

# ***Assessment Of Newborn Component Within Integrated Community Case Management***

*Final Report*

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**Save the Children**



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## ACRONYMS AND ABBREVIATIONS

ICCM: Integrated Community Case Management Strategy

MDG: Millennium Development Goal

CHWS: Community Health Workers

LICS: Low income countries

VHT: Village Health Team

UNEST: Uganda Newborn Survival Study

ANC: Antenatal Care

## OPERATION DEFINITION

**Newborn:** A child aged 0-28 days

**Neonatal period:** Refers to the first four weeks after birth

**Neonatal Mortality:** Deaths of babies during the first 28 completed days of life.

**Neonatal mortality rate:** Number of deaths during the first 28 completed days of life per 1000 live births in a given year or period

**Perinatal Period:** Refers to the period immediately before and after birth. The perinatal period is defined in diverse ways and depending on the definition; it starts at the 20<sup>th</sup> to 28<sup>th</sup> week of gestation and ends 1 to 4 weeks after birth.

**Compliance:** This refers to a health facility visit within 24 hours, following a VHT's assessment of newborn and a referral made irrespective of care or no care received at that facility.

**Non compliance:** This refers to not going to health facility but going to alternative providers such as drug shops, TBAs or not consulting any health practitioners.

**Newborn danger sign:** Symptom or sign a newborn suffers that necessitates immediate intervention for the good health of the baby such as Fever/Hot Body, unusually cold body temperature, diarrhoea, convulsions or fits, cough, difficult breathing, cord stump is red or with pus, sleepy/very weak/lethargy, not breast feeding/drinking, vomiting, yellow sole/palms.

**Newborn referral:** This means a process of taking a newborn from a household to a health facility or any other service provider for health care.

**Self referral:** This refers to a hospital visit for which referral was not initiated by VHTs



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## EXECUTIVE SUMMARY

In Uganda, Ministry of Health together with Malaria Consortium is implementing Integrated Community Case Management (ICCM) for the children below five years in nine mid western districts in the country. The Uganda's ICCM policy does not provide for community-based treatment of newborn illness but rather refer sick newborns to health facilities. However, there exists an information gap as to whether or not danger signs are being correctly identified; to what level families comply with referrals, and whether or not treatment is received at the facility for those who are able to seek care. This assessment was undertaken to understand how newborn care is being implemented within the ICCM strategy.

### Objectives

The purpose of the assessment was to understand newborn care within VHT/iCCM implementation in Uganda; specifically to understand newborn health indicators, effectiveness of the ICCM training and perceptions of stakeholders to the programme.

### Methods

The assessment was conducted in three districts of Kiboga, Kyankwazi and Hoima where Malaria Consortium is implementing the iCCM strategy in Uganda. Data was collected through document and records review, structured interviews with 436 Village Health Team (VHT) members, 16 key informant interviews (KIIs) with iCCM program managers, health workers, district malaria focal persons and 9 focus group discussions (FGDs) with caretakers and VHT members. Quantitative data was analysed using STATA version 10 while the qualitative was transcribed and analysed using qualitative content analysis.

### Results

Within iCCM programme, relevant newborn indicators are captured particularly the proportional of newborns referred- by gender and presence of danger sign at time of referral in a given period of time. The iCCM training was effective in equipping VHTs with adequate knowledge regarding newborn care: almost all (99%) reported that they refer sick newborns to health facilities as prescribed by iCCM guidelines and about 87% of VHTs were able to mention at least 3 newborn danger signs although not those that reflect severe illness. Health workers, caretakers and VHT members all perceive the iCCM programme as good and beneficial in improving lives of newborns in their communities. The health workers recognize the programme as a very useful strategy for early identification of newborns with danger signs within the communities, including reducing complicated cases of malaria among older children. Caretakers (women and men) appreciate the programme particularly the VHTs' visits to newborns, identification and referral of sick newborns to health facilities. While the VHTs are of the view that the programme has improved survival of the under 5 children, although with specific expectations such as provision of allowances and incentives to motivate them and continue to provide their services.

### Conclusion

ICCM program is highly appreciated by its stakeholders including community, VHTs, health workers and district personnel. The program is perceived to have improved the health outcomes of sick newborns and

older children, despite of some challenges. The program has potential to improve newborn survival in communities where it is being implemented.

### **Recommendation**

Ministry of Health and its implementing partners should ensure consistent provision of supplies in a timely manner and consider offering allowances or incentives to the VHTs. Districts should increase awareness of communities about VHTs' activities. Health workers and communities should support and have positive attitude towards VHT members.

## 1.0 INTRODUCTION AND BACKGROUND

In Uganda, Ministry of Health together with Malaria Consortium is implementing integrated Community Case management (iCCM) for the children below five years in nine mid western districts in the country. The districts include Bulisa, Masindi, Kiboga, Kyakwanzi, Hoima, Kibaale, Kiryando, Kyenjojo and Kyengegwa. Other districts are Mpigi, Wakiso and Masaka in the central region. See appendix 1

### 1.1 Rationale for the newborn assessment

Community case management for children under five is being widely scaled up in many low-income countries, yet a major research gap remains around what care is provided for newborns under this programme in these settings. As per operational guidelines of iCCM, implementation research is strongly recommended to continually improve the effectiveness of the iCCM strategy. The Uganda's iCCM policy does not provide for community-based treatment of newborn illness but rather conduct home visits for the newborns during the first week of life and refer sick newborns to health facilities. The stipulated schedule for the newborn home visits by the national iCCM implementation guidelines state that newborns should be visited after birth on days; 1, 3, and 7. There exists an information gap as to whether or not danger signs are being correctly identified; to what level families comply with referrals, and whether or not treatment is received at the facility for those who are able to seek care. An integrated approach is proposed involving different stakeholders to attempt and understand how newborn care is being implemented within the iCCM strategy.

### 1.2 Objectives of the newborn assessment

The overall aim of this assessment was to understand newborn care within VHT/iCCM implementation in Uganda and specifically to;

1. Understand what newborn health indicators are currently captured in VHT/iCCM and provide recommendations for improved data capture.
2. Determine to what extent VHT/iCCM training delivers effective newborn care messaging for well and sick babies.
3. Describe perceptions of VHT members, health workers and family towards newborn care in the context of community-based treatment of illness for older children.

## 2.0 METHODOLOGY

### 2.1 Study site

The assessment was conducted in three mid western districts of Kiboga, Kyakwanzi and Hoima where Malaria Consortium is implementing the iCCM strategy in Uganda.

### 2.2 Study design

In this cross sectional study, qualitative and quantitative methods were used in addition to document and records reviews. The iCCM documents included the iCCM strategy and training manuals, registers, supervision checklists and job aides. Interviews and discussions were held with iCCM trained VHT members, health workers and care takers or mothers of infants aged less than 4-6 months in the communities.

### 2.3 Selection of study districts

The three districts of Kiboga, Kyakwanzi, and Hoima were purposively selected, being the districts where a substantial number of VHTs had been trained and iCCM implemented for at least 5 months.

### 2.4 Selection of VHT members (sample size for VHTs in study districts)

From each selected district, half of the sub counties were randomly selected. That is; 5 sub counties from Hoima, 3 from Kyankwanzi and 3 Kiboga districts. In each district, a total of 9-11 parishes were randomly selected from the selected sub counties. See appendix 2. The Total sample size was determined using Kish Leslie formula (1965);  $N = z^2pq/d^2$  and after adjusted for non response giving a sample size of 422 VHT members.

N - The total number of VHTs to be visited/ respondents that is the sample size of the study

Z - is the standard normal deviate, corresponding to  $(1 - \alpha)^{1/2}$  confidence level

d - is the precision of the estimate of  $\pm 5\%$

p- is the proportion of VHT members with adequate knowledge about newborn care. This was taken to be 50% as actual is not known.

From each district, the total number of VHT members interviewed was determined using proportionate to size method. Hence, sample size of 215 VHTs was required from Hoima district, 113 from Kyankwanzi and 94 Kiboga.

### 2.5 Selection of health facilities and health workers

In each district, 4- 5 facilities were purposively selected from the selected parishes, according to the level of the facility, that is; Hospital, Health Centre IV, III and II. The health workers (In-charges) in the selected facilities were recruited to participate in the study as key informants.

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## 2.6 Selection of caretakers

Caretakers (mothers and guardians) were selected from the villages served by the selected health facilities.

## 2.7 Methods of data collection

The following methods of data collection were used:

- Desk review of published literature, policy and program documents related to newborn care as well as iCCM and Uganda Newborn Survival Study (UNEST) documents. The iCCM documents included the iCCM strategy and training manuals, registers, supervision checklists and job aides (MOH 2010) Interviews and discussions were held with VHT members trained in iCCM, health workers and care takers of infants aged less than 4-6 months in the communities.
- Face to face individual interviews with the VHT members were conducted using semi structured questionnaires at their households.
- Focus Group Discussions held with iCCM trained VHT members and caretakers using focus group guides
- Key informant interviews with health workers using key informant guides.
- For both FGDs and KIs, new issues that came up in the initial discussions were followed up in the subsequent discussions and interviews so the FGD and KI guides were flexible.

## 2.8 Training of research assistants

A total of seven research assistants (social scientists) knowledgeable in Runyoro and Luganda languages were recruited and trained for 2 days, on the study objectives and how to use the study tools to collect data from the study districts.

## 2.9 Pretesting and translation of tools

The tools were developed and reviewed by technical persons from Malaria Consortium and Save the Children. The tools were also translated from English to Runyoro and Luganda, the commonest local languages used in the study districts. The tools were pretested in Kawempe division Kampala district, for one day at St Stephen Mpererwe Hospital and its catchment communities and adjusted accordingly.

## 2.10 Data management

Quantitative data was coded and entered in the computer and analysed using STATA version 10, to obtain frequencies of the study variables. For the qualitative data, all interviews and discussions were tape recorded and notes taken. The recorded tapes were transcribed and back translated from Runyoro or Luganda into English and then typed. Analysis was done using manifest content analysis where the typed scripts were read several times by the principal investigator and field supervisor (research assistant) and generated themes from the discussions.

## 2.11 Ethical approval

This assessment was part of the formative research of the in-SCALE project, which aims to understand community health workers' (CHWs) performance and motivation, community uptake and use of CHWs and challenges to iCCM implementation in Uganda and Mozambique. The study protocol was approved by the Institutional Review Board of Makerere University School of Public Health and the Uganda National Council of Science and Technology (HS 875).

In addition, all participants were informed of the study purpose and objectives and that participation was purely voluntary with no penalties to the respondents in case s/he declined to participate or dropped out at any time. After this discussion, each respondent was individually asked to sign a consent form authorizing their participation in the study.

## 3.0 FINDINGS

### 3.1 Social demographic characteristics

A total of 436 VHT members were interviewed, with 196 (45%) from Hoima, 139 (32%) Kyakwanzi and 101 (23%) Kiboga districts . Majority of the VHT members 229 (52.5%) were males, Munyoro 192 (44%) and currently married 353 (81%). About 247 (57%) had attended at least senior one to senior four level education. Slightly over sixty percent 267 (61%) held a position of leadership in their respective communities mainly serving as members of the Local council executives, schools and church leaders including other health programs like family planning mobilizes

**Table 1: Background characteristics of the Village health teams (VHTs)**

Variable	Frequency N=436	Percentage (%)
<b>District</b>		
Hoima	196	45.0
Kyankwanzi	139	32.0
Kiboga	101	23.0
<b>Sex</b>		
Male	229	52.5
female	207	47.5
<b>Tribe</b>		
Munyoro	192	44.0
Muganda	126	28.9
Others	118	27.1
<b>Marital status</b>		
Never married	37	8.5
Married currently	353	81.0
Widow	18	4.1
Divorce/separate	28	6.4
<b>Education status</b>		
<b>P2- P7</b>	177	40.6
<b>S1 –S6</b>	247	56.7
<b>Tertiary</b>	12	2.7
<b>Have position of leadership</b>		
Yes	267	61.2
No	169	38.8

### 3.2 Training of VHTs in iCCM

To assess the effectiveness of the iCCM VHT trainings and newborn care messaging for well and sick babies, data was collected on post training knowledge about: identifying pregnant mothers and newborns, assessment of a newborn with danger signs, care offered to normal and sick newborns and compliance to newborn referral.

All respondents, 436 (100 %) had received iCCM training prior to working as VHT members. Half of the VHT members had worked for the iCCM program for at least 1-7 months. Sixty nine percent mentioned that the training they attended lasted 6 days. Majority 328 (75.5%) were of the view that the training was long enough for them to gain sufficient knowledge and skills. However, out of the 108 who reported that the period of training was not adequate, majority 65 (60.1 %) mentioned that the training period should be 12 - 14 days. All the VHTs 436 (100%) reported that the training covered care for the newborns.

From the interviews with the key informants, VHTs and document review the newborn areas covered during the VHT training included; routine care of the newborn such as keeping baby warm, skin to skin practice, delayed bathing, exclusive and regular breast feeding, dry cord care, general personal hygiene. Other areas covered are identification of newborn danger signs and referral of sick newborns.

### 3.3 Newborn care package offered by VHT members to communities

#### 3.3.1 Identifying pregnant mothers and newborns

The VHT members were asked to mention ways how they identify pregnant women in their respective communities. Through multiple responses, 434 VHTs mentioned several ways and the most common responses were: observing body and behavioral changes or seeing the pregnancy mentioned by 78.3% of the VHT members. Other methods mentioned included; consultation by the mothers from VHT members, through health education talks in the villages, during home visits and follow ups, information given to VHT member by other community members, when the women take their children for treatment at the VHT members' homes and through feedback from health workers in health facilities to VHT members.

**Table 2: How VHTs identify pregnant women in their communities.**

How VHTs identify pregnant women in their communities*	Frequency	Percentage of VHTs who mentioned response
Seeing pregnancy	224	51.6
Home /follow up visits	143	33.0
Body and behavioral changes	116	26.7
Mother come to us for consultation about ANC	73	16.8
Health educational talks meetings in villages	61	14.0
Information from other community members	41	9.5
Through health facility maternity	19	4.4

\*multiple responses elicited

#### 3.3.2 Identification of Newborns by VHTs

Similarly the VHTs were also asked to mention how they identify newborns in their respective communities. From 432 VHTs who responded, the commonest ways mentioned included; close monitoring of the pregnant mothers and home visits reported by 71.1% of the VHT members, getting information from other community members (63.4%), visiting health facilities by (10.9%) and from relatives and friends by of the newly delivered mothers.



**Table 3: How VHTs identify newborns in their communities**

How VHTs identify Newborns in their communities*	Frequency	Percentage of VHTs who mentioned response
Information from community members	274	63.4
Close monitoring of pregnant mothers	164	38.0
Home visits	143	33.1
Visiting health facilities	47	10.9
Through friends and relatives	16	3.7

\*multiple responses elicited

### 3.3.3 Assessment of newborns by VHT members.

Through responses from 424 VHTs, majority (72.9 %) reported that during home visits they first congratulate the mother and then ask her for the baby for an assessment. They check the skin, umbilical cord, for danger signs and general condition of the baby. They also ask about birth weight; when and where the mother delivered from; check the breathing rate; how the baby breastfeeds and general condition of the newborn, before they advise the mothers accordingly. For instance, they advise mothers to take the baby for immunization if the baby was born outside a health facility.

**Table 4: Assessment of newborns by the VHT members during home visits.**

Assessment of newborns*	Frequency	Percentage of VHTs who mentioned response
Congratulate the mother and ask her for baby for checking	309	72.9
Check the skin, cord and other danger signs	276	65.1
Ask about birth weight	134	31.6
Ask mother when she delivered	58	13.7
Ask if baby breast feeds well	53	12.5
Find out breathing rate	45	10.6
Ask for condition of the baby	28	6.6

\*multiple responses elicited

### 3.3.4 Care offered to normal newborns (not sick) by VHT members

The VHTs were asked to report about the care they offer to the newborns that are not sick.

Majority of the VHT members mentioned that they advised the mothers to breastfeed the babies all the time, keep the baby warm, keep proper hygiene, put baby under mosquito net and practice dry cord care. Other measures recommended to mothers included; treating the baby for any health problem, delay bathing of the baby, and advise mothers to go for family planning and HIV testing as illustrated in Table 5.

**Table 5: Care offered to normal newborns by VHTs**

Care offered to normal newborns*	Frequency	Percentage of VHTs who mentioned response
Breastfeeding the baby all the time	283	67.4
Advise caretaker to keep baby warm	188	44.8
Caretaker to keep proper hygiene	159	37.9
Immunizing the baby	153	36.4
Caretaker to put baby under mosquito net	114	27.1
Dry cord care	111	26.4
Advise caretaker to care for baby for any problem	37	8.8
Mother to have a balanced diet and lots of fruits	17	4.1
Delayed bathing	15	3.6
Visiting newborns at least 3 times	15	3.6
Advise mothers about family planning	4	1
Advise mothers about HIV testing	1	0.2

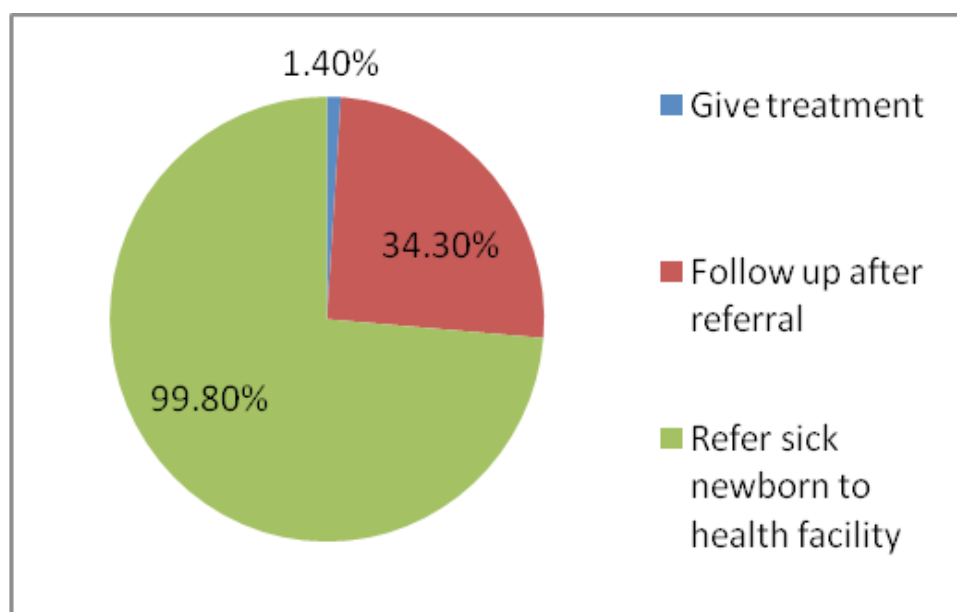
\* Multiple responses

### 3.3.5 Care offered to sick newborns

The VHT members were asked to report what they do when they assess the newborn and find the baby sick. Almost all the VHTs (99.8%) reported that they refer sick newborns to health facilities as stipulated in the iCCM program implementation guidelines. See figure 3.

However, only 34% of the VHT member's s reported following up the newborns after referral as illustrated in Figure 3. Focus Group Discussion (FGD) participants emphasized that as VHT members they were not supposed to treat sick newborns but only refer them to health facilities.

*“During the training, we were told not to treat the newborns at all, we just refer them to the health workers in the health units”. (FGD-VHT, Kyankwazi District)*

**Figure 3: Care offered to sick newborns by VHTs**


A similar message was echoed by the caretakers who participated in FGDs as illustrated in the following quotes

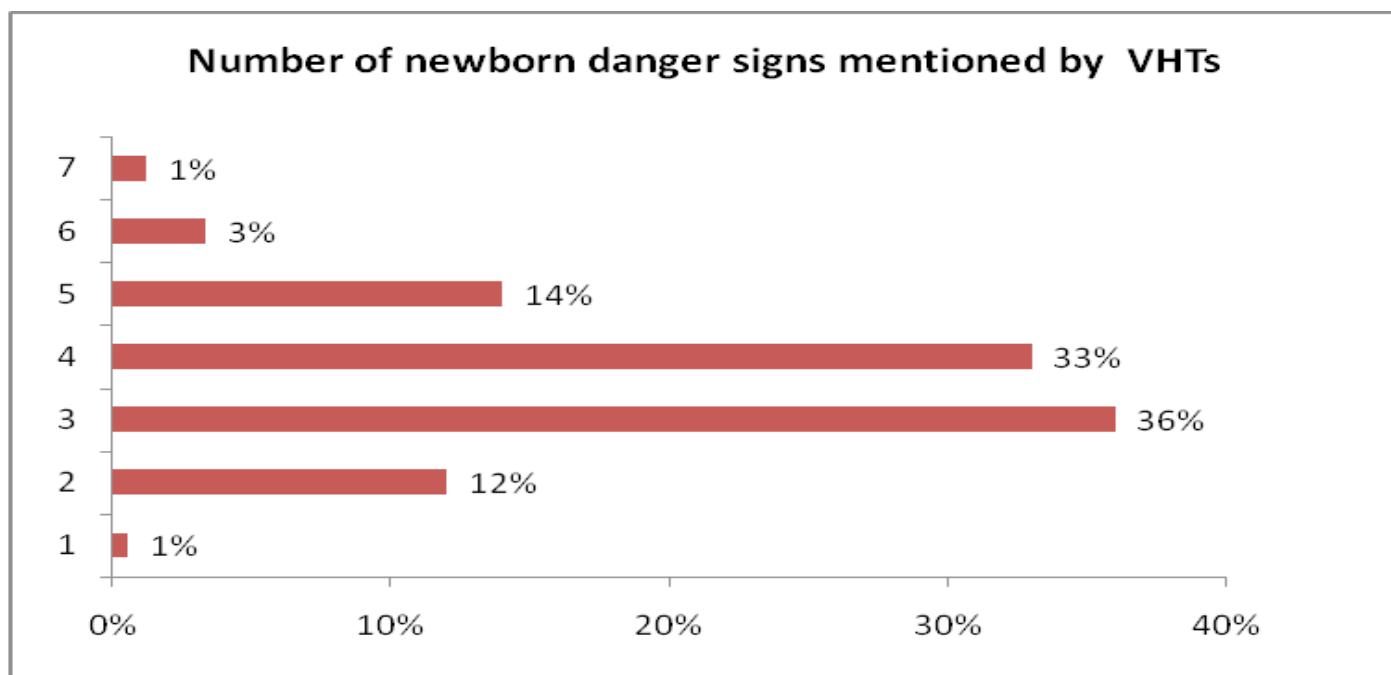
*“When you take a sick newborn to the VHT member, she checks the baby and registers him/her but she does not give drugs. She gives you a referral note to take the baby to the health unit”. (FGD - Fathers Kiboga district)*

*“The VHT members tell you to take the baby to a nearby hospital if that baby is sick; they advise you to take that baby to a more skilled person in hospital”. (FGD Mothers Hoima district)*

### 3.3.6 Knowledge of newborn danger signs among VHT members

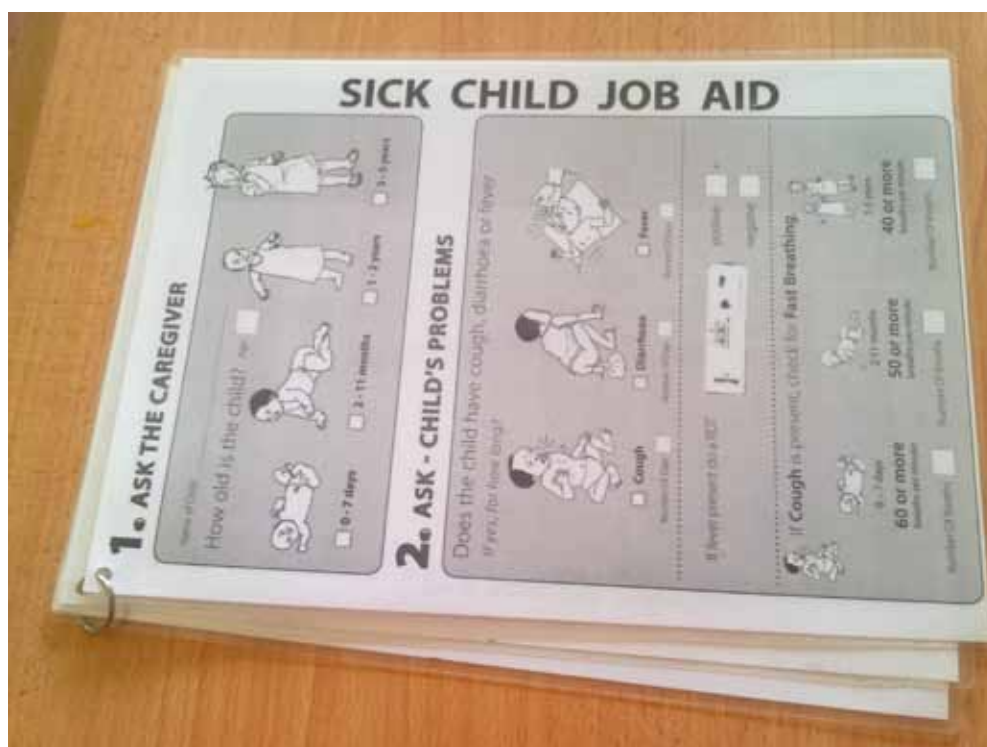
The VHT members were asked to mention at least three newborn danger signs they knew. Infected umbilical cord (81%), skin rash (69%), failure of baby to breastfeed (43%), fast breathing/in chest drawing (36%), convulsion (30%), vomiting (22%), diarrhea (14%), baby becoming yellowish (14%) and high fever (10%) were the commonest danger signs mentioned as shown in table 6 below. Out of the 436 VHTs interviewed, 87.4% mentioned 3 or more newborn danger signs. Figure1.

**Figure 1: Showing number of newborn danger signs mentioned by individual VHT members**



**Table 6: Newborn danger signs mentioned by individual VHT members**

Newborn danger signs*	Frequency	Percentage of VHTs who mentioned response
Infected umbilical cord with puss and blood	353	81.0
Skin rash	302	69.3
Failure of baby to breastfeed	186	42.7
Fast breathing/in chest drawing	155	35.6
Convulsions	130	29.8
Vomiting	94	21.6
Diarrhoea	65	14.0
Baby becoming yellowish	59	13.5
High fever	43	9.9
Over crying	32	7.3
Over sleeping	29	6.7
Cough	21	4.8
Underweight	20	4.6
Being weak	11	2.5
Failure of baby to pass stool or urine	9	2.1
Bleeding in private parts	5	1.2
Swelling of the stomach	1	0.2
<b>*Multiple responses</b>		

**Figure 2: The Sick Child Job aid used by VHT members to identify danger signs among newborns and older children.**


### 3.3.7 Messages given to caretaker by VHTs regarding newborn care.

The VHT members mentioned several newborn care key messages they give to caretakers when they interact. These included; breastfeeding the baby exclusively and regularly (62.6%), keeping baby warm (48.3%), mother and baby to sleep under mosquito nets (40.8%), keeping good hygiene (32.5%), taking good care of the child (25.6%), taking sick newborns to health facilities for care and immunizations (23.9%), practice dry cord care (20.6%), advise mothers about balanced diet (8.7%), delayed bathing (2.6%), family planning and advise both parents to take collective responsibility of looking after the baby (1.7%).

## 3.4 Newborn referral

### 3.4.1 Compliance to referral

Of the 436 VHT members interviewed, majority 418 (96%) were of the opinion that, caretakers comply with referrals and take newborns to health facilities for care. A similar proportion 412 (95%) were also of the view that, newborns receive treatment at health facilities when referred there. Several VHT members 296 (68%) also reported that they receive feedback from health workers concerning the newborns they referred to health facilities.

### 3.4.2 Perceived reasons for compliance with newborn referral by caretakers

The VHTs (399) mentioned several reasons why caretakers comply with newborn referrals. These included; availability of proper treatment at health facilities (34%), severity of illness of the newborn (19%), advice and counseling by VHT members (16.5%) and giving caretakers referral note (14%) among others as shown in Table 7 below.

**Table 7: Perceived reasons for compliance to newborn referral by caretakers**

What can make caretakers comply to newborn referral*	Frequency	Percentage of VHTS who mentioned response
Proper treatment at health facilities	136	34
The seriousness of the condition	76	19
Advice and counseling by VHTs	66	16.5
Giving caretakers referral note	58	14.5
Caretaker being responsible	38	9.5
High level oaf knowledge and awareness	27	7.0
Trust and confidence in the VHT	19	4.7
VHT following up referred newborns	19	4.7
Love for children	14	3.5
To immunize their children	13	3.3
Having money (affordability of care)	9	2.3
Newborns are delicate	7	1.8
Availability of drugs at facilities	6	1.5
Being near to health facility	4	1

\* Multiple responses

### 3.4.3 Perceived reasons for non-compliance with newborn referral by caretakers

The VHTs (311) mentioned several reasons why caretakers may not comply with newborn referrals. These included; failure to get money for transport (31.5%), lack of drugs at health facilities (23.5%), long distances to facilities (20%), cultural and other barriers (9%) among others as illustrated in Table 8 below.

**Table 8: Perceived reasons for non-compliance with newborn referral by caretakers**

What can make caretaker not comply to newborn referral *	Frequency	Percentage of VHTS who mentioned response
Failure to get money for transport	98	31.5
Lack of drugs at health facilities	73	23.5
Long distances to facilities	62	20
They go to private clinics	49	15.8
Being lazy	42	13.5
Culture and other barriers	28	9
Lack of knowledge	27	8.7
Long waiting time at health facilities	26	8.4
Preference to use traditional medicine	25	8
Not taking condition serious	23	7.4
Lack of health workers at health units	21	6.7
Being stubborn	15	4.8
Lack of support from husbands	14	4.5
Under table payments	8	2.6
Health workers being rude	8	2.6
Giving birth at home	4	1.3
Fear to immunize their children	3	1
Fear to be tested for HIV	3	1
Fear of Tetanus Toxoid Vaccine	1	0.3

\*multiple responses elicited

### 3.5 Support Supervision to iCCM VHT members

Majority of the VHT members 365/436 (83%) reported that they are supervised by three categories of persons namely; VHT parish coordinators, in-charge health facilities and Malaria Consortium staff. A VHT parish coordinator is one of the iCCM trained VHT member, given extra training and assigned a role of coordinating fellow VHT members in a designated parish. Over 75% of the VHT members reported that they are supervised on a monthly basis. Over 60% of the VHTs reported that they had been supervised between 2 – 6 times since they started working as iCCM VHT members.

### 3.6 Record keeping by iCCM VHT members

Over 98% of the VHT members agreed that they keep records as they perform their work. The records that are kept include; registers/cards. In the registers, the following variables were reported to be recorded; name of child/parent, sex, date of birth of newborn, age, weight, number of visits, and place of birth among others. Majority of the VHT members (97%) mentioned that, they give the records to the VHT parish coordinator and in-charges of their respective health facilities.

### 3.7 Motivation

VHT members (436) were asked to mention what would motivate them to keep working as VHTs on the iCCM program. Several issues were mentioned including; being given allowances (31.7%), feel of helping the community people (30%), being provided with transport (25.7%), availability of drugs (17.2%), getting known in the village and respect from community members (15.6%) among others as shown in Table 9 below.

**Table 9: What would motivate VHTs to keep working on the iCCM program**

What motivates VHTs to keep working*	Frequency	Percentage of VHTS who mentioned response
Allowances	152	35.1
Helping people	131	39
Provision of transport	112	25.7
Treating my own children and relatives	85	19.5
Availability of drugs	75	17.2
Gained skills and knowledge	72	16.6
Getting known in the village	68	15.6
Respect from community	68	15.6
Confidence and trust	56	12.8
Refresher courses	45	10.3
Provision of phones for communication	30	6.9
Continuous supervision	15	3.4
Becoming real health workers	8	1.8
No other person was willing to work as VHT	3	0.7
To reduce mortality rate of children	2	0.5

**\*multiple responses**

However, when asked what would make them stop to work as VHTs on the ICCM program, majority (43%)

mentioned that nothing would make them stop. In addition, 14% mentioned lack of drugs; supplies and transport would make them stop among other reasons as shown in table 10 below.

**Table 10: What would stop VHTs from working on ICCM program**

What would stop VHTs working*	Frequency	Percentage of VHTS who mentioned response
Nothing	187	43.3
Lack of drugs and other supplies	63	14.6
Lack of allowances	62	14.4
Lack of transport	39	9.0
Poor attitude of people	37	8.6
Over working	20	4.6
Change of location	19	4.4
Sickness	18	4.2
Poor relation with health workers	16	3.7
Other responsibilities	14	3.2
Loss of time to do my own work	9	2.1
If terminated by community	8	1.9
Low transport refund	6	1.4
Poor working conditions	5	1.2
Parents bring children late in the night	3	0.7

\*multiple response

### 3.8 Challenges faced by the iCCM VHT members

VHTs (433) mentioned several challenges they face as they perform their work. Majority reported delayed supply of drugs and supplies (59.0%), lack of transport (46.9%), lack of source of lighting at night (25.4%), lack of allowance and facilitation (16.9%) and demand from community members to treat children who test negative for malaria (13.6%) among others as shown in Table 11 below. The VHTs were asked to name the critical two challenges they face and these included; delay of supply of drugs and other supplies (42.9%), lack of transport (36.7%), interference with personal work (23.6%) and lack of lighting source at night (16.2%).



**Table 11: Challenges faced by VHTs as they perform their work**

Challenges faced by VHTs*	Frequency	Percentage of VHTS who mentioned response
Delayed supply of drugs/supplies	255	59.0
Lack of transport	203	46.7
Interference with personal work	129	29.8
Lack of lighting source at night	110	25.4
Lack of allowances/low facilitation	73	16.9
Community members demand to treat negative children	59	13.6
Caretaker not complying to dose given to children	58	13.4
Long distances	38	8.8
People think VHTs are paid	22	5.1
Language barriers	10	2.8
Lack of supervision	8	1.9
Lack of feedback from health facilities	8	1.9
Lack of recognition from supervising health facility	4	0.9
Absence of health workers at health facilities	2	0.5

\*multiple responses

### 3.9 Perceptions of Health workers, Caretakers (Family) and VHT members, relating to newborn care in the context of community-based treatment of illness for children

Perceptions of these stakeholders were assessed through qualitative methods of FGDs and key informant interviews.

#### 3.9.1 Description of KI and FGD participants

Qualitative data was collected through Key Informant interviews (KI) and focus group discussions (FGDs) from the three study districts of Hoima, Kyakwanzi and Kiboga. A total of 16 KIIs were conducted with key informants including the technical person in charge of iCCM at the Regional Malaria Consortium office in Hoima, Malaria Focal persons in the districts and In charges of health facilities; HCIV, III and II in the districts. In Hoima district, 2 health workers in charge of the community health department in Hoima Regional hospital were interviewed as a duo.

A total of 9 FGDs were conducted with care takers (fathers /mothers/ gurdians) and VHT members each comprising 7-9 participants. The caretaker participants were mobilized from households that had a child aged below three months. They were recruited from catchment areas of randomly selected health facilities.

FGDs were also held with VHT members both male and females together in one group. VHT members who participated in the FGDs were mobilized from randomly selected sub-counties. These sub counties were different from those where the VHT survey was conducted.

**Table 12: Category and number of KIIs and FGDs conducted.**

Category of Key Informant	Number of KIIs	Category of Focus Group Discussions	Number
Health workers	13	Village Health teams	3
Malaria Consortium staff	1	Caretakers (Fathers)	3
District Malaria focal person	3	Caretaker (mothers)	3
<b>Total</b>	<b>17</b>		<b>9</b>

### 3.9.2 Implementation iCCM program in districts

The key informants reported that the iCCM program commenced with National trainers from Ministry of Health training Trainers from Malaria Consortium and the districts. After the (trainer of trainers) TOT, training of VHTs in the different districts started. In Hoima district, training of VHTs started in October 2009, so iCCM implementation has been ongoing for one year and nine months. In Kiboga and Kyakwanzi districts the program has been running for one year. The training was done when Kiboga and Kyakwanzi were still one district of Kiboga.

Malaria Consortium over sees the implementation of i

iCCM in the mid west region including the study districts. The district Malaria focal persons are also the focal persons for the iCCM program in the districts. Their major role is still to oversee the implementation of iCCM within their respective districts and work closely with Malaria Consortium office.

Immediately after the training the VHT members were equipped with drugs, supplies and registers to start work. Among the trained VHT members one was selected and trained further to coordinate his/her peers at parish level and is referred to as a Parish Coordinator. This person is responsible for collecting monthly reports from fellow VHT members and deliver them to the health facilities. They also assist the VHT members in case they have some challenges as illustrated in the quotes below.

*“... they mobilize the VHT members; if a VHT has a gap or a challenge or if VHT member needs assistance, the parish coordinator comes in and assist the VHTs”. (KI- Malaria Consortium)*

### 3.9.3 Supervision of VHT members in the iCCM program

Support supervision was initially supposed to be conducted on a monthly basis by health workers in their respective districts and Malaria Consortium staff. Later, Parish Coordinators were introduced who then took up this role. Supervision motivates VHTs to perform their work.

*“At first when we started we were doing it every month. We would go to their homes to supervise them and get the reports but now it is the VHTs Parish Coordinator that goes to them and brings the reports to the unit”. (Health Worker –Kiboga District)*

*“ Our role as the health unit we have to support the VHTs and also we have to work hand in hand, we have to visit them to see whether they are doing the right things. They also collect drugs from here”. (Health Worker – Kiboga)*

*“ We feel big and proud if people with big cars come to visit us. People that come for supervision should not be harsh to us due to the mistakes we have made in the register”. (FGD VHTs)*

### 3.9.4 Linkage of health facilities to iCCM VHT members

The linkage between the health facilities and VHT members exists as the health workers at the health facilities are responsible for; training and supervision the VHT members in their catchment areas, distribution of drugs to the VHT members delivered by Malaria Consortium, checking records and closing knowledge gaps where VHTs have forgotten certain issues.

*“When we receive their medicine we call them to come pick it and they refer patients to us. Basically we work hand in hand with the VHT members”.* (Health worker – Kyakwanzi)

*“You check whether they still have drugs, check the records they keep and find out what are the problems they facing and sometimes we collect the reports from them”.* (Health worker-Hoima)

*“Yes we are working hand in hand because we are supervising the VHTs; also the VHTs refer children here. They refer newborns those with danger signs and the other children”.* (Health Worker- Kiboga)

However, some health worker were of the view that the supervision had become irregular due to lack of funds , yet the VHT members need to be continuously supported to refresh their knowledge. They also pointed out that sometimes the drugs and other supplies distributed to VHT members are very inadequate.

*“Supervision is not done every month so that is a gap that can affect the VHTmembers’ performance. Supervision is not done every month due to lack of funding as some VHT members are far away from the facility and need a lot of funds”.* (Health worker KI - Kyakwanzi).

*“The VHTs need review meetings either monthly or quarterly to share their experiences, for there are times when they call us when they have forgotten certain things”* (Health worker KI- Kyakwanzi)

*“Provision of drugs is needed to be improved, sometimes they get out of stock and at times they bring so little”.* (Health worker KI- Hoima).

### 3.9.5 Health worker perceptions

#### i) Newborn care key messages during iCCM VHT trainings

The VHTs are taught general care for a newborn such as keeping the baby warm, delay bathing , initiating breast feeding immediately after birth and proper positioning of the baby, examining the umbilical cord advising the mother to observe proper hygiene and not to apply anything on the umbilical and keep it dry. The VHT members are told to refer newborns with danger signs immediately to health nearest health facility.

*“During the training we told them that when a newborn is delivered they should encourage the caregiver to sleep under treated mosquito nets so as to prevent malaria, in case of any danger signs they should refer to the unit, to inform the caregiver to breast feed the newborn exclusively more than four times a day and to look after them very well so that they do not acquire diseases”.* (Health worker Kyakwanzi district)

*“It mainly focused on follow-ups of the newborns on the 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> day and the purpose of follow up is to look at them if they develop danger signs so that they can be referred immediately. So the whole package for the newborns is mainly on home visiting, following newborns and advise the caregivers in case the child has danger signs can be referred. At some time they are educated on handling these newborns especially like preventing the newborn from having an infection”.* (KI- Malaria focal person)

#### ii) Compliance to newborn referral

The health workers were of the view that caretakers comply to referrals although not all of them due to

certain barriers like transport, cultural beliefs and misconceptions. A referral note issued to caretakers by the VHT is perceived to facilitate compliance to referral.

*“Some respond positively and others negatively, so it depends, because someone could be referred and does not have money for transport so they fail to come but the biggest number comply and the compliance is that the case is serious and it needs proper treatment”. Health worker Kyakwanzi*

*“Yes, they do because those that come bring with them the referral notes or if not a referral is written on a piece of paper”. (Health worker- Kiboga)*

*“They comply especially when a VHT writes a referral letter, they really comply”.*

*Health Worker-Hoima*

iii) Over all opinion about iCCM program

The health workers perceived the iCCM program as good, saves lives and very useful in early identification of newborns with danger signs within the communities; including reducing complicated cases of malaria among older children. However, they were of the view that the program could be used as an opportunity to distribute treated mosquito nets to mother who do not attend antenatal clinics, by giving mosquito nets to newborns registered with the VHTs. The program was also reported to have strengthened the relation between health workers and the VHTs, in addition to immunization of children.

*“The iCCM program is good because it has helped the community identify newborns with danger signs and by strengthening the health workers and the VHTs and it has saved the lives of the young children.”. (Health worker Kiboga district)*

*“There are now fewer children who are brought here convulsing, may be because the VHTs are giving them drugs early enough” (health worker Hoima district)*

*“The iCCM program is good but it needs to be widened in the sense that some mothers do not come for antenatal clinics so they do not get treated mosquito nets, so may be the VHTs could also give to the newborns that are registered and do not have mosquito nets”. (Health Worker – Kyakwanzi district)*

*“...as far as iCCM is concerned, we really benefit from the VHTs in terms of mobilizing for immunization”. (Health worker Hoima district)*

### 3.9.6 Caretakers' (family) perceptions

i) Newborn home visits

Caretakers both women and men appreciate the programme particularly the VHT visits to newborns, identification and referral of sick newborns to health facilities. The caretakers also mentioned that the VHT members visit them when they deliver and advise them to take the baby to health facility in case they delivered outside the health facilities for immunization.

*“If you give birth from the village, VHT member come and see our babies and advise us to take the baby to the hospital”. (FGD mothers Kyakwanzi)*

*“They even mobilize us to take these babies for immunization”. FGD mothers Hoima*

ii) Newborn referral

The caretakers were aware and reported that VHT members do not treat newborns but assess them and if

the baby is found sick, the VHT member issues a referral note to the caretaker to take the newborn to the nearest health facility. In some instances self referrals were reported where caretakers go to places of their convenience for treatment since they are aware that VHT members do not have medicines for the newborns.

*“When you take the newborn to the VHT she checks the baby and registers it but she does not give drugs but she gives you a referral to take to the health unit”. – FGD - Fathers Kiboga districts*

*“They tell you to take the baby to a nearby hospital if that baby is sick; they advise you to take that baby to a more skilled person in hospital”. (FGD Mothers Hoima)*

*“VHTs do not have drugs for newborns. We take them there but they just tell us to go the health facility that for them they do not have the drugs for newborns”. FGD Mothers Kyankwanzi district*

*“We know VHTs do not have drugs for newborns so we just take our babies to wherever is convenient for us”. FGD Mothers Kyankwanzi*

### iii) Newborn key messages

The caretakers were also able to mention the key messages given to them by the VHTs regarding newborn care such as; delayed bathing of the newborn, taking baby for immunization, keep proper hygiene, not to apply herbs on the cord but keep it dry all the time.

*“They tell us not to bath the baby immediately after birth; they advised us to bath these babies after one day after birth”. (FGD caretaker- mother Hoima)*

*“For me when I delivered the VHT told me to be very clean to cover the umbilical cord not apply herbs on and to keep it dry all the time so as to avoid tetanus”. (FGD mothers Kiboga district)*

However, detrimental newborn practices still prevail among community members and health workers particularly with cord care as illustrated by the following responses from FGD participants in when asked how they care for the newborn.

*“To keep the umbilical cord clean and well covered to avoid infection, to put some medicine (spirit) the health workers give us”.*

*“I put spirit and powder and keeping it well covered”.*

*“Me I did not put powder but I used the solution and cotton wool they gave me from hospital to dress it and covered to prevent infection”.*

*“I used to clean well and then apply powder on it”.*

*“I would put salt in warm boiled water and clean the cord and put powder”.*

*(FGD participants Kyankwanzi district)*

### iv) Compliance to newborn referral

There was a view that compliance to newborn referral was a form of support to the ICCM program and to the VHTs. Some FGD participants mentioned that when they comply and take the newborns where they were referred they are supporting the program. They also mentioned that when the baby is sick, one has no alternative but to take the baby to the health facility although it demotivates the caretakers when the drugs are not available at the facilities, hence breeding non compliance in subsequent referrals.

*“If they refer you, you go. You have to go because the child is sick and there is no other alternative. How can you not go when the child is sick”? FGD, Mothers Kyakwanzi*

*“You go to the health facility today and you find no drugs, how do you go back tomorrow knowing there are no drugs? You just have to go to a private clinic and buy treatment you can afford”. FGD, Mothers Kyakwanzi*

v) Overall comment about iCCM program by caretakers

The caretakers appreciated the iCCM program for the fact that the VHTs assist them to treat their older children especially where the hospitals are very far and request for the same for the newborns. There was a perception that there is no program for newborns within iCCM basically because the newborns are not treated by the VHTs and there are no drugs in the health facilities.

*“If you are deep in the village, they help to treat our babies before going to the hospital, and if the baby’s condition is worse, they refer you to the hospital”. FGD mothers Hoima*

*“It is like we do not have a program for the newborns here in Kyankwanzi even if we go to the health facility there are no drugs”. FGD mothers kyakwanzi district*

*“It is good most especially to the older children but we are requesting to also consider the newborns”. FGD mothers Kyakwanzi*

Community members portrayed interest in the program by reporting that community members support VHTs by providing lifts to them to ease their movement within the villages as a way to support the program.

*“Since they are not paid, they don’t ask us for money, so we give them lifts on our motorcycles and even bicycles or some money in such a way we are helping them to do their work”. FGD fathers Hoima district.*

However, they had some concerns regarding the following; supply of drugs which kept running out of stock, inadequate numbers of the VHTs trained per village which should be increased to at least 4 VHT members per village. The other concern was about identification of the VHTs in their respective villages. They proposed that the VHTs be provided with uniforms, and sign posts at their residences. They also pointed out the fact that the VHT members are not paid, but in order to motivate them, they should be provided with transport means such as bicycles, or still be paid some money as illustrated in the responses below.

*“The project trained few VHT members; we at least need 4 VHT members in every Local Council”.*

*“The project should pay these VHT members in order to motivate them”.*

*“Provide transport for them for better movement like giving them bicycles”.*

*“The project should bring more medicine because patients are many”.*

*“We need to get uniforms for VHTs and even put a sign post to show where they stay”.*

*(FGD- mothers Hoima district)*

### **3.9.7 VHT members’ perceptions**

Perception of the VHT members towards the iCCM program were elicited both during the survey and FGDs with them.

From the survey, the VHT members, were of the opinion that, the iCCM program was good as a whole. They reported that it had improved lives of the newborns and reduced congestion at health facilities. It has also led to positive behavioral change in the communities like practicing dry cord care. It has created good relationships between VHT members and health workers. Community members have welcomed the program and comply with the advice given to them by the VHTs. It has also created respect and popularity of the VHTs. However, a few mentioned that they are working under poor conditions.

Focus groups were also held with VHT members and their views about the newborn care within the iCCM are described below.

i) Newborn care and key messages

The VHT members reported that they had been involved in the iCCM activities for 4 and 6 months in Hoima and Kyakwanzi districts respectively and one year in Kiboga district. In all the three FGDs held with the VHT members, they mentioned that they visit newborns and treat sick older children while they refer sick newborns to health facilities. In addition, they follow up pregnant mothers; teach people how to use mosquito nets, advice parents to take their children for immunization, registering newborns delivered and those who die in their communities.

In all the VHT member FGDs, the participants narrated the key messages for newborn care as, initiating breast feed immediately after birth and breast feed exclusively for six months and regularly, putting nothing on the cord, keeping the baby warm (Kangaroo care), and taking baby for immunization. However, during the discussions some participants mentioned that they had advised mothers to put warm salty water on the cord.

*“...to put the newborn in your chest when not dressed so that to get warmth from the mother and to breast feed regularly like 8 times and more a day”. Kyakwanzi*

*“We advise their parents to breastfeed newborns for 6 months without giving them anything else” (Hoima)*

*“We visit pregnant mothers, give advice to them to attend antenatal and after birth we visit them three times in the first week. We advise them how to care for the newborns and also examine the newborns for danger signs”. FGD VHT-Kiboga*

#### ii) Newborn referrals

During the focus group discussions, the VHT members mentioned that, their trainers emphasized to them that they should not treat sick newborns but instead refer them to the nearest health facilities. VHT also reported that they conduct home visits to newborns.

*“During the training we were strongly told not to treat the newborns but just refer”. (FGD for VHT Kyakwanzi district)*

*“They trained us that after three days we go and visit the mother to see how she doing and caring for the baby. We check the umbilical cord, the skin and the baby’s clothes. In case of any danger sign we refer immediately because we as VHTs we are not supposed to treat newborns”.FGD VHT-Kiboga*

*“We approach the mother, we register that baby who is sick and he is taken to the hospital for treatment”.FGD VHT Hoima*

#### iii) Challenges

The VHTs who participated in the FGDs mentioned similar challenges as those who were interviewed during the survey. These included; inadequate and irregular supply of drugs, large amount of time put in at the expense of their private work, long distances to cover to pick drugs, visit and follow up of pregnant mothers and newborns, non functional torches, lack of money to buy paraffin and lack of / inadequate supervision from health workers.

*“What I was saying is we need medicine, we don’t have any medicine; they say they are going to bring but we don’t see it. We also don’t have RDTs”. FGDVHT- Hoima*

*“We have a problem of transport; we can’t make a follow up to these people we have treated due to lack of transport” FGD VHT- Hoima*

*“We spend a lot time in treating patients and forego our work and yet we do not have any allowance”. FGD VHT –Kyakwanzi*

#### iv) Motivation

Issues that were considered to motivate the VHTs were similar both by the VHTs who were interviewed and those that participated in FGDs. Provision of allowances, continuous supervision and adequate supply of drugs as the most commonly mentioned motivating factors. Other issues mentioned include; reducing paper

work, easy of VHT movement, delivery of drugs to the VHTs rather than them picking the drugs and supplies from the health facilities. This would reduce on the time they spend doing program activities as illustrated by FGD participants below.

*“We find it hard to bring reports due to lack of transport, secondly this work consume a lot of time thus neglecting our work. All in all we need some facilitation and allowance”.*

*“Some of our villages the households are so far apart hindering us to do our work well, so if we could get some bicycles to assist us in our movements in the villages”.*

*“To reduce on the paper work we do, for it also consumes a lot of time”.*

*“Let us not beat around the bush; we need some allowance and facilitation”.*

*“The supplies and drugs to be delivered to our homes as some of us live far from the health facility and yet when we come they gives 5.000/= as transport refund yet we use more than that”. (FGD VHT Kiboga)*

v) Record keeping

All the participants in the VHT FGDs agreed that they keep records. They reported that they were issued with registers where they record all the children they treat, however, in that register there is a section for newborns where the date of visit, name of the baby, period of illness, presence of a danger sign are noted. In addition they write referral notes for the sick newborn and indicate the date and time of referral including the danger sign.

*“In case of a referral we record the name, condition of the baby and how long has the baby been sick”.*

*“On the referral we note the date, the danger sign, date referred and time”.*

*“We also record in the register for a particular month and then send the report to the facility”.*

*“In the register there is a section for newborns that we fill during our visits”. (FGD VHT\_Kyankwanzi)*

**Figure 4: A VHT displaying the iCCM register he uses to record the newborns and older children he attends to.**





vi) Relationship with health workers

Regarding the relationship between the VHTs and the health workers the FGD participants reported a positive attitude between the two parties. They appreciated the fact that it is the health workers who trained them and also supervise them. The health workers also advise the community people to utilize the VHTs' services.

*"They are the ones that trained us on how to handle children but we are requesting for at least every after 3 months to have refresher courses". (FGD VHT-Hoima district)*

*"The health workers have assisted us in informing the people about us and what we can do and they also advice people that before they go to the health facility they first come to us unless we cannot handle the case then we refer them" FGD VHT –Kiboga district)*

vii) Over all comment about the program

Over all the VHTs appreciated the program and mentioned that is was good, it helps their community members save transport costs, the children are treated and they get better, and the VHTs are also happy to contribute towards the health of their people. They also appreciated the component of testing the children for malaria before dispensing the drugs. Some participants thought that the program was not good in terms of the newborns since the VHTs do not treat them. They expressed the need to be paid some allowances rather than serving as purely volunteers.

*"...even us the VHTs feel happy when our people are fine health wise. The program is good but there is a time voluntary service becomes too much and you end up spending the little you have yet we do not have any allowance. There is no way we can perform our duties if we feel oppressed". FGD VHT Kiboga*

*"It is good because in the past in the other program we used to just treat without testing but now it is different and people have more trust in us". FGD VHT- Kyakwanzi district*

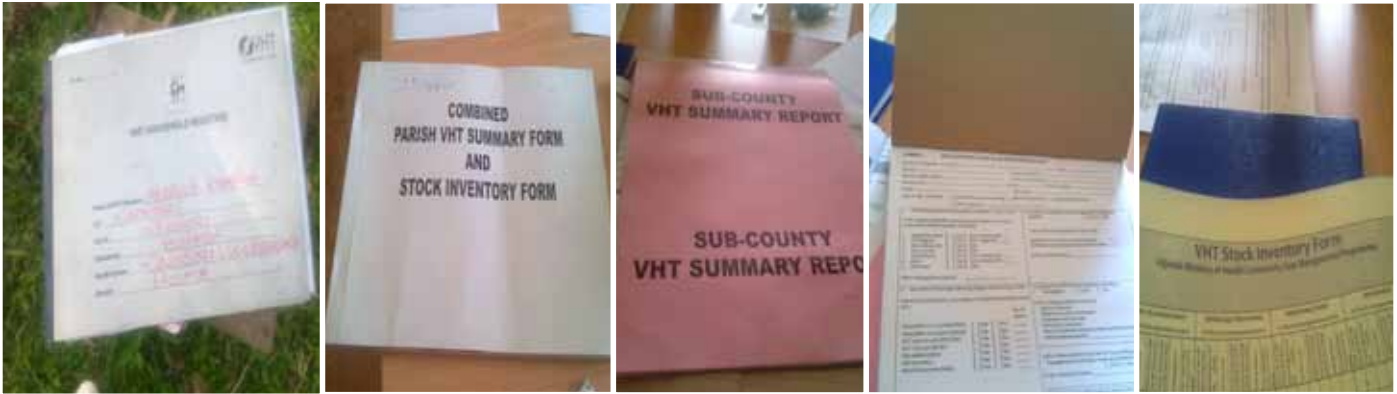
*"The program is not good concerning newborns because we cannot treat them". FGD VHT- Kyakwanzi*

### 3.10 Newborn Indicators

It was found that several records are kept under the ICCM program and these include;

- i) VHT/ICCM register
- ii) Combined Parish VHT summary form
- iii) Sub county VHT summary report
- iv) Supervision Checklist
- v) Stock inventory form
- vi) Pre designed referral form

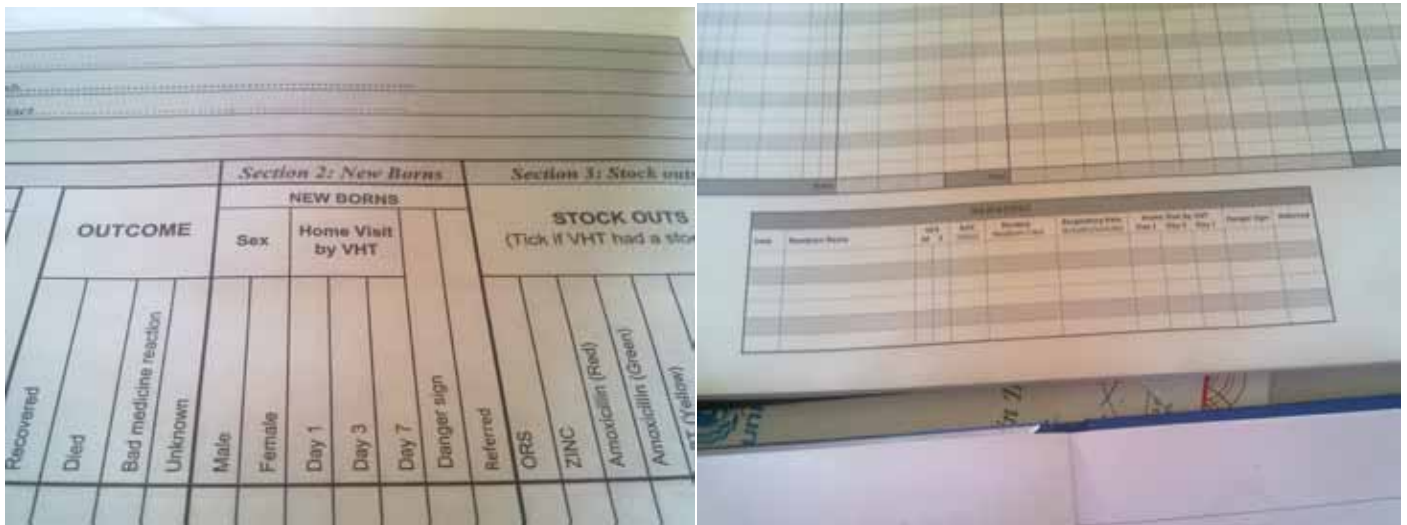
**Figure 5: Showing the registers used in the ICCM program.**



From document and record reviews several newborn indicators are captured. These include;

- i) Proportional of newborns seen by the VHT by gender within a particular period
- ii) Proportional of newborns with dangers within a particular period
- iii) Proportional of newborns referred to health facilities within a particular period
- iv) Proportional of newborns visited on day 1, 3, and 7 within a particular period.
- v)

**Figure 6: Extracts from the VHT register of the newborn variables captured in the ICCM program.**



However, the following indicators are not captured.

- i) The outcome of referral of the sick newborns should be captured just as those of the older children
- ii) The proportional of newborns followed after referral within a given period of time

## 4.0 DISCUSSION

### 4.1 Newborn health indicators

The findings show that the only newborn specific core indicator outlined in the national iCCM implementation guide (core indicator 9) is captured. This is the proportional of newborns home visited on day 1, 3, and 7 within a particular period. This is probably due to the fact that since it's the only one mentioned in the national guidelines it was catered for in the VHT registers and the relevant data is collected.

However, the MoH standards for Newborn Care services (2010) stipulates that record keeping by VHTs should also capture births, deaths and post natal visits.

### 4.2 VHT/iCCM Training

The training of the VHT was found to be adequate from the interactions with the different stakeholders namely, the district trainers, health workers and the VHTs. The training was reported to be conducted for six days and this is in line with the national guidelines for ICCM implementation.

The VHT/iCCM training delivers effective newborn care messaging for well and sick babies as demonstrated by the strengths of the VHTs, in the results where the majority (87.4%) of the VHTs are able to mention at least 3 newborn danger signs particularly those emphasized during the training and reflected on the sick child job aid namely; infected cord, skin pustules, chest in drawing, convulsions and vomiting. Secondly, almost all the VHTs (99.8%) reported to practice what they are taught regarding the sick newborn that is referring the newborn to a health facility and this also was highlighted in FGDs and KIIs. This reflects that community resource persons such the VHT members can perform and follow guidelines as trained. A similar finding has been demonstrated in studies done in Uganda by Kallander *et al.* 2006 and Mukanga 2010 while evaluating the ability of CHWs to assess rapid breathing among under-fives and interpreting rapid diagnostic tests (RDT) for malaria in the same group respectively. Several other studies Cunha *et al.* 2001; Harvey *et al.* 2008; Elmardi *et al.* 2009; Hawkes *et al.* 2009 have also documented that community health workers can successfully do what they are trained for in various settings.

Although a very small proportion (1.4%) mentioned that they treat newborns, this should not be ignored. This may be due to the possibility of the VHT members yielding to the demand of the caretakers to treat their sick newborns given the challenges that were enumerated that could affect compliance with referral, such as; lack of money for transport, lack of drugs at health facilities and long distance to health facilities. This calls for continuous supervision of VHTs as emphasized by Pariyo *et al.* 2005 to prevent incidence of this practice from increasing.

### 4.2.1 Gaps in training

#### i) Follow up of referred newborns

Only 34.3% of the VHTs mentioned that they follow up of sick newborns. This is probably because there is no specified schedule for newborn follow up visits as it is for the home visits after birth (day 1,3 and 7). The training guideline mentions that “after referral of a child it is important to follow up this child the next day” (MOH 2010). Furthermore the iCCM implementation guide do not mention about follow up of referred newborns, but rather follow up of those children treated and experience drug reaction. Being that the ICCM program mainly focuses on older children, the VHTs may be relaxed to follow up the referred newborns.

#### ii) Cord care practices

The fact that detrimental newborn practices still prevail among community members and health workers particularly with cord care reflects the gap in updating of health workers of the new recommended cord care practices.

#### iii) Drugs and supplies procurement

Although the newborns are not treated by the VHT members, its important to note that at the time of the study, there was stock out of drugs and supplies among several VHTs. This could be due to the conflict between the national iCCM implementation guidelines that recommend a “pull” system of procurement of drugs,(health facilities requisition for drugs and supplies according to their need) while in practice it is the “push” system (health facilities are sent drugs and supplies from the center according to criteria designed at the center) that is implemented leading to the stock outs. So there is a policy gap between the two systems. This needs to be addressed since the findings show that stock outs can be an important issue to de-motivate the VHT members hence affecting the whole iCCM program.

#### iv) Supervision of VHT members

The study found that there is a cadre of VHT supervisors (parish coordinators) which is not mentioned at all in the national iCCM implementation guidelines. This cadre of person was found to be very useful in coordinating VHT members at parish level, and a link between the health workers and the implementing partner, malaria consortium.

### 4.3 Stakeholder perception of the newborn care in the ICCM setting

All the involved stakeholders are positive about the program, which is a strength that should be both a strength and opportunity for the success of the ICCM program. However, concerns of drug and supplies stock outs, allowances and incentives as issues that can demotivate VHTs in performing their roles are weaknesses and threats to the program. This strongly supports the argument that performance is a function of incentives, knowledge divided by barriers (Muir Gray 1997).

### 4.4 Over all perception of the program

Over all the different stakeholders in terms of the national, district, health facility, community levels and village health teams have embraced the ICCM program by each playing their role as stipulated in the national ICCM implementation guidelines. As far as the newborn care component in ICCM is concerned, the key services for the newborns are delivered namely; home visiting of newborns after birth on day1, 3, and 7; identifying and referring newborns with danger signs and to some extent follow up of the referred newborns.

The program is a viewed as an opportunity to deliver other health preventive services such as distribution of treated mosquito nets to mothers who may not have gone for antenatal services. This is in line with what Lewin *et al.* 2005 and Haines *et al.* 2007 have reported that trained community resource persons can be of great use in increasing interventions that promote child survival.

### 4.5 Study limitations

The VHT were not taken through the competence assessment of sick and normal babies using vignette or case scenarios (observation methods) due to the limited amount of time and funds. Instead they were asked

to tell the interviewers what they do when they are presented with the sick or normal newborn which may not yield their actual skill to perform their roles.

The study did not validate referral compliance which would give the actual practice regarding newborn referral but rather obtained the perceptions about referral compliance due to time and financial constraints.

Similarly, the adequacy to identify pregnant mother was not studied as it is not one of the core activities of the VHT involved in ICCM. This is a role of the other members of the VHT.

The study did not ascertain the exact time when the newborn home visits occur as this required visiting the caretakers who experienced referrals and obtain the relevant information; again this was constrained by funds and time.

## 5.0 CONCLUSION

According to the iCCM national implementation guidelines, relevant newborn indicators are captured within the iCCM program apart from the outcome of newborn referral and the newborns follow up after referral. There is discrepancy between the indicators outlined in the iCCM guidelines and the Newborn Standards.

VHT/iCCM training is adequate and VHTs offer effective messages to caretakers about care to health and sick newborns.

iCCM is highly appreciated by different stakeholders including community, VHT members, Health workers and district personnel. The program is perceived to have improved the health outcomes of sick newborns and older children. Challenges and some policy gaps exist particularly the availability of adequate drugs and supplies, follow up of referred newborns and regular supervision of the VHTs. The VHTs have specific expectations such provision of allowances and incentives to motivate them and to continue to provide their services. The program has potential to improve newborn survival in communities where it is being implemented.

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## 6.0 RECOMMENDATIONS

### 6.1 Policy Level Recommendations

Guidelines should specify the schedule for visits during pregnancy and follow up of referred newborns by the VHTs, just as the one for visits after delivery is clearly stated, that is on day 1,3 and 7.

Reconcile newborn indicators outlined in the \newborn standards and national ICCM implementation guidelines.

Consider implementation of the incentives (payment of allowance, transport and supporting materials) to VHTs.

Harmonize the drugs and supplies procurement between the pull system which is recommended in the national guidelines and the push system which is practiced to avoid stock outs which can de-motivate the VHTs and affect the implementation of the ICCM program.

The parish coordinator cadre should be included in the policy document as they were found to be useful in the implementation of the program.

### 6.2 Programmatic Recommendations

- Improve on supplies and refills since lack of drugs and supplies, could stop VHTs' participation in the ICCM program and is also perceived as a critical challenge by both health workers and VHTs.
- Strategies to reach distant VHTs for supervision should be considered.
- Improve communication between implementing partners, health workers and VHTs.
- Introduce VHT joint meeting for sharing experiences and strengthen learning to benefit the VHTs who are not regularly supervised, continuous supervision is perceived as a motivator by the VHTs.
- During training of health workers, emphasis should be put on the new recommended cord care practice of “dry cord care or put nothing” and delayed bathing.

### 6.3 Interventions for Key Stakeholders

- Ministry Of Health and Malaria Consortium should ensure consistent provision of supplies in a timely manner to the VHTs.
- The districts should endeavor to should sensitize the community about voluntarism of the VHTs, since poor attitude of people could stop VHT participation.
- The health workers should accept, support and respect VHTs, with a positive attitude towards them. They should emphasize message regarding dry cord care and delayed bathing to the VHTs.

- The communities should support and respect the VHTs in this noble cause of improving the health of the newborns and older children.

#### **6.4 Dissemination of the findings**

As part of the dissemination plan, findings from this assessment have been shared among the iCCM program stakeholders and a manuscript has been submitted and accepted for publication by the American Journal of International Health. See appendix 3.



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**Appendix2: Sub counties and parishes selected in study districts.**

District	Sub counties	Parishes	Estimated sample size of Village health teams
Hoima	Kiziranfumbi Kigorobyia Buhimba Kabwoya Kitoba	Muteme Kidoma Kibiro Kiganja Kinogozi Kyabatarya Bugogo Kaseta Kiryangobe Bulyango Kyaluga Kibango	215
Kyankwazi	Nsambya Kyakwanzi Twentwe	Kikonda Kiryannongo Kyakaboga Katugo Kyakwanzi Lwebisanja Banda Lubiri Nkandwa Bulagwe Bugonolwa	113
Kiboga	Bukwaniro Muwanga Dwaniro	Katera Kyomya Matagi Biko Muwanga Nabwendo Kalokoka Kakinzi	94

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## Appendix 3: Manuscript from the assessment accepted for publication in the American Journal of International Health

### Introduction of Newborn Care within Integrated Community Case Management in Uganda

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**Abstract:** Uganda's Ministry of Health together with partners has introduced integrated Community Case Management (iCCM) for children under-five. We assessed how the iCCM program addresses newborn care in three mid-western districts through document reviews, structured interviews and focus group discussions with Village Health Team (VHT) members trained in iCCM, caregivers, and other stakeholders. Almost all VHT members reported that they refer sick newborns to facilities and could identify at least three newborn danger signs. However, they did not identify the most important clinical indicators of severe illness. The extent of compliance with newborn referral and quality of care for newborns at facilities is not clear. Overall iCCM is perceived as beneficial, but caregivers, VHTs and health workers want to do more for sick babies at facilities and in communities. Further research is needed to assess VHTs' ability to identify newborn danger signs, referral compliance, and quality of newborn treatment at facilities.

## INTRODUCTION

Uganda is accelerating efforts to achieve Millennium Development Goal (MDG) 4 to reduce under-five mortality by two thirds from the 1990 level by 2015.<sup>1</sup> Each year, 141,000 Ugandan children under the age of five die. Of these deaths, 28% occur during the neonatal period.<sup>1</sup> Three additional causes account for another half of all child deaths in Uganda: malaria (22%), diarrhea (16%), and pneumonia (12%).<sup>2</sup> Meaningful progress towards MDG 4 will require controlling deaths due to these preventable and treatable conditions. Integrated Community Case Management (iCCM)<sup>3</sup> is a widely adopted strategy to deliver treatment for pneumonia, diarrhea and malaria through community-based health workers.<sup>4</sup> Given the current and likely future importance of newborns to under-five mortality, community-based strategies to address newborn mortality within the context of iCCM are also needed.<sup>5</sup>

In 2008 Uganda's Ministry of Health revitalized and expanded the dormant Village Health Team (VHT) program. A VHT consists of 5 to 6 community members who collectively deliver maternal, newborn and child health and sanitation interventions.<sup>6</sup> The VHT post is volunteer-based with incentives of training and supervision occasionally supplemented with *ad hoc* donor support. The VHT program includes community case management for treating childhood pneumonia, diarrhea, and malaria in children aged 2-59 months.<sup>7-8</sup> Out of the 5-6 VHT members, 2 to 3 receive additional training in iCCM. The standard iCCM training consists of 6 days of modular, classroom-based sessions using workbook review, discussion, role plays and practical sessions at a health facility where trainees learn to assess, classify and treat sick children.

In recognition of the importance of newborn mortality to overall child mortality and the growing evidence base for community-based newborn interventions, a newborn preventive care component was included as part of Uganda's iCCM program. To develop the package of care for babies 0-59 days, architects of the current VHT and iCCM strategy drew on findings from the Uganda Newborn Survival Study (UNEST) and global evidence.<sup>9-12</sup> Since up to three quarters of neonatal deaths take place during the first week of life, the VHTs are trained to make home visits on days 1, 3 and 7 after birth and to refer sick newborns to health facilities with extra supportive care at home for small babies (panel 1).<sup>13-14</sup>

The Ugandan Ministry of Health is scaling-up iCCM with support from partners like Malaria Consortium and UNICEF. The iCCM strategy in Uganda is among the first globally to include preventive care from birth; however, how successfully the strategy has delivered newborn care is not known. The aim of this paper is to describe how newborn care is addressed within iCCM implementation in Uganda and the perceptions of VHT members, facility-based health workers and family members relating to newborn care in the context of

community-based treatment of illness for older children. The paper identifies what is lacking for newborn care in the current strategy, describes stakeholder perceptions of the larger iCCM context in which newborn care is nested, and provides recommendations to address gaps.

## MATERIAL AND METHODS

**Study design.** In this cross-sectional survey, we used qualitative and quantitative methods in three mid-western districts of Uganda: Kiboga (pop. 109,000), Kyankwanzi (pop. 121,000), and Hoima (pop. 344,000) where Malaria Consortium is implementing and evaluating iCCM (figure 1).<sup>15</sup> These districts were selected as they had sufficient numbers of trained VHT members who had been implementing iCCM for at least five months.

**Ethics.** The study was part of the formative research of the inSCALE project which aims to understand CHW performance and motivation, community uptake and utilization of CHWs and challenges to iCCM implementation in Uganda and Mozambique. The study protocol was approved by the Institutional Review Board of Makerere University School of Public Health and the Uganda National Council of Science and Technology (HS 875). All participants were informed of the study purpose and objectives and that participation was purely voluntary with no penalties to the respondent in case s/he declined to participate or dropped out at any time. Following this discussion, each respondent was individually asked to sign a consent form authorizing their participation in the study.

**Individual interviews and focus group discussions with VHTs.** The total number of VHT members trained in iCCM in the 3 study districts was 1,992. Using the Kish formula and a prevalence of 50% for our primary indicator, that is the proportion of trained VHT members who demonstrate knowledge of newborn care messages for well and sick babies, we estimated a sample size of 384.<sup>16</sup> We added 10% (38) for non-response to reach a total of 422 as our target sample size for individual VHT interviews. We distributed the sample of VHT members proportional to the number trained in each district (215 VHT members from Hoima, 113 from Kiboga and 94 from Kyankwanzi). We randomly selected half of the sub-counties in Hoima (5), Kiboga (3) and Kyankwanzi (3). Within each selected sub-county we randomly selected 9--11 parishes and interviewed all the iCCM-trained VHT members in those parishes. We used a structured questionnaire translated into the local language (Lunyoro) and back-translated to English to inquire about the training the VHT members received and their knowledge of newborn care.

In addition to the individual VHT interviews, one focus group discussion (FGD) per district was conducted with VHT members. We randomly selected one sub-country and one health facility and invited

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7--9 VHT members supervised by the selected facility to participate. Health assistants at the facilities recruited the VHT members for the FGDs. The themes discussed included the role of VHTs within iCCM; newborn care offered by VHT members to sick and well newborns; key messages related to newborn care; record keeping; supervision; motivation; challenges faced within the iCCM program; and perceptions about the overall iCCM program.

**Health worker (in-charges) in-depth interviews.** In-depth interviews (IDI) of health facility in-charges were conducted in four health facilities in each district to represent all levels of the health system: hospital and Health Centre IV, III and II. The in-charges in the selected facilities were recruited to participate, with the exception of one Health Centre IV where a midwife participated for an in-charge who was not available. All IDIs were one-on-one with the exception of one hospital where two health workers in charge of the community health department were interviewed together. Themes explored in the health worker interviews included awareness about iCCM generally and newborn activities specifically; supervision activities; newborn referral within iCCM; record-keeping; and perceptions about VHTs and their role in newborn care.

**Key informant interviews.** We interviewed three district personnel in charge of iCCM activities in the districts and one staff of the implementing partner (Malaria Consortium). The issues explored were the same as those examined with the facility based health workers.

**Caregiver focus group discussions.** All health facilities in each district were listed on a piece of paper and two facilities were randomly selected from each district, one to recruit female caregivers and the second to recruit male caregivers for a total of 6 FGDs of 7--9 participants each. This was done so that the caregivers were not from the same households. To be eligible the caregiver had to live in the district and have a living child less than 3 months of age. The health assistants at the health facilities mobilized participants from the catchment area of each health facility. Themes explored in the FGD included knowledge about available community programs for children and newborns; roles of community members in health activities; general knowledge about newborn care and danger signs; actions taken when newborns are sick; and perceptions about VHT members and their role in newborn care.

**Document review.** We reviewed the national iCCM implementation guidelines, training manuals, registers, supervision checklists and job aids used by VHTs and health workers to understand how the newborn care was designed to be implemented within the VHT and iCCM context.

**Data collection and management.** Study tools were pretested in the Kawempe division of Kampala district and adjusted accordingly. A total of seven local research assistants were recruited and trained for 2

days on the study objectives and use of study tools. Quantitative data were coded and entered electronically and analyzed using STATA version 10. Qualitative data from in-depth interviews and focus group discussions were tape-recorded, transcribed, and translated into English. The findings were reviewed daily, and probes were slightly modified to follow up and clarify newly emerging or anticipated findings. Analysis was done using conventional qualitative content analysis.

## RESULTS

**Characteristics of VHTs.** Individual interviews were completed with a total of 436 VHT members (196 from Hoima, 101 from Kiboga and 139 from Kyankwanzi). In the study setting, men and women serve as VHT members in almost equal numbers (53% male). Nearly 60% of VHT members had completed at least some secondary education and 81% of VHT members were married. The majority of VHT members (61%) reported holding a position of leadership in their communities as members of the local executive councils, leaders in schools or churches, or serving other health programs such as mobilization for family planning.

All of the VHTs received six-days of training in the basic VHT package of health promotion prior to commencing service as VHT members and an additional six-day training in iCCM. VHT parish coordinators (peer supervisors) and VHT members with additional responsibilities received a 14-day training. Following the training the VHT members were equipped with medications including artemisinin-combination therapy for malaria and rectal artesunate for severe malaria, amoxicillin tablets for pneumonia, and oral rehydration solution and zinc for treating diarrhea. Additionally they were equipped with rapid diagnostic tests for malaria, gloves, a respiratory timer, a sick child job aid and a regist

**Newborn care concepts and skills in VHT and iCCM training.** Preventive newborn care is covered in iCCM and basic VHT training (Panel 1). The newborn danger signs listed in the VHT sick child job aid include fever, infected cord, lethargy, convulsions, failure to breastfeed, chest in-drawing and skin pustules (web figure 1).<sup>17</sup> The VHT members are trained to immediately refer to the nearest health facility newborns with the danger signs specified in their job aid. The time allocated to cover newborn care is two hours on the last day of the 6-day iCCM training and focuses on newborns 0-7 days old. Clinical practice sessions do not include a newborn case, and newborn content is not covered in the post-test.

All the VHT members trained in iCCM reported that their training covered preventive care and how and when to refer sick babies for further care. Despite the limited training time for the newborn, three quarters (76%) of VHT members reported that the training was long enough to gain knowledge and skills. Of those who reported that the period of training was not adequate, 60% suggested that the training period



should be up to 14 days. Even though the length of training was deemed sufficient by most, there were concerns expressed about the need to upgrade skills periodically.

**Early preventive and promotive care for newborns.** The VHT strategy in Uganda includes preventive visits at specific time points during pregnancy and in the first week after birth, necessitating active surveillance by VHT members with support from community members and health facility staff.<sup>6</sup> VHT members identified pregnant women through various means (Table 1), most commonly (78%) by observing women's physical and behavioral changes. Most VHT members (67%) learned of deliveries by notification from community members. Only 10.9% reported receiving information on births directly from health facilities.

Most VHT members (73%) reported that during home visits in the first week of life they congratulate the mother and ask to assess the baby. The most common aspect of preventive care cited was promotion of exclusive breastfeeding (67%). Less than half of VHT members mentioned counseling on the importance of keeping the baby warm (45%), hygienic practices (38%), or asking the birth weight (32%) or date/time of delivery (14%). Few (4%) VHT members reported repeat home visits for newborn care.

**Identification and referral of sick newborns.** Two thirds (65%) of VHT members reported checking the baby's skin and cord and assessing for danger signs during routine home visits, but fewer than one in ten (9%) reported advising mothers about prompt care-seeking for danger signs. The majority of VHT members (87%) could name three or more newborn danger signs, but they were not necessarily those which best predict severe illness. Infected umbilical cord (81%) and skin rash (69%) were the two most frequent responses. Less than half (43%) mentioned failure to breastfeed, one of the most important newborn danger signs.

Nearly all VHT members (99.8%) mentioned that they would refer a sick newborn to the nearest health facility, in line with iCCM program guidelines. Participants in FGDs emphasized that as VHT members they were not supposed to treat sick newborns but only refer them to health facilities:

*During the training, we were told not to treat the newborns at all; we just refer them to the health workers in the health units. (VHT FGD - Kyankwazi)*

Caregivers also knew that VHTs do not treat newborns but rather assess them and refer to the nearest health facility if the baby is sick.

*When you take the newborn to the VHT she checks the baby and registers it but she does not give drugs. She gives you a referral to take to the health unit. (Caregiver FGD- Kiboga)*

Almost all VHT members (96%) believed that caregivers comply with referrals and that newborns

receive treatment at health facilities when referred. Some caregivers VHTs were an extra step along the way to receiving care for their sick babies:

*VHTs do not have drugs for newborns. We take them [to the VHT] but they just tell us to go the health facility because they do not have the drugs for newborns...We know VHTs do not have drugs for newborns so we just take our babies wherever is convenient for us. (Caregiver FGD – Kyankwanzi)*

Health workers also believed that caregivers complied with VHT referrals. A referral note issued was perceived to facilitate compliance to referral:

*Yes, they do [comply] because those that come bring with them the referral notes or if not a referral is written on a piece of paper. (Health worker IDI - Kiboga)*

However, some health workers mentioned that some referrals were not complied with due to barriers such as transport, cultural beliefs and misconceptions about the services provided.

Similarly, some VHT members also mentioned several reasons why caregivers may not comply with referrals for their newborns: failure to obtain money for transport (32%), lack of medicines at the health facility (24%), long distances to the health facility (20%), and cultural barriers (9%). Caregivers reported being frustrated after complying with a referral only to find that the necessary medicines were not available at the health facility.

*It is like we do not have a program for the newborns here in Kyankwanzi. Even if we go to the health facility there are no drugs. (Caregiver FGD – Kyankwanzi)*

Two-thirds of VHT members (68%) reported receiving direct feedback from health workers concerning referred newborns, and only one third (34%) reported following up the newborns at home after recommending referral to check on the status of the mother and baby.

**Supportive supervision and program documentation.** Facility-based health workers are responsible for training and supervising the VHT members in their catchment areas, distributing drugs to them, and checking their registers. Three-quarters of VHT members reported receiving a monthly supervision visit, usually by the Parish Coordinator (a VHT who received additional training), the in-charge at health facilities, and/or The Malaria Consortium staff. This supervision visit focused on observation of a sick child with no specific provision for a routine newborn care visit, in line with the iCCM supervision checklist which does not include any newborn specific content. One in six (17%) VHT members reported no supervision at all and during the FGDs, and some health workers noted that supervision had become irregular.

Over 98% of the VHT members reported keeping newborn registers that captured the following variables: name of child and parent, sex, date of birth, age, birth weight, number of home visits, and place of birth (web figure 2).<sup>18</sup> The VHT members record the children they assess on the household registration form which includes births and deaths and home visits during pregnancy. VHTs trained in iCCM also fill out the sick child form identifying the date of visit, name of the child, period of illness, presence of a danger sign, and respiratory rate and referral notes for the sick newborn which indicate the date and time of referral and the danger sign. The outcome of the newborn referral is not captured, though it is for children 2–59 months. The majority of the VHT members (97%) mentioned that they give the records to the Parish Coordinator on a monthly basis.

**Motivation of VHT members and overall perceptions of the program.** In the IDIs, VHT members mainly reported satisfaction with their current role and responsibilities. Motivators included: allowances for meeting attendance (32%), ability to help community members (30%), transport (26%), and availability of drugs (17%). When asked what would make them stop working as VHT members, 43% said that nothing would convince them to quit. Others mentioned unreliable drug supply (15%) and lack of allowance (14%). However, some VHT members expressed concern about the inability to treat sick newborns:

*The program is not good concerning newborns because we cannot treat them. (FGD VHT - Kyankwanzi)*

Similarly, VHT members prioritized the challenges they face thus: delays in receiving drugs and other supplies (59%), lack of transport (47%), interference with personal work (30%) and lack of lighting at night (25%) (Table 2).

Overall, health workers perceived the iCCM program positively. In addition to saving lives and reducing illness, the program was felt to have strengthened the relation between health workers and the VHT members, and increased childhood immunization rates. They felt that the program could be used to fill other gaps, such as distributing treated mosquito nets to women who may not attend antenatal clinics.

Similarly, both male and female caregivers gave positive feedback about the iCCM program, particularly the routine VHT visits to newborns, especially those born at home:

*If you give birth in the village, VHT come and see your baby and advise you to take the baby to the hospital. (Caregiver FGD - Kyankwanzi)*

Community members also described how community members support VHT members in different ways:

*They [VHT members] are not paid; they don't ask us for money, so we give them lifts on our motorcycles and even bicycles or some money in such a way we are helping them to do their work. (Caretaker FGD – Hoima)*

However, the community members also had concern regarding drug supply, inadequate numbers of

trained VHT members per village and difficulty identifying VHT members in the village. They also pointed out that since the VHTs are not paid, they should be motivated with transport such as bicycles, especially to undertake routine home visits for newborn care.

## DISCUSSION

The iCCM program in Uganda, one of the first to include a newborn component, presents an important learning opportunity. Our study employed a mix of qualitative and quantitative methods to assess the early implementation experience in three districts of Uganda. The integration of newborn care and CCM for older children provides an opportunity for harmonized service delivery and greater impact in terms of lives saved, yet it is not without challenges. These challenges, which are outlined below, include some specific to the addition of the newborn to iCCM and some more general to iCCM.

**Limited newborn care within iCCM training and supervision.** While VHT members were knowledgeable in preventive newborn care messaging, the home visit schedule and guidelines for referral, their knowledge of newborn danger signs and messages around care seeking for newborn care was lacking. Seven danger signs are associated with severe illness in infants less than two months of age: history of difficulty feeding, history of convulsions, movement only when stimulated, respiratory rate of 60 breaths per minute or more, chest indrawing, temperature of 37.5°C or more, or temperature below 35.5°C.<sup>19</sup> These signs are covered in the training and VHT job aid with the exception of low/high body temperature, which is difficult for community workers to recognize without a thermometer. However, the training for newborn care is brief, at the end of a 6-day training, not assessed during training, and not reinforced through clinical practice sessions or supervision. In addition, the focus is on newborns aged 0-7 days and does not cover the entire newborn period. During interviews, few VHT members mentioned all of these evidence-based signs, and very few (less than one in ten) reported emphasizing to caregivers the importance of care-seeking if they encounter these signs. Since the routine home visits are conducted during the first week after delivery, promotion of family-initiated care-seeking is also important. Most VHT members acknowledged the importance of the early home visit, but few mentioned critical aspects such as assessing the baby's birth weight and breastfeeding.

These findings indicate a need to further strengthen the newborn care component within the iCCM training, implementation and supervision. Integrating newborn content throughout the training, including newborn cases in the clinical sessions, and covering the full newborn period would help prioritize the newborn and should more reliably impart knowledge and skills to VHT members. VHT members expressed a clear need for consistent supervision as well as opportunities to refresh their newborn care skills. Newborn

specific content should be added to the existing iCCM supervision checklist, and facility staff should be trained to provide supervisory support to the newborn component of iCCM. We found a cadre of VHT peers (Parish Coordinators) not mentioned in the national iCCM implementation guidelines. This cadre of supervisor was useful in coordinating VHT activity at parish level and improving linkages with health workers and their role could be further explored.

**Timely identification of newborns.** In low-income countries, a postnatal home visit within the first two days of life by trained community health workers can reduce neonatal mortality.<sup>20</sup> To achieve this early home visit, VHTs require a system for identifying pregnant and newly delivered women. A 2009 assessment of the basic VHT preventive care package (not including iCCM) found that home visits for pregnancy and newborn care were rarely carried out, and specific newborn care training and counselling materials were lacking.<sup>8</sup> Even in research settings with routine home visits, trained enumerators may only capture up to two thirds of the estimated live births.<sup>21</sup> Waiting to observe bodily changes in women to identify pregnancies and relying on community members to notify VHT members about newly delivered mothers and babies may be even less reliable and risks missing the poorest, hardest-to-reach, and most vulnerable community members. Innovative solutions, such as cell phone notifications from health facility or from family members to the appropriate VHT member are needed to reduce the delay in identifying newly delivered women and babies.

**Referral follow-up and quality of care for newborns.** Compliance with referral for sick newborns was perceived as high by VHT members and health facility staff. Even if referral compliance is as high as perceived, there is still a need for trained service providers, essential medicines and equipment at receiving facilities. Previous studies show that families face difficulties in seeking care for their sick children and receiving quality care at health facilities.<sup>22-23</sup> Uganda's national standards and implementation framework for newborn care services stipulate that antibiotics to treat newborn infection should be available at the first level health facilities (i.e. HCII), but this has not been operationalized.<sup>24-25</sup> Ill newborns deteriorate faster than older children and quick action is needed when critical danger signs are present. It is not clear from the results whether there is a sense of urgency around newborn referral by either caregivers or health providers. The lack of essential drugs and health providers competent in newborn case management at the lowest level may result in delays in reaching a higher level facility equipped to care for newborn illness.<sup>26</sup> This has the potential to undermine the VHT member who referred the family at the outset.

A potential concern with implementing different care guidelines for various age groups in iCCM (i.e. treatment or referral) is that VHTs may feel pressure to treat a sick newborn instead of referring them for

similar problems they are able to treat in older children. However virtually no (1%) VHT members reported actually treating sick newborns. This positive finding should be validated through routine supervision that ensures current referral guidelines are followed.<sup>26</sup>

The lack of follow up for referred newborns by VHT members is also an important gap that may contribute to a false sense of security about referral compliance as well as the quality of care provided at the health facility. The iCCM training guideline states that “after referral of a child, it is important to follow up this child the next day.”<sup>7</sup> However, this guidance is geared towards older children and should specify a follow up visit for referred newborns as well. While the routine home visits are scheduled to take place during the first week of life which is the period of highest risk, families also need to be counseled on how to identify and seek care throughout the neonatal period as the majority of sepsis cases occur after this first week.

**Balancing treatment of older children with preventive home visits for newborn care.** The newborn protocol calls for VHT members to visit all newborns several times within the first week of life, in contrast to the protocol for older children whereby families are expected to seek care from the VHT members when a child is sick. These preventative home visits may be viewed by volunteer VHTs as extra work that takes them away from their other responsibilities to provide curative services for older children. Difficulties identifying births and frustration at being unable to provide treatment for sick newborns may also drive VHT members focus on the curative component. More research is needed to better understand how to balance these often competing demands.

**Collection and use of newborn care indicators.** Relevant newborn indicators are captured through the VHT registers and the supervision checklists, and one core indicator specific to newborn care is captured at national level (proportion of newborns visited at home on day 1, 3, and 7). At the time of data collection, Malaria Consortium was in the process of installing a data collection system to use data more effectively during supervision to improve VHT services and at the district level to link community and facility based care for sick children as well as newborns. One simple addition to the register would be to include the outcome of referral of the sick newborn, similar to how it is captured for older children. This will identify whether families comply with referral and whether they recovered. Linking the identification of pregnant women (through ANC registers or active surveillance) to VHT members responsible for iCCM could enable reaching mothers and babies early during the first week after birth.

Our study also identified challenges to the iCCM program as a whole, including difficulties in providing regular supervision and ensuring a regular supply of drugs at community and health facility level, maintaining

motivation of VHT members, and the need to improve training tools and methods so that CHWs provide correct advice and identify most important danger signs. Although newborns are not treated by the VHTs, at the time of the study, there were stock-outs of drugs and supplies needed by VHT members to treat older child illnesses due to much higher consumption than anticipated, especially for antibiotics. Supply chain management and the commitment to procure and distribute medicines for iCCM are important to maintain program credibility and motivate VHT members. Despite these challenges, the newborn component can be considered well-positioned within the iCCM program in Uganda. The positive reputation and branding of the iCCM program appears to be beneficial – though young, iCCM is well known and respected as evidenced by positive feedback from community members.

There are some limitations to this study. Our assessment relied on knowledge, attitudes and perceptions of VHTs, caregivers, health workers and key stakeholders pertaining to the iCCM program. The VHTs were not administered a competency assessment of sick and normal babies using a case scenario or observation of a home visit, which limits assessing true clinical knowledge and skills. Additionally, referral compliance was not verified, and the caregivers interviewed were limited to those with live children due to the additional sensitivity involved in talking to parents whose children had died. Despite these limitations, this study examined the implementation experience of the often-overlooked aspect of newborn care within fast-growing iCCM programs and identified areas for strengthening that can be applied in Uganda and in similar settings.

**Future research agenda.** There is a need for further study to assess VHT skills in preventive newborn care and danger sign messaging and correctly identifying newborn danger signs. Additionally, more research is needed to determine the effectiveness of VHTs in identifying pregnant and newly delivered women; compliance by VHT members with the home visit schedule and factors that can enhance coverage; compliance of families with newborn referrals; and appropriateness of treatment received at the facility for those who do seek care.

**Conclusion.** As one of the first national adaptations of iCCM to include newborn care, Uganda's experience is important for other settings considering service integration across the continuum of care. The national iCCM program is highly appreciated by stakeholders including caregivers, VHTs, facility-based health workers and district personnel. The program is perceived to have improved the health outcomes of sick newborns and older children. The distinction between care provided for newborns and the care provided

to older children by the VHT members through iCCM is understood by the majority of stakeholders, though it may pose some logistical and policy challenges. Challenges remain at each step. VHTs need to know: (1) whom to visit, (2) how to deliver the content of the routine visit, (3) how to assess all danger signs, (4) when to refer and how to facilitate and follow up recommended referral. HF staff must be (5) trained and (6) equipped and supplied to deliver newborn case management. The health information system must be (7) able to capture reliable, timely data on service delivery and availability of essential supplies and equipment. Maintaining motivation of VHTs will be important to continue addressing as the program matures. In addition to known benefits for older children, iCCM has potential to improve newborn survival in communities where it is being implemented.

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## **Panel 1: Newborn care within VHT and iCCM training**

### **Newborn care covered in basic VHT training**

- Emphasize the importance of facility deliveries
- Record births that take place at home
- Identify and record newborn danger signs (difficulty breathing, weakness, fever, difficulty feeding, umbilical cord is red or discharging pus, convulsions, and vomiting)
- Encourage routine postnatal checks at the health facility at 6 hours, 6 days and 6 weeks after birth
- For babies born at home, practice immediate essential newborn care (dry the baby, wrap the baby, ensure breastfeeding is initiated, check for danger signs every hour and refer if needed)
- Make home visits to the newborn after delivery: 1st visit within the first day after delivery; 2nd visit on the third day after delivery; 3rd visit on the seventh day after delivery
- Advise the mother and the family on healthy newborn and maternal practices including early and exclusive breastfeeding, thermal care, clean and dry cord care, immunizations, and skin-to-skin care and extra breastfeeding support for small babies

### **Newborn care instruction provided during iCCM training**

- Initiate breast feeding soon after delivery within 1 hour and breast feed exclusively
- Delay the first bath, wrap baby in warm clothing to prevent low body temperature
- Recognize very small babies and give extra care
- Mothers and other caregivers should always wash hands before breast feeding or handling the baby
- Check on the cord regularly and ensure it is clean and dry
- Follow up of newborn in the community by the VHT member
- Make home visits to the newborn after delivery: 1st visit within the first day after delivery; 2nd visit on the third day after delivery; 3rd visit on the seventh day after delivery
- VHT should take opportunities such as child health days to actively look for sick newborns

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## Panel 2: Recommendations for improving newborn care within iCCM

### Training recommendations

- Specify the national schedule for visits during pregnancy as well as the first week of life and clearly delineate roles where other VHT members are providing the pregnancy home visits.
- Emphasize the importance of identifying pregnant women and newborns in order to successfully adhere to the postnatal home visit schedule.
- Highlight the most important preventive messages (e.g. early and exclusive breastfeeding, thermal care, dry cord care) and critical danger signs for newborn care (e.g. history of difficulty feeding, history of convulsions, movement only when stimulated, fast breathing, chest in-drawing, baby too hot, and baby too cold).
- Provide a short refresher during iCCM training on newborn care, including extra care for small babies.
- Highlight the need for follow up of referred newborns by the VHTs.
- Include the parish coordinator cadre in the policy document and introduce the supervisor in training in order to improve accountability of supervision.

### Policy and Programmatic Recommendations

- Consider use of small incentives (allowance, support for transport and supplementary materials) to VHTs, especially those tied to routine care in order to incentivize home visits.
- Consider updating the routine home visit recommendations to include a weekly routine preventive home visit between days 7-59 when babies are particularly at risk of infection but out of the age range for first week home visits and treatment through iCCM.
- Consider innovative strategies to reach distant VHTs for supervision.
- Improve newborn care aspects of supervision visits, specifically reviewing documentation and counseling messages.
- Continue to improve communication between implementing partners, health workers and VHTs.

**Table 1: Methods used by VHTs to identify pregnant and newly delivered women and babies**

<b>Methods used by VHTs to identify pregnant women*</b>	<b>Frequency (%)</b>
Seeing pregnancy	224 (51.6)
Home /follow up visits	143 (33.0)
Body and behavioral changes	116 (26.7)
Mother come to us for consultation about ANC	73 (16.8)
Health educational talks meetings in villages	61 (14.0)
Information from other community members	41 (9.5)
Through health facility maternity unit	19 (4.4)
<b>Methods used by VHTs to identify newly delivered women and babies*</b>	
Notification by community members	274 (63.4)
Close monitoring of pregnant women	164 (38.0)
Home visits	143 (33.1)
Visiting health facilities to get list of newly delivered women	47 (10.9)
Through friends and relatives	16 (3.7)

**\*multiple responses elicited**

**Table 2: Most critical challenges faced by VHTs as they perform their work**

Challenges faced by VHTs*	Frequency (%)
Delayed supply of drugs/supplies	255 (59.0)
Lack of transport	203 (46.7)
Interference with personal work	129 (29.8)
Lack of lighting source at night	110 (25.4)
Lack of allowances/low facilitation	73 (16.9)
Community members demand to treat children who test negative for malaria	59 (13.6)
Caretaker not complying to dose given to children	58 (13.4)
Long distances	38 (8.8)
People think VHTs are paid	22 (5.1)
Language barriers	10 (2.8)
Lack of supervision	8 (1.9)
Lack of feedback from health facilities	8 (1.9)
Lack of recognition from supervising health facility	4 (0.9)
Absence of health workers at health facilities	2 (0.5)

**\*multiple responses elicited**









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