, CHP, MCHA) because of differences between them.	
Geographical distribution of facility	<p>Criteria:</p> <ul style="list-style-type: none"> - CHC: there is usually one CHC per chiefdom but if there are two, the one with the most senior level in charge will be selected - CHP and MCHP will be selected according to chiefdom geographical distribution in order to cover the entire chiefdom - If the chiefdom does not have a (functioning) CHP, an MCHP will be selected (meaning two MCHPs in that chiefdom) - If (based on supervision reports) a chosen facility does not have sufficient numbers of participating clients, an alternative facility will be selected in close geographical proximity if the target number of clients cannot be found and recruited for the interviews 	
Facility selection Wedge 1 (Mid line and endline)	<p>Paki Masabong: no CHP in chiefdom</p> <ul style="list-style-type: none"> - CHC: Mapaki - MCHP: Kathanta Bana (replacing CHP) = 100 PW/89 FP, 2 of the 5 TBAs not in contact due to no charger - MCHP: Makolor = reports showing poor enrolment (11PW, 2FP) and poor network coverage, TBAs not active because of having no charger <p>2nd option for recruitment clients/TBAs is MCHP Masabong Pil (29 PW/36 FP), no other problems reported</p>	
	<p>Sella Limba:</p> <ul style="list-style-type: none"> - CHC: Kanthanta Yimbor = 15 PW/14 FP, lack of client personal phones reported - CHP: Kamawonie = 3PW/2 FP, lack of client personal phones - MCHP: Masankorie = 27 PW/25 FP, lack of personal phones <p>2nd option for recruitment clients is MCHP Kamabaio = 65 PW/44 FP</p>	
Facility selection Wedge 2 (Endline)	<p>Gbanti Kamaranka: no CHP in chiefdom, TBA intervention chiefdom</p> <ul style="list-style-type: none"> - CHC: Gbanti = 30 PW/36 FP , no monthly PHU reports received, no other problems reported. - CHC: Kamaranka (previously functioning as CHP, more recently a CHC – no other CHP in chiefdom) = 15 PW/12 FP, one monthly PHU report received, reported problems with TBA sim cards (“not registered”) - MCHP: Kambia = 24 PW/11 FP, 3 monthly reports received, no other problems reported 	
	<p>Libiesaygahun: only one CHP in chiefdom, non-TBA intervention chiefdom</p> <ul style="list-style-type: none"> - CHC: Batkanu = 14PW/7 FP, 3 monthly PHU reports received, no other problems reported - CHP: Gbonkonka = 0 PW/0 FP, 2 monthly PHU reports received with as comment “No Airtel network, so no registration done. Only Africell”. Could never be reached during telephone supervision. If information on no telephone reception at this 	

	<p>PHU is confirmed in the field, the alternative is Kiamunday MCHP (due to become a CHP in future, no other CHP in the chiefdom) = 6 PW/ 5 FP, 2 monthly PHU reports received, could not be reached during telephone supervision.</p> <ul style="list-style-type: none"> - MCHP: Matoto = 70 PW/85 FP, 6 monthly PHU reports received, no problems reported. 	
Health workers	<p>Per chiefdom 5 health workers:</p> <ul style="list-style-type: none"> - CHC : 1) most senior (highest level in-charge*) 2) MCH Aide[#] - CHP: 1) most senior (highest level in-charge) 2) MCH Aide - MCHP: 1) most senior MCH Aide or other MCH Aide (if not available other staff) <p>* Senior in-charge ensures the getting information with diversity in level of health workers</p> <p>[#] More MCH Aides to represent the distribution of work force</p>	Same cadres; preferably not interviewed before
Clients	<p>Equal number of clients interviews in the following groups:</p> <ul style="list-style-type: none"> - Enrolled pregnant woman (PW) - Enrolled Family Planning (FP) - Non-enrolled PW - Non-enrolled FP <p><i>PW is the term used in the registers to indicate recruitment during pregnancy, delivery or PNC</i></p>	Same groups, preferably not interviewed before
TBA	<p>Purposefully selected based on supervision data. 2-3 per PHU: as there are 6 TBAs recruited per PHU and they are all living outside of the immediate vicinity of the PHU, it may be difficult to find and recruit TBAs. 2-3 ensures the minimum target of 6 TBA interviews per facility. Choice for individual interviews because it is unlikely to get them together at one place as they are spread geographically.</p>	
DHMT	<p>Select from among:</p> <ul style="list-style-type: none"> - Midline: District Health Sister, M&E Officer - Endline: DMO, other DHS (there are two) and the transport officer. 	
Male partners	<p>Male partners of clients enrolled in scheme.</p> <p><i>Contact PHUs in advance to ask help staff to contact clients, to see if they agree to have her partner contacted for recruitment</i></p>	
FGDs	<p>FGD-female: not part of the scheme, of reproductive age, young and older women</p> <p>FGD-male: men of various ages</p>	
General selection criteria	<ol style="list-style-type: none"> 1. Able to communicate in Krio (for other languages like Temne – included if researcher available who speaks and understands the language of the respondent well) 2. Not shy, willing to talk 3. Consent 4. Each participant can only be interviewed ONCE for the endline (e.g. not in FGD and then also as partner of a client, or as health worker and then again in an FGD) 	

Annex 15 – Overview of similarities and significant differences

Indicator*		Wedge 1 versus Wedge 2			TOTAL			Wedge 1			Wedge 2		
name	categories (nr, description)	Baseline	Midline	Endline	Base vs Mid	Mid vs End	Base vs End	Base vs Mid	Mid vs End	Base vs End	Base vs Mid	Mid vs End	Base vs End
Chieftdom	13	↑ 0.000	↑ 0.000	↑ 0.000	↔	↔	↔	↔	↔	↔	↔	↔	↔
Type facility	3 (CHC, CHP, MCHP)	↔	↑, w1 less CHP, more MCHP respondents	↑, w1 less CHP, more MCHP resp.	↔	↔	↑, endline more CHC/CHP, less MCHP respondents	↔	↔	↔	↔	↔	↑, endline more CHC/CHP, less MCHP respondents
Type Healthworker	8	↔	↔	↔	↔	↔	endline more SECHN, less MCHaide respondents	↔	↔	↔	↔	↔	↔
In charge of facility	2 (yes, no)	↔	↔	↔	↔	↔	0.001	↔	↔	↔	↔	↔	↔
On government payroll	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Sex	2 (F, M)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Age	continuous (years)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Children	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Time at health facility	3 (less than 1 month, 1-3 months, 3 months or more)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Distance to Makeni	continuous (km)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Make and receive calls inside PHU	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Coverage at normal calling spot	2 (all / most of the time, sometimes / almost never)	↑ 0.008	↔	↔	↔	↔	↔	↔	↔	↑ 0.022	↔	↔	↔
Frequency making calls	2 (once a week or more, less than once a week)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Frequency sending messages	2 (once a week or more, less than once a week)	↑ 0.000	↔	↑ 0.004	↔	↑ 0.004	↑ 0.000	↔	↑ 0.001	↑ 0.047	↑ 0.001	↔	↑ 0.002
Pay for calls	2 (yes, no)	↔	↑ 0.003	↑ 0.026	↑ 0.000	↑ 0.002	↑ 0.000	↑ 0.000	↔	↑ 0.000	↑ 0.000	↑ 0.009	↑ 0.000
Pay for charging	2 (yes, no)	↔	↔	↑ 0.039	↑ 0.000	↔	↑ 0.000	↑ 0.000	↔	↑ 0.009	↑ 0.000	↔	↑ 0.000
Calls / texts to district	2 (once a week or more, less than once a week (includes never))	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Calls / texts to in-charge of own facility	2 (once a week or more, less than once a week (includes never))	↔	↔	↔	↔	↑ 0.000	↑ 0.000	↔	↑ 0.003	↑ 0.001	↔	↑ 0.000	↑ 0.000
Calls / texts to chieftdom in-charge	2 (once a week or more, less than once a week (includes never))	↔	↔	↔	↑ 0.002	↑ 0.016	↔	↔	↔	↔	↑ 0.005	↔	↔
Calls / texts to other staff	2 (once a week or more, less than once a week (includes never))	↑ 0.026	↔	↔	↔	↔	↔	↑ 0.008	↔	↑ 0.011	↔	↔	↔
Calls / texts to clients	2 (once a week or more, less than once a week (includes never))	↑ 0.004	↑ 0.017	↔	↑ 0.029	↔	↑ 0.000	↑ 0.000	↔	↑ 0.000	↔	↑ 0.044	↔
Calls / texts to TBAs	2 (once a week or more, less than once a week (includes never))	↔	↑ 0.044	↑ 0.001	↔	↔	↔	↔	↔	↔	↔	↔	↔
Receive calls / texts from district	2 (once a week or more, less than once a week (includes never))	↑ 0.007	↔	↔	↔	↑ 0.038	↔	↑ 0.026	↑ 0.310	↔	↔	↔	↔
Receive calls / texts from in-charge of own facility	2 (once a week or more, less than once a week (includes never))	↔	↔	↔	↔	↑ 0.001	↑ 0.000	↔	↑ 0.035	↑ 0.004	↔	↑ 0.005	↑ 0.000
Receive calls / texts from chieftdom in-charge	2 (once a week or more, less than once a week (includes never))	↔	↔	↔	↑ 0.045	↔	↔	↔	↔	↔	↑ 0.032	↔	↔
Receive calls / texts from other staff	2 (once a week or more, less than once a week (includes never))	↑ 0.041	↔	↔	↑ 0.000	↑ 0.003	↔	↑ 0.000	↑ 0.027	↔	↔	↔	↔
Receive calls / texts from clients	2 (once a week or more, less than once a week (includes never))	↑ 0.000	↔	↑ 0.001	↔	↔	↑ 0.021	↔	↑ 0.050	↔	↔	↔	↑ 0.039
Receive calls / texts from TBAs	2 (once a week or more, less than once a week (includes never))	↔	↔	↑ 0.004	↔	↔	↔	↔	↔	↔	↔	↔	↔

Indicator*		Wedge 1 versus Wedge 2			TOTAL			Wedge 1			Wedge 2		
name	categories (nr, description)	Baseline	Midline	Endline	Base vs Mid	Mid vs End	Base vs End	Base vs Mid	Mid vs End	Base vs End	Base vs Mid	Mid vs End	Base vs End
Communication with peers and seniors	continuous	↔	↑	↑	↑	↑	↑	↑	↑	↑	↔	↑	↑
			0.001	0.000	0.005	0.007	0.000	0.007	0.027	0.000		0.043	0.005
Working conditions	continuous	↔	↔	↔	↑	↑	↔	↔	↔	↔	↑	↔	↔
						0.007	0.027					0.024	
Quality of working life	continuous	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↑	↑
							0.022	0.047					0.010	0.002
Contacting clients is easy	continuous	↔	↑	↔	↔	↑	↑	↑	↔	↑	↔	↑	↑
				0.022			0.018	0.000	0.005		0.000		0.026	0.018
Have means to contact clients directly	continuous	↑	↔	↑	↑	↑	↑	↑	↑	↑	↔	↑	↑
			0.023		0.045	0.014	0.000	0.000	0.001	0.003	0.000		0.007	0.007
Nr phone networks available	2 (one network, more than one network)	↑	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔
			0.000	0.000	0.000								
Airtel available	2 (yes,no)	↔	↔	↔	↑	↑	↔	↔	↑	↔	↔	↔	↔
						0.015	0.013			0.015			
Africell available	2 (yes,no)	↑	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔
			0.000	0.000	0.000								
Comium available	2 (yes,no)	↑	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔
			0.010	0.000	0.017								
Sierratel available	2 (yes,no)	↔	↑	↔	↑	↑	↔	↔	↔	↔	↔	↑	↔
				0.000		0.005	0.001						0.000
Work related use of phone	3 (more call than text, same amount calls and texts, more text than call)	↔	↔	↔	↔	↑	↑	↔	↑	↔	↔	↔	↔
							0.002	0.042		0.015			
Use of facility phone	2 (yes,no)	↔	↔	↔	↑	↔	↑	↑	↑	↑	↑	↔	↑
						0.000		0.000	0.000	0.029	0.000	0.000		0.000
Receive work calls / texts	2 (yes, no)	↑	↔	↔	↔	↔	↔	↑	↔	↑	↔	↔	↔
			0.001						0.001		0.001		
Frequency receiving work calls	2 (once a week or more, less than once a week)	↔	↑	↔	↔	↑	↔	↑	↑	↔	↔	↔	↔
				0.039			0.028		0.020	0.013			
Frequency receiving work texts	2 (once a week or more, less than once a week)	↑	↔	↑	↔	↑	↑	↔	↑	↑	↑	↔	↑
			0.005		0.020		0.020	0.000		0.004	0.005	0.034		0.006
Ambulance referral calls / texts to district	2 (yes, no)	↑	↑	↑	↔	↑	↑	↔	↑	↑	↔	↔	↔
			0.001	0.000	0.060		0.018	0.000		0.001	0.001		
Ambulance referral calls / texts to in-charge of own facility	2 (yes, no)	↔	↔	↔	↑	↑	↔	↑	↔	↔	↔	↑	↔
						0.009	0.018		0.031				0.025
Ambulance referral calls / texts to chiefdom in-charge	2 (yes, no)	↔	↔	↑	↔	↔	↔	↔	↔	↔	↔	↑	↔
					0.001								0.035
Ambulance referral calls / texts to other staff	2 (yes, no)	↔	↔	↑	↑	↔	↑	↑	↔	↑	↔	↔	↔
					0.026	0.006		0.008	0.006		0.003		
Receive ambulance referral calls / texts from district	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Receive ambulance referral calls / texts from in-charge of own facility	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Receive ambulance referral calls / texts from chiefdom in-charge	2 (yes, no)	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔
						0.048							
Receive ambulance referral calls / texts from other staff	2 (yes, no)	↔	↔	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔
										0.016			
* for categorical variables the Pearson Chi2 test was used, for continuous variables the t-test was used - only significant P-value displayed													

Annex 16 – Distance PHU to Bombali district headquarter town

PHU	Chiefdom	Distance in km to DHMT office in Makeni - 2012	PHU	Chiefdom	Distance in km to DHMT office in Makeni - 2012
1 Fullah Town II*	Bombali Sebor	3	50 Bumban	Biriwa	22
2 Loreto	Bombali Sebor	2	51 Bumbandain	Biriwa	19
3 Mabolleh	Bombali Sebor	5	52 Kagbane	Biriwa	15
4 Maforay	Bombali Sebor	11	53 Kagbankona	Biriwa	45
5 Makama	Bombali Sebor	2	54 Kamabai	Biriwa	22
6 Makump Bana	Bombali Sebor	7	55 Kamasikie	Biriwa	36
7 Masory	Bombali Sebor	15	56 Kanikay	Biriwa	40
8 Masuba	Bombali Sebor	2	57 Karina	Biriwa	32
9 Patebana	Bombali Sebor	6	58 Kayonkoro	Biriwa	30
10 Police Barracks	Bombali Sebor	2	59 Manjoro	Biriwa	32
11 Robat	Bombali Sebor	8	60 Gbendembu	Gbendembu Ngowahun	22
12 Rokonta	Bombali Sebor	15	61 Kalangba	Gbendembu Ngowahun	15
13 SLRC	Bombali Sebor	2	62 Kortuhun	Gbendembu Ngowahun	29
14 Teko	Bombali Sebor	7	63 Madina Loko	Gbendembu Ngowahun	24
15 Tonko	Bombali Sebor	2	64 Maharie	Gbendembu Ngowahun	24
16 Fullah Town	Makari Gbanti	14	65 Mamaka	Gbendembu Ngowahun	32
17 Karafay Loko	Makari Gbanti	9	66 Tambiama	Gbendembu Ngowahun	11
18 Kolisokoh	Makari Gbanti	16	67 Hunduwa	Magbaimba Ndowahun	46
19 Kunsho	Makari Gbanti	7	68 Kagbere	Magbaimba Ndowahun	37
20 Maboyo	Makari Gbanti	8	69 Mabiama	Magbaimba Ndowahun	49
21 Magbaikoli	Makari Gbanti	22	70 Mabunduka	Sanda Tendaren	25
22 Makarie	Makari Gbanti	7	71 Manack	Sanda Tendaren	46
23 Mangay Loko	Makari Gbanti	5	72 Mateboi	Sanda Tendaren	36
24 Masongbo	Makari Gbanti	6	73 Rogbin	Sanda Tendaren	34
25 Panlap	Makari Gbanti	2	74 Rokulan	Sanda Tendaren	30
26 Punthun	Makari Gbanti	9	75 Kamalo	Sanda Loko	47
27 Stocco	Makari Gbanti	2	76 Laiya	Sanda Loko	65
28 Thonkomba	Makari Gbanti	19	77 Laminaya	Sanda Loko	66
29 Yainkassa	Makari Gbanti	19	78 Madina Fullah	Sanda Loko	61
30 Batkanu	Libiesaygahun	42	79 Maharibo	Sanda Loko	55
31 Gbonkonka	Libiesaygahun	50	80 Rothata	Sanda Loko	54
32 Kiamuinday	Libiesaygahun	60	81 Kabba Ferry	Sella Limba	63
33 Magbaingba	Libiesaygahun	25	82 Kagboray	Sella Limba	63
34 Matoto	Libiesaygahun	35	83 Kamabaio	Sella Limba	60
35 Kathanta Bana	Paki Masabong	30	84 Kamakwie	Sella Limba	56
36 Makeni Lol	Paki Masabong	16	85 Kamawonie	Sella Limba	66
37 Makolor	Paki Masabong	13	86 Kaponkie	Sella Limba	60

38 Mapaki	Paki Masabong	23	87 Kathanta Yimbor	Sella Limba	63
39 Masabong Pil	Paki Masabong	18	88 Masankorie	Sella Limba	61
40 Masingbi Lol	Paki Masabong	15	89 Fintonia	Tambaka	70
41 Binkolo	Safroko Limba	7	90 Samaya	Tambaka	70
42 Kabonka	Safroko Limba	14	91 Sanya	Tambaka	88
43 Kagbo	Safroko Limba	13	92 Borongoh / Makarankay	Gbanti Kamaranka	50
44 Kagbombeh	Safroko Limba	6	93 Gbainkfay	Gbanti Kamaranka	42
45 Kapethe	Safroko Limba	12	94 Gbanti	Gbanti Kamaranka	38
46 Kayassie	Safroko Limba	21	95 Gbonkobana	Gbanti Kamaranka	42
47 Mabonkani	Safroko Limba	10	96 Kamaranka	Gbanti Kamaranka	38
48 Maselleh	Safroko Limba	15	97 Kambia	Gbanti Kamaranka	45
49 Masongbo Limba	Safroko Limba	15	98 Makaiba	Gbanti Kamaranka	35
* Not functional			99 Royeama	Gbanti Kamaranka	39

Annex 17 – Background characteristics of respondents – midline and endline qualitative interviews

A. Midline respondents

Summary characteristics district level respondents

Nr. interviews	Average age in years	Average number of years working experience
2	56	15

Summary characteristics of health worker respondents

Chiefdom	Nr. interviews	Age in years Average (range)	Years of experience in health sector Average (range)	Nr of PHU in-charges interviewed
Paki Masabong	5	47 (30 – 58)	20 (4 – 34)	4
Sella Limba	5	42 (35 – 51)	11 (3 – 28)	5
Total	10	45 (30 -58)	15 (3 – 34)	9

Summary characteristics of TBA respondents

Chiefdom	Nr. interviews	Age in years Average (range)	Distance to health facility in walking minutes Average (range)	Mother tongue
Paki Masabong	12	53 (36-70)	104 (15-240)	Temne (8), Limba (3), Krio (1)

Summary characteristics of client respondents

Chiefdom	Nr. of interviews with clients who joined mHealth during antenatal visit	Nr. of interviews with clients who joined mHealth during family planning visit	Age in years Average (range)	Distance to health facility in walking minutes Average (range)	Mother tongue	Education	Nr. of ANC visits attended by pregnant clients (Range)	Phone used to communicate with clinic	Nr. of calls received from health worker Average (range)
Paki Masabong	4	3	26 (16-45)	69 (35-130)	Temne(4), Limba (3)	None (4), primary (1), secondary (2)	2 – 4+	TBA phone (6), someone else's phone (1)	2 (1-3)
Sella Limba	4	5	28 (16-49)	71 (30-240)	Limba(7), Temne(2)	None (7), primary (1), unknown (1)	1 – 4+	Own phone (3), husband (4), brother in law (1), uncle (1)	3 (1-7)
Total	8	8	28 (16-49)	70 (30-240)	Limba (10), Temne (6)	None (11), primary (2), secondary (2), unknown (1)	1 – 4+	TBA phone (6), someone else's phone (7), own phone (3)	3 (1-7)

B. Endline respondents

Summary characteristics district and national level respondents

Nr. interviews	Age in years Average (range)	Years of experience in health sector Average (range)
5 - District (2), National (3)	50 (41 - 56)	24 (15 - 38)

Summary characteristics of health worker respondents

Chiefdom	Nr. interviews	Age in years Average (range)	Years of experience in health sector Average (range)	Nr of PHU in-charges interviewed
Gbanti Kamaranka	5	38 (26 - 47)	12 (2 - 30)	2
Libiesaygahun	4	52 (45 - 60)	12 (4 - 7)	3
Paki Masabong	3	41 (31 - 54)	15 (4 - 30)	3
Sella Limba	3	39 (33 - 48)	10 (5 - 16)	3
Total	15	42 (26 - 60)	12 (2 - 30)	11

Summary characteristics of TBA respondents

Chiefdom	Nr interviews	Age in years Average (range)	Years of experience in health sector Average (range)	Distance to health facility in walking minutes Average (range)	Mother tongue
Gbanti Kamaranka	8	55 (42 - 63)	13 (2 - 22)	129 (12 - 240)	Temne (8)
Paki Masabong	3	45 (30 - 60)	12 (4 - 20)	115 (50 - 180)	Krio (1), Temne (1), Limba (1)
Total	11	53 (30 - 63)	13 (2 - 22)	126 (12 - 240)	Temne (9), Krio (1), Limba (1)

Summary characteristics of client respondents

Chiefdom	Nr. of interviews with clients who joined mHealth during antenatal visit	Nr. of interviews with clients who joined mHealth during family planning visit	Age in years Average (range)	Distance to health facility in walking minutes Average (range)	Mother tongue	Education	Nr. of ANC visits attended by pregnant clients (Range)	Phone used to communicate with clinic	Nr. of calls received from health worker Average (range)
Gbanti Kamaranka	2	1	23 (20 - 26)	41 (30 - 60)	Temne (3)	None (2), Secondary (1)	3-4+	Husband (3)	3- Often
Libiesaygahun	2	2	31 (21 - 35)	52 (30 - 85)	Temne (2), Loko (2)	None (3), Secondary (1)	3	Someone else's phone (3), Own phone (1)	2 - Often
Sella Limba	2	2	30 (22 - 37)	30 (5 - 60)	Limba (4)	None (1), Secondary (3)	4+	Own phone (4)	4 - Often
Total	6	5	28 (20 - 37)	42 (5 - 85)	Temne (5), Loko (2), Limba (4)	None (6), Secondary (5)	3-4+	Someone else's phone (6), Own phone (5)	2 - Often

Summary characteristics of partner respondents

Chiefdom	Nr interviews	Age in years Average (range)	Mother tongue	Education
Gbanti Kamaranka	3	45 (32 - 56)	Temne (3)	None (1), Primary (1), Secondary (1)
Sella Limba	2	36 (32 - 39)	Temne (1), Limba (1)	Secondary (1), Tertiary (1)
Libiesaygahun	1	40	Loko (1)	None (1)
Total	6	41 (32 - 56)	Temne (4), Limba (1), Loko (1)	None (2), Primary (1), Secondary (2), Tertiary (1)

Summary characteristics of FGD participants

Chiefdom	Sex	Nr. of participants in FGD(s)	Age in years Average (range)	Education	Mother Tongue	Nr of own children Average (range)
Gbanti Kamaranka	Female	19	27 (16 - 48)	None (8), Primary (3), Secondary (8)	Temne (19)	3 (0 - 8)
	Male	18	35 (14 - 65)	None (7), Primary (1), Secondary (9), Tertiary (1)	Temne (18)	4 (0 - 22)
Libiesaygahun	Female	10	31 (18 - 44)	None (5), Primary (3), Secondary (2)	Loko (9), Temne (1)	3 (1 - 4)
	Male	6	44 (32 - 52)	None (2), Primary (1), Secondary (2), Tertiary (1)	Fula (1), Mende (1), Soso (1), Temne (3)	6 (2 - 11)
Paki Masabong	Female	10	28 (19 - 45)	None (8), Primary (1), Secondary (1)	Limba (1), Loko(1), Temne (8)	2 (1 - 7)
	Male	17	36 (23 - 60)	None (7), Secondary (6), Tertiary (4)	Limba (4), Temne (13)	4 (0 - 12)
Sella Limba	Female	18	29 (16 - 50)	None (11), Primary (3), Secondary (4)	Limba (13), Loko (1), Soso (1), Temne (3)	3 (1 - 8)
	Male	8	33 (21 - 49)	None (4), Secondary (4)	Fula (1), Limba (5), Mandingo (1), Temne (1)	3 (0 - 7)
Total	Female	57	28 (16 - 50)	None (32), Primary (10), Secondary (15)	Limba (14), Loko (11), Soso (1), Temne (31)	3 (0 - 8)
	Male	49	36 (14 -65)	None (20), Primary (2), Secondary (21), Tertiary (6)	Fula (2), Limba (9), Mandingo (1), Mende (1), Soso (1), Temne (35)	4 (0 - 22)

Annex 18 – Background characteristics of respondents – endline survey respondents

Background characteristics of health worker respondents - endline health worker questionnaire															
		CHO		CHA		SECHN		MCH Aide		EDCU Assistant		Midwife		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sex of respondent	Female	0	0	7	58	28	74	109	100	0	0	7	88	151	80
	Male	13	100	5	42	10	26	0	0	8	100	1	13	37	20
Children	Yes	11	85	12	100	35	92	104	95	8	100	8	100	178	95
	No	2	15	0	0	3	8	5	5	0	0	0	0	10	5
Number of months worked at facility	< one month	0	0	0	0	1	3	2	2	0	0	1	13	4	2
	Between 1-3 months	0	0	0	0	5	13	2	2	0	0	1	13	8	4
	3 months or more	13	100	12	100	32	84	105	96	8	100	6	75	176	94
On government payroll	Yes	13	100	12	100	36	95	105	96	8	100	8	100	182	97
	No	0	0	0	0	2	5	4	4	0	0	0	0	6	3
Facility in-charge	Yes	13	100	9	75	16	42	54	50	2	25	1	13	95	51
	No	0	0	3	25	22	58	55	50	6	75	7	88	93	49
Type of facility	CHC	12	92	3	25	14	37	19	17	2	25	8	100	58	31
	CHP	1	8	9	75	15	39	20	18	3	38	0	0	48	26
	MCHP	0	0	0	0	9	24	70	64	3	38	0	0	82	44

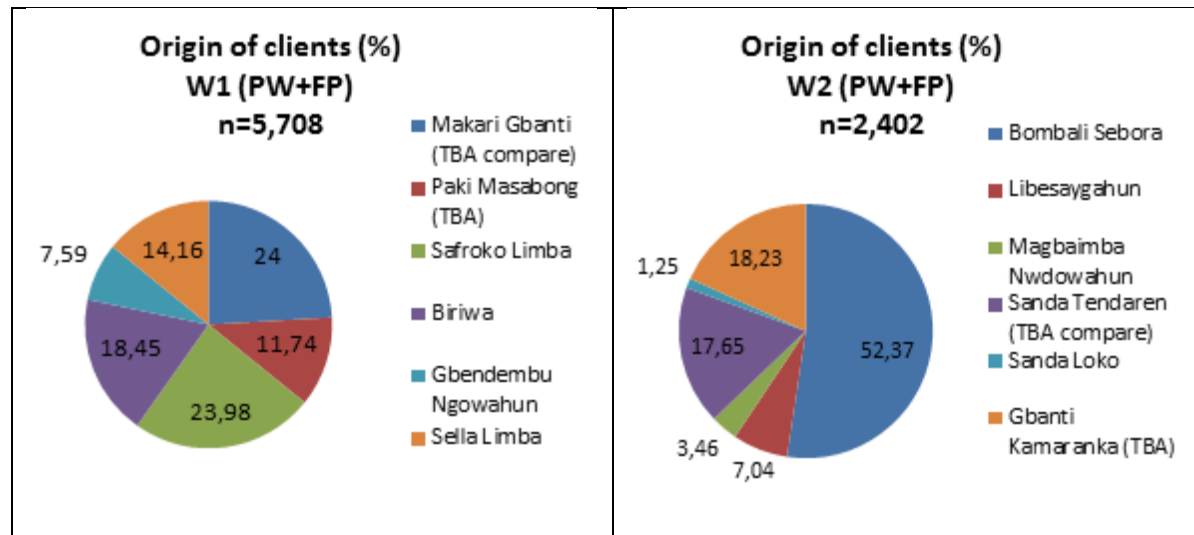
Annex 19 – mHealth scheme registers (PW and FP)

mHealth Client - PW contact and follow-up ledger		Nr in register			
Client agrees to be contacted by Health Worker on the phone and/or by TBA through home visit (if client is in TBA chieftdom, does not have a phone or can not be reached on the phone)?	Yes/No	Name			
Client understands that their taking part or not taking part in the reminder scheme does not have any cost or services implications?	Yes/No	Address			
Client understands that they can at any time decide to withdraw from the scheme and/or not answer to calls or home visits?	Yes/No	Phone nr			
Does the client have a personal phone?	Yes/No	Name other person with phone (e.g. Husband, TBA)			
Does the client expect problems or discomfort when others answer the phone?	Yes/No				
telephone interview on experiences with the mobile phone?	Yes/No	(If answer is NO here, can be included in the scheme, but will not be called for experiences)			
Name health worker					
Signature health worker (confirming to have gone through information and verbal consent procedure)					
Date of registration in the mHealth Programme					
PLANNED visit date	ACTUAL pre-visit reminder call date	Type visit	ACTUAL visit	Call date for defaulters	Comments
	danger signs*	ANC 1			
	danger signs*	ANC 2			
	danger signs*	ANC 3			
	danger signs*	ANC 4			
	danger signs*	ANC extra visit 1			
	danger signs*	ANC extra visit 2			
	danger signs*	ANC extra visit 3			
	danger signs*	ANC extra visit 4			
	danger signs*	ANC extra visit 5			
	danger signs*	ANC extra visit 6			
	danger signs*	Delivery at facility			
	danger signs*	PNC 1 (+ FP counsel)			
	danger signs*	PNC 2 (+ FP counsel)			
	danger signs*	PNC 3 (+ FP counsel and move to FP register for mobile health)			
	danger signs*	PNC extra visit 1			
	danger signs*	PNC extra visit 2			
	danger signs*	PNC extra visit 3			
*danger sign: means		Reminder on danger signs as per protocols			
		Asking for any complaints			
		Asking for any questions			

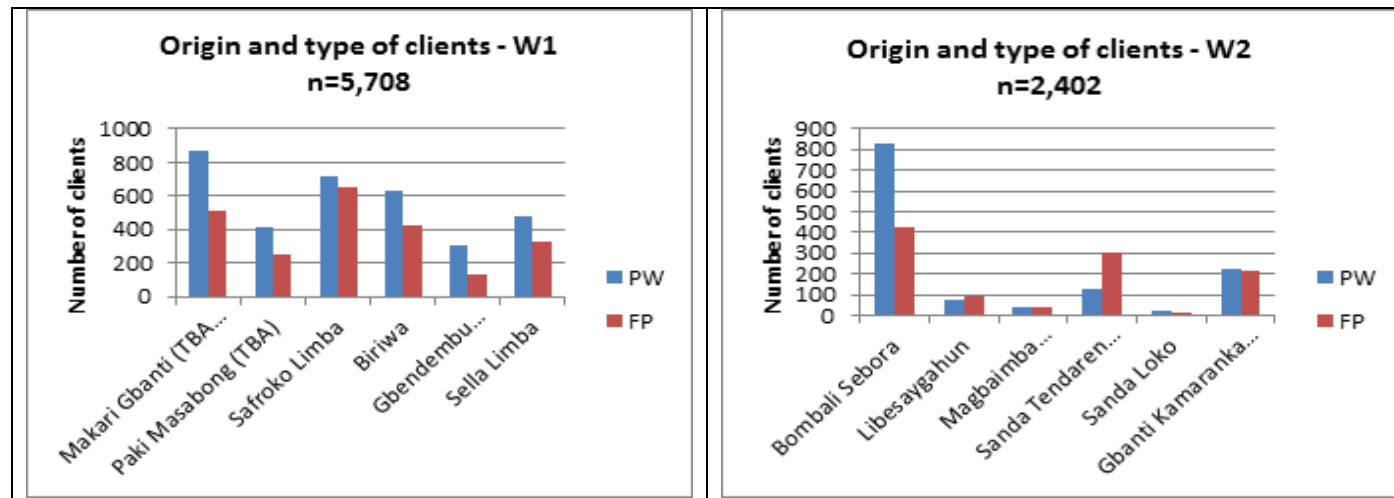
mHealth Client - FP contact and follow-up ledger			Nr in register		
Client agrees to be contacted by Health Worker on the phone and/or by TBA through home visit (if client is in TBA chieftdom, does not have a phone or can not be reached on the phone)?	Yes/No	Name			
Client understands that their taking part or not taking part in the reminder scheme does not have any cost or services implications?	Yes/No	Address			
Client understands that they can at any time decide to withdraw from the scheme and/or not answer to calls or home visits?	Yes/No	Phone nr			
Does the client have a personal phone?	Yes/No	Name other person with phone			
Does the client expect problems or discomfort when others answer the phone?	Yes/No	(e.g. Husband, TBA)			
Agreed to be contacted later for telephone interview on experiences with the mobile phone?	Yes/No	(If answer is NO here, can be included in the scheme, but will not be called for experiences)			
Name health worker					
Signature health worker (confirming to have gone through information and verbal consent procedure)					
Date of registration in the mHealth Programme					
PLANNED visit date	ACTUAL pre-visit reminder date	Type visit	ACTUAL visit	Call date for defaulter s	Comments
	danger signs*	FP NEW FROM PNC mobile health reminder scheme			
	danger signs*	FP new (from other)			
	danger signs*	FP continued 1			
	danger signs*	FP continued 2			
	danger signs*	FP continued 3			
	danger signs*	FP continued 4			
	danger signs*	FP continued 5			
	danger signs*	FP continued 6			
	danger signs*	FP continued 7			
	danger signs*	FP continued 8			
	danger signs*	FP continued 9			
	danger signs*	FP continued 10			
	danger signs*	FP continued 11			
	danger signs*	FP continued 12			
	danger signs*	FP continued 13			
	danger signs*	FP continued 14			
*danger signs means		Reminder on danger signs as per protocols			
		Asking for any complaints			
		Asking for any questions			

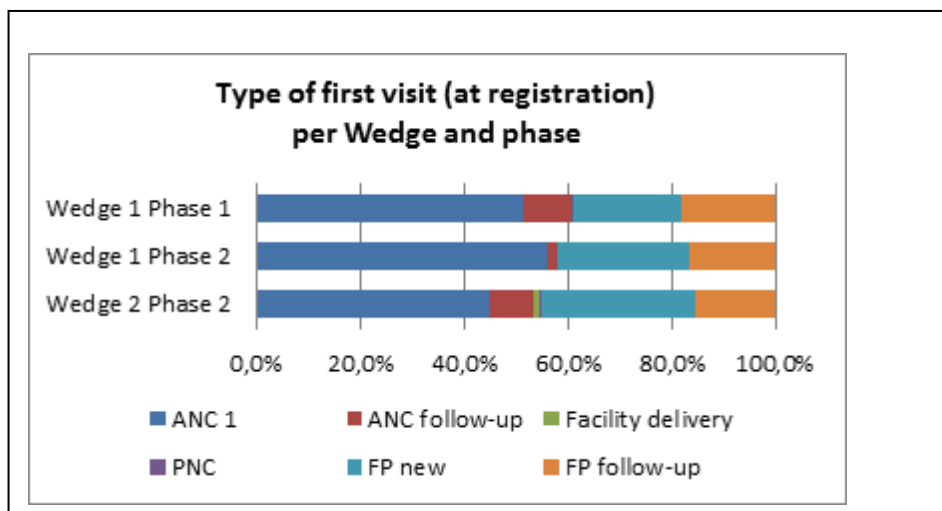
Annex 20 – Characteristics of enrolled clients - general

Chieftdom origin of enrolled clients, per wedge



Type of enrolled clients, per wedge





mHealth enrolment registers – variation	Total
Phone number present (N= 6,640)	
Phone nr present, documented calls, actual visits	67,6%
Phone nr present, documented calls, NO actual visits	4,7%
Phone nr present, NO documented calls, actual visits	10,7%
Phone nr present, NO documented calls, NO actual visits	17,0%
	100,0%
No phone number present (N=1,470)	
NO phone nr present, documented calls, actual visits	46,9%
NO phone nr present, documented calls, NO actual visits	11,8%
NO phone nr present, NO documented calls, actual visits	16,2%
NO phone nr present, NO documented calls, NO actual visits	25,2%
	100,0%

Annex 21 – Enrolment coverage calculations

Table part 1 (overlapping with part 2)

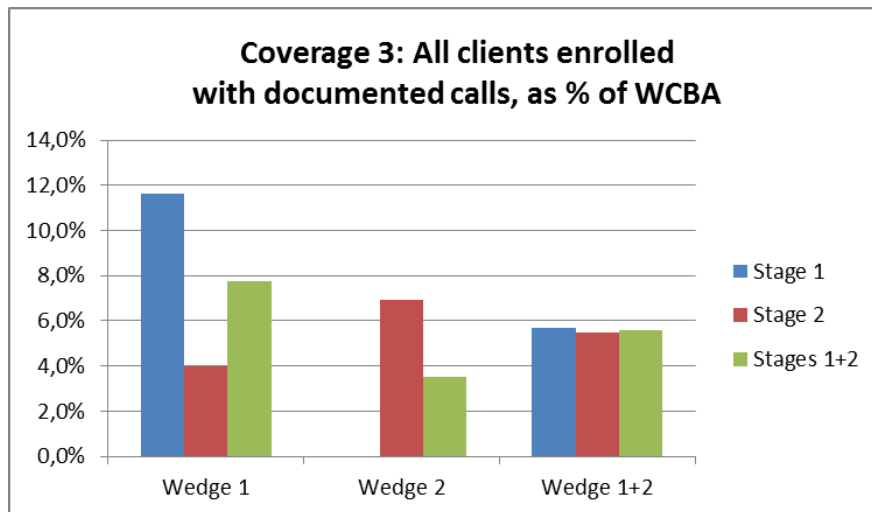
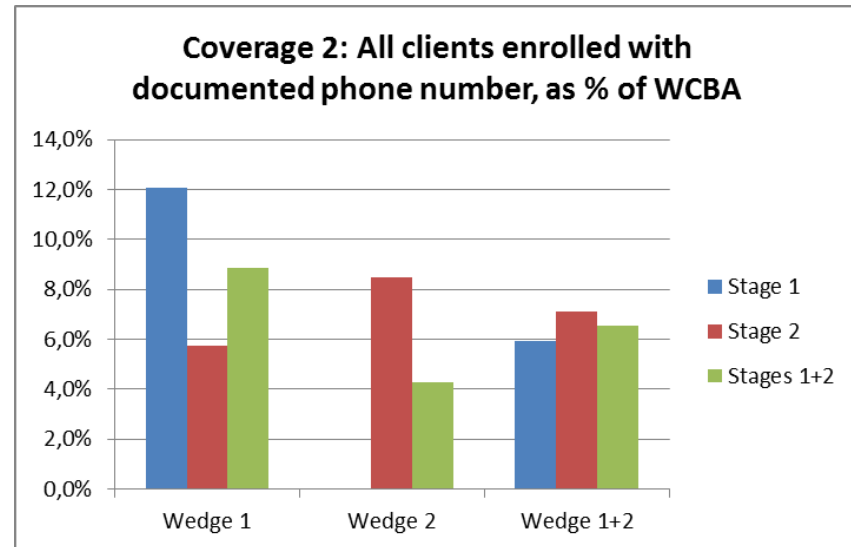
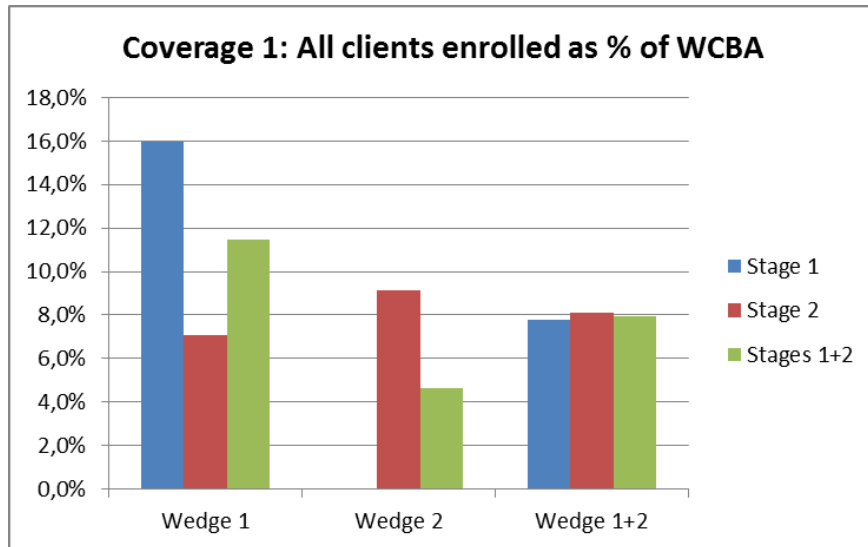
No.	Chiefdom	Wedge	WCBA clients enrolled in mHealth scheme (1)			WCBA clients enrolled, with documented phone number at registration (2)			WCBA clients enrolled, with documented calls by health workers (3)			Population calculations (4)						
			Stage 1 (Aug12- Jan13)	Stage 2 (Feb- Jul13)	Total	Stage 1 (Aug12- Jan13)	Stage 2 (Feb- Jul13)	Total	Stage 1 (Aug12-Jan13)	Stage 2 (Feb- Jul13)	Total	Total population 2012	Stage 1 total population (6 months = 50% of population 2012)	Stage 1 WCBA population	Total population 2013	Stage 2 total population (6 months = 50% of population 2013)	Stage 2 WCBA population	Combined population WCBA (stage 1+2)
1	Makari Gbanti (TBA compare)	1	944	417	1361	658	330	988	714	169	883	47538	23769	5300	48785,8725	24392,93625	5440	10740
2	Paki Masabong (TBA)	1	463	208	671	350	160	510	441	180	621	19991	9995,5	2229	20515,7638	10257,88188	2288	4517
3	Safroko Limba	1	983	387	1370	694	315	1009	649	249	898	24468	12234	2728	25110,285	12555,1425	2800	5528
4	Biriwa	1	630	422	1052	495	328	823	390	198	588	32520	16260	3626	33373,65	16686,825	3721	7347
5	Gbendembu Ngowahun	1	340	93	433	278	74	352	292	58	350	34593	17296,5	3857	35501,0663	17750,53313	3958	7815
6	Sella Limba	1	547	251	798	486	231	717	363	143	506	60624	30312	6760	62215,38	31107,69	6937	13697
7	Bombali Sebor	2	0	1257	1257	0	1235	1235	0	969	969	120116	60058	13393	123269,045	61634,5225	13744	27137
8	Magbaimba Ndowahun	2	0	83	83	0	82	82	0	39	39	9990	4995	1114	10252,2375	5126,11875	1143	2257
9	Sanda Tendaren (TBA compare)	2	0	424	424	0	420	420	0	319	319	21745	10872,5	2425	22315,8063	11157,90313	2488	4913
10	Sanda Loko	2	0	30	30	0	29	29	0	26	26	31934	15967	3561	32772,2675	16386,13375	3654	7215
11	Libiesaygahun	2	0	168	168	0	169	169	0	151	151	15415	7707,5	1719	15819,6438	7909,821875	1764	3483
12	Gbanti Kamaranka (TBA)	2	0	438	438	0	290	290	0	311	311	30155	15077,5	3362	30946,5688	15473,28438	3451	6813
13	Tambaka	excluded	0	0	0	0	0	0	0	0	0	19976	9988	2227	20500,37	10250,185	2286	4513
Total Wedge 1			3907	1778	5685	2961	1438	4399	2849	997	3846	219734	109867	24500	225502,018	112751,0088	25143	49644
Total Wedge 2			0	2400	2400	0	2225	2225	0	1815	1815	229355	114677,5	25573	235375,569	117687,7844	26244	51817
Total Wedge 1 + 2 (ex. Tambaka)			3907	4178	8085	2961	3663	6624	2849	2812	5661	449089	224544,5	50073,4235	460877,586	230438,7931	51387,8509	101461,2744

Table part 2 (overlapping with part 1)

Population calculations (4)							Coverage 1: All clients enrolled as proportion of WCBA			Coverage 2: All clients enrolled with documented phone number as proportion of WCBA			Coverage 3: All clients enrolled with documented calls as proportion of WCBA		
Total population 2012	Stage 1 total population (6 months = 50% of population 2012)	Stage 1 WCBA population	Total population 2013	Stage 2 total population (6 months = 50% of population 2013)	Stage 2 WCBA population	Combined population WCBA (stage 1+2)	Stage 1	Stage 2	Total	Stage 1	Stage 2	Total	Stage 1	Stage 2	Total
47538	23769	5300	48785,8725	24392,93625	5440	10740	17,8%	7,7%	12,7%	12,4%	6,1%	9,2%	13,5%	3,1%	8,2%
19991	9995,5	2229	20515,7638	10257,88188	2288	4517	20,8%	9,1%	14,9%	15,7%	7,0%	11,3%	19,8%	7,9%	13,7%
24468	12234	2728	25110,285	12555,1425	2800	5528	36,0%	13,8%	24,8%	25,4%	11,3%	18,3%	23,8%	8,9%	16,2%
32520	16260	3626	33373,65	16686,825	3721	7347	17,4%	11,3%	14,3%	13,7%	8,8%	11,2%	10,8%	5,3%	8,0%
34593	17296,5	3857	35501,0663	17750,53313	3958	7815	8,8%	2,3%	5,5%	7,2%	1,9%	4,5%	7,6%	1,5%	4,5%
60624	30312	6760	62215,38	31107,69	6937	13697	8,1%	3,6%	5,8%	7,2%	3,3%	5,2%	5,4%	2,1%	3,7%
120116	60058	13393	123269,045	61634,5225	13744	27137	0,0%	9,1%	4,6%	0,0%	9,0%	4,6%	0,0%	7,1%	3,6%
9990	4995	1114	10252,2375	5126,11875	1143	2257	0,0%	7,3%	3,7%	0,0%	7,2%	3,6%	0,0%	3,4%	1,7%
21745	10872,5	2425	22315,8063	11157,90313	2488	4913	0,0%	17,0%	8,6%	0,0%	16,9%	8,5%	0,0%	12,8%	6,5%
31934	15967	3561	32772,2675	16386,13375	3654	7215	0,0%	0,8%	0,4%	0,0%	0,8%	0,4%	0,0%	0,7%	0,4%
15415	7707,5	1719	15819,6438	7909,821875	1764	3483	0,0%	9,5%	4,8%	0,0%	9,6%	4,9%	0,0%	8,6%	4,3%
30155	15077,5	3362	30946,5688	15473,28438	3451	6813	0,0%	12,7%	6,4%	0,0%	8,4%	4,3%	0,0%	9,0%	4,6%
19976	9988	2227	20500,37	10250,185	2286	4513	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
219734	109867	24500	225502,018	112751,0088	25143	49644	15,9%	7,1%	11,5%	12,1%	5,7%	8,9%	11,6%	4,0%	7,7%
229355	114677,5	25573	235375,569	117687,7844	26244	51817	0,0%	9,1%	4,6%	0,0%	8,5%	4,3%	0,0%	6,9%	3,5%
449089	224544,5	50073,4235	460877,586	230438,7931	51387,8509	101461,2744	7,8%	8,1%	8,0%	5,9%	7,1%	6,5%	5,7%	5,5%	5,6%

Annex 22 – Enrolment coverage clients

Source: mHealth registers



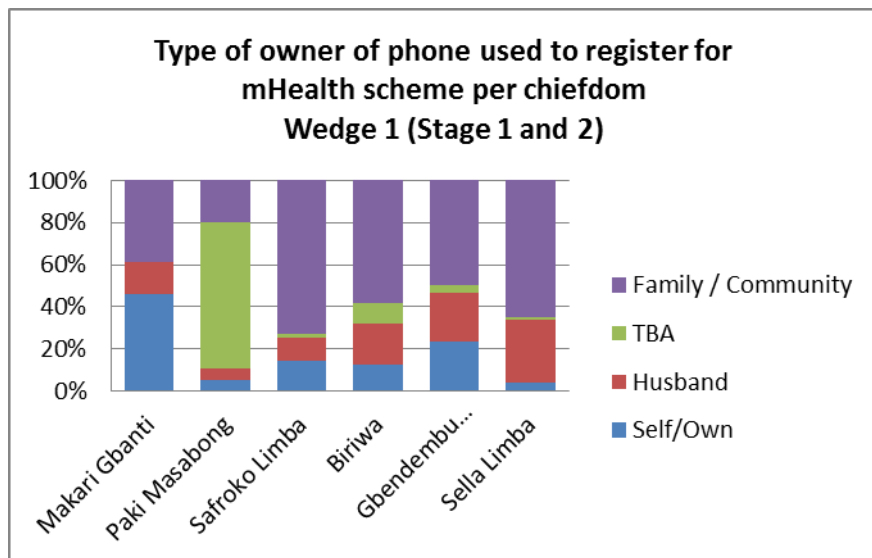
Annex 23 – Phone access: details of family and community phone owners

Phone access: disaggregation of 'Family/community' (not self, husband/partner, TBA)										
Details	4. Client's Family	Details	5. Client Husband's Family	Details	6. Community Health worker/ volunteers	Details	7. Community Leaders/ Authorities	Details	8. Community - Others	
brother	343	brother in law	145	MHP	80	teacher / head master	64	neighbour	454	
sister	312	sister in law	43	CDD (oncho)	66	youth leader	54	friend / mate	119	
uncle	250	mother-in-law	21	CHW	62	town/village head(man)	51	nurse (in-charge)/ MCHAide/ vaccinator	93	
mother	52	father in law	24	(community) volunteer/ worker	47	town chief	35	town mate/ live in same village	43	
aunt	47	in-law	19	CBP	14	Traditional/Tribal Authority	32	TBA daughter, brother, husband, child	16	
father	44	step husband	3	R/C volunteer	10	chief	31	friend of husband	6	
cousin	31	uncle in law	1	CDD / CBP	8	chairlady	21	client, pregnant woman, colleague	5	
relative, unspecified	26	daughter in law	1			elder	7	housemate	4	
son	11					(town) imam	7	boyfriend	3	
daughter	9					leader women/ mother's support group	5			
nephew	5					chairman	3			
grandfather	1					pastor	1			
grandmother	1									
niece	1									
step mother	1									
Total	1134	Total	257	Total	287	Total	311	Total	743	2732
	42%		9%		11%		11%		27%	total

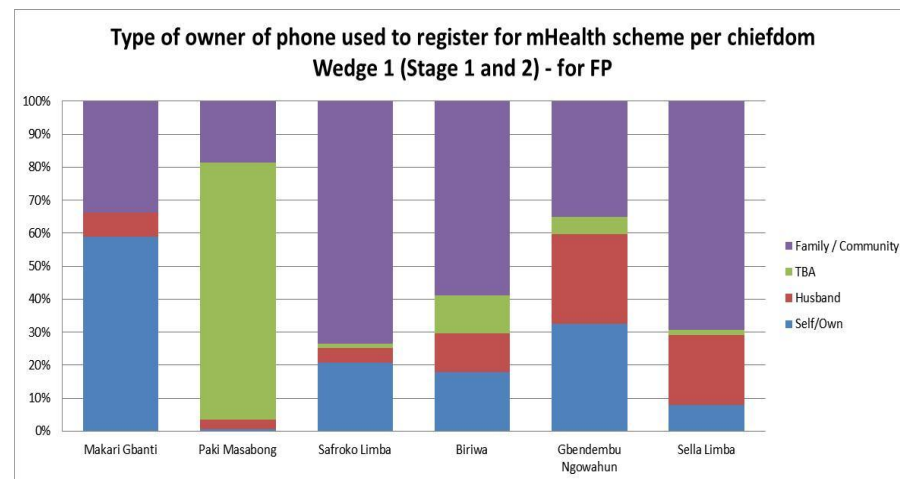
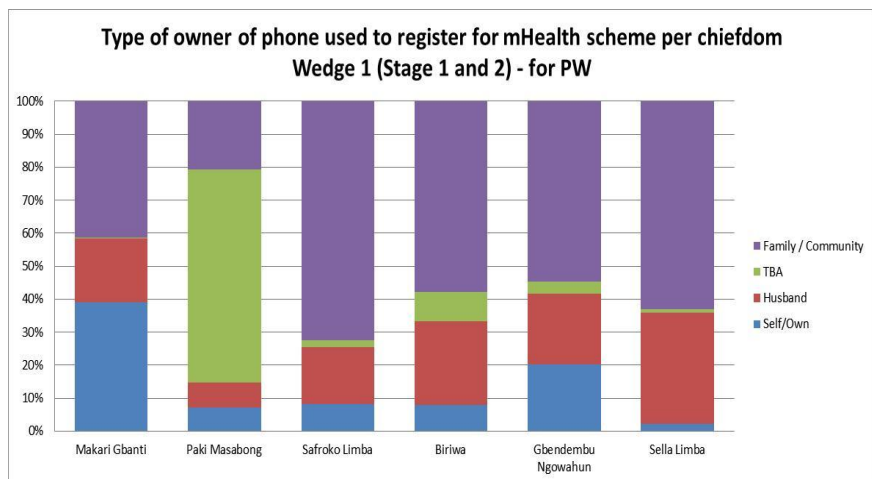
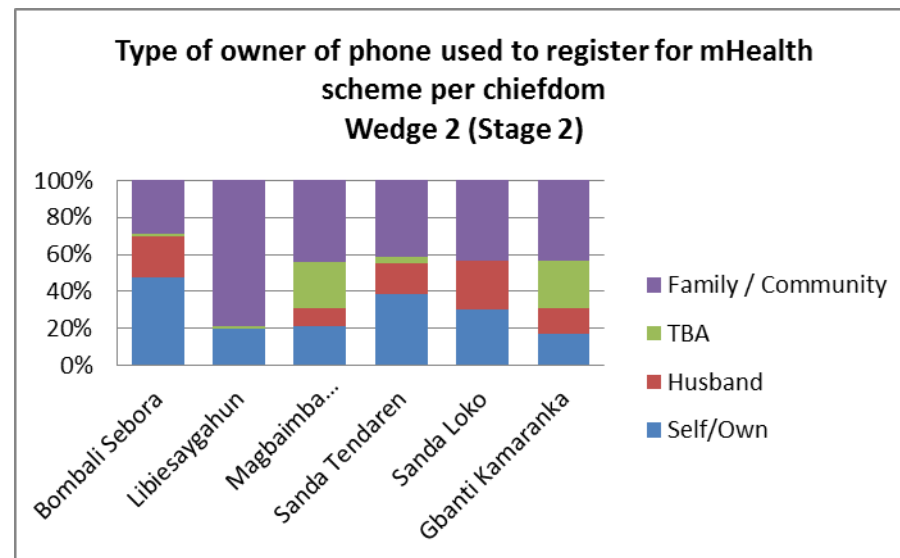
CDD	Community Drug Distributor
CHW	Community Health worker
CBP	Community Based Provider (for malaria)
R/C	Red Cross
CDD/CBP	Community Drug Distributor/Community Based Provider

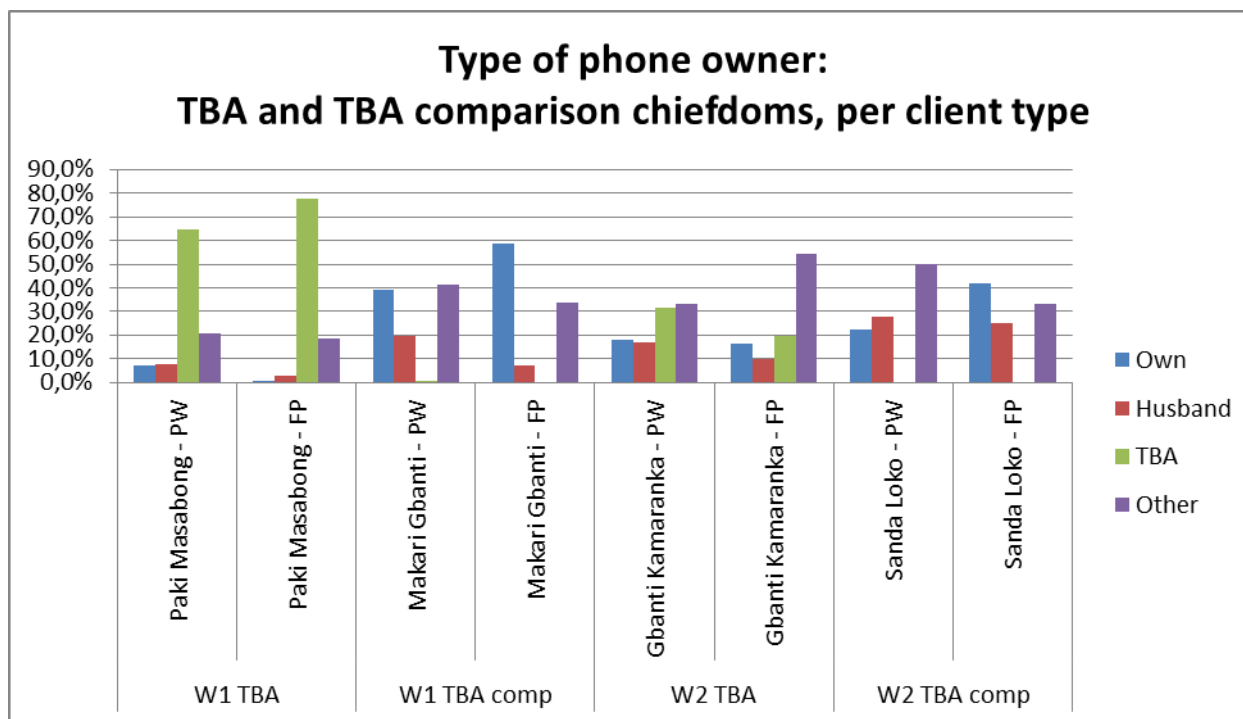
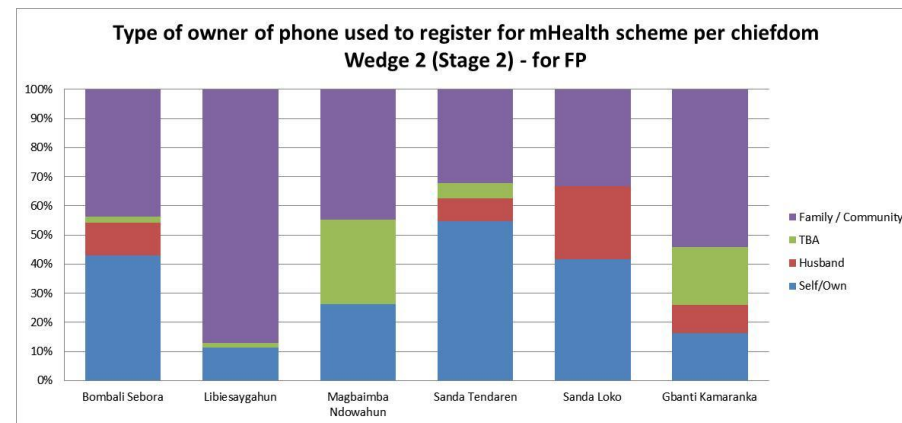
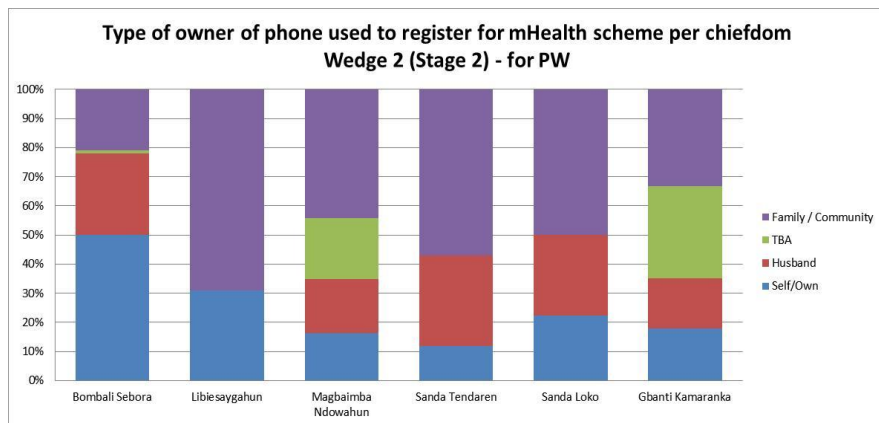
Annex 24 – Characteristics of enrolled clients – phone ownership

PW clients



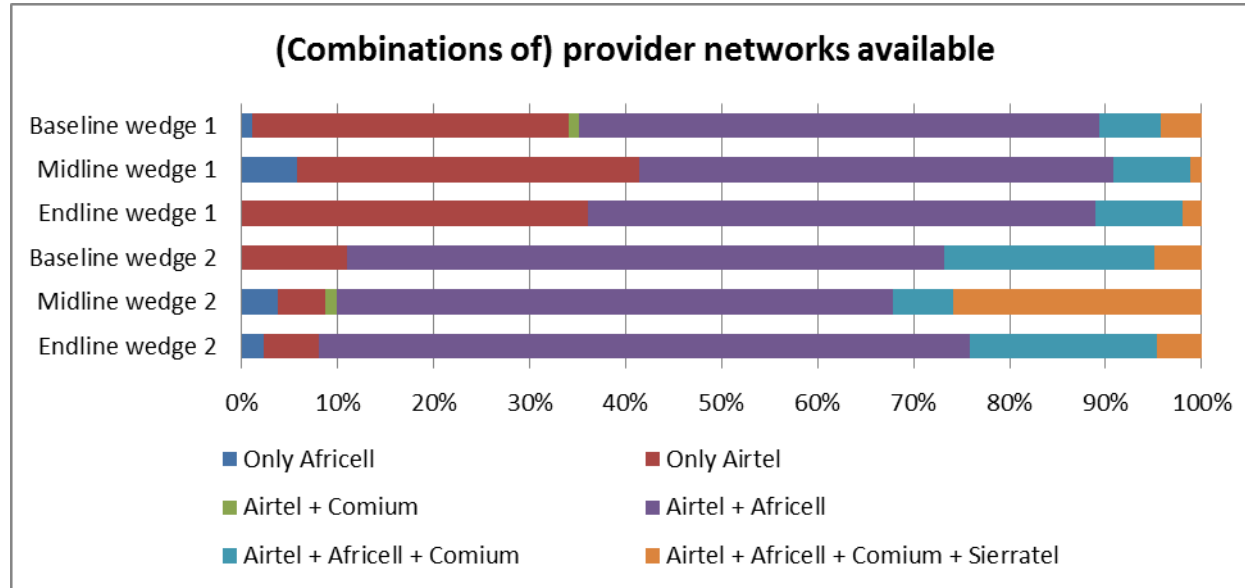
FP clients





Annex 25 – Availability of phone networks, health worker survey

Phone networks available	Baseline (n=181)				Midline (n=173)				Endline (n=188)			
	Wedge 1 (n=94)		Wedge 2 (n=82)		Wedge 1 (n=87)		Wedge 2 (n=81)		Wedge 1 (n=100)		Wedge 2 (n=87)	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Airtel	93	98,9%	82	100,0%	82	94,3%	78	96,3%	100	100,0%	85	97,7%
Africell	62	66,0%	73	89,0%	56	64,4%	76	93,8%	64	64,0%	82	94,3%
Comium	11	11,7%	22	26,8%	8	9,2%	27	33,3%	11	11,0%	21	24,1%
Sierratel	4	4,3%	4	4,9%	1	1,1%	21	25,9%	2	2,0%	4	4,6%
* Multiple responses allowed, percentages do not add up to 100												



Annex 26 – Mapping of parallel interventions

The mapping information on parallel interventions was collected at endline from two interviews in the field (first table) and as part of interviews with other types of respondents (second table). The first was combined with information available at MRC office (MRC has a history of working in Bombali district), including Health NGO group minutes and related documents of other stakeholder meetings at district and national level.

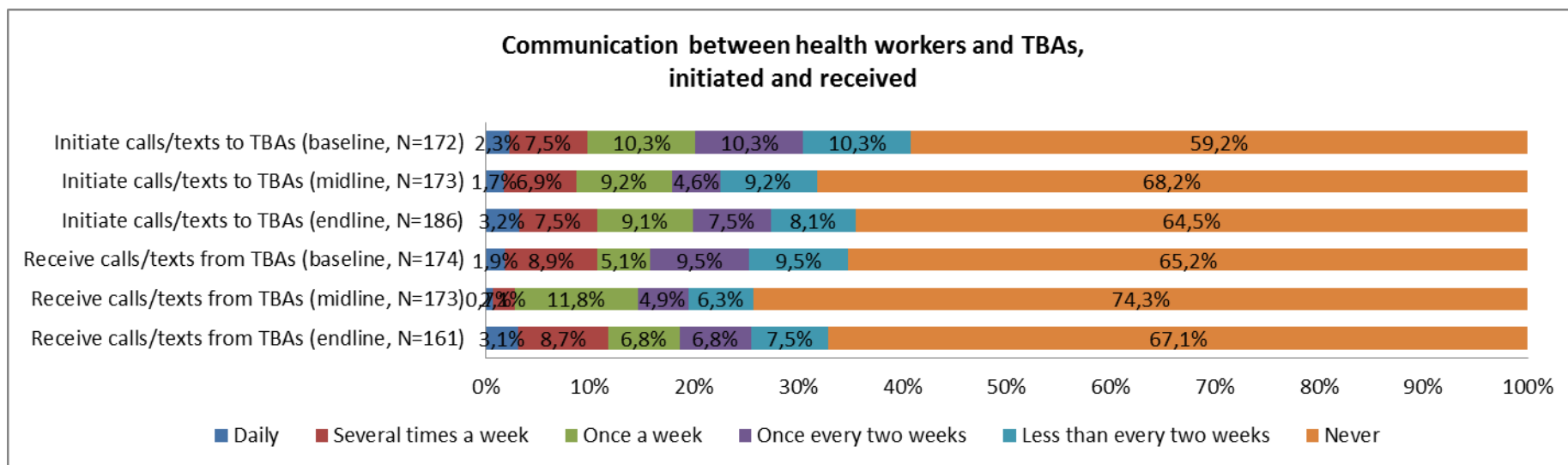
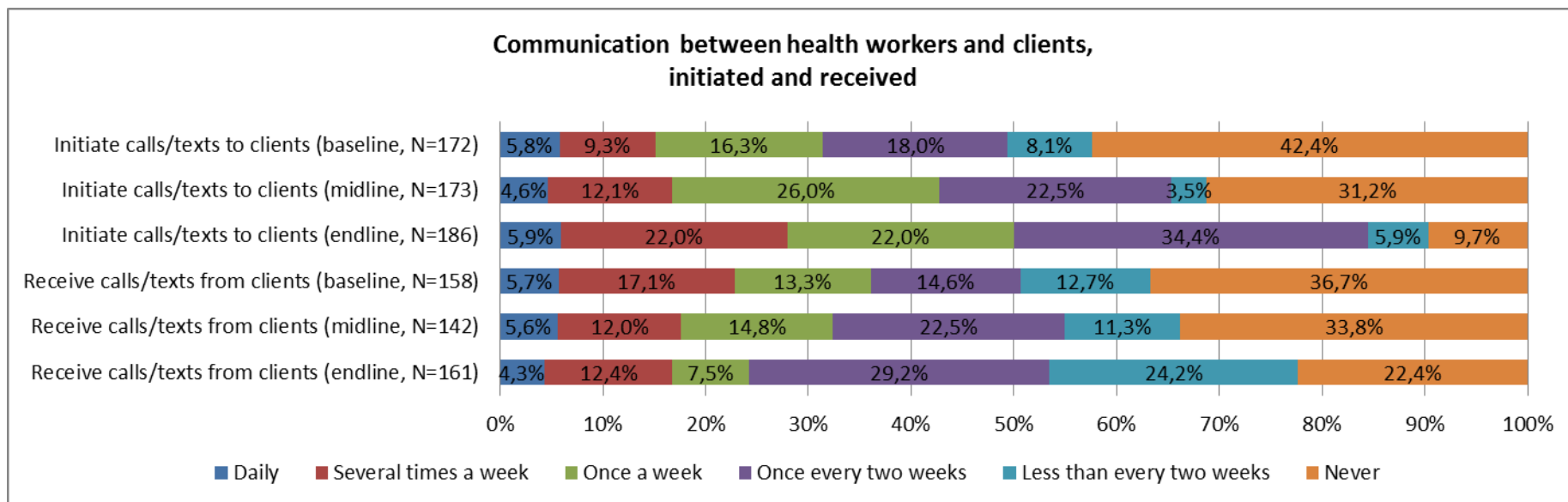
This was part of an effort to identify which other interventions, programmes and events took place parallel to the mHealth interventions (same time, same place) and which potentially influenced the study results.

A. SRHR activities mapping for mHealth endline for district level (based on two key interviews with district management staff on relevant, parallel interventions)					Do/did these initiatives include activities that could influence (Yes=Y, No=N):			
Chiefdom	Entity working on health	Maternal/neonatal health activities (summary)	Start activities	End activities	PHU attendance for PW and FP women?	Maternal death reporting?	(Timeliness of) ambulance referral?	Health worker motivation?
All chiefdoms	Marie Stopes	FP outreach via CHWs		Ongoing	Y	N	N	N
	UNFPA	Community advocacy groups on MNH, with TBAs		Ongoing	Y	N	N	N
	UNFPA	Male involvement in MNH		Ongoing	Y	N	N	N
	UNICEF	Support MOHS-DHMT on child health activities incl. immunization and nutrition > All chiefdoms, HW motivation through incentives, esp. during immunization campaigns		Ongoing	Y	N	N	Y
WEDGE 1								
Makari Gbanti								
Paki Masabong (TBA interv)	MUNAFA	Child survival activities		Ongoing	Y	N	N	Y
Safroko Limba	MUNAFA	Child survival activities		Ongoing	Y	N	N	N
Biriwa	MUNAFA	Child survival activities		Ongoing	Y	N	N	N
Sella Limba	HPA	<i>Kombra en pikin well bodi</i> project > 5 Chiefdoms, providing training for CHW, incentives for TBAs, helps on malnutrition, assists Kamakwie hosp+ambulance	Since long	Ongoing	Y	Y	Y	Y

Gbendembu Ngowahun	MRC	Support with drugs and other logistics		Ongoing	Y	N	N	Y
WEDGE 2								
Bombali Sebor	BRAC	Sensitisation on community health issues		Ongoing	Y	N	N	N
	Restless Development	Sensitisation on reproductive and child health and other health related issues		Ongoing	Y	N	N	Y
	SLRC	Community sensitisation on health issues			Y	N	N	
Libiesay-gahun	CESATAS	Support MCHP by providing motorcarts		Ongoing	Y	N	Y	Y
Magbaimba Ndowahun	HPA	<i>Kombra en pikin well bodi</i> project	Since long	Ongoing	Y	Y	Y	Y
Sanda Tendaren								
Sanda Loko	HPA	<i>Kombra en pikin well bodi</i> project	Since long	Ongoing	Y	Y	Y	Y
Gbanti Kamaranka (TBA interv)	HPA	<i>Kombra en pikin well bodi</i> project	Since long	Ongoing	Y	Y	Y	Y
	Restless Development	Sensitisation on reproductive and child health and other health related issues		Ongoing	Y	N	N	Y
Non-wedge								
Tambaka	HPA	<i>Kombra en pikin well bodi</i> project	Since long	Ongoing	Y	Y	Y	Y
	Restless Development	Sensitisation on reproductive child health and other health related issues		Ongoing	Y	N	N	Y

B. SRHR activities mapping for mHealth endline for district level (emerging as part of regular interviews)										
Respondent type	National managers	District managers	Health workers	TBAs	PW mHealth enrolled clients	FP mHealth enrolled clients	Partners of enrolled clients	Community FGD (female)	Community FGD (males)	Total number mentioned
Initiatives mentioned										
Discouragement of home delivery	x		xx					xx	xx	7
Free health care initiative (FHCI)	x	xxx		x				x	x	7
Food supply (general and child nutrition)					x	x		x	xxxx	7
Performance-based financing (PBF)		xxx								3
Radio health messages		x							xx	3
Community mobilization by health workers		x							x	2
Bed-net distribution									xx	2
<i>Well-bodi</i> talk							x			1
TBAs becoming health promoters		x								1
Male involvement programme		x								1

Annex 27 – Communication between health workers and clients, TBAs



Annex 28 – Service utilization coverage

			PW				FP			
			Total population 2011	Total WCBA population 2011	Total population 2012	Total WCBA population 2012	Total population 2011	Total PW population 2011	Total population 2012	Total PW population 2012
1	Bombali Sebor	2	117069	26106	120116	26786	117069	4800	120116	4925
2	Makari Gbanti (TBA compare)	1	46332	10332	47538	10601	46332	1900	47538	1949
3	Libiesaygahun	2	15024	3350	15415	3438	15024	616	15415	632
4	Paki Masabong(TBA)	1	19484	4345	19991	4458	19484	799	19991	820
5	Safroko Limba	1	23847	5318	24468	5456	23847	978	24468	1003
6	Biriwa	1	31695	7068	32520	7252	31695	1299	32520	1333
7	Gbendembu Ngowahun	1	33715	7519	34593	7714	33715	1382	34593	1418
8	Magbaimba Ndowahun	2	9737	2171	9990	2228	9737	399	9990	410
9	Sanda Tendaren (TBA compare)	2	21193	4726	21745	4849	21193	869	21745	892
10	Sanda Loko	2	31124	6941	31934	7121	31124	1276	31934	1309
11	Sella Limba	1	59086	13176	60624	13519	59086	2423	60624	2486
12	Tambaka	excluded	19469	4342	19976	4455	19469	798	19976	819
13	Gbanti Kamaranka (TBA)	2	29390	6554	30155	6725	29390	1205	30155	1236
	Total wedge 1		214159	47758	219734	49001	214159	8781	219734	9009
	Total wedge 2		223536	49849	229355	51146	223536	9165	229355	9404
	TOTAL - Wedge 1 + Wedge 2 (ex. Tambaka)		437696	97606	449089	100147	437696	17946	449089	18413
	Wedge 1 without TBA chieftdom		194676	43413	199743	44543	194676	7982	199743	8189
	Wedge 2 without Bombali Sebor		106468	23742	109239	24360	106468	4365	109239	4479

<p>Figures in grey used for coverage calculations (wedges with all chiefdoms, not Wedge 2 without Bombali Sebor).</p>									
<p>Notes and comments</p>		<p>Population calculations are meant to generate a proxy denominator for calculating enrolled client (numerator) coverage, based on five months data availability only. The following assumptions were made to make this possible.</p>							
		<p>1 It is not feasible to calculate actual coverage for each of the two groups (pregnant women and FP clients) as calculations involved are complex and data availability (at chiefdom level) and quality problematic.</p>							
		<p>2 Women in child-bearing age (WCBA) is a reasonable and useful proxy denominator for coverage calculations. (For FP coverage, CPR (contraceptive prevalence rate) is much preferred, however no data are available for Bombali, disaggregated by chiefdom.)</p>							
		<p>3 In Sierra Leone WCBA = 22.3% of total population (as used by MoHS, based on Census 2004 data); and expected no. of pregnant women is 4.1% of total population (as used by MoHS, based on Census 2004 data)</p>							
		<p>4 Population growth rate 1.02603 (2011-2012) and 1.02625 (2012-2013), based on projection monograph census 2004 - growth Bombali district + Makeni town from 2011 to 2012). See also other annex on 'enrolment coverage' for calculation of population)</p>							
		<p>5 Expected PW are used to estimate catchment population for ANC1-4, facility delivery and PNC1-3</p>							
		<p>6 Expected WCBA are used to estimate catchment population for new and continuing female FP users</p>							
		<p>Combining new and continuing female FP users (numerator) and dividing by WCBA (denominator) will estimate the contraceptive prevalence rate (CPR), but is much less robust than methods used for DHS and MICS</p>							
		<p>CPR is actually: the percentage of women of reproductive age (15-49 years old) who are married or in a union and who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used (modern or traditional). Note: Census 2004 does not provide figures on marriage/union for WCBA so this can not be used/extrapolated from there.</p>							

Notes and comments

Population calculations are meant to generate a proxy denominator for calculating enrolled client (numerator) coverage, based on five months data availability only. The following assumptions were made to make this possible.

¹ It is not feasible to calculate actual coverage for each of the two groups (pregnant women and FP clients) as calculations involved are complex and data availability(at chiefdomlevel) and quality problematic.

² Women in child-bearing age (WCBA) is a reasonable and useful proxy denominator for coverage calculations. (For FP coverage, CPR (contraceptive prevalence rate) is much preferred, however no data are available for Bombali, disaggregated by chiefdom.)

3 In Sierra Leone WCBA = 22.3% of total population (as used by MoHS, based on Census 2004 data); and expected no. of pregnant women is 4.1% of total population (as used by MoHS, based on Census 2004 data)

4 Population growth rate 1.02603 (2011-2012) and 1.02625 (2012-2013), based on projection monograph census 2004 - growth Bombali district + Makeni town from 2011 to 2012). See also other annex on 'enrolment coverage' for calculation of population)

⁵ Expected PW are used to estimate catchment population for ANC1-4, facility delivery and PNC1-3

⁶ Expected WCBA are used to estimate catchment population for new and continuing female FP users

Combining new and continuing female FP users (numerator) and dividing by WCBA (denominator) will estimate the contraceptive prevalence rate (CPR), but is much less robust than methods used for DHS and MICS

CPR is actually: the percentage of women of reproductive age (15-49 years old) who are married or in a union and who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used (modern or traditional). Note: Census 2004 does not provide figures on marriage/union for WCBA so this can not be used/extrapolated from there.

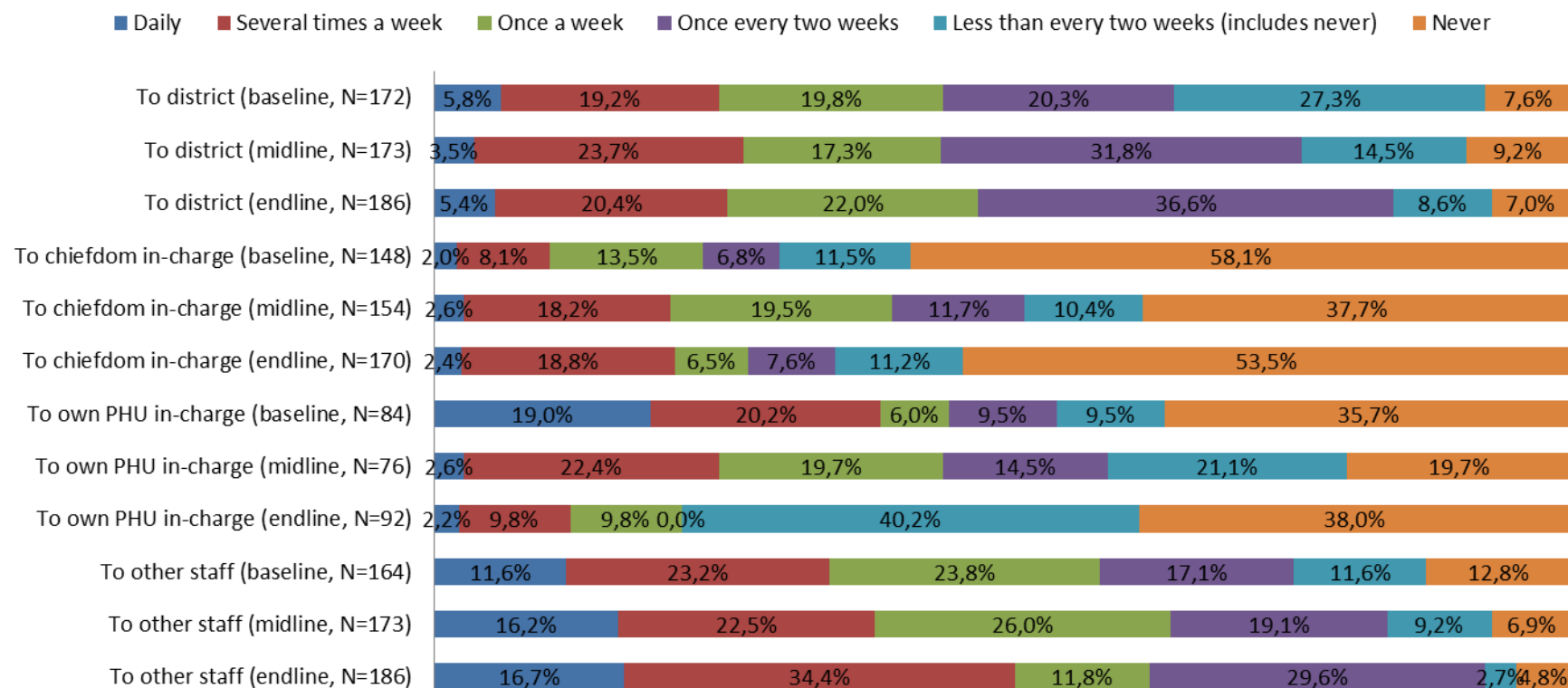
Comparing wedge 1 (n=6 chiefdoms) to wedge 2 (n=6 chiefdoms); fixed facility services only									
Indicator	Aug - Dec 2011			Aug - Dec 2012			Difference in coverage %	Double difference in percentage points (A-C)	Double difference as a percentage (=A-C/A)
	Nr. clients Aug - Dec 2011	Total nr expected PW in 5 months	Coverage (%)	Nr clients Aug - Dec 2012	Total nr expected PW in 5 months	Coverage (%)			
ANC 1 - Wedge 1	2290	3659	62,6	2601	3754	69,3	6,7		
ANC 1 - Wedge 2	2792	3819	73,1	3100	3918	79,1	6,0	0,7	10,4%
ANC 2 - Wedge 1	1899	3659	51,9	2148	3754	57,2	5,3		
ANC 2 - Wedge 2	2293	3819	60,0	2752	3918	70,2	10,2	-4,9	-91,5%
ANC 3 - Wedge 1	1471	3659	40,2	1797	3754	47,9	7,7		
ANC 3 - Wedge 2	1888	3819	49,4	2572	3918	65,6	16,2	-8,5	-111,3%
ANC 4 - Wedge 1	1202	3659	32,9	1895	3754	50,5	17,6		
ANC 4 - Wedge 2	1584	3819	41,5	1872	3918	47,8	6,3	11,3	64,3%
Facility Delivery - Wedge 1	1757	3659	48,0	2623	3754	69,9	21,9		
Facility Delivery- Wedge 2	1451	3819	38,0	2023	3918	51,6	13,6	8,2	37,6%
PNC 1 - Wedge 1	1706	3659	46,6	2396	3754	63,8	17,2		
PNC 1 - Wedge 2	1606	3819	42,1	1926	3918	49,2	7,1	10,1	58,7%
PNC 2 - Wedge 1	1017	3659	27,8	1909	3754	50,9	23,1		
PNC 2 - Wedge 2	1444	3819	37,8	1971	3918	50,3	12,5	10,6	45,8%
PNC 3 - Wedge 1	1008	3659	27,6	1788	3754	47,6	20,1		
PNC 3 - Wedge 2	1366	3819	35,8	1605	3918	41,0	5,2	14,9	74,2%
	Aug - Dec 2011			Aug - Dec 2012			Absolute difference in % (Coverage-Coverage)	Double difference in percentage points (A-C)	Double difference as a percentage (=A-C/A)
	Nr. clients	Expected nr. of WCBA	Coverage (%)	Nr. clients	Expected nr. of WCBA	Coverage (%)			
Family Planning New Clients - Wedge 1	2510	19899	12,6	4981	20417	24,4	11,8		
Family Planning New Clients - Wedge 2	2786	20770	13,4	4899	21311	23,0	9,6	2,2	18,7%
Family Planning Continuing Clients - Wedge 1	1954	19899	9,8	2177	20417	10,7	0,8		
Family Planning Continuing Clients - Wedge 2	1587	20770	7,6	2701	21311	12,7	5,0	-4,2	-497,0%
Total FP clients wedge 1	4464	19899	22,4	7158	20417	35,1	12,6		
Total FP clients wedge 2	4373	20770	21,1	7600	21311	35,7	14,6	-2,0	-15,7%
Comments and notes	A 5/12 multiplier is used as crude proxy for adjusting population/client size to 5/12 months service utilization only (thus following the calculation method of the Sierra Leonean MoHS; to ensure our data are responsive to theirs)								

Comparing Wedge 1 (6 chiefdoms) with Wedge 2 without Bombali Sebor (5 chiefdoms); fixed facility services only

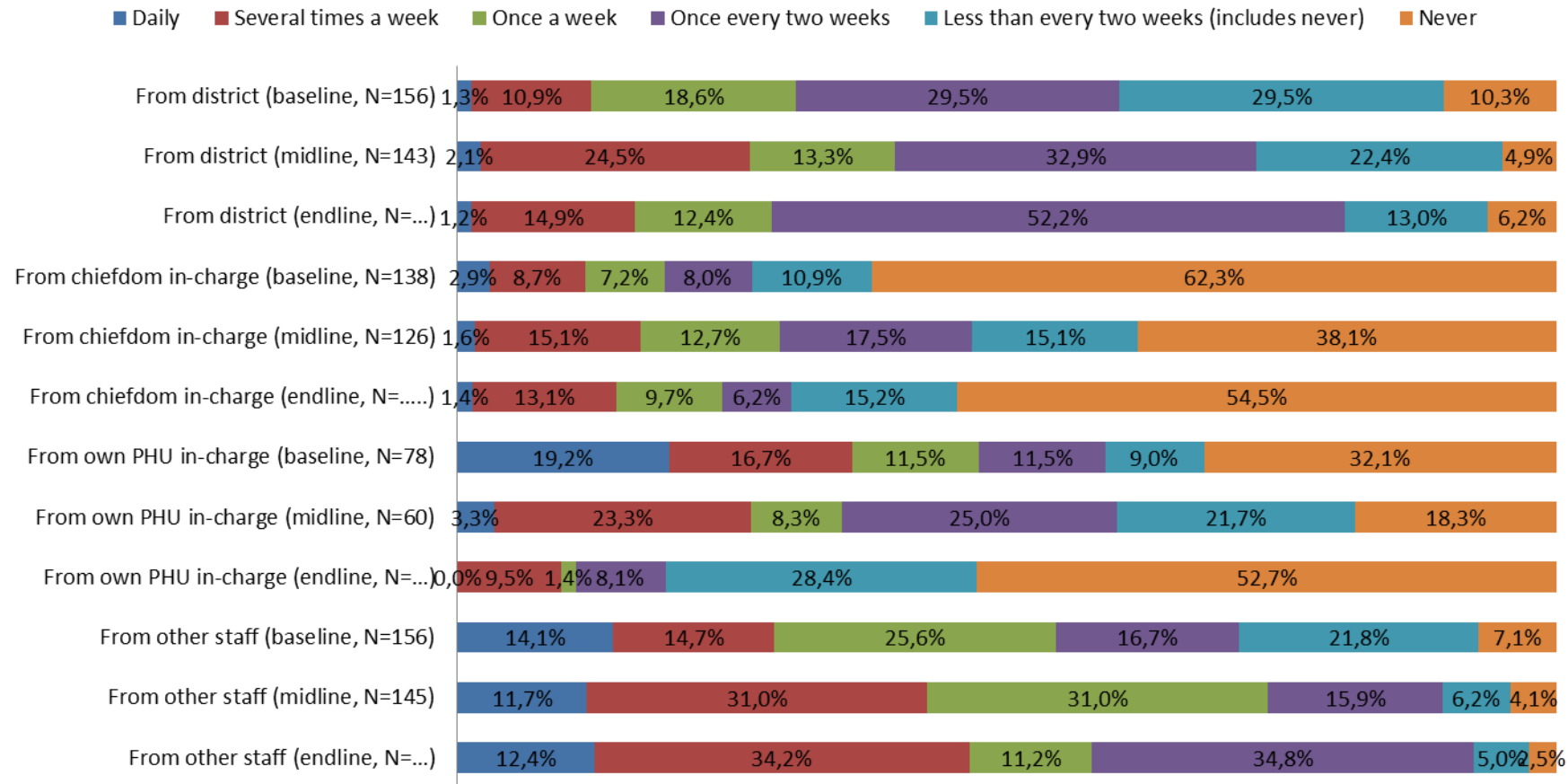
Indicator	Aug - Dec 2011			Aug - Dec 2012			Difference in coverage %	Double difference in percentage points (A-C)	Double difference as a percentage (=A-C/A)
	Nr. clients Aug - Dec 2011	Total nr expected PW in whole 2011	Coverage (%)	Nr. clients Aug - Dec 2012	Total nr expected PW in whole 2012	Coverage (%)			
ANC 1 - Wedge 1	2290	3659	62,6	2601	3754	69,3	6,7		
ANC 1 - Wedge 2 without Bombali Sebor	1318	1819	72,5	1521	1866	81,5	9,0	-2,3	-34,8%
ANC 2 - Wedge 1	1899	3659	51,9	2148	3754	57,2	5,3		
ANC 2 - Wedge 2 without Bombali Sebor	1171	1819	64,4	1575	1866	84,4	20,0	-14,7	-276,1%
ANC 3 - Wedge 1	1471	3659	40,2	1797	3754	47,9	7,7		
ANC 3 - Wedge 2 without Bombali Sebor	859	1819	47,2	1386	1866	74,3	27,0	-19,4	-252,6%
ANC 4 - Wedge 1	1202	3659	32,9	1895	3754	50,5	17,6		
ANC 4 - Wedge 2 without Bombali Sebor	830	1819	45,6	1104	1866	59,2	13,5	4,1	23,3%
Facility Delivery - Wedge 1	1757	3659	48,0	2623	3754	69,9	21,9		
Facility Delivery- Wedge 2 without Bombali Sebor	1067	1819	58,7	1566	1866	83,9	25,2	-3,4	-15,5%
PNC 1 - Wedge 1	1706	3659	46,6	2396	3754	63,8	17,2		
PNC 1 - Wedge 2 without Bombali Sebor	924	1819	50,8	1216	1866	65,2	14,4	2,8	16,6%
PNC 2 - Wedge 1	1017	3659	27,8	1909	3754	50,9	23,1		
PNC 2 - Wedge 2 without Bombali Sebor	775	1819	42,6	1095	1866	58,7	16,1	7,0	30,3%
PNC 3 - Wedge 1	1008	3659	27,6	1788	3754	47,6	20,1		
PNC 3 - Wedge 2 without Bombali Sebor	698	1819	38,4	997	1866	53,4	15,0	5,0	25,1%
	Aug - Dec 2011			Aug - Dec 2012			Absolute difference in % (Coverage-Coverage)	Double difference in percentage points (A-C)	Double difference as a percentage (=A-C/A)
	Nr. clients	Expected nr. of WCBA	Coverage (%)	Nr. clients	Expected nr. of WCBA	Coverage (%)			
Family Planning New Clients - Wedge 1	2510	19899	12,6	4981	20417	24,4	11,8		
Family Planning New Clients - Wedge 2 without Bombali Sebor	2094	9893	21,2	3792	10150	37,4	16,2	-4,4	-37,4%
Family Planning Continuing Clients - Wedge 1	1954	19899	9,8	2177	20417	10,7	0,8		
Family Planning Continuing Clients - Wedge 2 without Bombali Sebor	1077	9893	10,9	2168	10150	21,4	10,5	-9,6	-1142,1%
Total FP clients wedge 1	4464	19899	22,4	7158	20417	35,1	12,6		
Total FP clients Wedge 2 without Bombali Sebor	3171	9893	32,1	5960	10150	58,7	26,7	-14,0	-111,2%
Note	Controlling for Bombali to see whether the results for this chiefdom influence the results of Wedge 2 overall.								

Annex 29 – Health workers’ communication frequencies

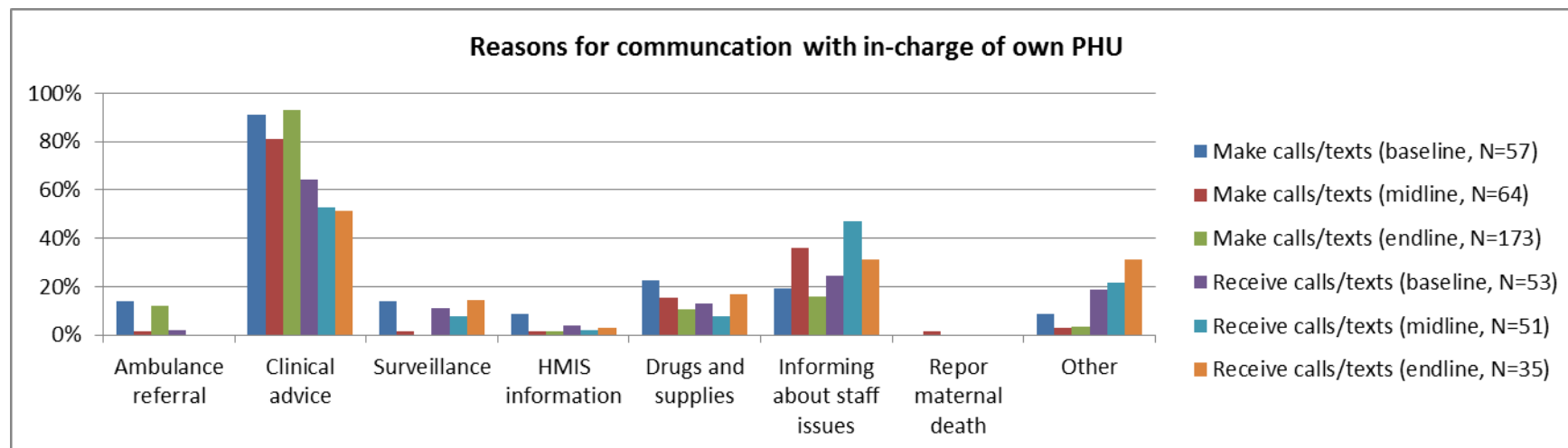
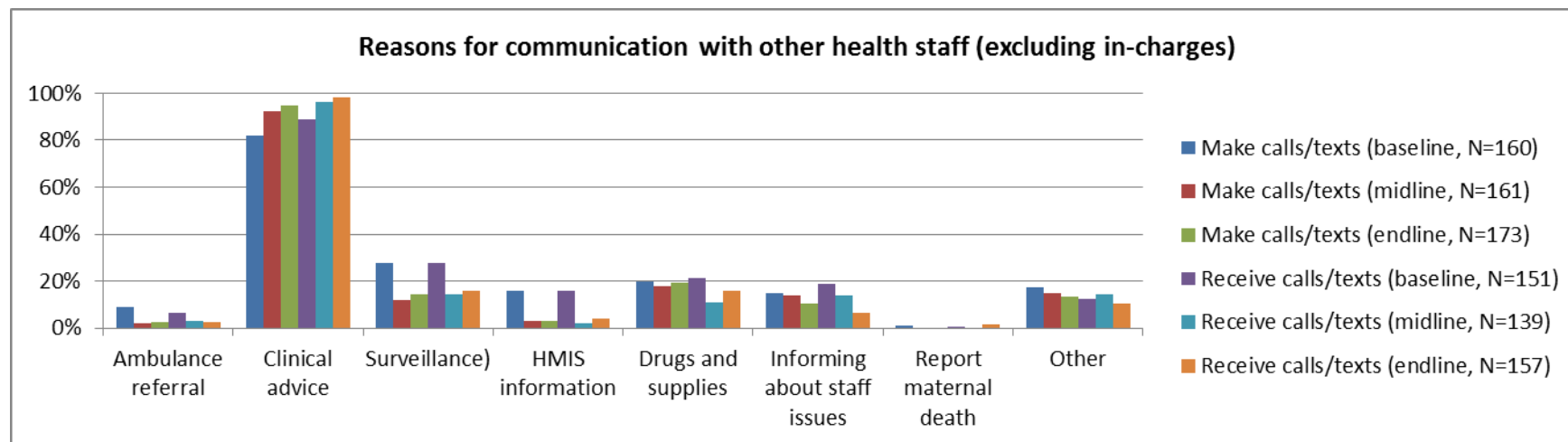
Frequency of initiated calls/texts by health workers

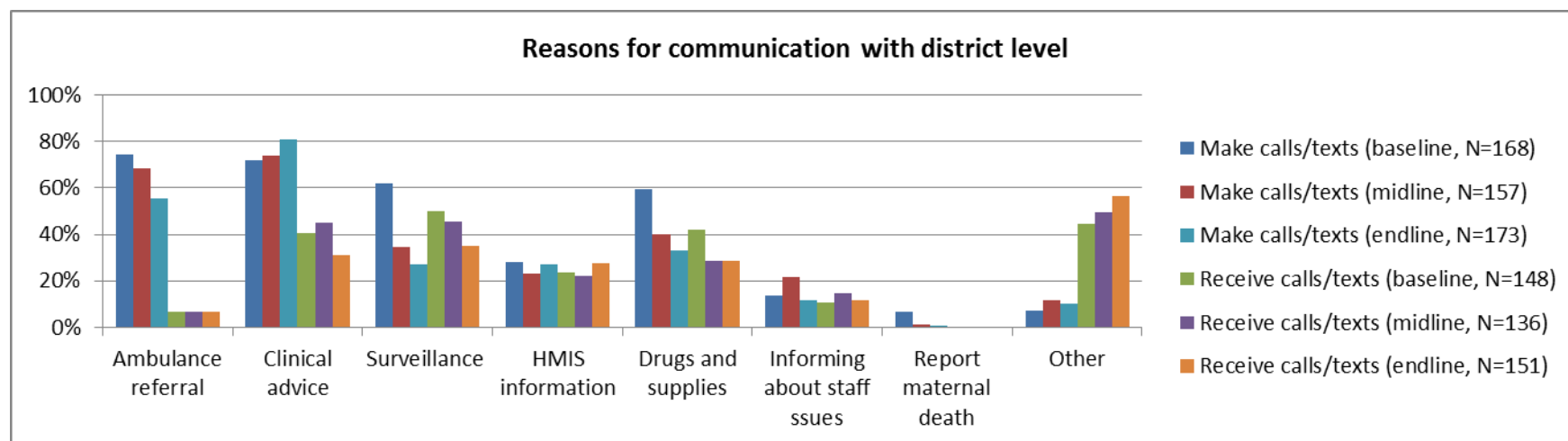
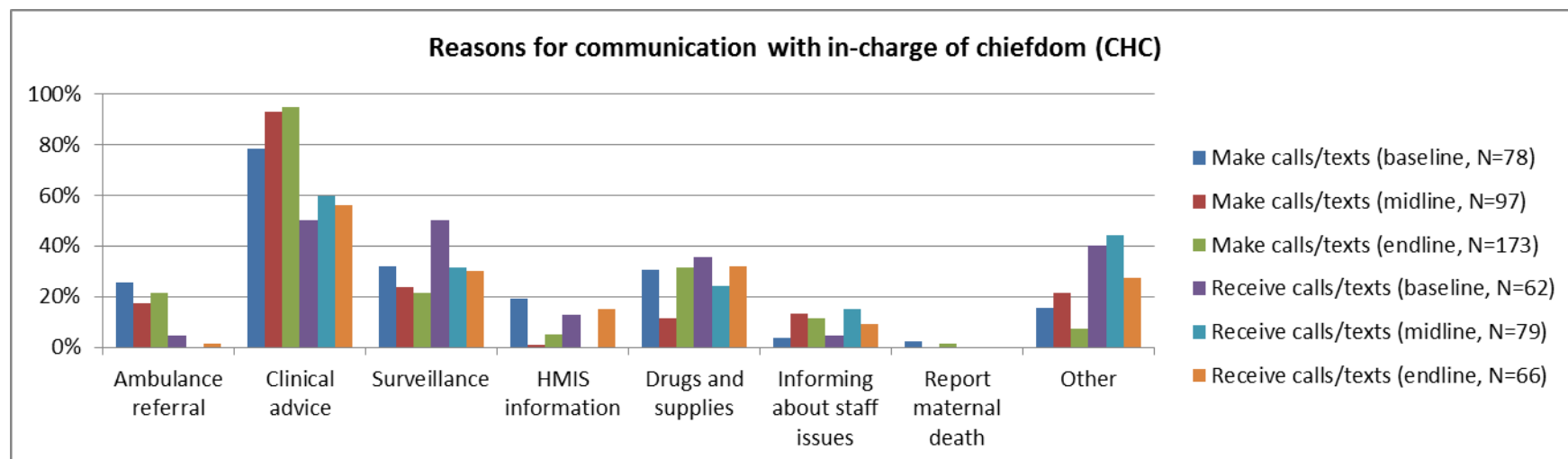


Frequency received calls/texts by health workers



Annex 30 – Health workers’ reasons for communicating





Annex 31 – Average combined scores for communication and job satisfaction

	Baseline (N=181)				Midline (N=173)				Endline (N=188)			
Communication score	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total
Nr observations	94	82	5	181	87	81	5	173	100	87	1	188
Minimum	40	44	60	40	56	48	88	48	60	52	92	52
Maximum	96	88	84	96	96	96	96	96	100	96	92	100
Average	77.83	75.27	72.00	76.51	81.66	76.30	92.00	79.45	84.84	79.45	92.00	82.38
Mode	80	80	60,68,72,76,84	80	80	80	88 & 96	80	80	80	92	80
SD	9.52	9.39	8.94	9.51	9.18	10.29	4.00	10.17	10.21	9.74	0.00	10.32

	Baseline (N=181)				Midline (N=173)				Endline (N=188)			
Work score	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total
Nr observations	94	82	5	181	87	81	5	173	100	87	1	188
Minimum	32	40	72	32	40	40	80	40	36	40	84	36
Maximum	88	84	84	88	92	92	80	92	88	88	84	88
Average	62.21	63.46	80.80	63.29	66.02	67.41	80.00	67.08	63.76	64.41	84.00	64.17
Mode	84	64	84	64	80	64	80	80	60	64	84	64
SD	15.91	10.64	5.22	13.84	13.07	11.46	0.00	12.32	11.98	12.91	0.00	12.44

	Baseline (N=181)				Midline (N=173)				Endline (N=188)			
Qual score	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total	Wedge 1	Wedge 2	Tambaka	Total
Nr observations	94	82	5	181	87	81	5	173	100	87	1	188
Minimum	51.11	46.67	80.00	46.70	51.11	44.44	80.00	44.40	51.11	53.33	82.22	51.11
Maximum	93.33	88.89	86.70	93.30	88.89	93.33	86.67	93.30	91.11	95.56	82.22	95.56
Average	75.30	73.06	86.67	74.49	74.07	73.69	84.00	74.18	75.62	77.11	82.22	76.35
Mode	80	73	80	80	84	80	87	80	84	78	82	84
SD	9.08	8.55	2.90	9.15	9.58	8.64	2.90	9.15	9.10	8.43	0.00	8.79

Average combined scores for communication and job satisfaction																		
Domain	Baseline wedge 1			Baseline wedge 2			Midline wedge 1			Midline wedge 2			Endline wedge 1			Endline wedge 2		
	Mean (average score)	Mode (most frequent score)	Range (lowest/highest score)	Mean	Mode	Range	Mean	Mode	Range	Mean	Mode	Range	Mean	Mode	Range	Mean	Mode	Range
Communication with peers and seniors	77,8	80	40-96	75,3	80	44-88	81,6	80	56-96	76,3	80	48-96	84,8	80	60-100	79,4	80	52-96
Working conditions	62,2	84	32-88	63,5	64	40-84	66	80	40-92	67,4	64	40-92	63,8	60	36-88	64,4	64	40-88
Quality of working life	75,3	80	51.1-93.3	73,1	73,3	46.7-88.9	74,1	84,4	51.1-88.9	73,7	80	44.4-93.3	75,6	84,4	51.1-91.1	77,1	77,8	53.3-95.6

Results of communication with clients																			
		Baseline						Midline						Endline					
		Wedge 1		Wedge 2		Total		Wedge 1		Wedge 2		Total		Wedge 1		Wedge 2		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Contacting individual clients in the community for ANC, FP and other services is easy	Disagree	13	13,8	8	9,8	21	11,6	9	10,3	14	17,3	23	13,3	7	7	7	8,05	14	7,49
	Neutral	10	10,6	4	4,9	15	8,3	6	6,9	3	3,7	12	6,9	13	13	8	9,2	21	11,23
	Agree	71	75,5	70	85,4	145	80,1	72	82,8	64	79	138	79,8	80	80	72	82,76	152	81,28
I have the means to contact clients directly	Disagree	15	16	5	6,1	20	11,1	3	3,5	7	8,6	10	5,8	3	3	2	2,3	5	2,67
	Neutral	10	10,6	4	4,9	14	7,7	9	10,3	5	6,2	16	9,3	8	8	6	6,9	14	7,49
	Agree	69	73,4	73	80	147	81,2	75	86,2	69	85,2	147	85	89	89	79	90,8	168	89,84

Annex 32 – Analysis ambulance referral calls

Calls/Texts for Ambulance Referral	baseline						midline						endline						Significant differences and similarities												
	w1		w2		total*		w1		w2		total*		w1		w2		total*		baseline w1-w2	midline w1-w2	endline w1-w2	total*	total*	total*	w1-w1 (base-mid)	w1-w1 (mid-end)	w1-w1 (base-end)	w2-w2 (base-mid)	w2-w2 (mid-end)	w2-w2 (base-end)	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%													
	calls/texts to district	77	85	45	63	125	74	69	85	33	46	107	68	58	63	38	48	96	55	more wedge 1	more wedge 1	more wedge 1	↔	more mid	more base	↔	more mid	more base	↔	↔	↔
calls/texts to in-charge of own facility	4	16	3	10	8	14	0	0	0	0	1	2	4	11	3	14	7	12	↔	↔	↔	more base	more end	↔	more baseline	↔	↔	↔	more end	↔	
calls/texts to chiefdom in-charge	11	23	6	23	20	26	7	13	7	18	17	18	4	9	13	41	17	22	↔	↔	more wedge 2	↔	↔	↔	↔	↔	↔	↔	more end	↔	
calls/texts to other staff	7	9	6	8	14	9	0	0	3	4	3	2	0	0	4	5	4	2	↔	↔	more wedge 2	more base	↔	more base	more baseline	↔	more base	↔	↔	↔	
receive calls/texts from district	5	6	5	8	10	7	2	3	6	10	9	7	4	5	6	9	10	7	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
receive calls/texts from in-charge of own facility	0	0	1	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
receive calls/texts from chiefdom in-charge	2	5	1	5	3	5	0	0	0	0	0	0	1	2	0	0	1	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
receive calls/texts from other staff	8	9	2	3	10	7	2	3	2	3	4	3	1	1	3	4	4	3	↔	↔	↔	↔	↔	↔	↔	↔	↔	more base	↔	↔	↔
w1= wedge 1, w2= wedge 2, base=baseline, mid=midline, end=endline, ↔ no difference in frequency																															
* including Tambaka																															

Annex 33 – Overview tables for job satisfaction and communication domains

Average combined scores for domain "Quality of Working Life" by wedge, health facility and health worker characteristics									
significant difference highlighted	Mean scores (Nr. of items)								
	Baseline			Midline			Endline		
	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*
Type of facility									
CHC	75.5 (n=22)	76.9 (n=20)	76.5 (n=44)	72.4 (n=28)	74.8 (n=23)	73.9 (n=53)	74.6 (n=28)	78.7 (n=30)	76.7 (n=58)
CHP	79.7 (n=15)	73.8 (n=16)	77.1 (n=34)	76.1 (n=13)	71.2 (n=27)	73.5 (n=43)	75.3 (n=19)	76.0 (n=28)	75.8 (n=48)
MCHP	74.1 (n=57)	71.2 (n=46)	72.8 (n=103)	74.5 (n=46)	75.1 (n=31)	74.7 (n=77)	76.3 (n=53)	76.6 (n=29)	76.3 (n=82)
		significant difference due to difference CHC versus MCHP	significant difference due to difference CHP MCHP						
p-value		0.0389	0.0105						
Type of healthworker									
CHO	74.7 (n=5)	77.3 (N=5)	76.0 (n=10)	71.1 (n=5)	78.9 (n=4)	75.6 (n=10)	77.1 (n=7)	78.1 (n=6)	77.6 (n=13)
CHA	82.8 (n=4)	70.2 (n=5)	75.8 (n=9)	80 (n=3)	72.9 (n=5)	75.6 (n=8)	77.8 (n=8)	81.7 (n=4)	79.1 (n=12)
SECHN	75.9 (n=7)	71.3 (n=11)	73.1 (n=18)	75.6 (n=8)	73.5 (n=16)	74.2 (n=24)	74.3 (n=17)	76.7 (n=21)	75.6 (n=38)
MCH Aide	74.7 (n=71)	73.7 (n=52)	74.5 (n=126)	74.1 (n=60)	75.5 (n=45)	74.9 (n=108)	75.5 (n=63)	76.1 (n=46)	75.7 (n=109)
EDCU assistant	74.4 (n=6)	70.2 (n=7)	73.6 (n=15)	72.6 (n=3)	60.7 (n=6)	66.9 (n=10)	78.9 (n=2)	80.9 (n=5)	80.6 (n=8)
Nursing Aid	93.3 (n=1)	72.2 (n=2)	79.3 (n=3)	70 (n=2)	70 (n=2)	70 (n=4)			
Midwife				72 (n=5)	71.1 (n=3)	71.7 (n=8)	74.8 (n=3)	79.6 (n=5)	77.8 (n=1)
Dispenser				82.2 (n=1)		82.2 (n=1)			
					significant difference due to significant differences between EDCUvCHO, EDCUvSECHN, EDCUvMCHA				
p-value					0.0046				
In charge									
Yes	75.7 (n=52)	74.5 (n=39)	75.3 (n=92)	75.5 (n=52)	74.8 (n=40)	75.4 (n=94)	76.6 (n=52)	77.6 (n=42)	77.1 (n=95)
No	74.8 (n=42)	71.7 (n=43)	73.7 (n=89)	71.9 (n=35)	72.6 (n=41)	72.7 (n=79)	74.5 (n=48)	76.6 (n=45)	75.6 (n=93)
						in-charges higher score			
p-value						0.0486			
Sex									
Female	74.9 (n=80)	72.6 (n=66)	74.1 (n=149)	74.0 (n=75)	74.7 (n=63)	74.5 (n=141)	75.3 (n=83)	76.8 (n=68)	76.0 (n=151)
Male	77.3 (n=14)	74.9 (n=16)	76.5 (n=32)	74.4 (n=12)	70 (n=18)	72.6 (n=32)	77.0 (n=17)	78.3 (n=19)	77.8 (n=37)
					Female higher score				
p-value					0.0391				
Facility staff size									
Single staff	76.8 (n=18)	76.2 (n=14)	76.5 (n=32)	78.8 (n=25)	75.9 (n=14)	77.8 (n=39)			
2 or more staff	74.9 (n=76)	72.4 (n=68)	74.0 (n=149)	72.1 (n=62)	73.2 (n=67)	73.1 (n=134)			
				single staff higher score		single staff higher score			
p-value				0.0027		0.005			
TOTAL	75.3 (n=94)	73.1 (n=82)	74.5 (n=181)	74.1 (n=87)	73.7 (n=81)	74.2 (n=173)	75.6 (n=100)	77.1 (n=87)	76.3 (n=188)

* total= wedge 1 + wedge 2 + chieftdom Tambaka

Average combined scores for domain "Communication with peers and seniors" by wedge, health facility and health worker characteristics									
significant difference highlighted	Mean scores (Nr. of items)								
	Baseline			Midline			Endline		
	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*
Type of facility									
CHC	80.2 (n=22)	77.4 (n=20)	78.7 (n=44)	78.6 (n=28)	75.0 (n=23)	77.6 (n=53)	85.1 (n=28)	80 (n=30)	82.5 (n=58)
CHP	78.7 (n=15)	72.3 (n=16)	74.8 (n=34)	82.8 (n=13)	74.8 (n=27)	78.3 (n=43)	84.8 (n=19)	77.9 (n=28)	80.9 (n=48)
MCHP	76.7 (n=57)	75.4 (n=46)	76.1 (n=103)	83.2 (n=46)	78.6 (n=31)	81.4 (n=77)	84.7 (n=53)	80.4 (n=29)	83.1 (n=82)
Type of healthworker									
CHO	83.2 (n=5)	81.6 (n=5)	82.4 (n=10)	82.4 (n=5)	80 (n=4)	82.4 (n=10)	86.3 (n=7)	76.7 (n=6)	81.8 (n=13)
CHA	76 (n=4)	77.6 (n=5)	76.9 (n=9)	86.7 (n=3)	76 (n=5)	80 (n=8)	88.5 (n=8)	79 (n=4)	85.3 (n=12)
SECHN	80.6 (n=7)	75.3 (n=11)	77.3 (n=18)	80.5 (n=8)	77.8 (n=16)	78.7 (n=24)	82.8 (n=17)	81.3 (n=21)	82 (n=38)
MCH Aide	78.1 (n=71)	76.3 (n=52)	77.3 (n=126)	82.4 (n=60)	76.9 (n=45)	80.4 (n=108)	84.7 (n=63)	78.9 (n=46)	82.2 (n=109)
EDCU assistant	68 (n=6)	62.9 (n=7)	65.9 (n=15)	81.3 (n=3)	72.7 (n=6)	76.8 (n=10)	78 (n=2)	79.2 (n=5)	80.5 (n=8)
Nursing Aid	80 (n=1)	70 (n=2)	73.3 (n=3)	58 (n=2)	72 (n=2)	65 (n=4)			
Midwife				80 (n=5)	65.3 (n=3)	74.5 (n=8)	90.7 (n=3)	80.8 (n=5)	74.5 (n=8)
Dispenser				84 (n=1)		84 (n=1)			
		significant due to EDCUvCHO, EDCUvMCHA (EDCUvCHA 0.07, EDCUv.SECHN 0.06)	significant due to significant difference between EDCUvCHO, EDCUvSECHN, EDCUvMCHA (EDCUvCHA 0.06)	significant due to significant difference between NurseAvCHO, NurseAvCHA, NurseAvSECHN, NurseAvMCHA					
p-value		0.0042	0.0001	0.0295					
In charge									
Yes	78.2 (n=52)	77.2 (n=39)	77.7 (n=92)	83.8 (n=52)	77 (n=40)	81.1 (n=94)	85.8 (n=52)	79.3 (n=42)	83.0 (n=95)
No	77.4 (n=42)	73.5 (n=43)	75.3 (n=89)	78.4 (n=35)	75.6 (n=41)	77.5 (n=79)	83.8 (n=48)	79.6 (n=45)	81.7 (n=93)
p-value				0.006		0.022			
Sex									
Female	77.7 (n=80)	75.9 (n=66)	76.8 (n=149)	81.3 (n=75)	76.9 (n=63)	79.6 (n=141)	84.8 (n=83)	80.2 (n=68)	82.7 (n=151)
Male	78.9 (n=14)	72.8 (n=16)	75.3 (n=32)	83.7 (n=12)	74.2 (n=18)	78.8 (n=32)	85.2 (n=17)	76.8 (n=19)	81.1 (n=37)
Facility staff size									
Single staff	77.6 (n=18)	76 (n=14)	76.9 (n=32)	85.4 (n=25)	73.4 (n=14)	81.1 (n=39)	85.25 (n=16)	76.3 (n=13)	81.2 (n=29)
2 or more staff	77.9 (n=76)	75.1 (n=68)	76.4 (n=149)	80.1 (n=62)	76.9 (n=67)	79.0 (n=134)	84.8 (n=84)	80 (n=74)	82.6 (n=159)
p-value				0.0137					
TOTAL	77.8 (n=94)	75.3 (n=82)	76.5 (n=181)	81.6 (n=87)	76.3 (n=81)	79.4 (n=173)	84.8 (n=100)	79.4 (n=87)	82.4 (n=188)
* total= wedge 1 + wedge 2 + chiefdom Tambaka									

Average combined scores for domain "Working conditions" by wedge, health facility and health worker characteristics									
significant difference highlighted	Mean scores (Nr. of items)								
	Baseline			Midline			Endline		
	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*	Wedge 1	Wedge 2	Total*
Type of facility									
CHC	66.4 (n=22)	63.8 (n=20)	65.9 (n=44)	62.6 (n=28)	67.0 (n=23)	65.1 (n=53)	60.4 (n=28)	64.8 (n=30)	62.7 (n=58)
CHP	65.3 (n=15)	60 (n=16)	64.1 (n=34)	72 (n=13)	65.5 (n=27)	68.5 (n=43)	66.7 (n=19)	65.1 (n=28)	66.1 (n=48)
MCHP	59.8 (n=57)	64.5 (n=46)	61.9 (n=103)	66.4 (n=46)	69.4 (n=31)	67.6 (n=77)	64.5 (n=53)	63.3 (n=29)	64.0 (n=82)
Type of healthworker									
CHO	63.2 (n=5)	58.4 (n=5)	60.8 (n=10)	68 (n=5)	63 (n=4)	67.2 (n=10)	57.1 (n=7)	58.7 (n=6)	57.8 (n=13)
CHA	62 (n=4)	57.6 (n=5)	59.6 (n=9)	73.3 (n=3)	56.8 (n=5)	63 (n=8)	70 (n=8)	55 (n=4)	65 (n=12)
SECHN	75.4 (n=7)	61.8 (n=11)	67.1 (n=18)	63.5 (n=8)	66.8 (n=16)	65.7 (n=24)	62.1 (n=17)	67.8 (n=21)	65.3 (n=38)
MCH Aide	61.2 (n=71)	63.8 (n=52)	62.7 (n=126)	66 (n=60)	69.9 (n=45)	68 (n=108)	64.4 (n=63)	65.0 (n=46)	64.6 (n=109)
EDCU assistant	62 (n=6)	70.9 (n=7)	68.8 (n=15)	65.3 (n=3)	64.7 (n=6)	66.4 (n=10)	80 (n=2)	61.6 (n=5)	69 (n=8)
Nursing Aid	40 (n=1)	66 (n=2)	57.3 (n=3)	76 (n=2)	62 (n=2)	69 (n=4)			
Midwife				57.6 (n=5)	66.7 (n=3)	61 (n=8)	48 (n=3)	62.4 (n=5)	57 (n=8)
Dispenser				80 (n=1)		80 (n=1)			
							Significant due to differences between midwives and CHA, EDCU		
p-value							0.0145		
In charge									
Yes	61.5 (n=52)	63.5 (n=39)	62.6 (n=92)	68.4 (n=52)	66.8 (n=4)	68.0 (n=94)	64 (n=52)	63.9 (n=42)	64.2 (n=95)
No	63.1 (n=42)	63.4 (n=43)	64.0 (n=89)	62.5 (n=35)	68 (n=41)	66.0 (n=79)	63.5 (n=48)	64.9 (n=45)	64.2 (n=93)
p-value				0.0392					
Sex									
Female	62.5 (n=80)	63.6 (n=66)	63.3 (n=149)	65.7 (n=75)	67.6 (n=63)	66.8 (n=141)	63.8 (n=83)	64.8 (n=68)	64.2 (n=151)
Male	60.9 (n=14)	62.8 (n=16)	63.1 (n=32)	68.3 (n=12)	66.9 (n=18)	68.3 (n=32)	63.8 (n=17)	62.9 (n=19)	63.9 (n=37)
Facility staff size									
Single staff	60 (n=18)	66 (n=14)	62.6 (n=32)	70.4 (n=25)	70 (n=14)	70.3 (n=39)	64 (n=16)	64.6 (n=13)	64.3 (n=29)
2 or more staff	62.7 (n=76)	62.9 (n=68)	63.4 (n=149)	64.3 (n=62)	66.9 (n=67)	66.1 (n=134)	63.7 (n=84)	64.4 (n=74)	64.2 (n=159)
p-value				0.0466					
TOTAL	62.2 (n=94)	63.5 (n=82)	63.3 (n=181)	66 (n=87)	67.4 (n=81)	67.1 (n=173)			
* total= wedge 1 + wedge 2 + chiefdom Tambaka									