

TOWARDS A GENERIC SURVEILLANCE SYSTEM TO MEASURE THE IMPACT OF COMMUNITY HEALTH WORKER PROGRAMMES IN SOUTH AFRICA: A COMPARISON OF PAPER-BASED AND MOBILE/ CELL PHONE METHODS

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Towards a generic surveillance system to measure the impact of Community Health Worker programmes in South Africa: a comparison of paper-based and mobile/cell phone methods

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CHW	Community Health Worker
CBO	Community-based Organisation
HCBC	Home/Community Based Carers
HIV	Human Immune Virus
HOH	Head of Household
ID	Identity Document
MS Excel	Microsoft Excel
NGO	Non-governmental organization
NQF	National Qualifications Framework
RTC	Road to Health Card
SMS	Short Message Service
SPSS	Software Package for Social Scientists
TB	Tuberculosis

BACKGROUND

The emergence of Human Immune Virus (HIV) infections and the Acquired Immune Deficiency Syndrome (AIDS) epidemic in South Africa accompanied by an upsurge in the number of reported tuberculosis (TB) cases has profoundly altered the nation's disease profile over the last fifteen years. This resulted in a change in the presentation of health problems and a deterioration of health indicators, i.e. increased mortality- and morbidity rates, with a lowered life expectancy. These changes are more prominent in disadvantaged community settings; who consequently experience different health and related needs currently than previously. The out-migration of health professionals (Martineau et al., 2004), amidst the high-burden of TB/HIV/AIDS caseloads (Bamford et al., 2004), further complicates this situation. As a result, generalist Community Health Workers (CHW) who had prior to the 1990's been operating as health promotion agents, primarily in the area of child survival strategies, have encountered a major shift in the complexity and seriousness with which health problems present themselves.

The term CHW in this report, encompasses the wide variety of those who have been selected to be trained and to work in the communities where they reside. CHW activities aim to promote general health by addressing local needs.

In response to the swelling numbers of children living in disadvantaged communities who are infected and/or affected by HIV/AIDS, and in an attempt to address their social and health needs, Provincial Health Departments were encouraged initially by the National Health Ministry funded initially by conditional HIV and AIDS grants and more recently by the Social Cluster of the Expanded Public Works programme (EPWP Annual Report, 2006) to introduce new cadres of community-based workers who had a specific focus on HIV and AIDS. This included Home and Community Based Carers (HCBC) who nursed the sick and dying and Early Childhood Development (ECD) workers who focused on programmes for orphans and other vulnerable children. The fast-track way that these new cadres were introduced was characterized by many short-cuts in the accepted practice of existing community health worker programmes including very limited training focused almost exclusively around specific issues related to HIV. Although this training was lengthened to a standardized 59 day training programme (Fox 2002), the content remained very focused around the single issue of HIV and AIDS. As a result this group of workers was not able to deal with the wide range of presenting problems that a community-based health worker encounters in their daily practice. As a result in 2004, the National Health Ministry made explicit its intention to introduce generalist CHW training. While many of the initial HCBC were volunteers, the National Health Ministry, supported by the National Treasury encouraged the payment of very modest stipends through local non-governmental organizations (NGO)s and Community Based Organisations (CBO). The Kwa Zulu Natal Department of Health had already established and funded such a CHW programme from the early 1980s and a few other provinces had similar fledgling programmes in place. It was envisaged that the KwaZulu Natal programme would serve as a model for the establishment elsewhere.

The State further decided to regulate CHW training in order to prevent under-qualified CHWs and to ensure that this cadre had the competency to address current health and related needs at community level appropriately. It was decided that the entry level for such training would be at Ancillary Health Care (NQF level 1) and that immediate efforts would be made to graduate a generic group of Community Caregivers at (NQF level 2/3). There would be common training content for both community based workers in the social development sector and those addressing health issues. The ultimate goal in the health sector would be for these community based workers to continue their training until completing the CHW module at NQF (Level 4) (DoH, 2004; Friedman, 2005).

The development of a CHW policy and suitable training material are a priority, so that CHWs are equipped to function as mid-level workers within the public health sector (DoH, 2005).

The human resource plan for the health sector in South Africa incorporates CHWs as integral members of the future health care force (Chabikuli et al., 2005).

Despite the widely acknowledged anecdotal value of CHW activities, policy-makers in Government and other funders require objective information that accurately reflects the accurate value added by CHW activities in the populations they serve (Swider, 2002). Various literature searches confirmed a paucity of publications on surveillance systems that measure CHW impact. Objectives set for CHW interventions often serve as the benchmark against which their effectiveness is evaluated (Lewin et al., 2004). However, as objectives and methodologies vary from programme to programme, without a common monitoring and evaluation system in place, it is difficult to uniformly measure the impact various CHWs programmes have.

The National Department of Health (Research Directorate) mandated research towards developing a generic surveillance tool that will objectively evaluate the impact CHWs have at community level. This information would enable National Treasury and/or outside funding organisations, to apply an evidence-based approach to decisions regarding funding and/or secure ongoing funding of CHW projects, thereby increasing the possibility of long-term sustainability of performing CHW interventions. This data would also inform and assist health management to deliver an equitable, quality primary health care service to the majority who live in poverty stricken, hard-to-reach areas and in particular to deal effectively with TB/HIV/AIDS in high-burdened settings. Furthermore, this evidence can enable the development and implementation of standardised operating procedures, strengthen human resources and build capacity at appropriate levels of health care delivery.

This study aimed to identify standard measurable outcomes with a view to developing a generic surveillance system of indicators to enable ongoing measurement of the outputs and impacts of CHW activities.

RESEARCH METHODS

Aim

To develop and test a generic surveillance system that measures the impact of CHW programmes, and compare the implementation process, using both paper-based and mobile/cell phone methods of data collection, towards generalizing this experience into a surveillance programme that can be implemented more widely.

This study

Functioning CHW intervention programmes with existing monitoring and evaluation systems were identified, to use as a basis from which a general surveillance system could be developed. The nature of the information required by Public Health and Social Service Departments to motivate funding from National and Provincial Treasuries and outside funding agencies for CHW interventions, was established. Based on this information, a set of standardised questions, procedures and measurable outcomes that establish CHW intervention impact, were developed.

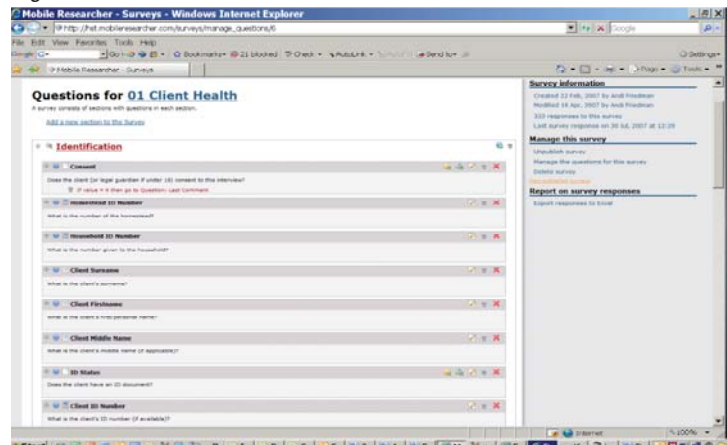
Paper-based and mobile/cell phone questionnaires were prepared and tested in two well-established CHW interventions. Ethical permission and written approval to access both these CHW projects was obtained.

The data collection instruments were tested in two phases. The 1st phase subjected the initial set of questions for both the paper-based and mobile/cell phone questionnaires to a peer review session ensuring that both methods collect exactly the same information. This review recommended some changes. The 2nd phase tested the questions emerging after making the suggested changes.

A national web-based portal and research data base for CHW information was established first to develop, then to popularise these surveillance tools. The website address is: www.mobileresearcher.com. Researchers have access to the portal via an independent password-protected gateway. Each project has its own dedicated virtual research centre where questionnaires can be designed and refined or updated. Once completed questionnaires can be downloaded onto mobile/cell phones for use by CHWs.

This study was guided by the term 'output' being defined as the work you do; the term 'outcome' as results or effect, an impact e.g. the community becoming more aware.

Figure 1: A view of the interactive web-based research centre consol



Design

A feasibility operational research study design was used. Both quantitative and qualitative research methodologies were applied, using two study arms, i.e. a mobile / cell phone and a paper-based arm, to compare the implementation process between these study arms.

Ethics and consent

This study was guided by the four ethical principles: autonomy, beneficence, non-maleficence, and justice (Beauchamp and Childress, 1993). Approval for this study was issued by the Health and Applied Sciences Research Ethics Committee of the Cape Peninsula University of Technology, Health and Wellness Sciences on 16 March 2007.

Written informed consent was obtained from the head of each homestead and household before collecting the quantitative data on paper. On the mobile phones interviewers had to confirm a specific question that informed consent had been obtained informed. Informed consent was obtained and audio-taped before the interviews were conducted with project management and before the fieldworker Focus Group Discussions, for collecting the qualitative data.

Security of personal information is a legitimate ethical concern in the use of a new technology such as mobile/cell phones. There are a number of safeguards that ensure data collected and transmitted by mobile/cell phones is more confidential than similar information collected on paper. Sensitive information is protected by several levels of security. In the first instance, the mobile / cell-phone is password protected. In the second instance as soon as the form has been completed, the data is no longer accessible from the mobile / cell-phone. Even if the battery in the phone goes flat, the data is not lost. It is securely stored on the card. Once the data has been transferred to a secure web-server it can only be accessed with the permission of the principal investigator, During the data analysis phase, any individual identifiers while being very important for linking data in the data base can be hidden from view.

Definition of terms

Terms used in the questionnaires were defined during the training session, using the paper-based copies (ANNEXURE 3-5). The training document used for the mobile/cell phone training is attached as ANNEXURE 1.

Study setting

This study was conducted in two well-established CHW projects; a non-governmental organisation (NGO) managed project situated on the outskirts of Tzaneen in the Limpopo Province, and the other a public health local authority municipal managed project, situated in the rural farming Overberg district of the Western Cape Province. The Overberg District Municipality is graded as a 'C' municipality, overseeing four 'B' municipalities. Each of these four municipalities has a health and welfare committee which created a non-profit organisation to employ CHWs. The latter project is well documented (Aucamp, 2004).

Study sample

For the household interviews, a sample size of at least 3 600 (1 800 paper-based and cell-phone) was required to detect a significant 5% difference ($p=0.05$) at a power of 85%. This was calculated using an easily accessible online statistical calculator based on standard statistical theory about the difference in significance between two proportions.¹

Adult residents in either study setting who agreed to participate were included in the sample. Data were collected as part of the routine activities of CHWs who were trained as field workers.

Qualitative data were collected by including all 20 field worker CHWs (10 per project) in a Focus Group Discussion per project and during an open interview with the two project managers.

Field workers

It was expected that most heads of homesteads and households included in this study would be of low literacy capabilities; hence 20 CHWs (10 per project) who complied with the inclusion criteria, were trained as field workers and supported by the relevant project manager.

In order for a CHW to be eligible to be trained as a field worker, the following inclusion criteria applied. They were required to demonstrate their ability to: operate a cell phone, send a Short Message Service (SMS) and read the text on the prepared cell phones. In addition they had to receive a Department of Health stipend, have completed the project's basic training, be able to do record-keeping (having a proven track record was advantageous), and be willing to carry out the research activities in the demarcated area where they functioned. Research activities included completion of paper-based and mobile/cell phone data collection procedures in rotation and participation in Focus Group Discussion(s).

Trained CHW field workers were able to relate to study participants in their mother tongue; therefore ensuring that participants fully understood the study aim and issues surrounding informed and voluntary consent, prior to participating in this study.

Field workers received an incentive of R4-00 per completed paper-based and/or submitted mobile/cell phone questionnaire, but were not paid to participate in the Focus Group Discussion.

Field worker training

Twenty CHWs (10 per project) who met the inclusion criteria and who indicated their willingness to participate, were trained during a one day (from 09:00 - 15:00) session by the respective project managers, both of whom were acquainted with the culture and language of the study participants. Training included the informed consent requirements, as well as how to enter data on paper-based copies and mobile/cell phones. A training manual (ANNEXURE 1) was used together with a set of the paper-based questionnaires as training material. The paper-based questionnaires are enclosed as ANNEXURES 3-5.

Data collection instruments

The initial English questionnaire and the informed consent forms were finalised on 31 January 2007 during a two-day workshop. Whereas the Tzaneen field workers were sufficiently proficient in English to begin almost immediately and did not require a translation of the English version,, the Overberg group required an Afrikaans translation of the questionnaire which required further time.

These questionnaires (ANNEXURE 3-5) were developed both in a hard copy, paper-based format as well as in an electronic form which could be downloaded onto mobile/cell phones to capture required data. This entailed using wap-enabled Nokia 6020 mobile/cell phones on the Vodacom cellular network using software, developed by the research team together with a local service provider and comprised a small javascript programme which was downloaded to the mobile/cell-phones from a secure web-based server. This software could be updated frequently to incorporate any changes in questionnaire design. Once downloaded onto the phones, the questionnaires were resident programmes which could each be completed independently of mobile/cell phone reception during completion. After each questionnaire was completed it was converted to a small data packet which was uploaded to the secure server as soon as mobile/cell phone reception was available. It is important to note that data transferred in low-cost data packets is much cheaper than SMS. Once uploaded from the mobile/cell-phones, data was then immediately available to researchers at the research centre website in an accessible database and could immediately be read as MS-Excel files.

Completed paper-based questionnaires were returned and recorded, checked for missing data, and submitted for electronic data capture in preparation for analysis and interpretation. Table 1 presents a comparison between the methodologies using the mobile/cell phone and paper-based questionnaires for data capturing.

¹ iSixSigma, 2000- 2007, <http://www.isixsigma.com/library/content/c000709a.asp>

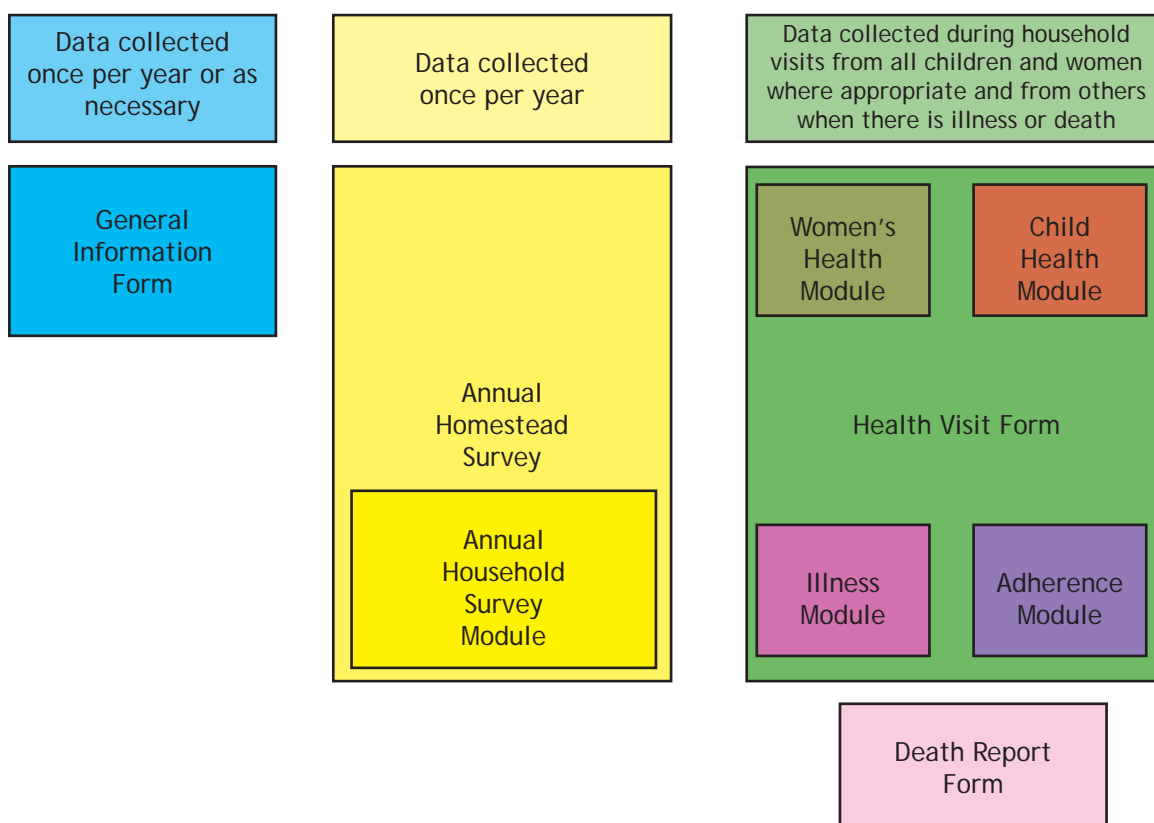
Four different questionnaires (dated) were developed to collect required data during household visits, i.e.: These visits included annual surveillance visits as well as more frequent routine health visits to the household that normally do not exceed 20 minutes, e.g. supervision of taking prescribed medication, e.g. directly observed tuberculosis medication, dressing a wound, etc.

1. The General information form captures details of each CHW project and was completed by project management. It was designed to either be posted or submitted via electronic mail after completion. This questionnaire is attached as ANNEXURE 2. Information collected on the questionnaire include: project registration and contact details; availability of annual reports; project aims; evaluation, monitoring and reporting systems; the number, training, employment status and activities of CHWs, relating to that specific project.
2. The Annual Survey: Homestead Form monitors health related indicators per homestead and is designed to be completed annually. This questionnaire is attached as ANNEXURE 3. Information collected with this questionnaire includes: biological details of the person interviewed, homestead identity number, the physical details of the home, health service related details, and the number of households resident in homestead, and the time it took to complete the questionnaire.
3. The Annual Household Survey Form was similarly designed to be completed during each routine annual visit to a household. This questionnaire is attached as ANNEXURE 4.

Information collected include: biological details of the person interviewed, homestead and household identity numbers, specific ill-health information and social related issues pertaining to each group, i.e. child and women health issues, home-based care needs, and if known the cause of death, as well as the items used to provide the care, i.e. gloves, wound dressings, etc.

4. The Health Visit Form was designed to be completed during each visit to a household and could be administered to one person or several people). This questionnaire is attached as ANNEXURE 5. It contains biographical details of the person interviewed, demographic details of the house hold, and sections on Child Health, Women's Health, Illness, Adherence and Frequent Visit sections. The Adherence and Frequent Visits section includes a list of possible activities CHWs usually perform together with some information on equipment and materials used by the CHW . It is completed appropriately according to the nature of the visit.

Figure 2: Schematic representation of questionnaires/information available



Data collection process

The investigation considered how technological advances could be utilised to assist with data collection and capturing, and compare this option to the commonly used hard copy options. Mobile/cellular telephone technology was found to provide the possibility of easy collection and capture of the data in a format that could readily be reported to an MS Excel document. As indicated above, experts in the field of mobile/cellular technology worked with the team to develop a data collection system comparable to conventional paper-based questionnaires, with a requirement that data capture be possible for areas outside of mobile/cellular network coverage, as these areas are where most of our poor communities reside. To meet this requirement, the mobile/cell phone data application software was designed to operate when not connected to the mobile/cell-phone network and to be able to securely store at least 50 completed questionnaires and to be able to automatically

submit these to the centralized data centre once they entered a network coverage area.

Quantitative data

Mobile/Cell phones were prepared ahead of the study and mobile/cell phone software programme developers were available to provide any support necessary. All mobile/cell phones were enabled to download short applets which enabled the interviewers to submit each completed questionnaire to a password protected research centre database specially developed for this purpose. This was situated within a secure server known as the Health Systems Trust Research Centre, with the dataset accessible and managed by the data manager with whom security for participant anonymity and confidentiality rested.

The paper-based questionnaires were colour-coded, i.e. the annual data collection was printed on pink paper, individual household information on blue paper, etc. Project management and the particular data manager stored all completed paper-based data collection forms securely in a lockable facility. The paper-based data manager captured this data electronically and allocated a unique number to each household that was interviewed. Responsibility for participant anonymity and confidentiality rested with this data manager.

Phases of the research

The Afrikaans questionnaires were finalised by e-mail discussions and at a teleconference on 07 March 2007. Data collection took place from 19 March - 13 April 2007. Project management supported the field workers. Phase one was regarded as part of the training process. Field workers collected data using both paper-based and mobile/cell phone data collection tools on rotation. During this phase the mobile/cell phone training material and mobile/cell phone programming were finalised. During training, field workers were encouraged to practice using self generated data to acquaint them with the required skill before going to households, although they were not limited to using only fictitious data.

This phase was lengthened on request from project management, due to the high number of public holidays during this specific period. Based on the quality of data that was captured on both the paper-based and mobile/cell phone questionnaires, a teleconference was held on 02 April 2007. During this teleconference it was agreed that data collected during phase one of the study will be excluded from the final data set. Reason being, that much of the data captured included self generated data or information used to test actual data entry rather than obtain accurate information from the households and homesteads. Based on this, a further teleconference held on 02 April 2007 to finalise the necessary changes made to both paper-based and mobile/cell phone questionnaires by the researchers. This was done to ensure, inter-alia, the validity and reliability (Brink, 2006) as well as data collection process continued.. After all the adjustments were made, the phase two data was collected.

The reproduction of the hard copies of the final questionnaires (ANNEXURES 3-5) was performed at the respective research sites.

The different sections of the paper-based questionnaire were colour coded as follows:

Annual homestead and household as well as women issues: pink; personal client and the disabled: blue; children: yellow; illnesses: green; deaths: orange, and CHW equipment and consumables top-up forms: white.

Quantitative data was collected for from 17 April 2007- 29 June 2007, and the qualitative data was collected from the ChoiCe Trust project in Tzaneen on 20 April 2007 and on 25 May in Caledon from the Overberg District municipality project site.

Qualitative data

Two Focus Group Discussions were scheduled with all CHW fieldworkers (one per project), after the phase one. The main aim was to establish the validity and reliability (Brink, 2006) of the data collecting instruments to ensure dependability and credibility of the findings. It also provided an additional final opportunity to identify possible changes that might be required to ensure that the findings correspond with reality (Hallberg, 2002).

Empty paper-based questionnaires were given to all group members and they had to indicate a problems with questions or certain forms. They coded their responses as: "problematic", "sensitive" and "culturally sensitive" in Tzaneen, as well as adding "repetition". Overberg used: "problematies" ("problematic"), "ongemak" ("discomfort") and "agterdog" ("suspicious").

After the completion of the first phase of data collection, Focus Group Discussions were held with a sample of the interviewers. These were conducted by HS, a research team member. The two opening questions for each Focus Group Discussion were: "How was it for you to complete the paper-based questionnaires?" And "How was it for you to complete the cell phone questionnaires?"

One interview was also conducted with each of the two managers. The opening question was: "How is it to implement the research study?"

All Focus Group Discussions were audio-taped and typed verbatim in preparation for analysis. These tapes and verbatim typing were locked away in a secure place, by the responsible researcher. No records of names were kept, so all information will remain anonymous. All precautions were taken to ensure participant privacy and confidentiality. Participants were additionally requested to maintain confidentiality after the Focus Group Discussions.

The main aim of the evaluation was to investigate the experiences of the CHWs during the training and implementation to ensure the findings are trustworthy and valid (Hallberg, 2002).

Data management and analysis

Data from the web-based research centre was available immediately in MS Excel format and required no further processing. Data from the paper-based surveys first had to be captured in MS Excel before it could be used. Both datasets were eventually collected in a compatible dataset and then imported into EpiInfo 6.1. The main analysis was performed in EpiInfo comparing the differences between data collected using the two methods. A statistician used the t-test for equality of means to test for statistical significant differences between the methods of data collection in terms of the times to complete and enter data into the questionnaires. SPSS version 15 was used during this phases. Statistical significance was regarded as equal to or less than $p=0.05$.

In most paper-based cases the Household was easy to identify because the questionnaires were stapled in a book form. This "book" was ascribed a unique study number and all questionnaires had that number. If it was grouped in some other way, folded covers were used with other identifiers were the same such as names. Where this was not done, with some questionnaires, each form got a unique study number. These unique study numbers were important for quality control purposes. In general the household analysis relied on the unique study number.

Each study site or area, Tzaneen and Overberg, was also allocated a code, which was entered into each of the questionnaires. The methods of data collection, paper-based and Mobile/cell phone, were also coded to make a comparison possible.

In the paper based versions, the questionnaires were not only numbered, but also grouped to keep for instance the same schools and clinics together. This helped to check for spelling variations as well as making copy and paste function in MS Excel possible.

Data entry mistakes were checked by observing irrelevant codes. Outliers were also checked. The time to complete and enter data was entered again as numbers and not as a time variable to make analysis easier. Missing times were coded. For all variable checking the data manager went back to the source document. The time taken to enter and check the time variables took two days. The other data management activities was not reflected in the time variable analysis, but needed to be taken into account during costing.

In the analysis, first some general comments are made regarding variables that were the same for all forms. Then each form is considered in detail regarding collection time, time to capture and finally the total time. The mean and standard deviation (SD) are also reported. Furthermore the minimum value, 25th percentile, median, 75th percentile and maximum value to observe outliers is presented for both methods.

The completion rates, as well as comments based on observations made by the data manager is presented in tables. It is however, important to keep in mind that high completion rates did not mean high quality of answers. For each numeric variable the median and range is given. For the categorical variables, the proportion for each response category is provided.

All the Overberg forms were Phase 1 copies, and two from Tzaneen. These were recoded in the Phase 2 form codes, where possible. Some variables were however not included in the Phase 1 forms and will be taken into account during completion analysis, as the denominator was different.

Verbatim transcripts of the Focus Group Discussions and interviews were read and re-read by different researchers in preparation for analysis using the process of manifest content analysis. Data triangulation ensured that findings correspond with reality and that it remained trustworthy and credible (Hallberg, 2002; Kvale, 1996).

Data presentation

Quantitative data will be presented using descriptions, tables; and frequency tables, whereas qualitative data will be presented in descriptions, narratives and quotes.

RESULTS

Measurable outcomes

Current documents used by different CHW interventions summarise data that reflect their activities in relation to the aim specific to their project and usually in order to satisfy funders. The biggest stressor of most projects appears to be ongoing financial sustainability, and therefore doing what donors require is a survival activity. This usually boils down to collecting output data on what they do. Hardly any CHW projects had documents aimed at monitoring and evaluating CHW impact. However, where data was available, it appeared that projects were unable to analyse, interpret or apply the information they gleaned to manage their projects better. It was generally hope that this would be done at provincial or national levels. Collected information was therefore often not analysed or interpreted. It was outdated, of poor quality, biased and/or incomplete.

A practical difficulties regarding introducing a generic monitoring and evaluation system to was to establish simple measures that could provide a reliable impact of CHW interventions that could be observed, i.e. distance, disease control measures, as well as reporting on administrative and other logistical issues. Data quality control issues are important here as are lack of standardised measuring units, an inability to capture, analyse and interpret data as well as the chronic lack of funding for CHW support in the field.

CHW project management was asked what information they would regard as vital to persuade funders and the Treasury about the value of work being undertaken. If it could be shown that the work was producing valuable impacts it would ensure their sustainability.

Based on the information provided combined with the collective knowledge and experience of the research team, a set of outcomes that seek to measure CHW impact in general were developed. A set of four complementary questionnaires were developed and tested are enclosed as ANNEXURES 3-5.

Fieldworker training

Training sessions

CHWs were very keen to be trained as field workers for this study. Training took place on a single day from 09:00 - 15:00 in both research sites. In all, 20 CHWs were trained as fieldworkers; 10 in each of the Tzaneen and the Overberg groups.

The logistics and costs involved in getting CHWs to a field worker training session outside of the scheduled training sessions for the projects was complicated by distance especially in the largely rural settings of this study, This was made more complex by the relative lack of transport, and that limited additional funds could be budgeted for this purpose. In the second phase it was decided to conduct this training during the support sessions that formed part of their project own work programme.

Participants suggested that training sessions should be spread over two separate days, with two weeks in-between. During this two-week period learners should be encouraged to practice both ways of data capturing, using practical examples, self generated data and role plays.

The evaluation found that mobile/cellular phone training was easier than the paper-based training; the latter proving to be very cumbersome, time consuming and coloured paper was not readily available during the duplication process.

Time for data collection

Initially it was assumed that fieldworkers would have sufficient time to collect data as part of the daily activities; however in practice, they worked after hours and over weekends to complete the required datasets. Hence, it is important to establish whether CHWs would have sufficient time over and above their daily activities to complete the monitoring and evaluation surveillance system. Should this process be institutionalized, however, it would have to become part of routine CHW activity.

Problematic definitions

Two definitions very fundamental to the study that were problematic were the understanding of the words "homestead" and "household".

"Homestead" was defined as all the households living on the land/property belonging to the main household, and

"Household" was defined as a family/individual(s) living as an entity on the same property, however in separate dwellings or in parts of the main dwelling.

There were also some other definitions of terms which require standardisation, e.g. some projects accepted the mid upper arm circumference for children 0-5 years old to be 09 cm whereas others felt it should be 12.5 cm.

Replication of the methodology

Replication of the methodology that uses mobile/cell phones to capture data would require readily available technical support for all users, to respond timeously to problematic operational issues that develop. Technical support therefore entails having for example some prepared standby mobile/cell phones as well as an individual at project level to assist with the understanding the techniques of downloading new questionnaire versions and uploading the responses. This technical support could be provided by one of the project staff members that have been trained as the process is reasonably generic.

Replication of the paper-based questionnaires would require that hard copies are available at project level as well as requiring a data capturer to capture data electronically (an added possibility of introducing human error) to transfer data from the paper-based questionnaires to the electronic medium in preparation for analysis and interpretation. Should new questionnaire versions become available, it is readily easy to achieve this with mobile/cell-phones, but much more costly and cumbersome on with the paper-based system to introduce the changed sets, ensuring that obsolete sets are withdrawn. CHWs would have to be re-trained to ensure they are competent to complete the new forms. It would be almost impossible to introduce new questionnaires at short notice.

Mobile/cell phone data capture automatically registers the time it takes to complete the questionnaire, whereas on paper the field workers, in most instances, did not indicate the exact time their interaction began and ended in the paper-based copies. This provides the mobile/cell-phone systems with a powerful means of assessing when and for how long CHWs are collecting data in the field.

Sensitive questions

Communities have become very sensitive about research related activities, as msny view their previous participation as not having yielded improved basic services delivery, e.g. many remain without water, sanitation and electricity. Although this is a service delivery issue over which CHWs have no power, it appears to impact on their ability to collect information vital for their activities.

The paper-based questionnaires (ANNEURE 2-5) as developed and tested were viewed by the project team as the 'gold standard' against which the mobile/cell-phone method could be tested. In practice however, paper had as many or more limitations than mobile/cell phones. In addition it was discovered that many questions were more sensitive than anticipated,

whether the data was captured on paper or by means of mobile/cell phones. The sensitivity covered many areas, but those that were potentially most sensitive were those referring to personal identification information, HIV-, abuse-related information, and a range of women's health issues. The latter has also proven to be a gender sensitivity issue inasmuch that the male fieldworker found that he had to ask another woman to ask the questions related to women's health, e.g. PAP-smear, contraceptive information etc.

Fieldworker attrition

In Tzaneen of the 10 CHWs that were trained as field workers, of whom one withdrew at the end of the period. The reasons given for this attrition was that her husband was seriously ill.

In the Overberg District municipality 10 CHWs were trained as field workers of whom five withdrew. The reason for the attrition was linked to the Western Cape Provincial Health Department having funded the Overberg District Municipality CHW programme to run the project. However, during this research period, these funds were withdrawn from the CHW project and allocated to fund community liaison committees. Individual CHWs were informed not to participate in this research project because Provincial Officials deemed there to be a conflict of priorities for these field workers.

Table 1a: Comparison between mobile/cell phone & paper-based collection methods

Mobile/cell phones	Paper-based
Requires access to: <ul style="list-style-type: none"> • Electricity to charge mobile/cell phone • Network coverage • Internet for data analysis • Technical support • Security of mobile/cell phone unit 	Requires access to: <ul style="list-style-type: none"> • Photo copying facilities and coloured paper or supplies of questionnaires on hand and requires storing facilities • Secure storage of completed questionnaires with limited ability to ensure community member information remains confidential and anonymous • Required administrative assistance
CHWs should be: <ul style="list-style-type: none"> • Willing to be trained and accept additional functions • Technically trained and supported 	CHWs should be: <ul style="list-style-type: none"> • Willing to be trained and accept additional functions • Carry extra weight: each set has 19 pages • Trained to complete forms, checked and supported
Funding to: <ul style="list-style-type: none"> • Purchase and maintain mobile/cell phone contracts • Ensure project sustainability • Insurance of mobile/cell phone units 	Funding to: <ul style="list-style-type: none"> • Fund additional administrative requirements and logistics • Data capturer's services • Data quality checks • Photocopying and/or rental of secure storage space to keep documents for required five years • Ensure project sustainability • Issue with suitable carry bags and stationery
Project management willing to: <ul style="list-style-type: none"> • Introduce and support monitoring and evaluation system • Be trained to have operational skills and data analysis via internet website • Ensure community member information remains confidential and anonymous • Ensure password protection of all data • Ensure staff safety having a mobile/cell phone • Provide organisational, basic and specialised technical support • Ensure CHW remains competent 	Project management to: <ul style="list-style-type: none"> • Introduce and support monitoring and evaluation system • Ensure community member information remains confidential and anonymous • Provide organisational, basic and specialised technical support • Ensure CHW remains competent • Conduct data quality checks to ensure capturing was done correctly
Provides immediate analysis of all submitted data, using MS Excel	Potential for slow turn around time of data analysis
Changes can be implemented immediately at a minimal cost	Changes involve time and cost to implement
Once submitted, data is captured ready for analysis.	Data need to be transferred from paper-based copies by data capturer (additional possibility for human error)

Paper-based and mobile/cell phone questionnaires

The questionnaires collection started with Phase 1 at Tzaneen on 17 April and at Overberg on 20 April, although there was a delay in continuing until the questionnaires were translated into Afrikaans. After a formative evaluation the data collection continued into phase 2. A total of 4173 (72%) paper-based questionnaires were received by the completion date on 12 July 2007 and 1588 (28%) mobile/cell phone questionnaires. Empty questionnaires were removed according to the study protocol for this analysis. The empty questionnaires, mainly mobile/cell phone, were divided into those simply empty and those empty, where consent was indicated as 'no'. Some of them could have been field worker test runs, but we cannot say how many. It is also possible that some of the Phase 1 paper-based questionnaires were not received by the data manager. Date (before 17 or 20 April 2007) means Phase 1 questionnaires (Paper-based - 15%; Mobile/cell phone - 29%). See Table 2 for the study profile. The profile is overall and for each questionnaire. The analysis will be based on 4672 questionnaires, 3698 (79%) paper-based and 974 (21%) mobile/cell phone.

The difference between number of Homestead and Household questionnaires were because both forms were not always completed for the household (see Table 1b). Both Illness and Frequent visit forms were not always completed, but the number submitted count as a submission even if only one was completed. The same was true for the Child Health questionnaire.

Table 1b: Study profile

Paper-based: 4173 questionnaires submitted		Mobile/cell phone: 1588 questionnaires submitted	
Included: 3698 (89%)	Excluded: 475 (11%)	Included: 974 (61%)	Excluded: 614 (39%)
	Date: 471 (99%)		Date: 460 (75%)
	Empty:		Empty: 90 (15%)
	Empty/No: 4 (1%)		Empty/No: 64 (10%)
Homestead forms			
Paper-based: 884 questionnaires submitted		Mobile/cell phone: 270 questionnaires submitted	
Included: 823 (93%)	Excluded: 61 (7%)	Included: 200 (74%)	Excluded: 70 (26%)
	Date: 61		Date: 59 (84%)
	Empty: 0		Empty: 11 (16%)
	Empty/No: N/A		Empty/No: N/A
Household forms			
Paper-based: 933 questionnaires submitted		Mobile/cell phone: 340 questionnaires submitted	
Included: 808 (87%)	Excluded: 125 (13%)	Included: 257 (76%)	Excluded: 83 (24%)
	Date: 125		Date: 78 (94%)
	Empty: 0		Empty: 5 (6%)
	Empty/No: N/A		Empty/No: N/A
General Health			
Paper-based: 832 questionnaires submitted		Mobile/cell phone: 365 questionnaires submitted	
Included: 722 (87%)	Excluded: 110 (13%)	Included: 197 (54%)	Excluded: 168 (46%)
	Date: 109		Date: 117 (70%)
	Empty: 0		Empty: 23 (14%)
	Empty/No: 1		Empty/No: 28 (16%)
Child health			
Paper-based: 512 questionnaires submitted		Mobile/cell phone: 147 questionnaires submitted	
Included: 457 (89%)	Excluded: 55 (11%)	Included: 66 (45%)	Excluded: 81 (54%)
	Date: 55		Date: 57 (70%)
	Empty: 0		Empty: 20 (25%)
	Empty/No: 0		Empty/No: 4 (5%)
Women's health			
Paper-based: 746 questionnaires submitted		Mobile/cell phone: 281 questionnaires submitted	
Included: 666 (89%)	Excluded: 80 (11%)	Included: 172 (61%)	Excluded: 109 (39%)
	Date: 77 (96%)		Date: 75 (69%)
	Empty: 0		Empty: 11 (10%)
	Empty/No: 3 (4%)		Empty/No: 23 (21%)
Illness and adherence visits			
Paper-based: 229 questionnaires submitted		Mobile/cell phone: 138 questionnaires submitted	
Included: 192 (84%)	Excluded: 37 (16%)	Included: 66 (48%)	Excluded: 72 (52%)
	Date: 37		Date: 46 (64%)
	Empty: 0		Empty: 17 (24%)
	Empty/No: 0		Empty/No: 9 (12%)
Death report			
Paper-based: 37 questionnaires submitted		Mobile/cell phone: 47 questionnaires submitted	
Included: 30 (81%)	Excluded: 7 (19%)	Included: 16 (34%)	Excluded: 31 (66%)
	Date: 7		Date: 28 (90%)
	Empty: 0		Empty: 3 (10%)
	Empty/No: 0		Empty/No: 0

Most of the analysis will be using questionnaires submitted by Tzaneen (Paper-based - Tzaneen 3409 (92%), Overberg 289 (8%); Mobile/cell phone - Tzaneen 790 (81%), Overberg 184 (19%)). As the analysis is not so much about variable result, but rather variable quality issues, the database will not be analysed by area.

General observations

Overall we have had an opportunity to learn an incredible amount from these questionnaires. Not only must it have been a very difficult and time consuming task to complete, especially as the field workers were not trained research field workers, but they were people with similar characteristics to those who would use these forms, if accepted, in future. Questionnaires were quite well completed although problems were observed, making this research undertaking worth while.

The following observations are for variables, which occurred in more than one questionnaire, and will not be discussed again for each variable, except if specific problems were observed. Most observations were based on the paper-based questionnaires, but some issues related to mobile/cell phone questionnaires as well

Surnames and Names

Although well completed, variations in spelling were observed, although not seen as a major problem. It might start with “Ngobeni” and then become “Ngobene”. All these variations were captured as spelled in the questionnaire. We need, however, keep in mind this might have been possible if the second surname was a different name, but this is unlikely. In one instance the name was spelled in three different ways, although the identity number (ID) was the same. Furthermore, in a few cases the same surname and name was reported on all questionnaires. This needs to be taken into account to decide whether this could be a unique identifier.

Identity number

This was a problematic variable as reported by the field workers from comments made in the questionnaires and our own observations regarding completion. More important was the observation that although it was reported that the ID number was available, it was often not given. A further problem was the accuracy of the ID number. A few were observed to have a slightly different number than that given in another questionnaire. It was also observed that the length of the number was incorrect. As a unique identifier, this variable might not live up to its promise.

Dates

Dates (eg dates of birth) differed from one questionnaire to the next, and were frequently not recorded. This could indicate that questionnaires were completed for one household over more than one day, which was the case in one instance.

Homestead number and Household number

These numbers also appear to be problematic, as the numbers differed from questionnaire to questionnaire, and was not always useful as an identifier in all cases. The variable remains very valuable, however both for identification of individuals as well as data management. If a questionnaire comes loose, for example, you can trace its household members. A clever way to identify households in a homestead was used sometimes e.g. 10.1, 10.2, 10.3. If used consistently this could be very helpful. But, consistency in using a number, which can be traced to a specific homestead and household and no other in that area, by an independent person, is crucial. Developing an ID number system for these homestead and household for each area is vital. Despite the difficulties, the team was of the view that a CHW held register of homesteads and households can work, especially if a unique number can be given to each household member as well as the household itself.

Other variables

The other variables will now be reported in more detail for each questionnaire.

Times to complete and enter the questionnaires are reported in the text for each questionnaire. Paper-based analysed 3090 times and mobile/ cell phone 971 times.

If one wants an idea of the time it takes to complete all seven forms in a household, the following might be helpful. The median collection time for all the questionnaires was 29 minutes for the paper-based method with an additional 41 minutes to complete and enter the data into MS Excel (in total of 70 minutes). The mobile/cell phone method took 24.5 minutes for both activities.

Homestead questionnaire

Data was entered on 884 paper-based homestead questionnaires and 823 (93%) were analysed. Data from 270 mobile/cell phone questionnaires were captured with 200 (74%) analysed, in total 1023 (See Table 2). Paper-based accounted for 81% of questionnaires and mobile/cell phone 19%. The overall impression is that this was a problematic questionnaire, if you don't live in an area where there are definite homesteads with different households on it. CHWs found the concept of “homestead” difficult to interpret, particularly in urban areas, where on one stand, there are often more than one household, but who are not related to each other, but simply renting a shack in the backyard. As a result the collection of information from one informant related to the number of people in the homestead was sometimes a problem, as was the number of families living on the homestead, number of dwellings and rooms etc. It seems that homestead data will generally need to be aggregated from household data.

Collection time and enter

Time to complete (collection time) and enter data (entry time) into the MS Excel is only relevant to the paper-based questionnaires (See Table2a) as with the mobile/cell phones the data entry process is eliminated. For the paper-based forms, both times were available for 731 (89%) questionnaires, 38 (5%) had no times reported, 40 (5%) only the first time variable and 14 (2%) only the second time. A zero ('0') means less than one minute. The outliers were checked and were as reported in the questionnaires.

Table 2a: Collection & entry times for paper based questionnaires

	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=731)	0	2	4	5	33
Entry time (n=823)	0	1	1	1	8

Table 2b compares collection and entry times for both paper-based and mobile/cell phone questionnaires. Paper-based data were analysed where the collection time could be calculated (both times were reported). All dates and times were available for the mobile/cell phone questionnaires as it was automated. One time, calculated as 361 minutes in the mobile/cell phone database, must have been an error due to a delay in saving the questionnaire or some other technical problem, was regarded as an outlier and omitted from the analysis.

The paper-based method had a mean of 5.78 minutes (SD=3.684) and the mobile/cell phone method a mean of 4.58 minutes (SD=2.980). The two methods differed significantly regarding the collection time and enter ($p=0.000$).

Table 2b: Homestead: comparing collection and entry times

Comparing time to collect and enter data in minutes - Paper-based (n=758) versus mobile/cell phone (n=200)

	Paper-based	Mobile/cell phone
Minimum	1	1
25 th percentile	3	3
Median	5	4
75 th percentile	6	6
Maximum	35	23

Homestead form analysis

Completion rates and comments

Table 3a-Table 3e shows the completion rates for each variable by method of data collection. Where comments related to one method only, it is indicated; otherwise it can be assumed the same comment is applicable for both methods. The denominator is given as it can differ between variables, which are explained in the comments. Times and date completion is reported in Table 3a, which were well completed.

Table 3a Homestead form completion rates: Comparing completion rates for date and time (Paper-based (n=823) versus mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Date	See Date comments, but well completed.	82 (99.7)	100%
Time begin	See Time analysis	771(94)	100%
End time	See Time analysis	745 (91)	100%

Although homestead identification variables were well completed, problems with some variables were observed, see Comments in Table 3b. Especially the numbers to homestead and household were problematic.

Table 3b Homestead form: Comparing completion rates for Homestead identification variables (Paper-based (n=823) versus mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead Municipal Code	Different field workers reported the code differently if same project. Not problematic and can be standardised.	820 (99.6)	199 (99.5)
Municipality Ward Number	Can be provided for each area and thus standardised, as some wrote names rather than numbers, paper-based only.	822 (99.9)	100%
Homestead Number	Responses ranged from a number that looks like a person's ID to the street address. See <i>Homestead number and Household number</i> comments.	776 (94.3)	192 (96)
Homestead Address	The low completion rate is more a reflection of omissions by the data manager. Address like "next to spaza shop", etc. were not entered in paper-based but in cell phone, also if it was the next door neighbours surname (confidentiality problem). Thus Cell phone appears more complete. The name of the village, area or town might be more useful. Street addresses were reported, but not with the town name.	615 (74.7)	197 (98.5)
Homestead PO Box	Can have better ways to identify a place or person. It was observed that two families who lived in the same area had post boxes in different places. More than Household can also have the same post box address. Responses ranged from a 0 to empty.	665 (80.8)	92 (46)
Homestead Postal Code	Although only three definitely wrong, it would only identify the broad area and not the residency.	686 (83.4)	122 (61)

Surnames and names were well completed, but observations regarding spelling were reported in the general observations section (see Table 3c).

Table 3c Homestead form: Comparing completion rates for household head names (Paper-based (n=823) versus Mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
HOH Surname:	Well completed. See Surnames and Names comments. Very difficult to enter.	100%	199 (99.9)
HOH First name:	Well completed. See Surnames and Names comments. Only entered one name (most frequently only one name was given).	819 (99.5)	194 (97)

Nearest school and clinic were well completed, but there was no question about school in the Phase 1 questionnaires (see Table 3d).

Table 3d Homestead form: Comparing completion rates for nearest school and clinic (Paper-based (n=823) versus Mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Nearest School	Only for Tzaneen, Phase 2 paper-based forms and all cell phone. Well completed, but a better ID system can replace the variable. Spelling variations were observed but can be standardised.	771/775 (99.5)	193 (96.5)
Nearest Clinic	Spelling variations were observed but can be standardised. Well completed, but it doesn't say anything about really about distance to the clinic. The nearest might not mean near. Can be important in follow-up of health problems. Relative closeness might be considered as well, possible in Health Visit form.	817 (99.3)	199 (99.9)

The number of residents did not appear to be a big problem but number of families, dwellings and rooms were sometimes a challenge (See Table 3e, Table 3b and Table 4).

Table 3e Homestead form: Comparing completion rates for number of residents and the dwellings (Paper-based (n=823) versus Mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead - Number of Families	Problematic. Although well completed it doesn't make sense. Sometimes it is the same number as the total number of residents living at the homestead. Also impossibly high numbers.	810 (98.4)	196 (98)
Number of Residents	Well completed. Not sure whether this is the number of residents living at the homestead or actually number of people seen as part of the household (non-residents also). For a few the number of residents was the same as Homestead ID.	822 (99.9)	198 (99)
Number of Dwellings	Appeared to be problematic not everyone knew always what to report. Saw "0" dwellings in paper-based.	783 (96.5)	187 (93.5)
Total Number of Rooms	Only for Tzaneen Phase 2 paper-based forms and Tzaneen cell phone. A technical problem was observed in Afrikaans cell phone database as the "date of entry" was the available data, which were deleted and omitted from the denominator. Saw "0" rooms in Paper-based. (will check whether this also a sensitive question, to do with "lack")	748/775 (96.5)	171/175 (97.7)

Frequency distributions of people and dwelling

A number of variables will be reported in Table 4 to observe the median and range of values for the two methods of data collections. Problems generated by the mobile/cell phone technology were omitted from this analysis. If a "0" was reported or very high numbers, it was kept to reflect quality of data. From Table 4 it seemed as if both methods of data collection reflected similar frequencies (if the interquartile range (IQR) was reported it would be been clearer). Problems with the variables can be addressed in training. In general it seemed as if only one family lived on the homestead, 5 people the median family size, with 1 dwelling and 3-4 rooms.

Table 4 Observing frequency distributions of Paper-based and Mobile/cell phone: Homestead

Variable and Frequencies	Paper-based	Mobile/cell phone
Homestead-Number of Families	n=810	n=196
Median (Range)	1 (1-1460)	1 (1-150)
Number Residents	n=822	n=198
Median (Range)	5 (1-31)	5 (1-795)
Number of Dwellings	n=795	n=187
Median (Range)	1 (0-8)	1 (1-6)
Total number of Rooms	n=748	n=175 (25 Cell phone problems)
Median (Range)	4 (0-6)	3 (1-5)

Household questionnaire

The number of paper-based household questionnaires analysed was 808 (76%) household and 257 (24%) for mobile/cell phone, in total 1065. Some problems were observed, but could be corrected easily during training. The number of type of residents when totaled should have been the same as the number of household residents, as it was in most cases, however it was sometimes more or less which indicated a problem. The problem may be who should be counted, where and when. Most numeric variables (number types of people) could not be checked for completion or accuracy, but if inconsistencies and other problems were identified, they were noted and reported in the variable comments. A further problem was observed that when the questionnaire was repeated with different members of the same household, some of the numbers differed. It is not clear whether this is a mistake or a misunderstanding. These variables however, should receive greater attention during training.

Time to collect and enter data

Table 5a shows the time analysis for the paper-based method to complete and enter a questionnaire. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 5b). One (01) mobile/cell phone time was omitted, as some technical problem must have occurred, - the time for completion was 18 hours and 13 minutes. For the paper-based method, both times were completed in 699 (87%) questionnaires. Some, 50 (6%) had no times reported, 39 (5%) only the first time and 20 (3%) only the second time. A "0" means less than one minute. The outliers were checked and were as reported in the questionnaire.

Table 5a Household: Collection and entry times in minutes - Paper-based (n=808)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection (n=699)	0	3	5	9	65
Entry (n=808)	0	1	1	2	3

The paper-based method had a mean of 8.36 minutes (SD=6.147) and the mobile/cell phone method a mean of 5.54 minutes (SD=4.365). The two methods differed significantly regarding the collection time and enter ($p=0.000$).

Table 5b Household: Comparing collection and entry time in minutes - Paper-based (n=669) versus Mobile/cell phone (n=256)

	Paper-based	Mobile/cell phone
Minimum	1	1
25th percentile	5	3
Median	7	5
75th percentile	11	6
Maximum	66	45

Household form analysis

Completion rates and comments

For numeric variables a "0", "N/A", "-", "Nil", "None", "Geen" were captured as "0" and an empty left empty which might also indicated "0". The completion rate for these variables will be who completed something on the questionnaire. The completion rate for the numeric variables only indicated how many households reported something, as it can be empty if there was no such type of person in the household.

Tables 6a-i show completion rates for all the household variables. For the numeric variables in Tables 6d-g, a no response can mean zero or that the question was skipped.

Times and dates were well completed, with one problem time in mobile/cell phone method had one impossible time (see Table 6a).

Table 6a Household form: Comparing completion rates for date and time (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Date	See Date comments, but well completed	764 (94.6)	100%
Time begin	See Time analysis	738 (91.3)	100%
End time	See Time analysis	719 (88.9)	100%

Household identification was fairly well completed (see Table 6b), but the problems observed made it of little value.

Table 6b Household form: Comparing completion rates for Household identification variables (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead Number	ID See Homestead number and Household number comments. Completion rate lower.	715 (88.5)	188 (73.2)
Household Number	ID See Homestead number and Household number comments. Completion rate lower.	693 (85.8)	226 (87.9)

Names and surnames were well completed, but problematic as discussed before (see Table 6c). Both methods of data collection reported slightly more surnames than names.

Table 6c Household form: Comparing completion rates for personal identifiers (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
HOH Surname	See Surnames and Names comments.	778 (96.3)	254 (98.8)
HOH First name	See Surnames and Names comments.	772 (95.6)	251 (97.7)

Table 6d shows the completion rates of household of births and deaths. The empty variables were most likely a 0. For the mobile/cell phone low completion rates were observed, possibly because a zero was not entered if it was the response.

Table 6d Household form: Comparing completion rates for births and deaths (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Household Births	A few problems were observed when a person reported a high number of births, it was the same as the number of births she had (corresponded with the women questionnaire variable).	673 (83.3)	122 (47.5)
Household Deaths	Although a death was reported sometimes no death report was completed. The reasons are not available. Low completion rate.	622 (76.9)	112 (43.6)

Table 6e reports the number and type of residents. Completion rates varied especially for the mobile/cell phone method, but it is not problematic, especially if a zero was not completed or there was none. It is however, more problematic if the number of residents was reported as zero. This should receive attention during training. Furthermore, if a birth was reported, no infant was reported in that variable.

Table 6e Household form: Comparing completion rates for residents and non-residents in the household (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Household Residents	Sometimes no residents were reported, which is not possible. All respondents should have completed some number here. This could be due to misunderstanding the question or completing a number in the wrong variable.	776 (96)	251 (97.7)
Household Non-residents	Difficult to check this variable, but it seems as if some responses here belonged in the resident variable.	762 (94.3)	184 (71.6)
Household Infants	Although a birth was reported, sometimes no infant or 0 infants were reported. This needs to be monitored.	660 (81.7)	119 (46.3)
Household Preschool children	Difficult to check variable.	697 (86.3)	138 (53.7)
Household Lower Primary school children	Difficult to check this variable.	706 (87.4)	164 (63.8)
Household Teenage girls	Difficult to check variable.	704 (87.1)	160 (62.3)
Household Teenage boys	Difficult to check variable.	693 (85.8)	162 (63)
Household Women	A problem was observed that although the female variable indicated none, a female questionnaire was completed. This could be due to categorizing the person wrongly as a senior, not completing the variable or writing in the wrong block.	768 (95.1)	238 (92.6)
Household Men	Difficult to check variable	761(94.2)	218 (84.8)
Household Seniors	It is possible that younger than 61 persons was also reported in this variable	708 (87.6)	147 (57.2)

Completion rates vary especially for the mobile/cell phone method household employment and health issues (see Table 6f). A possible problem was observed with the number of pregnant women.

Table 6f Household form: Comparing completion rates for employment and household health issues (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Household Employed	Difficult to check variable.	757 (93.7)	209 (81.3)
Household Pregnant women	The high reported numbers of women pregnant was correct but does not always make sense in terms of the number of people in the household. Not sure what this means. It also happened that none was indicated or not completed and in the women questionnaire a pregnant women was reported.	676 (83.7)	102 (39.7)
Household Disabled	Difficult to check variable.	653 (80.8)	106 (41.3)
Adult Health Problems	Difficult to check variable.	712 (88.1)	133 (51.8)
Household Tuberculosis	Difficult to check variable.	672 (83.2)	112 (43.6)
Household HIV/AIDS	Difficult to check variable.	664 (82.2)	109 (42.4)
Household and Bedridden	Difficult to check variable.	647 (80.1)	97 (37.7)
Household Abuse	The report rate was 10%. One field worker selected Physical abuse of a woman frequently. But it appears the person collected information in a problem area. But it still needs careful interpretation. None could not be selected, therefore the low report rates.	82 (10.1)	36 (14)

The completion rates once again lower for the mobile/cell phone method for children's issues, but the previous comments applies (see Table 6g).

Table 6g Household form: Comparing completion rates for children's issues (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Child Health Problems	Difficult to check variable.	708 (87.3)	104 (40.5)
RTC Availability	Difficult to check this variable, but for 19 infants and pre school children no information was available.	711 (87.9)	148 (57.6)
Household Immunisation	Difficult to check this variable, but for 23 infants and pre school children no information was available.	710 (87.9)	144 (56)
School Attendance	Difficult to check variable.	661 (81.8)	111 (43.2)

Table 6h shows the completion rates for health services, and both methods had a lower completion rate for what home-based care giving was available and an empty might mean none.

Table 6h Household form: Comparing completion rates for household's available health services (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Usual Health Facility	In some cases more than was chosen. Only entered one and in most cases it was Public clinic.	799 (98.9)	245 (95.3)
Home-based giving	Care Empty might mean none.	660 (81.7)	216 (84.1)

Table 6i shows high completion rates for both methods for household food security, waste removal, sanitation, water and power use. Household food security had a low completion rate for mobile/cell phone.

Table 6i Household form: Comparing completion rates for household food security, waste removal, sanitation, water and power use (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Household food security	Paper-based well completed.	773 (95.7)	173 (67.3)
Solid Organic Waste	Well completed.	805 (99.6)	252 (98.1)
Solid Inorganic Waste	Well completed.	801 (99.1)	251 (97.7)
Household Toilet	Well completed.	805 (99.6)	249 (96.9)
Water Supply	Well completed.	797 (98.6)	249 (96.7)
Household Power	For paper-based if Wood and Electricity was chosen, only Wood was entered. Well completed.	804 (99.5)	253 (98.4)
Household Lighting	Well completed.	805 (99.6)	248 (96.5)

Frequency distributions of people, health, employment, food and issues relating to the place where they live

The frequency analysis firstly reported the numeric variables and then the categorical variables. For some variables the 0 was excluded in order to get a sense of the data. If a 0 is however, important to observe, as it might indicate quality of the variable data or got meaning, it was reported. This will be made clear for each table (Tables 7a-f).

Table 7a shows the number births and deaths. The zero (0) was kept to reflect the high proportion of such response. The median would have been 1 if zero was omitted. Most had no births or deaths reported.

Table 7a Household form: Comparing frequency distributions for births and deaths (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Paper-based	Mobile/cell phone
Household Births	n=139	n=50
Total number reported	165	63
Median (range)	0 (0-7)	0 (0-7)
Household Deaths	n=38	n=19
Total number reported	41	19
Median (range)	0 (0-4)	0 (0-1)

Table 7b shows the number of residents and who they were. The zero (0) was omitted to observe the number of people. A zero was important for Residents, as it cannot be possible, but were omitted (paper-based=37 and mobile/cell phone=1). Fairly similar results were observed between the two methods.

Table 7b Household form: Comparing frequency distributions for residents and non-residents in the household (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Paper-based	Mobile/cell phone
Household Residents	n=739	n=250
Total number reported	3197	1168
Median (range)	4 (1-21)	4 (1-11)
Household Non-residents	n=432	n=109
Total number reported	916	214 non-residents
Median (range)	2 (1-14)	2 (1-8)
Household Infants	n=106	n=51
Total number reported	109	52
Median (range)	1 (1-2)	1 (1-2)
Household Preschool children	n=296	n=93
Total number reported	353	109
Median (range)	1 (1-5)	1 (1-4)
Lower Primary school children	n=358	n=106
Total number reported	469	137
Median (range)	1 (1-10)	1 (1-7)
Household Teenage girls	n=359	n=108
Total number reported	496	149
Median (range)	1 (1-6)	1 (1-4)
Household Teenage boys	n=359	n=96
Total number reported	485	121
Median (range)	1 (1-4)	1 (1-3)
Household Women	n=708	n=231
Total number reported	1147	388
Median (range)	1 (1-6)	1 (1-7)
Household Men	n=625	n=207
Total number reported	916	296
Median (range)	1 (1-6)	1 (1-7)
Household Seniors	n=211	n=84
Total number reported	249	102
Median (range)	1 (1-2)	1 (1-3)

For the analysis of Table 7c, which reports employment and health issues, the zero (0) was kept for employment as it was important, but omitted for the other variables to observe the numbers reported. For abuse of household members the number of responses was reported and not the patterns (only 2 households had more than one response selected).

Table 7c Household form: Comparing frequency distributions for employment and household health issues (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Paper-based	Mobile/cell phone
Household Employed	n=757	n=209
Number of reports	788	371
Median (range)	1 (0-6)	1 (0-22)
Household Pregnant women	n=76	n=7
Total number reported	110	7
Median (range)	1 (1-7)	1 (1-1)
Household Disabled	n=54	n=18
Total number reported	60	19
Median (range)	1 (1-3)	1 (1-2)
Adult Health Problems	n=199	n=85
Total number reported	235	98
Household Tuberculosis	n=39	N=27
Total number reported	41	32
Median (range)	1 (1-2)	1 (1-2)
Household HIV/AIDS	n=21	n=10
Total number reported	23	21
Median (range)	1 (1-2)	1 (1-2)
Household Bedridden	n=21	n=11
Total number reported	25	11
Median (range)	1 (1-2)	1 (1-1)
Median (range)	1 (1-4)	1 (1-2)
Household Abuse	n=82 (83responses)	n=36 (37 responses)
• Physical abuse of a woman	77 (92.7%)	31 (83.8%)
• Sexual abuse of a woman	1 (1.2%)	3 (8.1%)
• Physical abuse of a child	0	1 (2.7%)
• Sexual abuse of a child	1 (1.2%)	0
• Neglect of a child	0	0
• Abuse of a man	4 (4.9%)	2 (5.4%)

Children's issues are shown in Table 7d. For this analysis zero (0) child problems were omitted to observe the actual numbers reported. For Road-to-Health Card (RTC) and Immunisation only the numbers reported are given.

Table 7d Household form: Comparing frequency distributions for children's issues (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable	Paper-based	Mobile/cell phone
Child Health Problems	n=70	n=13
Total number reported	72	16
Median (range)	1 (1-2)	1 (1-4)
RTC Availability	n=327	n=118
Number available	382	151
Household Immunisation	n=318	n=116
Number correctly immunised	382	151
School Attendance	n=50	n=14
Total number reported	94	21
Median (range)	1 (1-5)	1 (1-4)

Table 7e shows two health service issues. For usual health facility used both methods recorded similar patterns. Various combination of home-based care was observed by both methods.

Table 7e Household form: Comparing frequencies for household's available health services (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Usual Health Facility	n=799	n=245
• Private clinic	13 (1.6)	0
• Private doctor	30 (3.8)	14 (5.7)
• Public hospital	43 (5.4)	15 (6.1)
• Public clinic	617 (77.2)	153 (62.4)
• Mobile clinic	96 (12)	63 (25.7)
Home-based care giving	n=660	n=216
• CHW	249 (37.7)	102 (47.2)
• Home based caregiver	338 (51.2)	68 (31.5)
• DOT supporter	-	-
• ART supporter	26 (3.9)	13 (6)
• OVC worker	2 (0.3)	2 (1)
• Peer educator	0	0
• CHW+ Home based caregiver	0	1 (0.5)
• CHW+ DOT supporter	29 (4.4)	25 (11.6)
• CHW+ Home based caregiver+ DOT supporter	2 (0.3)	1 (0.5)
• CHW+ Home based caregiver+ ART supporter	0	3 (1.4)
• CHW+ Home based caregiver+ DOT supporter+ ART supporter+ OVC worker	0	1 (0.5)
• Home based caregiver+ DOT	1 (0.2)	0
• Home based caregiver+ DOT+ OVC worker	12 (1.8)	0
	1 (0.2)	0

Table 7f shows frequencies of different aspects of the households. Differences between paper-based and mobile/cell phone is mainly due to the influence Overberg data had on the mobile/cell phone data. The paper-based analysis is largely based on the Tzaneen data. The most frequent response for household food security was "none" and the variable was poorly completed by the mobile/cell phone method. The Overberg group wanted "shop" as a category.

Table 7f Household form: Comparing frequencies for household food security, waste removal, sanitation, water and power use (Paper-based (n=808) versus Mobile/cell phone (n=257))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Household Food Security	n=773	n=173
• None	572 (74)	103 (59.6)
• Home vegetable garden	72 (9.3)	19 (11)
• Allotment in communal garden	11 (1.4)	4 (2.3)
• Access to fields	43 (5.6)	9 (5.2)
• Possess poultry	54 (7)	30 (17.4)
• Possess domestic livestock	10 (1.3)	5 (2.9)
• Home vegetable garden+ Allotment in communal garden	0	1 (0.6)
• Home vegetable garden+ Possess poultry	5 (0.6)	0
• Home vegetable garden+ Access to fields +Possess poultry	0	1 (0.6)
• Access to fields+ Possess poultry	4 (0.5)	0
• Possess poultry+ Possess domestic livestock	2 (0.3)	1(0.6)
Solid Organic Waste	n=805	n=252
• Nothing specific	58 (7.2)	30 (11.9)
• Collected by municipality	71 (8.8)	88 (34.9)
• Burn	157 (19.5)	50 (19.8)
• Buried	178 (22.1)	33 (13.1)
• Open pit	284 (35.3)	49 (19.4)
• Compost	57 (7.1)	2 (0.8)

Solid Inorganic Waste	n=801	n=251
• Nothing specific	59 (7.4)	6 (2.4)
• Collected by municipality	71 (8.9)	32 (12.8)
• Burn	304 (38)	63 (25.1)
• Buried	38 (4.7)	8 (3.2)
• Open pit	292 (36.5)	43 (17.1)
• Recycled	37 (4.6)	99 (39.4)
Household Toilet	n=805	n=249
• None	138 (17.1)	29 (11.6)
• Bucket system	0	0
• Pit Latrine	574 (71.3)	122 (49)
• Vented improved	19 (2.4)	7 (2.8)
• Flush toilet/septic tank	0	4 (1.6)
• Flush toilet/sewerage	74 (9.2)	87 (34.9)
Water Supply	n=797	n=249
• River or dam	121 (15.2)	12 (4.8)
• Unprotected spring	152 (19.1)	29 (11.6)
• Borehole	290 (36.4)	74 (29.7)
• Protected spring	1 (0.1)	0
• Rainwater tank	0	0
• Piped water	169 (21.2)	115 (46.1)
• River or dam+ Unprotected spring	0	6 (2.4)
• River or dam+ Borehole	44 (5.5)	0
• River or dam+ Piped water	17 (2.1)	3 (1.2)
• Unprotected spring +Borehole	0	4 (1.6)
• Unprotected spring +Protected spring	0	1 (0.4)
• Unprotected spring +Rainwater tank	0	1 (0.4)
• Unprotected spring +Piped water	0	4 (1.6)
• Borehole+ Piped water	2 (0.3)	0
• Rainwater tank+ Piped water	1 (0.1)	0
Household Power	n=804	n=253
• Wood	581 (72.3)	132 (52.2)
• Coal	0	0
• Paraffin	30 (3.7)	11 (4.4)
• Gas	3 (0.4)	2 (0.8)
• Electricity	190 (23.6)	108 (42.7)
• Dung	0	0
Household Lighting	n=805	n=248
• Candles	137 (17)	34 (13.7)
• Paraffin	18 (2.2)	6 (2.4)
• Generator	1 (0.1)	0
• Battery electric	0	2 (0.8)
• Grid electricity	649 (80.6)	206 (83.1)

Health visit questionnaire

For paper-based, 722 (79%) health visit questionnaires were analysed and 197 (21%) for mobile/cell phone, in total 919. A few problems were observed which need attention. The issues regarding the ID number were reported in the General Comments section. Problems with HOH Relationship and Parental Situation will be reported in the variable comments, but some problematic responses were observed, but can be corrected with training. The Caregiver Status had a problem in the paper-based questionnaire in so far that response read "What disabilities does the client have?" This was a design mistake. The Phase 1 forms had to be recoded for Caregiver status. The disability section also had minor problems, which can be corrected with training.

Collection time and enter

Table 8a shows the time analysis for the paper-based method to complete and enter a questionnaire. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 8b).

For paper-based, both times were completed for 624 (86%) questionnaires, 36 (5%) had no times reported, 54 (8%) only the first time and eight (1%) only the second time. A "0" means less than one minute. The outliers were checked and are as reported in the questionnaire, although the 0 minutes seems highly unlikely as the questionnaires were completed.

Table 8a Health visit: Collection time and enter questionnaires in minutes - Paper-based (n=722)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=624)	0	3	4	7	40
Entry time (n=722)	1	1	2	2	5

The paper-based method had a mean of 7.32 (SD=5.468) and the mobile/cell phone method a mean of 5.49 (SD=4.458). The two methods differed significantly regarding the collection time and enter (p=0.000).

Table 8b Health visit: Comparing collection time and enter questionnaires in minutes - Paper-based (n=624) versus Mobile/cell phone (n=197)

	Paper-based	Mobile/cell phone
Minimum	1	2
25 th percentile	4	3
Median	6	4
75 th percentile	9	7
Maximum	42	41

Health visit form analysis

Completion rates and comments

Tables 9a-i report the completion rates for both methods. Problems will be mentioned in the comments column. Table 9a reports the well completed CHW number, consent, date and times.

Table 9a Health visit form: Comparing completion rates for CHW identifier, consent, date and time (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
CHW Number	Cell phone completed this.	631 (87.4)	100%
Consent	Only 1 paper-based had a no but the questionnaire was completed.	701 (97.1)	188 (95.4)
Date	See Date comments, but well completed.	709 (98.2)	100%
Time begin	See Time analysis	678 (93.9)	100%
Time end	See Time analysis	632 (87.5)	100%

The household identifiers were not that well completed and observations were made in the General comments section (see Table 9b). But both methods reported a lower completion rate for household ID number.

Table 9b Health visit form: Comparing completion rates for Household identification variables (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead ID number	See Homestead number and Household number comments.	651 (90.2)	177 (89.8)
Household ID number	See Homestead number and Household number comments. Completion rate lower.	608 (84.2)	165 (83.7)

Table 9c reports the well completed surnames and names. Not everyone had a middle name so the lower completion rate was of no importance.

Table 9c Health visit form: Comparing completion rates for personal identifiers (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Surname	See Surnames and Names comments.	721/722 (99.9)	189/197 (95.9)
Client First name	See Surnames and Names comments.	719/722 (99.6)	188/197 (95.4)
Client Middle Name	See Surnames and Names comments. More than half reported a second name.	472/722 (65.4)	100/197 (50.8)

The low completion rate for ID number in Table 9d is of importance, with less completed in the paper-based. It seems as if people were willing to say whether they had an ID document or not, but not willing to provide it. Some responses for an ID was also not an ID number. Whether the respondent had a birth certificate or not was well completed.

Table 9d Health visit form: Comparing completion rates for personal documents (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Birth Certificate Status	Well completed	703 (97.4)	189 (95.9)
ID Status	Well completed. Sometimes this was empty but the ID number given.	688 (95.3)	189 (95.9)
Client ID Number	See ID number comments. Less well completed and some responses were not ID numbers, clearly incorrect, a date of birth or a 0.	426 (59)	147 (74.6)

Table 9e reports the demographic variables of the clients. Date of birth (DOB) and educational level were less well completed. The mobile/cell phone method reported few DOBs. With regard to DOB, some were only the year of birth, given as 01/01/yy.

Table 9e Health visit form: Comparing completion rates for clients' demographic variables (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client DOB birth	Less well completed. Needs to re-think the need for this variable.	647 (89.6)	83 (42.1)
Client Age Range	In a few cases the DOB was given but not the age range, it was kept empty although it could be completed (paper-based).	706 (97.8)	192 (97.5)
Client Gender	In the paper-based if this was omitted, and it the name look as if it can be a certain gender, it was left empty, as a data manager can't be sure.	694 (96.1)	194 (98.5)
Client Employment Status	Paper-based more completed.	708 (98.1)	181 (91.8)
Client Educational Level	Less well completed.	609 (84.5)	161 (81.7)

Table 9f shows the well completed grant information of the clients. For the grant questions, it is possible that an empty means not applicable or it can mean that respondents did not want to give an answer.

Table 9f Health visit form: Comparing completion rates for respondent's grant status (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Grant	If no grant was applied for, it is possible that this was not completed. But it can also mean that respondents did not want to give an answer.	685 (94.9)	157 (79.7)
Grant Status	If no grant was applied for, it is possible that this was not completed. But it can also mean that respondents did not want to give an answer.	651 (90.2)	150 (76.1)

Although well completed, these variables would need more attention (see Table 9g). In a few reports the wrong option was selected (husband instead of wife), in the paper-based (mobile/cell phone difficult to check). In paper-based older persons did not select "Not a child", but an option relating to their parents.

Table 9g Health visit form: Comparing completion rates for clients' status and residency in the household (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead Residency Status	Well completed	720 (99.7)	195 (98.9)
HOH Relationship	In a few reports the wrong option was selected (husband instead of wife), in the paper-based (cell phone difficult to check). But well completed.	709 (98.2)	195 (98.9)
Parental Situation	In paper-based older persons did not select "Not a child", but an option relating to their parents. Well completed.	696 (96.4)	194 (98.5)
Caregiver Status	A questionnaire design mistake occurred for this variable in the paper-based.	652 (90.3)	190 (96.5)

The client health variable was well completed by both methods (see Table 9h). The paper-based did not have the HIV status question or the Afrikaans mobile/cell phone questionnaire and this was also less well completed by the mobile/cell phone group.

Table 9h Health visit form: Comparing completion rates for health issues (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
HIV status	Not in paper-based questionnaire or in Afrikaans cell phone.		140/169 (82.8)
Client Health	Well completed.	708 (98.1)	194(98.5)

Table 9i reports the completion rates for disability related variables. A data entry mistake for paper-based made is not possible to report completion rate for the question relating to whether the client is disabled or not. Few disabilities were reported and services rendered less well completed for mobile/cell phone. A problem might be how to categorise the disability. Few last comments were made and most were "Good".

Table 9i Health visit form: Comparing completion rates for disability issues (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Disabled	For paper-based this was completed by the data manager by mistake and therefore not reported. The observation was made that if a client was disabled it was marked as such. If a client was not disabled most did not mark anything in this selector. For the cell phone had 3 entries this was not selected but the rest completed.		191 (96.9)
Client Disability	Depends on the number of disabled persons. One cell Phone did not complete the variable, but needs to be in the denominator.	52 (7.2)	14 (7.1)
Disability Severity	Denominator now the number of disabled.	47/52 (90.4)	11/15 (73.3)
Client Mobility	Well completed.	48/52 (92.3)	13/15 (86.7)
Disability Services Provided	It seems none was provided, it was left empty.	47/52 (90.4)	9/15 (60)
Client Illness (in addition to disabled)	For paper-based there was only a "yes" option, therefore the low completion rate.	26/52 (50)	15/15 (100)
Last Comment	Indicates number of comments, but sometimes it was just something like "Good". Also if there was no disability this variable had rarely a response in paper-based.	22 (3)	87 (44.2)

Frequency distributions of health visit form

Tables 10a-e report the frequencies of the two methods of data collection. Both methods had very similar results with regard to frequencies for ID status, birth certificate status and demographic variables in Table 10a. Most people did not have a birth certificate or did not know whether they had one. The majority of clients were older than 21 years of age, female, unemployed and both methods peaked at Grade 12 and Grade 5 or less.

Table 10a Health visit form: Comparing frequencies for ID status, birth certificate status and demographic variables (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
ID status	n=688	n=189
No - has never had	14 (2)	5 (2.6)
Not yet - applied 1-3 months ago	1 (0.1)	0
Not yet - applied 3-6 months ago	2 (0.3)	2 (1.1)
Not yet - applied 6+ months ago	0	2 (1.1)
Yes - not available	64 (9.3)	38 (20.1)
Yes - is available	607 (88.2)	142 (75.1)
Birth Certificate status	n=703	n=189
Yes	267 (38)	88 (46.6)
No	408 (58)	83 (43.9)
Don't know	28 (4)	18 (9.5)
Client Age range	n=706	n=192
0-1 year	0	0
1 - 5 years	1 (0.1)	0
6 - 10 years	4 (0.6)	2 (1)
11 - 20 years	25 (3.5)	8 (4.2)
21+ years	676 (95.8)	182 (94.8)
Client Gender	n=694	n=194
Male	226 (32.6)	58 (29.9)
Female	468 (67.4)	136 (70.1)
Client Employment Status	n=708	n=181
Formally employed	86 (12.1)	25 (13.8)
Informally employed	35 (4.9)	13 (7.2)
Self employed	44 (6.2)	7 (3.9)
Part time employed	29 (4.1)	11(6.1)
Too young	24 (3.4)	8 (4.4)
Too old	70 (9.9)	20 (11)
Not able to work	51 (7.2)	19 (9.9)
Unemployed	369 (52.1)	79 (43.6)
Client Educational Level	n=609	n=161
Tertiary (University, college)	16 (2.6)	5 (3.1)
Grade 12	121 (19.9)	30 (18.6)
Grade 11	68 (11.2)	20 (12.4)
Grade 10	62 (10.2)	10 (6.2)
Grade 9	33 (5.4)	6 (3.8)
Grade 8	60 (9.9)	17 (10.6)
Grade 7	28 (4.6)	11 (6.9)
Grade 6	36 (5.9)	12 (7.4)
Grade 5 or less	114 (18.7)	33 (20.5)
Grade Pre-school/Grade R	70 (11.5)	17 (10.6)
Too young for any form of school (no schooling)	1 (0.2)	0

Only paper-based reported more than one grant (see Table10b). Both methods had similar results, with child support grant and old age pensions the most frequently reported type of grants. For both methods, if there was a grant most people received it regularly. If the grant status variable was more completely recorded, the percentages of the two methods might have been more similar, but the trend stayed the same.

Table 10b Health visit form: Comparing frequencies clients' grant status (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Client Grant	n=685	n=157
None	282(41.2)	46 (29.3)
Child support grant	204 (29.8)	47 (30)
Care (dependency) grant	10 (1.5)	4 (2.5)
Foster care grant	5 (0.7)	0
Old age pension	103 (15)	48 (30.5)
Other pension	28 (4.1)	11 (7)
Poverty relief	10 (1.5)	1 (0.6)
Child support grant+ Old age pension	28 (4.1)	0
Child support grant+ Other pension	6 (0.9)	0
Foster care grant+ Old age pension	6 (0.9)	0
Old age pension+ Other pension	3 (0.4)	0
Grant Status	n=651	n=150
Not applied for	261 (40.1)	38 (25.3)
Applied for, not yet granted	8 (1.2)	1 (0.7)
Applied for, denied	1 (0.2)	2 (1.3)
Received regularly	377 (57.9)	107 (71.3)
Received, but not regular	4 (0.6)	2 (1.4)

Table 10c shows most people returned daily to home. The variable regarding the relationship with the head of household and parental status had some problems. Caregiver status had many problems as Phase 1 and 2 forms differed and mobile/cell phone had a category which paper-based didn't have. For this variable the response "Household" were grouped with "None", as it could not be certain that it was a carer from this response. "Parent" and "Adult caring for a child" was grouped together. The response in the paper-based for the first category was a wrong.

Table 10c Health visit form: Comparing frequencies for respondent's status and residency in the household (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Residency Status (how often at home)	n=720	n=195
Annually	6 (0.8)	0
Monthly	32 (4.4)	7 (3.6)
Weekly	36 (5.0)	6 (3.1)
Daily	646 (89.7)	182 (93.3)
HOH Relationship	n=709	n=195
Not related	3 (0.4)	2 (1)
Adopted	1 (0.1)	0
Relative	8 (1.1)	4 (2.1)
Sibling	6 (0.8)	1 (0.5)
Parent	166 (23.4)	31 (15.9)
Grandchild	9 (1.3)	0
Child	79 (11.1)	24 (12.3)
Partner	10 (1.4)	0
Wife	163 (23)	72 (36.9)
Husband	53 (7.5)	23 (11.8)
Is household head	211 (29.8)	38 (19.5)
Parental Situation	n=696	n=194
Both parents deceased	40 (5.7)	9 (4.6)
Mother deceased, father alive	11 (1.6)	1 (0.5)
Father deceased, mother alive	67 (9.6)	25 (12.9)
Both parents alive and provide care	121 (17.4)	55 (28.3)
Cared for by father, mother absent	3 (0.4)	0
Cared for by mother, father absent	41 (5.9)	8 (4.1)
Not a child	413 (59.3)	96 (49.5)
Caregiver Status	n=652	n=190
What disabilities does the client have?	1 (0.2)	0
Adult (no child) caring for children in household	281 (43.1)	133 (70)
Adult (no child) not caring for children in household	76 (11.7)	18 (9.5)
None	294 (45.1)	39(20.5)

HIV status in Table 10d is for mobile/cell phone only as the paper-based questionnaires didn't have the question or the Afrikaans mobile/cell phone version. The most frequent response however, was "no - does not want to". Under whether the person was healthy or not, more disabilities sections were completed than reported in this variable.

Table 10d Health visit form: Comparing frequencies for health issues (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
HIV Status	n=0	n=140
No - does not wants to		53 (37.9)
No - but would like to		40 (28.3)
Yes - prefers not to disclose		16 (11.4)
Yes - HIV+		6 (4.3)
Yes - HIV-		25 (17.9)
Client Health	n=708	n=194
Healthy	502 (70.9)	123 (63.4)
Healthy but disabled	12 (1.7)	3 (1.5)
Disabled with additional disease	12 (1.7)	1 (1.5)
Minor illness	150 (21.2)	58 (29.9)
Serious illness	32 (4.5)	9 (4.6)

Paper-based reported 52 (7.2%) persons with a disability and mobile/cell phone 15 (7.6%) persons (see Table 10e). A comment was made that the field worker wasn't sure what the disability was called, but that can be sorted out during training and follow-up support. Furthermore, for both methods all variables were not completed. Three paper-based questionnaires

reported no type of disability, but indicated the person was disabled.

Table 10e Health visit form: Comparing frequencies for disability issues (Paper-based (n=722) versus Mobile/cell phone (n=197))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Client Disability	n=52	n=14
None	3 (5.8)	0
Blind	4 (7.7)	1 (7.1)
Deaf	4 (7.7)	1 (7.1)
Weakness/Paralysis	12 (23.1)	2 (14.3)
Cerebral palsy - muscle spasm	3 (5.8)	0
Mental retardation	4 (7.7)	0
Mental illness	9 (17.3)	4 (28.6)
Epilepsy	5 (9.6)	0
Other	7 (13.5)	6 (42.9)
Mental retardation+ Mental illness+ Epilepsy	1 (1.9)	0
Disability Severity	n=47	n=11
Mild	21 (44.7)	6 (54.5)
Intermediate	15 (31.9)	5 (45.5)
Severe	11 (23.4)	0
Client Mobility	n=48	n=13
Bed-bound	1 (1.2)	0
House-bound	13 (27.1)	0
Can move around on own outside home	20 (41.7)	8 (61.5)
Full mobility	14 (29.2)	5 (38.5)
Disability Services Provided	n=47	n=9
None	7 (14.9)	0
Home based care, e.g. foot care, nail care	3 (6.4)	0
Referred to social services or home affairs	1 (2.1)	0
Referred to health services	18 (38.3)	4 (44.6)
Referring to a school or educational service	2 (4.3)	0
Rehabilitation	4 (8.5)	0
Assisted to apply for a grant	4 (8.5)	0
Accompanying person to a service	1 (2.1)	0
Domestic help household e.g. cleaning, cooking	1 (2.1)	2 (22.2)
None+ Assisted to apply for a grant	0	1 (11.1)
Home based care+ Rehabilitation	1 (2.1)	0
Home based care+ Referred to health services+ Rehabilitation	1 (2.1)	0
Home based care+ Referred to health services+ Domestic help	0	1 (11.1)
Referred to social services or home affairs+ Referred to health services	0	1 (11.1)
Referred to social services or home affairs+ Assisted to apply for a grant	1 (1.2)	
Referred to health services+ Rehabilitation	2 (4.3)	
Referred to health services+ Assisted to apply for a grant	1 (1.2)	
Client Illness (in addition to disabled)	n=26	n=15
Yes	24(92.3)	7 (46.7)
No	2 (7.7)	8 (53.3)

Child questionnaire

For paper-based, 457 (87%) child questionnaires were analysed and 66 (13%) for mobile/cell phone, a total of 523. A few problems were observed which needs attention. The Phase 1 paper-based questionnaires (all from Overberg (34) and 1 from Tzaneen) did not have any identification questions. The school going section also had problems and the Phase 1 questionnaires had to be recoded. With regard to names, in some questionnaires the names of the person who answered the questions were recorded and not the child's name, or household head's name was reported. In most questionnaires if only the school section was completed, no names were recorded. There were refusals to give the child's ID. The Phase 1 questionnaires had time variables but no other identification questions.

For paper-based 206 children and school sections were completed, 99 child only and 152 school only. For mobile/cell phone 3 child and school sections were completed, 49 child only and 14 school only. As we can see mobile/cell phone data collection was mainly the child section.

Collection time and enter

Table 11a shows the time analysis for the paper-based method to complete and enter a questionnaire. The time is for the whole questionnaire although paper-based had 3 times to complete; mobile/cell phones only had 2, and in paper-based only 2 times were entered. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 11b).

For paper-based, both times were completed for 292 (64%) questionnaires, 42 (9%) had no times reported, 9 (2%) only the first time and 114 (25%) only the second time. The large proportion of only second time, is mainly due to if only the school section was completed, no first time was recorded. A "0" means less than one minute. The outliers were checked and are as reported in the questionnaire. Mobile/cell phone had a time recorded of more than 19 hours, and was omitted as it must be a technical problem.

Table 11a Child form: Collection time and enter questionnaires in minutes - Paper-based (n=457)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=292)	0	2	4	7	28
Entry time (n=457)	0	1	1	1	3

The paper-based method had a mean of 6.48 (SD=4.375) and the mobile/cell phone method a mean of 2.63 (SD=1.825). The two methods differed significantly regarding the collection time and enter ($p=0.000$).

Table 11b Child form: Comparing collection time and enter questionnaires in minutes - Paper-based (n=292) versus Mobile/cell phone (n=65)

	Paper-based	Mobile/cell phone
Minimum	1	0
25 th percentile	3	1
Median	5	2
75 th percentile	8	3
Maximum	31	10

Child form analysis

Completion rates and comments

The lower completion rates for some variables in paper-based are because in most instances, the personal identification section was not completed if only the school section was completed. Tables 12a-e report the completion rate for each variable for the two methods of data collection. The denominator is each time the number of possible questionnaires who could have a response.

The variables reported in Table 12a for time, CHW identification and consent, and child/school selection had low completion rates mainly for paper-based. This is more likely a training issue. The school selector was poorly completed for mobile/cell phone, especially as "No" was not selected. Paper-based had no school selector question.

Table 12a Child form: Comparing completion rates for time, CHW identification and consent, and child/school selection (Paper-based (n=457) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Time begin	See Time analysis. Low completion rate for paper-based.	301 (65.9)	100%
End time	See Time analysis.	406 (88.8)	100%
CHW Number		272/422 (64.5)	100%
Consent	35 paper-based said no, but questionnaire was completed.	286/422 (67.8)	100%
Young child selection	For paper-based in a few questionnaires it was recorded as no, but the child section completed.	305/422 (72.3)	64 (96.9)
School selector	Not in paper-based. For cell phone when not completed, a "No" was not selected. One "Yes" should have been a "No" and one completed questionnaire had no selector.		18 (27.3)

Higher completion rates for mobile/cell phone (see Table 12b) for homestead and household identification variables, but problems previously mentioned stayed the same.

Table 12b Child form: Comparing completion rates for Homestead and Household identification variables (Paper-based (n=422) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead ID number	See Homestead number and Household number comments.	265 (62.8)	62 (93.9)
Household ID Number	See Homestead number and Household number comments. For both even lower completion rate than homestead ID.	247 (58.5)	60 (90.9)

Low completion rates for most variables and both methods for names and ID (see Table 12c). The very low completion rates for mobile/cell phone needs attention, as very names were reported.

Table 12c Child form: Comparing completion rates for names and ID (Paper-based (n=422) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	289 (68.5)	17 (25.8)
Client First name	See Surnames and Names comments. Low completion rate for cell phone.	287 (68)	15 (22.7)
Client Middle Name	See Surnames and Names comments. Might not have a middle name.	150 (35.6)	3 (4.6)
Client Has ID Number		272 (64.5)	64 (96.9)
Client ID Number	See ID number comments. Observed 7 zeros, a date and a single number in cell phone. Low completion rate and non-ID entries.	78 (18.5)	47 (71.2)

High completion rates for child health issues, for both methods except for mid-upper arm circumference (see Table 12d). The latter is most likely because they had no measuring instrument with them. Once a gain the mobile/cell phone method reported less services rendered responses. Fewer responses for child abuse by the paper-based method.

Table 12d Child form: Comparing completion rates for child health issues (Paper-based (n=305) versus Mobile/cell phone (n=52))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
RTH Card	Well completed.	296 (97.1)	51 (98.1)
Mid-upper arm Circumference	Low completion rates.	120 (39.3)	18 (34.6)
Client Nutrition		290 (95.1)	51 (98.1)
Client Weighing		295 (96.7)	51 (98.1)
Client Immunizing		276 (90.5)	49 (94.2)
Immunisation card		290 (95.1)	51 (98.1)
Child Service provision	Cell phone lower completion rate.	275 (90.2)	44 (84.6)
Abuse	Low completion rate for paper-based.	211 (69.2)	47 (90.4)

Problems with questionnaire design affected the school uniform variable in paper-based. For school attendance, child education services and extra mural activities, high completion rates (see Table 12e). Very few last comments were made.

Table 12e Child form: Comparing completion rates for school children issues (Paper-based (n=358) versus Mobile/cell phone (n=17))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
School attendance	Design problem.	352 (98.3)	16 (94.1)
School uniform	Question not in Phase 1 paper-based questionnaires, but recoded where possible.	168 (46.9)	100%
Child Education Service Provision		318 (88.8)	100%
Extra mural Participation		352 (98.3)	100%
Last Comment	Low completion rates.	45/457 (9.8)	29/66 (43.9)

Frequency distributions of child health and school issues

Table 13a shows that the two methods of data collection had similar frequency distributions for all the child health variables. The mid-arm circumference is difficult to interpret. Most had a RTH card, with adequate/good growth, were immunised within the last 2 months, had an up-to-date immunisation card and very few were reported to be abused.

Table 13a Child form: Comparing frequencies for child health issues (Paper-based (n=305) versus Mobile/cell phone (n=52))

Variable	Paper-based	Mobile/cell phone
Mid-arm circumference	n=120	n=18
Median (range)	16 (10-20)	16 (12-19)
Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
RTH Card	n=296	n=51
Present and up to date	254 (85.8)	44 (86.3)
Present not up to date	35 (11.8)	4 (7.8)
Absent	7 (2.4)	3 (5.9)
Client Nutrition	n=290	n=51
Marasmus	0	0
Kwashiorkor	0	0
Wasted - thin for age	3 (1)	2 (3.9)
Stunted - short for age	5 (1.7)	1 (2)
Not growing well - losing weight	35 (12.1)	0
Not growing well, weight not increasing/ too slowly	20 (6.9)	2 (3.9)
Good/equate - upward growth curve	215 (74.1)	44 (86.3)
Obesity (very fat)	12 (4.1)	2 (3.9)
Client Weighing	n=295	n=51
Within last 2 months	203 (68.8)	38 (74.5)
More than 2 months ago	75 (25.4)	10 (19.6)
Not at all	17 (5.8)	3 (5.9)
Client Immunising	n=276	n=49
Within last 2 months	175 (63.4)	33 (67.3)
More than 2 months ago	84 (30.4)	14 (28.5)
Not at all	17 (6.2)	2 (4.1)
Immunisation card	n=290	n=51
Absent	9 (3.1)	1 (2)
Present but not up-to-date	28 (9.7)	6(11.8)
Up-to-date	253 (87.2)	44 (86.3)
Abuse	n=211	n=47
Yes	6 (2.8)	3 (6.4)
No	205 (97.2)	44 (93.6)

For child service provision various combinations were reported, more so for paper-based. It is also possible that a variable category can be empty as a single response (formula advice, mobile/cell phone), because it was done in combination with other activities (see Table 13b). Few mobile/cell phone responses made the proportions very unstable. The most frequent single category for paper-based was "none" and "Road to health chart advice" for mobile/cell phone.

Table 13b Child form: Comparing frequencies for child service provision (Paper-based (n=305) versus Mobile/cell phone (n=52))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Child Service provision	n=275	n=44
Food supplement	21 (7.6)	2 (4.5)
Referred for treatment or support	2 (0.7)	1 (2.3)
Check milestones	5 (1.8)	2 (4.5)
Road to health chart advice	32 (11.6)	15 (34.1)
Nutrition advice	24 (8.7)	5 (11.4)
Formula feeding advice	5 (1.8)	0
Breast feeding advice	28 (10.2)	1 (2.3)
Weaning advice	1 (0.4)	1 (2.3)
Immunisation advice	30 (10.9)	2 (4.5)
None	71 (25.8)	1 (2.3)
Food supplement+ Road to health chart advice	1 (0.4)	0
Food supplement+ Road to health chart advice+ Breast feeding advice	1 (0.4)	0
Food supplement+ Nutrition advice	1 (0.4)	0
Food supplement+ Formula feeding advice	1 (0.4)	0
Food supplement+ Breast feeding advice	2 (0.7)	0
Referred+ Road to health chart advice+ Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	0
Referred+ Nutrition advice	3 (1.1)	0
Referred+ Nutrition advice+ Breast feeding advice+ Immunisation advice	2 (0.7)	0
Referred + Immunisation advice	1 (0.4)	0
Referred+ Breast feeding advice+ Immunisation advice	2 (0.7)	0
Check milestones+ Road to health chart advice	1 (0.4)	0
Check milestones+ Nutrition advice	1 (0.4)	0
Check milestones+ Immunisation advice	1 (0.4)	0
Check milestones+ Road to health chart advice+ Breast feeding advice	0	1 (2.3)
Road to health chart advice+ Nutrition advice	2 (0.7)	4 (9.1)
Road to health chart advice+ Nutrition advice + Breast feeding advice	0	1 (2.3)
Road to health chart advice+ Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	0
Road to health chart advice+ Nutrition advice+ Breast feeding advice+ Immunisation advice	1 (0.4)	0
Road to health chart advice+ Breast feeding advice	4 (1.5)	1 (2.3)
Road to health chart advice+ Breast feeding advice+ Immunisation advice	2 (0.7)	0
Road to health chart advice+ Immunisation advice	6 (2.2)	0
Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	
Nutrition advice+ Breast feeding advice	7 (2.5)	1 (2.3)
Nutrition advice+ Immunisation advice	7 (2.5)	2 (4.5)
Formula feeding advice+ Breast feeding advice+ Immunisation advice	1 (0.4)	1 (2.3)
Breast feeding advice+ Immunisation advice	4 (1.5)	0

For mobile/cell phone only a "yes" was answered for school attendance, whereas paper-based had more options. The "yes" will be taken as regularly. Due to paper-based questionnaire design problems the first two variables are problematic. Once again paper-based reported more combinations if it was a multiple-choice question (see Table 13c). Of interest, both methods reported "Child-to-child" as the most frequent extra mural activity.

Table 13c School going children form: Comparing frequencies for school going children issues (Paper-based (n=358) versus Mobile/cell phone (n=17))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
School attendance	n=352	n=16
Yes, regularly	317 (90.1)	16 (100)
Yes, not regularly	15 (4.3)	0
No	20 (5.7)	0
School uniform	n=168	n=17
Yes	129 (76.8)	13 (76.5)
No	39 (23.2)	4 (23.5)
Child Education Service Provision	n=318	n=17
None	90 (28.3)	3 (17.6)
Homework	41 (12.9)	2 (11.8)
School attendance	45 (14.2)	4 (23.5)
Uniform	22 (6.9)	0
Referred	10 (3.1)	3 (17.6)
None+ Homework+ School attendance	1 (0.3)	0
Homework+ School attendance	9 (2.8)	1 (5.9)
Homework+ School attendance+ Uniform	47 (14.8)	3 (17.6)
Homework+ Uniform	31 (9.7)	1 (5.9)
Homework+ Referred	2 (0.6)	0
School attendance+ Uniform	20 (6.3)	0
Extramural Participation	n=352	n=17
None	28 (8.0)	1 (5.9)
Child-to-child	146 (41.5)	12 (70.6)
Group therapy	0	0
Sport	52 (14.8)	0
Drama	2 (0.6)	0
Clubs	4 (1.1)	0
Gangs	0	0
Choirs/singing	10 (2.8)	0
Youth group	2 (0.6)	0
Art work	1 (0.3)	0
Scouts	2 (0.6)	0
None+ Child-to-child	0	1 (5.9)
Child-to-child+ Art work	6 (1.7)	0
Child-to-child+ Scouts	4 (1.1)	0
Child-to-child+ Sport	42 (11.9)	1 (5.9)
Child-to-child+ Sport+ Art work	4 (1.1)	0
Child-to-child+ Sport+ Scouts	0	1 (5.9)
Child-to-child+ Sport+ Drama+ Choir/singing	1 (0.3)	0
Child-to-child+ Sport+ Choirs/singing	6 (1.7)	1 (5.9)
Child-to-child+ Sport+ Choirs/singing+ Artwork+ Scouts	1 (0.3)	0
Child-to-child+ Sport+ Choirs/singing+ Scouts	1 (0.3)	0
Child-to-child+ Drama	5 (1.4)	0
Child-to-child+ Drama+ Scouts	2 (0.6)	0
Child-to-child+ Drama+ Choirs/singing+ Scouts	1 (0.3)	0
Child-to-child+ Choirs/singing	2 (0.6)	0
Child-to-child+ Choirs/singing+ Youth group	1 (0.3)	0
Child-to-child+ Youth group	3 (0.9)	0
Group therapy+ Sport	1 (0.3)	0
Group therapy+ Choirs/singing+ Scouts	1 (0.3)	0
Sport+ Art work	3 (0.9)	0
Sport+ Scouts	4 (1.1)	0
Sport+ Choirs/singing	3 (0.9)	0
Sport+ Choirs/singing+ Scouts	1 (0.3)	0
Sport+ Youth group	4 (1.1)	0
Drama+ Art work	0	0
Drama+ Choirs/singing	2 (0.6)	0
Choirs/singing+ Scouts	4 (1.1)	0

Women questionnaire

The women's questionnaire appears to be problematic and controversial. For paper-based, 666 (80%) women questionnaires were analysed and 172 (20%) for mobile/cell phone, a total of 838. A few problems were observed which needs attention. The Phase 1 paper-based questionnaires (from Overberg, 51 and 2 from Tzaneen) did not have any identification questions. With regard to names, the household head's name was completed in a few questionnaires. The Phase 1 questionnaires had time variables but no other identification questions.

The order of questions was different for the two methods of data collection and mobile/cell phone had no question on HIV status. Mobile/cell phone had an extra time recorded, and this was omitted from analysis.

The questions regarding the sexual life of the women created problems to such an extent that one field worker was told to stop, as especially the question about whether the women was sexually active, was unacceptable. Refusals to give ID numbers were noted in the comments variable. In one area the women commented on the lack of safe water.

Collection time and enter

Table 14a shows the time analysis for the paper-based method to complete and enter a questionnaire. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 14b).

For paper-based, both times were completed for 563 (85%) questionnaires, 42 (6%) had no times reported, 45 (7%) only the first time and 16 (2%) only the second time. The outliers were checked and are as reported in the questionnaire.

Table 14a Women form: Collection time and enter questionnaires in minutes - Paper-based (n=563)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=563)	0	2	4	7	85
Entry time (n=666)	0	1	1	1	3

The paper-based method had a mean of 6.70 (SD=5.434) and the mobile/cell phone method a mean of 3.62 (SD=2.886). The two methods differed significantly regarding the collection time and enter (p=0.000).

Table 14b Women form: Comparing collection time and enter questionnaires in minutes - Paper-based (n=563) versus Mobile/cell phone (n=172)

	Paper-based	Mobile/cell phone
Minimum	0	0
25th percentile	4	2
Median	5	2
75th percentile	8	4
Maximum	87	17

Women form analysis

Completion rates and comments

Tables 15a-f report the completion rate for each variable for the two methods of data collection. The denominator is each time is the number of possible questionnaires who could have a response.

Fairly high completion rates for the variables reported in Table 15a for time, CHW identification and consent, and women selection. For paper-based the women health selector led to confusing answers, instead of "No", "Yes" was completed. A positive statement will be better.

Table 15a Women form: Comparing completion rates for time, CHW identification and consent, and women selection (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Time begin	See Time analysis.	608 (91.3)	100%
End time	See Time analysis.	579 (86.9)	100%
CHW Number		506/613 (82.5)	100%
Consent		604/613 (98.5)	164 (95.4)
Woman Health Selector	For paper-based this question led to confusing answers, instead of "No", "Yes" was completed. A positive statement will be better.	600/613 (97.8)	166 (96.5)

Table 15b shows the problem, Homestead and Household identification variables, which were not so well completed, with household ID lower for both methods.

Table 15b Women form: Comparing completion rates for Homestead and Household identification variables (Paper-based (n=613) versus Mobile/cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead ID number	See Homestead number and Household number comments	549 (89.6)	159 (92.4)
Household ID Number	See Homestead number and Household number comments. For both lower completion rate than homestead ID.	495 (80.8)	145 (84.3)

Mobile/cell phone method had very low completion rates for names and ID, especially names (see Tables 15c). Although it was reported that the women had an ID, no ID number was given. As mentioned before refusals to give ID numbers were seen in the comments.

Table 15c Women form: Comparing completion rates for names and ID (Paper-based (n=613) versus Mobile/cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	606 (98.9)	7 (4.1)
Client First name	See Surnames and Names comments. Low completion rate for cell phone.	606 (98.9)	8 (4.7)
Client Middle Name	See Surnames and Names comments. Possible not to have another name.	381 (62.2)	2 (1.2)
Client Has ID Number		585 (95.4)	167 (97.1)
Client ID Number	See ID number comments. In cell phone DOB, year or wrong ID numbers were observed. Paper-based also had these but only wrong numbers were entered. This completion rate reflects any kind of entry.	294 (47.9)	130 (75.6)

Sensitive questions about women's health issues: menstruation, sexually active, current or previous STI, contraception, PAP-smear, HIV status (paper-based only) and women health service provision, had fairly high completion rates (see Table 15d). Completion rates for mobile/cell phone lower for some variables (STI, PAP-smear and women health service provision).

Table 15d Women form: Comparing completion rates for women's health issues (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Menstruation	Well completed.	654 (98.2)	169 (98.3)
Sexually Active	Problem question.	633 (95.1)	164 (95.4)
STI	Cell phone less completed.	644 (96.7)	147 (85.5)
Contraception	Cell phone less completed.	643 (96.6)	153 (88.9)
PAP Smear		606 (90.1)	145 (84.3)
Client HIV Status	Only for paper-based.	602 (90.4)	
Woman Health Service Provision	The "None" not always completed if there was none.	584 (87.7)	124/ (72.1)

Pregnancy status well completed by paper-based but not mobile/cell phone (see Table15e). The number of pregnancies and the number of responses of related questions did not correspond. Completion rates lower for mobile/cell phone for most variables, except for risk factors. The “none” option was not selected. Difficult to evaluate these questions, as some women could not have a response. The question about previous pregnancy was not in the Phase 1 forms and lower completion rates for both methods. Problems in paper-based where a “No” was reported but later number children were reported. Possible not to have a reply for previous pregnancy result, but completion rates still low, if the frequencies of the number of children variables are taken into account.

Table 15e Women form: Comparing completion rates for pregnancy issues (Paper-based (n=666) versus Mobile/cell phone (n=172)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Pregnancy Status	Cell phone less completed. It can be if a women wasn't pregnant, this and the following related questions were not completed.	638 (95.8)	113 (65.7)
Antenatal Card	All could be completed this question as a “No” could be recorded.	578 (86.8)	9 (5.2)
Antenatal Visits	Only for pregnant women. 42 for paper-based and 6 for cell phone were reported in pregnancy status..	38/42 (90.5)	4/6 (66.7)
Previous Pregnancy	This question was not in the Phase 1 forms. Lower completion rates. Problems in paper-based where a “No” was reported but later number children were reported.	547/613 (89.2)	123 (71.5)
Previous Pregnancy Result	Possible not to have a reply here, but completion rates still low, if the frequencies of the next variables are taken into account.	428 (64.3)	54 (31.4)
Risk Factors	The “None” not always completed if there was none.	314 (47.2)	122 (70.9)

Lower completion rates possible for number of pregnancy outcomes, as not all respondents had children (see Table 15f). Some illogical entries were seen as previous deliveries higher than previous pregnancies. Leaving these variables empty rather than complete a zero was observed. This can be due to refusals or a zero. Few last comments were made.

Table 15f Women form: Comparing completion rates for number of pregnancy outcomes (Paper-based (n=666) versus Mobile/cell phone (n=172)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Previous Pregnancy Count	Possible to have a zero, but many left it empty if no number relevant.	591 (88.7)	117 (68)
Previous Deliveries	Possible to have a zero, but many left it empty if no number relevant. Both methods reported 2 more than the previous question.	593 (89)	119 (69.2)
Previous Live births	Possible to have a zero, but many left it empty if no number relevant.	586 (87.9)	119 (69.2)
Previous Multiple Pregnancies	Possible to have a zero, but many left it empty if no number relevant.	499 (74.9)	28 (16.3)
Living Children	Possible to have a zero, but many left it empty if no number relevant.	587 (88.1)	120 (69.8)
Last Comment	Low completion rates.	118 (17.7)	82 (47.7)

Frequency distributions of women's health

Tables 16a-d are reported in Annexure 10. Table 16a shows that the two methods of data collection had fairly similar frequency distributions for the women's health variables. Most reported regular menstruation, were sexually active, no recent history of STI, used no contraception and did not have a PAP smear. Once again, this time reported by paper-based method only, the most frequent HIV status response was "No - does not wants to".

Table 16a Women form: Comparing frequencies for women's health issues (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Menstruation	n=654	n=169
No - still too young	7 (1.1)	0
Yes - regular	417 (63.8)	98 (58)
No, irregular	52 (8)	17 (10.1)
No, pregnant	23 (3.5)	2 (1.2)
No, menopausal	155 (23.7)	52 (30.8)
Sexually Active	n=633	n=164
Not disclosed	70 (11.1)	24 (14.7)
No	169 (26.7)	43 (26.2)
Yes	394 (62.2)	97 (59.1)
STI	n=644	n=147
No recent history	587 (91.1)	128 (87.1)
Yes - at present	22 (3.4)	10 (6.8)
In past 3 months	20 (3.1)	7 (4.8)
More than twice in past year	15 (2.3)	2 (1.4)
Contraception	n=643	n=153
Emergency	0	0
Other	19 (3)	4 (2.6)
None	320 (49.8)	59 (38.6)
Male condom	32 (5)	12 (7.8)
Female condom	8 (1.2)	1 (0.7)
Pill	75 (11.7)	21 (13.8)
Injection	175 (27.2)	41 (26.8)
IUD	0	1 (0.7)
Emergency+ Other+ None+ Injection+ IUD	0	1 (0.7)
Other+ None	0	3 (2)
None+ Male condom	0	3 (2)
Male condom+ Female condom	2 (0.3)	1 (0.7)
Male condom+ Pill	7 (1.1)	4 (2.6)
Male condom+ Injection	2 (0.3)	1 (0.7)
Female condom+ Pill	1 (0.2)	0
Female condom+ Injection	2 (0.3)	0
Pill+ Injection	0	1 (0.7)
PAP smear	n=606	n=145
No	471 (77.7)	102 (70.3)
Normal	96 (15.8)	39 (26.8)
Suspicious	19 (3.1)	3 (2.1)
Result not known	20 (3.3)	1 (0.7)
Client HIV Status	n=602	n=0
No - does not wants to	270 (44.9)	
No - but would like to	183 (30.4)	
Yes - prefers not to disclose	22 (3.7)	
Yes - HIV+	7 (1.2)	
Yes - HIV-	120 (19.9)	

Table 16b reports the frequencies relating to pregnancy issues. The low denominators make comparison difficult, as most women were not pregnant. The question asking about previous pregnancy was not in Phase 1 paper-based questionnaires. The risk factors were also reported by both methods for menopausal women, which indicated that it was also seen as a variable to report general health problems. Various risk factors or combination of risk factors were reported. Different frequency patterns were observed for previous pregnancy result. Paper-based reported a higher proportion of women with complicated live births and mobile/cell phone most frequent response was uncomplicated live births.

Table 16b Women form: Comparing frequencies for women's pregnancy issues (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Pregnancy Status	n=638	n=113
Not pregnant	596 (93.4)	107 (94.7)
First 3 months	8 (1.3)	3 (2.7)
Middle 3 months	17 (2.7)	2 (1.8)
Last 3 months	17 (2.7)	1 (0.9)
Antenatal Card	n=578	n=9
No	523 (90.5)	5 (55.6)
Yes - irregular attendance	10 (1.7)	2 (22.2)
Yes - regular attendance	45 (7.8)	2 (22.2)
Antenatal Visits	n=38	n=4
Median (range)	4 (0-14)	2 (0-4)
Previous Pregnancy (not in phase1questionnaires)	n=547	n=123
Yes	389 (71.1)	74 (60.2)
No	158 (28.9)	49 (39.8)
Previous Pregnancy Result	n=428	n=54
Uncomplicated live birth, full term	170 (39.7)	35 (64.9)
Complicated live birth, full term	192 (44.9)	18 (33.3)
Live birth, premature	14 (3.3)	0
Spontaneous abortion in first 6 months	12 (2.8)	1 (1.9)
Termination of pregnancy (TOP) in first 6months	37 (8.6)	0
Stillborn in last 3 months	3 (0.7)	0
Risk Factors	n=314	n=122
Previous complications	81 (25.8)	0
None	85 (27.1)	76 (62.3)
High BP	68 (21.7)	21 (17.2)
Diabetes	11 (3.5)	2 (1.6)
Heart disease	0	5 (2.5)
Previous caesarian section	19 (6.1)	10 (8.2)
Smoking	17 (5.4)	3 (2.4)
Drinking	16 (5.1)	1 (0.8)
Previous complications+ None	0	1 (0.8)
High BP+ Diabetes	5 (1.6)	1 (0.8)
High BP+ Diabetes+ Smoking	1 (0.3)	1 (0.8)
High BP+ Diabetes+ Smoking+ Drinking	2 (0.6)	1 (0.8)
High BP+ Diabetes+ Heart disease	0	1 (0.8)
High BP+ Heart disease	1 (0.3)	0
High BP+ Smoking	1 (0.3)	0
High BP+ Smoking+ Drinking	1 (0.3)	0
Diabetes+ Drinking	0	1 (0.8)
Heart disease+ Previous caesarian section	1 (0.3)	0
Previous caesarian section+ Smoking+ Drinking	1 (0.3)	0
Smoking+ Drinking	4 (1.3)	0

The zeros was omitted for the analysis in Table 16c of previous pregnancy outcomes issues. Slightly higher births were reported in mobile/cell phone. The outlier of 50 previous pregnancies, by mobile/cell phone, was as reported, and most likely a data entry mistake. Just for interest sake, keeping mind these variables were completed irrespective of age, for paper-based 83% of children were still alive at the time of the interview, and mobile/cell phone 89%, with both 1-4 children dead (both previous live births and living children had to have a response of one or higher).

Table 16c Women form: Comparing frequencies for women's pregnancy outcomes (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable	Paper-based	Mobile/cell phone
Previous Pregnancy Count	n=591	n=117
Median (range)	3 (1-11)	4 (1-50)
Previous Deliveries	n=593	n=119
Median (range)	3 (1-11)	4 (1-12)
Previous Livebirths	n=586	n=119
Median (range)	3 (1-11)	4 (-10)
Previous Multiple Pregnancies	n=499	n=28
Median (range)	1 (1-2)	1 (1-3)
Living children	n=587	n=120
Median (range)	3 (1-10)	3 (1-10)

During these visits not all women received some advice, as the visit was largely focused on data collection, therefore the high proportion of "None" and lower completion rates (see Table 16d). Both methods reported a variety of responses with referral for "counseling and testing" popular.

Table 16d Women form: Comparing frequencies for women health service provision (Paper-based (n=666) versus Mobile/cell phone (n=172))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Woman Health Service Provision	n=584	n=124
None	238 (40.8)	62 (50)
Assisted to apply for a grant	12 (2.1)	8 (6.5)
Referred to social service	4 (0.7)	6 (4.8)
Rehabilitation	2 (0.3)	0
Given counseling	39 (6.7)	15 (12.1)
Referred for counseling & testing	188 (32.2)	24 (19.3)
Refer for antenatal care	3 (0.5)	4 (3.2)
Referred to health services	79 (13.5)	1 (0.8)
None+ Rehabilitation	0	1 (0.8)
Assisted to apply for a grant+ Given counseling	0	1 (0.8)
Assisted to apply for a grant+ Given counseling+ Referred to health services	1 (0.2)	0
Assisted to apply for a grant+ Referred to social service+ Referred to health services	1 (0.2)	0
Referred to social service+ Given counseling	1 (0.2)	0
Referred to social service+ Referred to health services	3 (0.5)	0
Rehabilitation+ Referred for counseling & testing	1 (0.2)	0
Given counseling+ Referred for counseling & testing	2 (0.3)	1 (0.8)
Given counseling+ Refer for antenatal care	1 (0.2)	1 (0.8)
Given counseling+ Referred to health services	4 (0.7)	0
Referred for counseling & testing+ Referred to health services	5 (0.9)	0

Illness, kit update and frequent visit questionnaires

The illness questionnaire had illness and kit update sections in one questionnaire and frequent visit sections in another for paper-based, each with their own time variables. For mobile/cell phone it was one questionnaire with two time variables. For the time analysis only two times will be used, as the mobile/cell phone only recorded time for the whole entry, whether everything was completed or not. For paper-based, 192 (74%) illness questionnaires were analysed and 66 (26%) for mobile/cell phone, a total of 258. A few problems were observed which needs attention. The Phase 1 paper-based questionnaires (all from Overberg - 46) did not have any identification questions. With regard to names, in some questionnaires the names of the household head were recorded and not sure if it wasn't another person. In most questionnaires if only the frequent visit section was completed, no names were recorded.

For paper-based 185 completed the illness section and 7 did not and 136 completed the frequent visit section and 56 did not, both were completed by 129. For mobile/cell phone 21 completed the illness section and 45 the frequent visit section. Only 2 completed both. The number completing the section will be taken as the denominator.

Problems were also observed that mobile/cell phone had no HIV variable and variable categories for adherence support in illness questionnaire were different between the two methods. It also appeared as if some of these questionnaires were completed for the sake of completing them for the research. The variable "condition" was not in paper-based or Afrikaans mobile/cell phone versions.

Collection time and enter

Table 17a shows the time analysis for the paper-based method to complete and enter a questionnaire. The time was for the whole questionnaire although paper-based had 4 times to complete, mobile/cell phone only had 2. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 17b).

Due to the complex nature of paper-based time calculation only the total times will be reported, as it has to be the same as mobile/cell phone. A "0" means less than one minute. The outliers were checked and were as reported in the questionnaire.

Table 17a Illness form: Collection time and enter questionnaires in minutes - Paper-based (n=192)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=153)	0	4	5	10	69
Entry time (n=192)	1	2	2	3	5

The paper-based method had a mean of 10.78 (SD=9.174) and the mobile/cell phone method a mean of 5.11 (SD=4.137). The two methods differed significantly regarding the collection time and enter (p=0.000).

Table 17b Illness form: Comparing collection time and enter questionnaires in minutes - Paper-based (n=153 versus Mobile/cell phone (n=66)

	Paper-based	Mobile/cell phone
Minimum	1	1
25 th percentile	6	2
Median	8	3.5
75 th percentile	13	7
Maximum	72	16

Illness, kit update and frequent visits forms analysis

Completion rates and comments

Tables 18a-h (Annexure 11) reports the completion rate for each variable for the two methods of data collection. The lower completion rates for some variables in paper-based were because in most instances, the personal identification section was not completed if only the frequent visit section was completed. The low response numbers for mobile/cell phone made comments difficult.

In Table 18a issues around illness selector and whether the illness was captured before, seems to be more likely a training issue. Both methods had “Yes” in illness previously captured, which could not be possible during this data collection, possible meaning they were already aware of the illness, or reported it in some other questionnaire.

Table 18a Illness form: Comparing completion rates for time, CHW identification and consent, and illness selector and captured (Paper-based (n=192) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Time begin	See time analysis	161 (83.9)	100%
End time illness	Not in cell phone	160/185 (86.5)	
Time begin frequent visit	Not in cell phone	125/136 (91.9)	
End time	See Time analysis	119/136 (87.5)	100%
CHW Number		131/146 (89.7)	100%
Consent		142/146 (97.3)	100%
Illness present	Sometimes a “No” as they completed some forms, for sake of completion it seems.	144/146 (98.6)	65 (98.5)
Illness captured	Both methods had “Yes” which can’t be during this data collection, possible meaning they were already aware of the illness.	129/146 (88.4)	59 (89.4)

Lower completion rates for Household ID number, for both methods (see Table 18b).

Table 18b Household form: Comparing completion rates for Household identification variables (Paper-based (n=146) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Homestead ID number	See Homestead number and Household number comments	133/146 (91.1)	60/66 (90.1)
Household ID Number	See Homestead number and Household number comments	116/146 (79.5)	55/66 (83.3)

As in all previous responses of an ID, lower completion rates for the reporting of the ID for both methods (see Table 18c). Mobile/cell phone completed few surnames and names.

Table 18c Illness form: Comparing completion rates for names and ID (Paper-based (n=146) versus Mobile/cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	143/146 (97.9)	4/66 (6.1)
Client First name	See Surnames and Names comments. Low completion rate for cell phone.	143/146 (97.9)	4/66 (6.1)
Client Middle Name		103/146 (70.6)	1/66 (1.5)
Client Has ID Number		139/146 (95.2)	65/66 (98.5)
Client ID Number	See ID number comments. Low completion rates as cell phone also had zeros, DOB and year completed and not ID number.	60/146 (41.1)	51/66 (77.3)

Lower completion rates for symptoms and illness name (see Table 18d). The higher completion rate for previous illness in paper-based might indicate a problem with the question.

Table 18d Illness form: Comparing completion rates symptoms and illness (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Symptoms		136 (73.5)	18 (85.7)
Illness Name	For paper-based more completed this variable.	166 (89.7)	18 (85.7)
Previous Serious illness	Observed that the same illness that was reported before was reported here.	171 (92.4)	17 (80.9)

Table 18e shows lower completion rates for hospital discharge for paper-based and client mobility for both methods. The other variables: illness traditional, HIV status (paper-based only), client TB status and signs of abuse, had higher completion rates.

Table 18e Illness form: Comparing completion rates for other client health issues (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Illness Traditional		175 (94.6)	100%
Client HIV Status	Paper-based only.	169 (91.4)	
Hospital discharge	Seems to a problem question, which needs attention. Many said "Yes" and the question is whether this is true or a misunderstanding of the question.	140 (75.7)	100%
Client TB Status		174 (94.1)	100%
Client mobility		140 (75.7)	16 (76.2)
History or evidence of abuse?		176 (95.1)	20 (95.2)

Table 18f shows fairly high completion rates by both methods for care issues. They were: what home care received, facility attendance, adherence support, medication received and services provided.

Table 18f Illness form: Comparing completion rates for care issues (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Home Care		172 (92.9)	18 (85.7)
Facility Attendance		176 (95.1)	20 (95.2)
Adherence support	The 2 forms did not have the same response categories.	172 (92.9)	18 (85.7)
Adherence Support Duration		179 (96.8)	18 (85.7)
Medication Received		175 (94.6)	20 (95.2)
Services Provided		178 (96.2)	20 (95.2)

Most of the time it was a research data collection visit and the kit was not with them. Low completion rates for both methods, but not important (see Table 18g). This will not be analysed further. This needs to be tested in ordinary care conditions.

Table 18g Illness form: Comparing completion rates for kit issues (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Kit	Not useful as they did not carry their kit with them most of the time during data collection.	121 (65.4)	12 (57.1)
Items Used in Visit	Not useful as they did not carry their kit with them most of the time during data collection.	87 (47)	16 (76.2)
Visit Fees	Not sure what a Fee means here as some said they did charged a fee.	158 (85.4)	17 (80.9)

Table 18h shows fairly high completion rates for frequent visit activities. A problem was the empty "main problem", which can be because some were completed without a problem. The lower completion rates for specimens can be sorted out in training, as it appears if none was done, the variable was skipped rather to complete "None". Side effect, adherence support, adherence referral, adherence education and training, support, contact tracing, family training and follow-up were well completed by paper-based. Mobile/cell phone completed adherence support, adherence referral, support, contact tracing and condition less well, but low response numbers were involved. The variable "condition" was not in the paper-based or Afrikaans mobile/cell phone questionnaires.

Table 18h Illness form: Comparing completion rates for frequent visit activities (Paper-based (n=136) versus Mobile/cell phone (n=45))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Mobile/cell phone
Main Problem	Lower completion rate for paper-based.	122 (89.7)	43 (95.6)
Side Effects		133 (97.8)	43 (95.6)
Adherence Support		133 (97.8)	32 (71.1)
Adherence Referral		130 (95.6)	40 (88.9)
Specimens	Lower completion rates.	120 (88.2)	19 (42.2)
Adherence Education/ Training		132 (97.1)	37 (82.2)
Support	Lower completion rate for cell phone.	130 (95.6)	31 (68.9)
Contact Tracing	Lower completion rate for cell phone.	125 (91.1)	27 (60)
Family Training		132 (97.1)	44 (97.8)
Follow-up		129 (94.9)	42 (93.3)
Condition	Not in paper-based or Afrikaans cell phone (7)		20/38 (52.6)
Comments	Not in paper-based		35 (77.7)

Frequency distributions of illness and frequent visit

Because of low numbers for mobile/cell phone comparisons were difficult to make in Tables 19a-d (Annexure 11). The number of symptom combinations can make the variable difficult to read (see Table 19a). It was easier to read individual combination responses, in the mobile/cell phone Excel database. Both methods reported “yes” for illness previously captured as the most frequent response. This needs to be clarified during training. The different combinations of symptoms, illness names and previous serious illnesses are worth seeing, see Annexure 11, Table 19a.

Table 19a Illness form: Comparing frequencies for illness capture, symptoms and illness (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Illness captured before	n=129	n=59
Yes	96 (74.4)	45 (76.3)
No	33 (25.6)	14 (23.7)
Symptoms	n=136	n=18
Rash	3 (2.2)	0
Pelvic pain	3 (2.2)	0
Cough	9 (6.6)	2 (11.1)
Pain in lower limbs	0	0
Swelling (Oedema)	2 (1.5)	0
Fever	0	2 (11.1)
Wasting	0	0
Rapid breathing	0	0
Injury	1 (0.7)	1 (5.6)
Shortness of breath	3 (2.2)	0
Discharge	1 (0.7)	0
Wheezing	2 (1.5)	2 (11.1)
Lump	0	0
Dehydration	1 (0.7)	0
Headache	17 (12.5)	4 (22.3)
Watery diarrhoea	1 (0.7)	0
Neck pain	0	0
Bloody diarrhoea	1 (0.7)	0
Chest pain	3 (2.2)	1 (5.6)
Nausea	1 (0.7)	1 (5.6)
Pain in arms	6 (4.4)	0
Vomiting	2 (1.5)	0
Upper abdominal pain	2 (1.5)	0
Itch	1 (0.7)	0
Pain in lower abdomen	2 (1.5)	0
Rash+ Neck pain	0	1 (5.6)
Rash+ Vomiting+ Itch	1 (0.7)	0

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Rash+ Itch	1 (0.7)	0
Rash+ Cough+ Headache+ Chest pain+ Itch	1 (0.7)	0
Rash+ Pain in lower limbs+ Rapid breathing+ Chest pain+ Nausea+ Pain in arms+ Itch	1 (0.7)	0
Rash+ Fever+ Itch	1 (0.7)	0
Shortness of breath+ Wheezing	2 (1.5)	0
Shortness of breath+ Dehydration+ Headache+ Bloody diarrhoea	1 (0.7)	0
Shortness of breath+ Headache	1 (0.7)	0
Shortness of breath+ Chest pain	1 (0.7)	0
Discharge+ Itch	1 (0.7)	0
Discharge+ Pain in lower abdomen	1 (0.7)	0
Dehydration+ Chest pain	1 (0.7)	0
Dehydration+ Vomiting	1 (0.7)	0
Dehydration+ Watery diarrhoea+ Vomiting	0	1 (5.6)
Headache+ Neck pain	2 (1.5)	0
Headache +Neck pain+ Chest pain+ Upper abdominal pain+ Pain in lower abdomen	1 (0.7)	0
Headache+ Neck pain+ Pain in arms	1 (0.7)	0
Headache+ Chest pain	2 (1.5)	0
Headache+ Nausea	1 (0.7)	0
Headache+ Nausea +Upper abdominal pain	1 (0.7)	0
Headache+ Pain in arms	1 (0.7)	0
Headache+ Upper abdominal pain	1 (0.7)	0
Headache+ Pain in lower abdomen	1 (0.7)	0
Watery diarrhoea +Chest pain	1 (0.7)	0
Watery diarrhoea +Vomiting	1 (0.7)	0
Watery diarrhoea +Pain in lower abdomen	1 (0.7)	0
Neck pain +Pain in arms	1 (0.7)	0
Chest pain +Itch	1 (0.7)	0
Pain in arms+ Pain in lower abdomen	1 (0.7)	0
Pelvic pain+ Cough+ Swelling (Oedema)+Pain in arms	0	1 (5.6)
Cough+ Headache	7 (5.1)	0
Cough+ Pain in lower limbs+ Wheezing	0	1 (5.6)
Cough+ Headache +Pain in arms	1 (0.7)	0
Cough+ Headache +Vomiting	1 (0.7)	0
Cough+ Chest pain	8 (5.9)	0
Cough+ Chest pain+ Upper abdominal pain	1 (0.7)	0
Cough+ Pain in lower limbs+ Headache+ Neck pain+ Upper abdominal pain	1 (0.7)	0
Cough+ Swelling (Oedema)+Fever+ Injury+ Headache +Neck pain+ Chest pain+ Pain in arms	1 (0.7)	0
Cough+ Fever	2 (1.5)	0
Cough+ Fever+ Shortness of breath+ Chest pain	1 (0.7)	0
Cough+ Fever+ Headache	1 (0.7)	0
Cough+ Fever+ Vomiting	1 (1.5)	0
Pain in lower limbs+ Shortness of breath+ Headache+ Chest pain+ Pain in lower abdomen	1 (0.7)	0
Pain in lower limbs +Injury+ Shortness of breath+ Headache+ Chest pain+ Pain in arms+ Upper abdominal pain+ Pain in lower abdomen	1 (0.7)	0
Pain in lower limbs +Headache+ Neck pain+ Nausea+ Pain in lower abdomen	1 (0.7)	0
Pain in lower limbs+ Nausea+ Itch	1 (0.7)	0
Pain in lower limbs+ Pain in arms	2 (1.5)	0
Swelling (Oedema)+Headache	1 (0.7)	0
Fever+ Headache	3 (2.2)	0
Fever+ Headache+ Vomiting	2 (1.5)	1 (5.6)
Fever+ Watery diarrhoea	1 (0.7)	0
Fever+ Chest pain	1 (0.7)	0
Fever+ Pain in arms	1 (0.7)	0

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Fever+ Vomiting	1 (0.7)	0
Illness name	n=116	n=18
HIV or AIDS	12 (7.2)	3 (16.7)
High BP	43 (25.9)	6 (33.3)
Stroke	5 (3.6)	0
Heart disease	2 (1.2)	0
Arthritis	2 (1.2)	0
Asthma	10 (6)	1 (5.6)
Cancer	1 (0.6)	0
Don't know	7 (4.2)	3 (16.7)
Diabetes	13 (7.8)	0
Allergies	1 (0.6)	0
Epilepsy	9 (5.4)	1 (5.6)
Sores	8 (4.8)	0
TB	12 (7.2)	4 (22.2)
Rash	0	0
Ulcers sores	5 (3)	0
HIV or AIDS+ Sores	1 (0.6)	0
HIV or AIDS+TB	3 (1.8)	0
High BP+ Epilepsy	3 (1.8)	0
High BP+TB	1 (0.6)	0
High BP+ Ulcers sores	1 (0.6)	0
High BP+ Stroke	2 (1.2)	0
High BP+ Stroke+ Heart disease	1 (0.6)	0
High BP+ Heart disease	4 (2.4)	0
High BP+ Arthritis	2 (1.2)	0
High BP+ Arthritis+ Asthma	1 (0.6)	0
High BP+ Arthritis+ Asthma+ Diabetes	1 (0.6)	0
High BP+ Asthma	2 (1.2)	0
High BP+ Cancer+ Rash	1 (0.6)	0
High BP+ Diabetes	6 (3.6)	0
High BP+ Diabetes+ Ulcers sores	1 (0.6)	0
Stroke+ Epilepsy	1 (0.6)	0
Stroke+ Cancer	1 (0.6)	0
Arthritis+ Cancer	1 (0.6)	0
Arthritis+ Sores	1 (0.6)	0
Diabetes+ Sores	1 (0.6)	0
Previous Serious Illness	n=171	n=17
No	47 (27.5)	1 (5.9)
Don't know	11 (6.4)	13 (76.5)
Arthritis/joint pain/jig	7 (4.1)	0
Asthma	7 (4.1)	0
Cancer	3 (1.8)	0
Diabetes	10 (5.8)	0
Diarrhoea or dysentery	12 (7)	0
Epilepsy	7 (4.1)	1 (5.9)
Heart disease	1 (0.6)	0
High BP	38 (22.2)	1 (5.9)
Lung disease	2 (1.2)	0
Malaria	0	0
Stroke	4 (2.3)	0
High BP+ Lung disease	1 (0.6)	0

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
High BP+ Stroke	2 (1.2)	0
Arthritis/joint pain/jig+ High BP	1 (0.6)	0
Arthritis/joint pain/jig+ Asthma	3 (1.8)	0
Arthritis/joint pain/jig+ Asthma+ High BP	1 (0.6)	0
Arthritis/joint pain/jig+ Asthma+ Epilepsy	1 (0.6)	0
Arthritis/joint pain/jig+ Asthma+ Hear disease+ High BP	1 (0.6)	0
Arthritis/joint pain/jig+ Diabetes+ High BP	2 (1.2)	0
Asthma+ High BP	3 (1.8)	1 (5.9)
Cancer+ High BP	1 (0.6)	0
Cancer+ Diarrhoea or dysentery+ Heart disease+ High BP+ Stroke	1 (0.6)	0
Diabetes+ High BP	4 (2.3)	0
Diabetes+ Heart disease+ High BP	1 (0.6)	0

Table 19b shows a high proportion of the visit being after a hospital discharge and this needs to be clarified. Fairly similar frequency patterns were observed by both methods for: illness traditional, client TB status, client mobility and signs of abuse. Again, the low numbers for mobile/cell phone made the proportions very unstable. Only paper-based had a HIV status question and again the most frequent response was "No - does not wants to".

Table 19b Illness form: Comparing frequencies for other client health issues (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Illness Traditional	n=175	n=21
Don't know	12 (7.4)	7 (33.3)
No	146 (83.4)	14 (66.7)
Yes - diagnosed but not treated by traditional healer	10 (5.7)	0
Yes - diagnosed and treated by a traditional healer	6 (3.4)	0
Client HIV Status	n=169	n=0
No - does not wants to	83 (49.1)	
No - but would like to	26 (15.4)	
Yes - prefers not to disclose	17 (10.1)	
Yes - HIV+	20 (11.8)	
Yes - HIV-	23 (13.6)	
Hospital discharge	n=140	n=21
Yes	87 (62.1)	12 (57.1)
No	53 (37.9)	9 (42.9)
Client TB Status	n=174	n=21
Don't know	2 (1.1)	0
No	149 (85.6)	17 (81)
Currently on treatment every day	7 (4)	2 (9.5)
Currently on treatment but sometimes forgets	2 (1.1)	0
Completed 6 months treatment in past	12 (6.9)	1 (4.8)
Did not complete 6 months of treatment in past	1 (0.6)	1 (4.8)
Had sputum taken at clinic but does not know result	0	0
Had sputum collected but not able to go back to collect result	1 (0.6)	0
Client mobility	n=140	n=16
Bed ridden	5 (3.6)	2 (12.5)
Housebound	11 (7.9)	2 (12.5)
Moves around, but with difficulty	15 (10.7)	3 (18.8)
Moves around without difficulty	109 (77.9)	9 (56.3)
History or evidence of abuse?	n=176	n=20
Don't know	6 (3.4)	2 (10)
No	167 (97.9)	18 (90)
Bruises	0	0
Unexplained injury	3 (1.7)	0
Genital injury	0	0

Comparisons difficult especially for adherence support with different response categories (see Table 19c). The fee for service might be incorrect responses. Some variables, such as adherence support and services provided, had many combinations of responses.

Table 19c Illness form: Comparing frequencies for care issues (Paper-based (n=185) versus Mobile/cell phone (n=21))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Home Care	n=172	n=18
No	95 (55.2)	7 (38.9)
Daily	27 (15.7)	6 (33.3)
Once a week	17 (9.9)	1 (5.6)
Twice a week	2 (1.2)	1 (5.6)
Three times a week	1 (0.6)	1 (5.6)
Four times a week	6 (3.5)	0
Few times a month	24 (14)	2 (11.1)
Facility Attendance	n=176	n=20
No	33 (18.8)	2 (10)
Don't know	0	1 (5)
Weekly	10 (5.7)	1 (5)
2+ times a month	7 (4)	1 (5)
Monthly	122 (69.3)	15 (75)
Quarterly	4 (2.3)	0
Adherence support	n=172	n=18
Ondersteun 'n behandelingsvriend	1 (0.6)	0
None	76 (44.2)	5 (27.8)
Supervise taking of treatment	31 (18)	0
Replenishes medicines or delivering treatment	2 (1.2)	0
Checking that there is enough treatment	14 (8.1)	0
Ticking green card (recording findings)	6 (3.5)	0
Intervening in problems referring if necessary	12 (7)	0
Don't know	26 (15.1)	1 (5.6)
CBHW daily	0	0
CHW few times a week	0	3 (16.7)
CHW few times a month	0	2 (11.1)
Treatment supported daily	0	0
Treatment supporter few times a month	0	0
Health facility/professional	0	2 (11.1)
Family member	0	1 (5.6)
Friend	0	0
Supervise taking of treatment+ Checking that there is enough treatment+ Intervening in problems referring if necessary	1 (0.6)	0
Supervise taking of treatment+ Intervening in problems referring if necessary	1 (0.6)	0
Checking that there is enough treatment+ Intervening in problems referring if necessary	1 (0.6)	0
Ticking green card (recording findings)+Intervening in problems referring if necessary	1 (0.6)	0
CBHW daily+ Treatment supported daily	0	1 (5.6)
CHW few times a week+ Family member	0	1 (5.6)
CHW few times a week+ Family member+ Friend	0	1 (5.6)
Treatment supported daily +Health facility/professional +Family member	0	1 (5.6)
Adherence Support Duration	n=179	n=18
Don't know	4 (2.2)	2 (11.1)
None	16 (8.9)	2 (11.1)
Days	7 (3.9)	0
Weeks	5 (2.8)	0

Months	59 (33)	6 (33.3)
Years	88 (49.2)	8 (44.4)
Medication received	n=175	n=20
Don't know	4 (2.3)	3 (15)
No	68 (38.9)	4 (20)
Medicines supplied only	33 (18.9)	2 (10)
Medicines supplied and treatment supervised	56 (32)	6 (30)
Treatment supervised only	14 (8)	5 (25)
Services provided	n=178	n=20
Pain relief	2 (1.1)	0
Referral to social worker	2 (1.1)	0
Treating fever	2 (1.1)	0
Referral to clinic	91 (51.1)	6 (30)
Feeding	0	0
Oral Rehydration	0	0
Bed care	2 (1.1)	0
Prepare meal	0	0
Cleaning	1 (0.6)	0
None	42 (23.6)	5 (25)
Dressing wounds	0	0
First aid	0	0
Treatment observed	0	1 (5)
Education or advice	2 (1.1)	2 (10)
Given medicine	2 (1.1)	1 (5)
Providing comfort	0	0
Counseling	1 (0.6)	0
Providing food	0	0
Washing clothes	0	0
Accompanying patient	0	0
Pain relief+ Education or advice	1 (0.6)	0
Pain relief+ Referral to clinic	5 (2.8)	0
Pain relief+ Referral to clinic+ Oral Rehydration	1 (0.6)	0
Pain relief+ None	0	1 (5)
None+ Given medicine	1 (0.6)	0
Education or advice +Providing comfort+ Counseling	1 (0.6)	0
Referral to social worker+ Treatment observed	1 (0.6)	0
Referral to social worker+ Referral to clinic	1 (0.6)	0
Referral to social worker+ Referral to clinic+ Education or advice	1 (0.6)	0
Treating fever+ Referral to clinic	2 (1.1)	1 (5)
Treating fever+ Referral to clinic+ Oral Rehydration+ Education or advice	1 (0.6)	0
Treating fever+ Referral to clinic+ Cleaning +Providing comfort+ Counseling	1 (0.6)	0
Referral to clinic +Education or advice	6 (3.4)	0
Referral to clinic+ Counseling	1 (0.6)	0
Referral to clinic +Education or advice+ Counseling	0	1 (5)
Referral to clinic+ Feeding+ Bed care+ Prepare meal+ Cleaning+ Treatment observed+ Washing clothes	1 (0.6)	0
Referral to clinic+ Cleaning+ Treatment observed+ Education or advice+ Counseling	0	1 (5)
Referral to clinic+ Treatment observed+ Education or advice	0	1 (5)
Referral to clinic +Oral Rehydration	1 (0.6)	0
Referral to clinic +Oral Rehydration+ Education or advice	1 (0.6)	0
Referral to clinic+ Prepare meal+ Cleaning	1 (0.6)	0

Referral to clinic+ Prepare meal+ Cleaning+ Washing clothes	1 (0.6)	0
Oral Rehydration+ Dressing wounds	1 (0.6)	0
Oral Rehydration+ Counseling	1 (0.6)	0
Bed care+ Cleaning	1 (0.6)	0
Visit Fees	n=158	n=17
Fee for service	2 (1.3)	1 (5.9)
Free	155 (98.7)	16 (94.1)

Table 19d shows that paper-based tend to report more combination responses for main problem, although only one was asked for. Various combinations of responses were reported for the multiple-choice questions such as, adherence support, adherence referral, adherence education and training, support and family training.

Table 19d Illness form: Comparing frequencies for frequent visit issues (Paper-based (n=136) versus Mobile/cell phone (n=45))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Main Problem	n=122	n=43
TB	13 (10.7)	7 (16.3)
HIV or AIDS	10 (8.2)	4 (9.3)
Diabetes	12 (9.8)	5 (11.6)
High BP	31 (25.4)	17 (39.6)
Stroke	3 (2.5)	2 (4.7)
Elderly	5 (4.1)	1 (2.3)
Sores or wounds	5 (4.1)	0
Other	23 (18.9)	7 (16.3)
TB+HIV or AIDS	2 (1.6)	0
TB +High BP	1 (0.8)	0
HIV or AIDS+ Sores or wounds	1 (0.8)	0
Diabetes+ High BP	7 (5.7)	0
High BP+ Stroke	1 (0.8)	0
High BP+ Stroke+ Sores or wounds	1 (0.8)	0
High BP+ Elderly	1 (0.8)	0
High BP+ Other	6 (4.9)	0
Side Effects	n=133	n=43
No	91 (68.9)	24 (55.9)
Yes - minor symptoms	35 (26.5)	12 (27.9)
Yes - serious symptoms	6 (4.5)	7 (16.3)
Adherence Support	n=133	n=32
Support a friend on treatment	1 (0.8)	0
None	64 (48.1)	16 (50)
Supervise taking of treatment	26 (19.5)	1 (3.1)
Replenishes medicines or delivering treatment	5 (3.8)	0
Checking that there is enough treatment	15 (11.3)	4 (12.5)
Ticking green card (recording findings)	5 (3.8)	4 (12.5)
Intervening in problems referring if necessary	7 (5.3)	5 (15.6)
Don't know	5 (3.8)	0
Support a friend on treatment + Intervening in problems referring if necessary	0	1 (3.1)
None+ Checking that there is enough treatment+ Ticking green card (recording findings)	0	1 (3.1)
Supervise taking of treatment+ Ticking green card (recording findings)	1 (0.8)	0
Supervise taking of treatment+ Intervening in problems referring if necessary	1 (0.8)	0
Replenishes medicines or delivering treatment+ Intervening in problems referring if necessary	1 (0.8)	0
Checking that there is enough treatment+ Intervening in problems referring if necessary	1 (0.8)	0

Ticking green card (recording findings)+Intervening in problems referring if necessary	1 (0.8)	0
Adherence Referral	n=130	n=40
No referral	83 (63.8)	16 (40)
Referring for side effects	11 (8.5)	10 (25)
Referring contacts	1 (0.8)	0
Referring for adherence problem	11 (8.5)	6 (15)
Referring for social issues	3 (2.3)	1 (2.5)
Referring if treatment seems not to be working	9 (6.9)	2 (5)
Symptoms of changing or new disease (e.g. Fever)	9 (6.9)	1 (2.5)
Referring for side effects+ Referring for adherence problem	1 (0.8)	2 (5)
Referring for side effects+ Referring for adherence problem+ Symptoms of changing or new disease (e.g. Fever)	1 (0.8)	0
Referring for side effects+ Symptoms of changing or new disease (e.g. Fever)	1 (0.8)	0
Referring for side effects+ Referring if treatment seems not to be working	0	2 (5)
Specimens	n=120	n=19
Collecting sputum with consent	1 (0.8)	0
Giving feedback on results	12 (10)	6 (31.6)
None	107 (89.2)	13 (68.4)
Adherence Education/Training	n=132	n=37
None	46 (34.8)	10 (27)
Encouraging patient to opt for DOT	2 (1.5)	2 (5.4)
Encouraging TB testing or treatment	1 (0.8)	0
Encouraging to join a support group	0	2 (5.4)
Giving health education/motivation	16 (12.1)	11 (29.7)
Discussing obstacles to adherence	2 (1.5)	1 (2.7)
Reminding to visit clinic	41 (31.1)	1 (2.7)
None+ Encouraging to join a support group	0	3 (8.1)
Encouraging patient to opt for DOT+ Encouraging TB testing or treatment+ Giving health education/ motivation+ Reminding to visit clinic	2 (1.5)	0
Encouraging patient to opt for DOT+ Giving health education/ motivation	1 (0.8)	0
Encouraging patient to opt for DOT+ Giving health education/ motivation+ Reminding to visit clinic	2 (1.5)	0
Encouraging patient to opt for DOT+ Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+ Giving health education/ motivation	2 (1.5)	0
Encouraging to join a support group+ Giving health education/ motivation+ Discussing obstacles to adherence+ Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+ Giving health education/ motivation+ Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+ Discussing obstacles to adherence	2 (1.5)	0
Encouraging to join a support group+ Discussing obstacles to adherence+ Reminding to visit clinic	1 (0.8)	1 (2.7)
Encouraging to join a support group+ Reminding to visit clinic	2 (1.5)	3 (8.1)
Encouraging to join a support group+ Giving health education/ motivation+ Discussing obstacles to adherence	0	1 (2.7)
Giving health education/motivation+ Discussing obstacles to adherence	1 (0.8)	2 (5.4)
Giving health education/motivation+ Discussing obstacles to adherence+ Reminding to visit clinic	2 (1.5)	0
Giving health education/motivation+ Reminding to visit clinic	4 (3)	0

Discussing obstacles to adherence+ Reminding to visit clinic	2 (1.5)	0
Support	n=130	n=31
Counseling for HIV	13 (10)	3 (9.7)
Delivering food	2 (1.5)	0
Provides emotional support	27 (20.8)	11 (35.5)
Dressing a wound	2 (1.5)	0
Weighing	10 (7.7)	2 (6.5)
None	67 (51.5)	6 (41.9)
Counseling for HIV+ Provides emotional support	6 (4.6)	2 (6.5)
Counseling for HIV +Dressing a wound	1 (0.8)	0
Delivering food+ Provides emotional support	1 (0.8)	0
Provides emotional support+ Weighing	1 (0.8)	0
Contact Tracing	n=125	n=27
None	119 (95.2)	23 (85.2)
Screening for contacts	3 (2.4)	0
Requested by facility to undertake case finding	3 (2.4)	4 (14.8)
Family Training	n=132	n=44
None	44 (33.3)	5 (11.4)
Training a client	45 (34.1)	27 (61.4)
Training a family caregiver	22 (16.7)	5 (11.4)
Training a treatment supporter	13 (9.8)	0
Training a client+ Training a family caregiver	2 (1.5)	3 (6.8)
Training a client+ Training a family caregiver+ Training a treatment supporter	1 (0.8)	1 (2.3)
Training a client+ Training a treatment supporter	3 (2.3)	1 (2.3)
Training a family caregiver+ Training a treatment supporter	2 (1.5)	2 (4.6)
Follow-up	n=129	n=42
None	40 (31)	15 (35.7)
Providing follow up for hospital discharge	49 (38)	23 (54.8)
Conveying a message from clinic	34 (26.1)	4 (4.9)
Providing follow up for hospital discharge+ Conveying a message from clinic	6 (4.7)	0
Condition	n=0	n=20
Moves - easily		9 (45)
Moves - difficult		10 (50)
Bedridden		1 (5)

Death form

The death questionnaire appeared to be controversial and a sensitive issue. Only a few were completed, for paper-based, 30 (65%) death questionnaires were analysed and 16 (35%) for mobile/cell phone, a total of 46. Due to the low response numbers the proportions will be very unstable and frequency results are only to see what such a questionnaire can produce. It was also observed, although a death was reported in the Household questionnaire, there was not a death questionnaire.

Collection time and enter

Table 20a shows the time analysis for the paper-based method to complete and enter a questionnaire. The comparison between paper-based and mobile/cell phone can only use the paper-based data where the collection time could be calculated (both times were reported) (see Table 20b).

For paper-based, both times were completed for 28 (93%) questionnaires, 1 (3%) had no times reported and 1 (3%) only the first time. The outliers were checked and were as reported in the questionnaire.

Table 20a Death form: Collection time and enter questionnaires in minutes - Paper-based (n=30)

Variable	Minimum	25 th percentile	Median	75 th percentile	Maximum
Collection time (n=28)	1	2	3	5	10
Entry time (n=30)	1	1	2	2	3

The paper-based method had a mean of 6.00 (SD=2.854) and the mobile/cell phone method a mean of 4.44 (SD=1.931). The two methods did not differ significantly regarding the collection time and enter ($p=0.058$).

Table 20b Death form: Comparing collection time and enter questionnaires in minutes - Paper-based (n=28) versus Mobile/cell phone (n=16)

	Paper-based	Mobile/cell phone
Minimum	3	2
25th percentile	4	3
Median	5	4
75th percentile	7	6
Maximum	12	8

Death form analysis

Completion rates and comments

Tables 21a-e (Annexure 12) reports the completion rate for each variable for the two methods of data collection.

Fairly high completion rates for the variables, time, CHW identification and consent, death report and comments are reported in Table 21a, except whether it was a new death for paper-based and last comment for both methods.

Table 21a Death form: Comparing completion rates for time, CHW identification and consent, death report and comments (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Mobile/cell phone
Time begin	See Time analysis	29 (96.7)	100%
End time	See Time analysis	28 (93.3)	100%
Date	By oversight not entered in paper-based but well completed.		100%
CHW Number		27 (90)	100%
Consent		100%	100%
Deceased new		26 (86.7)	100%
Last comments	Most comments: "Good"	16 (53.3)	9 (56.3)

Household identification variables were well completed as shown in Table 21b, but still problematic.

Table 21b Death form: Comparing completion rates for Household identification variables (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Mobile/cell phone
Homestead ID number	See Homestead number and Household number comments.	29 (96.7)	100%
Household ID Number	See Homestead number and Household number comments.	24 (80)	100%

High completion rates for names, ID status and availability of death certificate, are reported in Table 21c, except for the actual reporting of the ID number.

Table 21c Death form: Comparing completion rates for names and documentation (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Mobile/cell phone
Deceased Surname	See Surnames and Names comments.	100%	100%
Deceased First name	See Surnames and Names comments.	100%	100%
Deceased Middle Name	Can be lower completion rate if no second name.	19 (63.3)	13 (81.3)
Deceased person's ID Status		100%	100%
Deceased ID Number	Paper-based had a wrong number and cell had zeros and DOBs. See ID number comments.	5 (16.7)	12 (75)
Death Certificate		100%	15 (93.8)

The DOB and date of death less well completed (see Table 21d). Age at death and gender well completed.

Table 21d Death form: Comparing completion rates for deceased demographic variables (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Mobile/cell phone
Deceased date of birth	Less well completed.	23 (76.7)	7 (43.8)
Deceased date of death	Less well completed.	21 (70)	7 (43.8)
Age at death	One cell had a DOB instead of an age category, easy to correct	100%	15 (93.8)
Deceased Gender		100%	100%

Lower completion rates for symptoms in both methods (see Table 21e). Varying completion rates for illness name and whether death was due to a traditional illness. Place of death very well completed.

Table 21e Death form: Comparing completion rates for deceased symptoms, illness and other death issues (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Mobile/cell phone
Symptoms	Completion rates lower.	23 (76.7)	14 (87.5)
Illness Name		24 (80)	15 (93.8)
Place of Death	Well completed	100%	100%
Deceased Traditional Illness		29 (96.7)	14 (87.5)

Frequency distributions of death issues

Tables 22a-b (Annexure 12) report frequencies for some death variables. Because of low numbers for both methods comparisons are difficult to make in the following tables. Frequency patterns, however, appeared to be similar (see Table 22a).

Table 22a Death form: Comparing frequencies for document and demographic variables (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Deceased person's ID Status	n=30	n=16
No - has never had	3 (10)	1 (6.3)
Not yet - applied 1-3 months ago	0	0
Not yet - applied 3-6 months ago	0	0
Not yet - applied 6+ months ago	0	0
Yes - not available	6 (20)	6 (37.6)
Yes - is available	21 (70)	9 (56.3)
Death Certificate	n=30	n=15
Don't know	0	1 (6.7)
No	3 (10)	0
No, application done more than 3 months ago	0	0
No, application done less than 3 months ago	0	0
No, application done in the last month	0	0
Yes	27 (90)	14 (93.3)
Age at death	n=30	n=14
< 1 year	3 (10)	0
1-5 years	0	0
6-10 years	0	0
11-20 years	2 (6.7)	0
>21 years	25 (83.3)	14 (100)
Deceased Gender	n=30	n=16
Male	14 (46.7)	8 (50)
Female	16 (53.3)	8 (50)

The number of symptom combinations made this variable difficult to read (see Table 22b). Paper-based tended to report more combination responses.

Table 22b Death form: Comparing frequencies for symptoms, illness and other death issues (Paper-based (n=30) versus Mobile/cell phone (n=16))

Variable and categories	Paper-based n (%)	Mobile/cell phone n (%)
Symptoms	n=23	n=14
Rash	0	0
Pelvic pain	0	0
Cough	0	0
Pain in lower limbs	1 (4.3)	1 (7.1)
Swelling (Oedema)	0	1 (7.1)
Fever	0	0
Wasting	1 (4.3)	0
Rapid breathing	0	0
Injury	0	0
Shortness of breath	1 (4.3)	2 (14.3)
Discharge	0	0
Wheezing	0	0
Lump	0	0
Dehydration	1 (4.3)	0
Headache	0	1 (7.1)
Watery diarrhoea	1 (4.3)	0
Neck pain	0	0
Bloody diarrhoea	0	1 (7.1)
Chest pain	0	2 (14.3)
Nausea	0	0
Pain in arms	0	0
Vomiting	0	0
Upper abdominal pain	0	0
Itch	0	0
Pain in lower abdomen	0	0
Rash+ Fever +Vomiting	1 (3.4)	0
Rash+ Cough	0	1 (7.1)
Rash+ Nausea+ Vomiting	1 (3.4)	0
Shortness of breath +Headache+ Pain in arms	1 (3.4)	0
Shortness of breath+ Headache	0	1 (7.1)
Watery diarrhoea +Vomiting	2 (8.7)	0
Cough+ Dehydration	1 (3.4)	0
Cough+ Dehydration+ Nausea+ Vomiting	1 (3.4)	0
Cough+ Headache+ Chest pain+ Vomiting	1 (3.4)	0
Cough+ Chest pain	2 (8.7)	0
Cough+ Chest pain+ Pain in lower abdomen	1 (3.4)	0
Cough+ Nausea	1 (3.4)	0
Cough+ Swelling (Oedema)+Fever +Shortness of breath+ Dehydration +Headache+ Watery diarrhoea+ Chest pain+ Vomiting	1 (3.4)	0
Cough+ Shortness of breath+ Chest pain	1 (3.4)	0
Bloody diarrhoea+ Nausea	1 (3.4)	0
Rapid breathing+ Shortness of breath	0	1 (7.1)
Swelling (Oedema)+Shortness of breath	0	1 (7.1)
Swelling (Oedema)+Pain in lower abdomen	1 (3.4)	0
Fever+ Shortness of breath+ Headache	0	1 (7.1)
Fever+ Wasting +Dehydration+ Headache+ Vomiting	1 (3.4)	0
Fever+ Dehydration+ Watery diarrhoea	0	1 (7.1)
Fever+ Headache+ Vomiting	1 (3.4)	0
Illness name	n=24	n=15
HIV or AIDS	4 (16.7)	1 (6.7)

High BP	0	1 (6.7)
Stroke	0	2 (13.3)
Heart disease	1 (4.2)	1 (6.7)
Arthritis	0	0
Asthma	0	0
Cancer	4 (16.7)	4 (26.7)
Don't know	6 (25)	3 (20)
Diabetes	2 (8.3)	1 (6.7)
Allergies	0	0
Epilepsy	1 (4.2)	0
Sores	0	0
TB	3 (12.5)	2 (13.3)
Rash	0	0
Ulcers sores	0	0
HIV or AIDS+ Rash	1 (4.2)	0
High BP+ Heart disease+ Diabetes	1 (4.2)	0
High BP+ Cancer	1 (4.2)	0
Place of Death	n=30	n=16
Home	15 (50)	6 (37.5)
Hospital	12 (40)	8 (50)
Elsewhere	3 (10)	2 (12.5)
Illness Traditional	n=29	n=14
Don't know	2 (6.9)	8 (57.2)
No	26 (89.7)	5(37.5)
Yes - not treated by TH	0	1 (7.1)
Yes - treated by TH	1 (3.4)	0

Qualitative results

In Tzaneen nine field workers (community-based carers) participated in the focus group, eight females and one male. The group was conducted in the Choice training room. In the Overberg, four field workers participated and one coordinator, all female. This was conducted in a room at the youth center in Caledon. The group participants had to be transported from their different town and villages.

One study manager was interviewed in Tzaneen and two in Overberg. The Overberg manager had to get assistance from an office worker to provide support.

The quotes from Afrikaans interviews were translated into English. The first and last themes were reported by the managers and the themes relating to field work by the focus groups with field workers.

Management: Implementation, training, data collection methods and support (managers)

Implementation

The implementation of the study was more difficult and complex than expected.

"I think it was harder than I expected in the beginning."

The managers mentioned the logistical complexity to get all the field workers from different places together. Also the copying of the paper-based questionnaires on colour paper and getting them ready for use.

"And it is a bit difficult because our people are far from each other."

"But we had to, on a small town to all of a sudden so many pink paper, it is a problem."

Training

It seemed as if the one-day training needs to be adapted. But once again changes would mean logistical problems and would have cost implications. Various suggestions were made to better training, mainly relating to mobile/cell phone method, i.e. the language used during training, training a trainer, a training manual, different ways to do the training, the use of local terms and more time for training.

"I think we could have done things a little bit differently. ...Probably someone who speaks the vernacular, because, I think the training of the mobile/cell phones would have gone better in the vernacular. So maybe to have trained one person to train the others would have worked better."

"I think what we also design a little, simple manual, step by step manual, so that they can sort out their own glitches. You know that they can maybe just page through when they got their mobile/cell phones, like that."

"I mean I had that good suggestion of doing, giving them some play-play things to do, and they all do the same and then you compare the results. And I think that is nice things we could have done, but we didn't have the ability. Because then we could have done a printout and said ok, you've all done the same family, check the different results. That would have been quite fun. So I think there are better ways of training."

The length of time of training also received attention. The training should be done over two days with time to practice on between, rather than on one day.

"I think a days training was too little. I think I should have let them go for a week and then let them come back."

When one person completed the forms in front of the others during training, problems were observed.

"It took very long. .. And the others were very tired. ... everything is new knowledge. And after lunch so after two I would say, then it became difficult."

"I think they probably would all have been better if I have given them more time."

Besides the difficulty to complete these forms, one manger mentioned specific issues that came up during training and made suggestions.

"Household and homestead are not a familiar terms. They made up their own here. ... So I mean all those things are teachable, if you can use the local context."

Data collection methods and support

The paper-based method was for one manager not an option in the future.

"Its crazy. I mean look them how they carried these pieces of paper around, and its expensive you know, photocopying and all that."

"So trying to get photostats and make the photostat machine work and get somebody to clip them all together, that was an enormous job. And I never want to do it, in the future."

"Imagine if our care givers were paperless."

The length of the forms and number of questions were also not seen as practical by one manager.

" I mean its not feasible the way it is. I mean to ask somebody to sit and you are doing a visit and you ask that many questions isn't ideal. Its quite an invasion. I mean its not to say they are not important questions, but maybe it could be phrased differently ... Or we got to be satisfied with less information."

The one area also had to get permission from shareholders for the study and had to inform various structures and persons in the different communities. As the study however, progressed, the enthusiasm was not what was expected by the manager. She also had a support system for field workers in place, but it did not work.

"I accepted that the health coordinators, on ground level, would have given much more support. I don't think it happened."

For the paper-based method very little or any support was given.

"I mean I haven't looked at it at all, so they have had no, none."

The mobile/cell phone method however, needed quite some technical support, although it did not put any of the managers off this method, as one manager remembered initial paper-based problems related to collecting project data.

"You know if I think, when we started doing paper questionnaires 10 years ago, or even in M's day, they struggled with the paper. So, I think to teach them with the cell phone, we can still do. I mean I think, we, we would eventually got them right, I don't think it is an issue. Especially because they like it."

It was however, for the mobile/cell phone method important that there was someone available who could provide technological support, as the field workers could not deal with that themselves. The problems could be technical, network-related or with the operator. The managers could not always been sure which one it was.

"And maybe, I don't think we would have found out everything, but it would be nice to know, to have more knowledge myself why in one area it didn't seem to work. Whether it was the technicians themselves, the researchers or what it was, another ... the software."

"So they don't really have the knowledge to fix the problems themselves or they were very gifted at causing the problems, especially the clever ones."

Most of the problems seemed to have been with uploading or if the mobile/cell phone got stuck and the field workers could not continue. In one area they had to go to the nearest clinic to phone, which could be some distance away. These managers also needed technical support from other knowledgeable persons.

"If they wanted to do say a upload and the phone did nothing. Then Dr [cell phone programme developer] I send me the information what I must do on the phone and then I did it."

"I must say I's son [cell phone programme developer] was amazing. I could phone him and say, they've got to bring a phone now, what do I do. And he would talk me through it. That worked quite well. But I don't think he could have done it directly to them [field workers]. I don't think they had enough knowledge. There always needs to be that person that understands the technology."

But if it was the operator, it could be rectified easily.

"... then I had to say there is not a problem on the phone, they must press very lightly on the little middle button, it is very sensitive. And then there was no problem."

To have the same mobile/cell phone would have helped.

"The other thing that was difficult with the cell phones not having a cell phone the same myself. So it was very hard for me to help them over the phone. Cause I have to close my eyes and try and visualize what they were doing and advise them over the phone, that didn't work."

For one manager it seemed if some people had more problems.

"But I think the lesson is, it is definitely easier for people who are comfortable with the phone. They all used phones, but we didn't say how much. The two that really struggled, slightly older, women, still scared of the phone. They struggled."

But after a while things went better.

"I think once they were familiar with it, it was fine."

And

"I am still convinced using a cell phone is the way to go."

With all the problems and challenges, all the managers involved were excited about the process and learned a lot.

Implementing the data collection methods (field workers' focus groups)

Paper-based forms (field workers' focus groups)

To get a good sense of what community members thought of the colour-coded, stapled questionnaires, a group member heard them say:

"It's a book and you want to cook and I don't have time."

Although it was easy to complete, it took a lot of time, especially in the beginning when field workers had to get used to the forms. Respondents got tired as well as the field workers. In some instances people refused to answer any questions. Although the two methods had similar questions, it appeared as if respondents, because they saw the "book", with lots of repeat questions, they did not want to continue. The paper-based also involved a lot of writing.

"... because on the papers there is a lot of questions there and people would say, I am tired now."

" They say you are wasting my time because you can even spend an hour."

"... we felt a bit these papers took too much time."

Field workers also experienced it as stressful to complete the forms.

"When you're finished you [field worker] feel tired"

With the paper-based field workers also had respondents who told them to complete anything as they know them.

"So they say you know me, you now me, write anything."

The papers, especially in the rural areas were also difficult to carry and a carry-bag was needed to carry the confidential information. Repetition questions in the paper-based were a great source of irritation. This was especially so for Tzaneen, as Overberg used Phase 1 forms which had much less repetition.

"And another, the problem on papers, there is more repetition questions [group agreement]."

Mobile/cell Phones (field workers' focus groups)

As one group member said:

"Cell phone is easy to use and easy to stuck."

Overall mobile/cell phone was experienced as easy to use, and quicker. It was also easier to carry.

" Its simple because you are carrying a phone [group agreed], not a book."

"It work very nicely (lekker), very nicely."

"It works quicker than the paper. Much quicker."

Problems were however, experienced. They experienced difficulty with uploading new forms and to upload (submit) completed forms. The phone could also get stuck and then they could not do anything further, which could be very embarrassing. All they saw was "network error". Or the phone asked for a pin code. If a mobile/cell phone signal was not available, they had to wait. If mobile/cell phones were in English and they needed Afrikaans, it was a big problem.

Technical support was needed at times.

"Sometimes it refuse to upload the survey. You are [asking] a person to sit down but the phone just stuck, refuse. You yourself you get stuck."

"Sometimes it says "pending" and you must repeat again."

Some field workers find ways to overcome their problems and in other cases they had to contact the management support. Some waited until they had about 10 surveys before they uploaded, or wait till the evening.

Some were also worried and not sure whether it was them who were responsible for the technical problems.

"When you stuck I am having the fear maybe they think I got stuck by my own mistakes you know."

The possession of the mobile/cell phone also was seen as a safety risk to carry, especially in poor communities.

"And I think other problem is one walking with cell phone, we live in the rural area I work with a fear of I say I passed this river sort of river. Then you see they point at you with a gun or a knife. Give us the cell phone because you are known. I don't know them, because they may send a stranger."

This fear was strengthened as community members thought they got the mobile/cell phones as gifts and are now richer, and did not want to believe them when they said it was not so. One group member had to make up stories so that people thought she handed in the phone every day and did take it home with her

So, to summarise the mobile/cell phone responses, we can end with a quote similar to the starting quote, but from another area.

"Thus, it works easily, when it works. It also works quicker, if it works."

Problematic questions (field workers' focus groups)

The big issue was however, specific questions, which created great discomfort for field workers and respondents and some respondents refused to answer. It did not matter which method of data collection was used.

".. it is not easy to ask some questions. Because it depends on our culture. Some of the questions, if we ask them, they say, no they no longer to answered some more questions because you don't respect us. Some they don't, they refuse to answer."

"And we experienced that some of the questions are a bit too personal. And the community thinks you are now busy to scratch in my personal life."

Names, ID and Homestead/household numbers

Names and ID numbers were for some a source of suspicion and they feared the possibility of fraud, although some had no problems. This could differ from house to house.

"He's ID number, he says I can't give you, where you want to do with this ID number."

"When they take the ID number, they go to the home affairs and marry her."

"They say we are going to make money with their names."

"I just pass that ID number because people refuse to sometimes give it."

The homestead ID was also a problem for some. A project manager also said there was problems to understand the difference between a homestead and a household during training.

"... they asked what is the homestead number, or the ID number of the homestead. So I did not understand it and skipped it."

Women's health form (Annexure 5)

The women's health form was the first to be mentioned by both focus groups. The menstruation, the sexually transmitted infection, contraception and PAP smear questions were mentioned. But of great importance was the question relating to sexual activity.

"Some were, if the women, their sexuality its difficult for us."

"If we asked questions if the women is sexually active. Some are a bit shy to tell you."

"... it is not easy to ask such question while there is a husband and wife. Because they say whu!, I am young you see but they say she doesn't have respect, you have to show some respect you can't ask such question, are sexually active."

The issue around pregnancy appeared to be a big cultural issue in Tzaneen, but not so in Overberg.

"... asking about the pregnancy. In our culture you don't allow that. ... They think of witchcraft."

"It [pregnancy] is private with your husband."

The contraception question also had problems.

"Like when you ask a women and you find a man a husband then you ask about the contraception. The women will not answer you because the man does not know that. ...If, if a husband is not available the women can answer it."

"What contraception are you using? You find the women she was doing a secret. Because the husband needs a baby, more baby, more baby. So the wife, as they think about for the future, she just take contraception in secret, I am going to make them fight."

For the only male in the field worker group, the women questions were even more problematic.

"Its very difficult, I just say, this is a challenge ... just can you please answer me this questions 72, 73 ,74. I can't."

A group member then asked:

"What if she can't read?"

"If she can't read [I] try to explain, hey, some question, hey, hey."

Illness form (Annexure 5)

Both groups reported that some people had problems talking about their illness, especially HIV and TB. This reluctance seemed to stem from lack of help for certain conditions.

"... you find most people if they are living with HIV, its difficult to tell you. Sometimes there are other people who tell, but they are very discriminatory. They need help from us and nothing can help"

"Like illness form, they say, adherence form, they say you are asking us a question but there is no cure of HIV and AIDS and sugar diabetes."

"People don't like to talk about their illnesses. ... They won't say he is HIV positive or TB."

It takes time and building of a relationship before people would feel at ease to talk about their illness.

"Talk, nice (lekker) talk and comfortable, then they come out what is wrong with them. Because you see such people need help, you must help them."

Child health form (Annexure 5)

The lack of a measurement tape made it impossible for some to measure the mid upper-arm circumference. If a household lacked resources for a school uniform, it became a problematic question, as well as the school attendance question.

"... they ask do they have uniform, do they attend regularly or not. Some they say, the baby is not attending school, why, we don't have food to eat, in the morning, he doesn't have a uniform. So what am I going to help them, why am I asking such question, they refuse to answer."

Even attempts to inform them about help were not successful.

"We are trying to tell them [about] the food at the school. But they say, we don't have uniforms."

The Road-to-health (RTH) chart question also highlighted problems, i.e. the distance to the clinic as an important factor to attend regularly..

"Like in my site the clinic is too far, 3 kms from the clinic. When you come to the health to child road (RTH), they say, they didn't finish the clinic because its too far. When the child is 4 years I can't take him, because its too far. And even the, in a way if there is something that is wrong to them, they, the boys stand at the road and take their cell phone, everything. ... they just stay at home. because they fear to go to the clinic, its too far."

Household form (Annexure 4)

The easiest form to complete was reported to be the Household form, however, some questions were experienced as problematic. This was especially the case if the household lacked amenities, i.e. water, toilet and electricity.

"Some have toilet, we don't have toilet and you are coming again asking us the question. They have water, we don't have water. They used to complain."

"Yes, like our village we don't have electricity. When we ask about electricity, they ask when will you bring us electricity."

If the field worker had electricity and the respondent did not, some tension was experienced, especially as they knew the field worker knew the answer.

"Some if they see me writing this, they just laugh, they say you are asking us such a question, because you have electricity you feel better. So you are making us feel stupid, because you are asking something that you know we don't have. ... You don't know what you are doing."

Death form (Annexure 5)

This form was very problematic as death was reported to be too distressing to talk about.

“Even under death, when that, some they often, if you just talk about death, you remind them something bad. They don’t feel comfortable and they don’t answer you, some they just cry. Some they say why are you asking a question like this.”

General comments: Completing the forms whatever method (field workers’ focus groups)

In Overberg the observation was made that if a field worker was known and respected community-based carers, then people were more willing to participate and be open.

“There is many people who shared a lot of personal things. Now they have a lot in trust, in me especially. I am actually known. So it makes it also easy when I arrive there.”

When you were not known, you first had to win some trust, before the forms could be completed.

“You know we must try so hard to win these people’s trust and then you see the person doesn’t open up, then you can’t complete the form.”

It was also experienced in Tzaneen that some people did not want participate.

“Many of them they don’t it, especially the township. They don’t like it, they just say no. I must have to the village, to get some people.”

“You find that the people near you, they don’t want you to interview them.”

But, an observation was made that people who refused to provide information, were more likely to be better educated and literate.

“Most of them [who refused] is them who know how to read, but the ones who don’t know how to read, they don’t have problem.”

A field worker also reported how people avoided her in order not answer the questionnaires.

“Some tell you to come tomorrow, when come tomorrow, you find no one home.”

The informed consent also appeared not to have been sufficient to address all the respondents and potential respondents concerns.

“You explain, they say I don’t hear you, I don’t understand. Explain again, explain, explain. [A lot - another group member]. And then they say I am not ready to answer this questions.”

Operational issues affecting field workers (field workers’ focus groups)

There were perceptions in the Tzaneen area, that the field workers were researchers, earning a lot of money, and the mobile/cell phone added to that belief.

“And when we going to get that money, they think we are going to be millionaires.”

When they completed the research forms, they did not carry their treatment kit with them, and some community members were very unhappy about it.

“Some of them, if they agree to answer your questions and you find there is someone who is not feeling well. They ask us why are we not coming with the treatment kit to help them. For instance maybe you are finding the person having sores. What are you going to give them? They are expecting us, maybe we can give them a Betadine, bandage, gauze, something, they say why you don’t come with treatment kit. Sometimes, if you go here, don’t ever come here again because you are not helping us with anything. Even if we advice them with health, general health. But they say no, you are not allow to come here because what you, what you like to do is come and ask us questions, but you not give us something.”

In Tzaneen there was unhappiness about the pay they got, the lack of carry bags and name tags. Both groups had to find ways to fit the research into their daily work activities. Problems were also experienced when they tried to do interviews on a Saturday or Sunday, Tzaneen. The IMCI statistics came down in Overberg and it seemed as if that created more problems. Also in Overberg one field worker had refusals to sign the consent form, for fear of signing something that can later create problems, and then did not use it any longer. The other group members explained to her the importance for the research that these forms must be explained and signed before an interview can be conducted.

What happens with research findings (field workers’ focus groups discussions)

Concerns were expressed in both areas where the data went and what is going to be done with it. The field workers had problems answering it. They made general remarks like, government must do research to know what to do, or that they fax the papers, or the mobile/cell phone information goes directly to Pretoria.

“Because I don’t know, they would know after the research, what we find out, but as for myself I don’t know.”

“They want to, I mean most of the houses that we did, the people asked now what do you do with the information, where does it go.”

And the discontent was:

"Others, say one person comes to the house, ask questions [group agreement], they won't get anything from the government. The government doesn't respond by anything."

Future dreams and issues (managers)

Both managers felt the research was important to once again highlight the importance of community-based health workers.

"I don't think that the need is less, but it is not as fashionable. Children are more fashionable, gender is more fashionable. You know all those issues have made home-based care fall by the way side. And we have to work hard in getting that back. And hopefully this can do that."

"The focus shifted to primary health care and not to community health care. ...It is now my ideal to depend on these health workers [for community care]."

"I want national to understand that home-based care isn't second rate care. And somehow we need to prove that, and if we can use this as proof then so much the better."

For one manager it would be important to get a community profile. Although the results could be important for the other manager, she also saw another important function, i.e. impact surveillance.

"It would be nice to have a proper standardised system for every home-based care CBO. So that everyone is collecting the same thing, it would be nice."

One manager dreamt about using mobile/cell phones to provide better care to communities.

"And then to do things like referrals on their phones, be able to get health information, dates, it would be amazing."

"Imagine if a patient could see that the care giver can immediately take out her phone and call an ambulance. Phone the social worker and say, where's this grant. How much faith would the patient also have in the care givers capacity. Or the police or whatever, I mean it would be a real resource in their community."

"We could probably pick up cholera, typhoid, before its even, now if had 50 diarrhoeas coming in on 1 day, straight pick up that something is going on. Or malarias."

Positive administrative issues were also foreseen. It can also be a communication and support tool and an incentive.

"I mean it would help all our admin. Cut out so much time that my staff waste, counting things. It will be awesome."

"With cell phones we might only have to see them once a quarter and we've got a link, a direct link. And then to sent out about meetings, and you know it would be a communication tool as well as a data collection tool."

"To communicate through SMSs and they all enjoyed it, and they've all send SMSs back. I mean I think that's a nice motivational thing. If you sent a letter they are not going to get it. You know, so that's I think just in terms of that kind of support has been wonderful. And I mean every now and again I send them a SMS thanks for your hard work, and I think they like it."

"... as your stuff came in you could justify your stipend and government can only love it."

Questionnaire changes can also be made easily on a mobile/cell phone, as you only have to upload a revised questionnaire.

"Imagine if you can just sent an SMS, please upload there is a change on your questionnaire. I mean what a win."

Furthermore, the possibilities of mobile/cell phones to track households and individuals by using geographical positioning system (GPS) technology should be investigated.

"You now what would be nice in future and I don't know how close cell phones are to that, but it is the GPS thing. That there is some way of being able to pin points the households, without addresses and numbers and all that."

Problems with a paper-based database were also foreseen, especially the capturing and management of data.

"How can an NGO manage this kind of information. You need a data capturer, permanently employed 24 hours a day."

Possibilities of funding sources will have to be sought.

"And then to get the big cell phone providers on board. It would be also a huge challenge and exciting as part of their CSI. You see I am thinking of that already. Forget the results I am already a year down the line."

"I mean what a nice project to ask people for all their old cell phones which is gathering dust at home. What a wonderful project, people can donate their cell phones."

And lastly, action needs to be taken to make the search of value, and mobile/cell phone collection is the way to go.

"We have to take it further. We've got to use this research as far as we can. ... Not just send it out but take it with and say lets talk this through."

"I am past all the other things now. I am ready for the next step. I am really excited about it [introducing cell phone technology]."

General remarks

Implementation of an innovation requires support from all stakeholders. In this instance, the NGO structures approved the introduction of the study, with no obstructions noted during implementation. Whereas the public local health authority approved participation and the provincial health structures opposed it with consequent instructions to CHWs not to participate, because they thought they could piggyback the data collection on an existing CHW programme. This action compromised the testing of the surveillance instrument in the rural farming setting.

Ongoing support of CHWs by professional health providers (preferably professional, registered nurses with community nursing experience) was confirmed as vital for ongoing sustainability of these interventions. Literature confirms this notion (Stekelenburg et al. 2003).

DISCUSSION

This seems to be the first study of its kind. Developing measurable outcomes to determine the impact of CHWs was and remains complex. Nevertheless, this study provides an important basis for the development of a generic, standardised surveillance tool to assess the impact CHWs have, using available technological, i.e. mobile/cellular phone network.

Beaglehole and Bonita (2004), cites Loomis and Wing (1990) who emphasized the 'black box' approach the epidemiology. This approach emphasized disease-exposure association and has certainly made major contributions to disease control activities. However, this approach is at risk of excluding other health related factors beyond the control of individuals, i.e. social structure, economical, lifestyle and physiological influences as referred to as contemporary epidemiology (McKinlay and Marceau, 1999), referred to by Beaglehole and Bonita (2004). Beaglehole and Bonita (2004), challenges epidemiology to acknowledge the complex interrelationships of the socio-economic and environmental issues that affect health status to transform public health control activities. Whereas, health policy makers require evidence to ensure to measure efficiency in health care provided to citizens (Jacobs, Smith and Street, 2006). Research shown indicators that could be used to evaluate CHW impact are: treatment adherence practices, prevention strategies and health care utilisation (Nemcek and Sabatier, 2003).

Information collected via the developed CHW impact surveillance tool using mobile/cell phone technology, provides immediate access to electronically available data for analysis interpretation. This may be a start towards causal inferences to health and disease related situations beyond the disease-exposure approach towards health-disease approach Beaglehole and Bonita (2004) referred to. Health management policy makers, CHW project management, funders and National Treasury should be able to use standardised, objective and up to date information to make evidence-based decisions to ensure continued sustainability of well-functioning CHW programmes. This information would also direct, strengthen and guide public health and CHW programme management in their strategic thinking, providing them with the possibility to respond quickly should the need arises to address identified health related issues towards improving the health status of the majority living in poverty. Having quantifiable evidence, should enable them to secure required resources.

A standardised surveillance tool will ensure a standardised record system for all CHW interventions impact assessment system.

Vital to collect health related data appears to be a trust relationship with community members, for which CHWs seem to be well-positioned.

Completing the questionnaires on the mobile/cell phone involved statistically significant less time for all the questionnaires compared to completing the paper-based questionnaires, except for the death report questionnaire: most likely due to the small number involved in terms of the death report.

Our qualitative data reflected the frustrations with the time it took to complete the 19-paged paper-based questionnaires, with community members trying in some cases to get rid of the fieldworkers before they could complete all the questions.

Involving community structures to launch this mobile/cell phone technology, should deal with the community's perception that CHWs carrying mobile/cell phones to collect data, enjoy financial benefit, especially when this becomes part of their daily activities. Furthermore, this event should also address the fear CHWs expressed of being robbed and/or attacked when others note them having a mobile/cell phone unit in poor community settings.

'At present our communities are curatively oriented. Accepting CHWs as part of the health services, is dependent on them providing medication during home visits.' (Interview in Bloemfontein with Mrs. S. Machedi, on 19 September, 2007). With the mobile/cell phone in hand, CHWs would be able to call for an ambulance or arrange a referral for community members, rather than their acceptance being dependent on them carrying stocks of medications.

CHW support and monitoring has been described as vital, requiring much effort (Clarke, 2005). Our qualitative data indicated mobile/cell phones can be used to provide CHWs with ongoing support at the cost of one SMS. An SMS can be sent to: encourage CHWs, should they experience problems, inform them of an event, albeit a reminder of a meeting, training sessions, and/or any changed arrangements. Unfortunately, this would not be possible in areas without access to a mobile/cell phone network.

Fieldworkers had different levels of literacy. This influenced the time spent to complete the questionnaires, albeit mobile/cell phone or paper-based. However, it is observed that irrespective of their level of literacy, CHWs were able to collect the required data, provided they were given additional training and support.

With the mobile/cell phone technology confidentiality of the captured information is immediately accommodated once the questionnaire is submitted as an SMS and then rests within the particular project. It is noted that a questionnaire cannot be sent more than once using the mobile/cell phone. It would however require that each project generate a community register in which each household is listed and awarded a unique number that would enable the particular project management to link specific issues to a particular home.

Household anonymity and confidentiality would remain within each project.

CHWs experienced keeping paper-based questionnaire information confidential as very stressful. This stress would be transferred to project management once CHWs submit these completed questionnaires. Data suggests that office space is already limited. Having to store completed questionnaires in a secure and confidential environment for any length of time, would be very difficult.

Paper-based questionnaires would require the services of a data capturer to capture the information electronically. This process introduces another possibility for human error, especially as entries on the paper-based questionnaires are sometimes difficult to decipher. Caution should be taken not to force an answer.

Using a mobile/cell phone to collect the data would, once the completed questionnaire is submitted, this data is immediately captured in MS Excel; hence, a local data capturer will not be required. Mobile/cell phones have the possibility to delete and/or change entered data before submission, which halves the possibility of human errors. The MS Excel information can be accessed by individual projects via the website using their unique number. Such a unique number would also be used to identify each project. This system has the potential to analysis and interpretation data before it becomes outdated.

Mobile/cell phone technology has the advantage to complete information automatically that reduces the repetition of some questions. People got irritated with the repetitive nature of some questions in the paper-based questionnaires. Although both paper-based and mobile/cell phone questionnaires were well completed, it does not mean that terms were consistently understood. This should receive attention during training. Translating these concepts at local level would address this inasmuch that people would be involved and understand the concepts in the same way.

To expand this mobile/cell phone technology nationally it would involve funding the purchase of basic web-enabled mobile/cell phone units, the ongoing costs of insurance and replacement of these units, and a national mobile/cell phone technological support system. Submission of each questionnaire/form and/or communication with management will be the cost of one SMS. Local CHW trainers should be provided with a similar, prepared mobile/cell phone to operate and provide the necessary ongoing support, when problems are experienced.

However, to roll-out the paper-based questionnaire appears to have many logistical challenges, i.e. the cost of printing, photocopying (may require more staff to copy and collate), packaging, posting and transport for CHW projects that do not have the in-house capacity to duplicate these forms. In addition a data manager has to be employed to capture this data electronically as well as the rental for suitable storage to safely store completed questionnaires for the required 5-year period. Management will have to ensure that CHWs have black ink pens and strong waterproof bags to carry these forms.

The mobile/cell phone technology makes it possible to accommodate changes to the questionnaires in a very short space of time at the cost of an SMS. Contrarily, making changes to paper-based questionnaires will involve costly logistical and managerial procedures to ensure that alterations are introduced from a particular date.

Using the questionnaire in English seems to have worked well, although these were translated in to Afrikaans in the Afrikaans speaking area, where in the end the English questionnaires were used to communicate with Xhosa-speaking CHWs.

Data indicated that lower literate community members appeared more willing to provide required information. However, care should be taken to ensure that these members of community are not abused because they may be ill at ease to refuse answering some questions.

CHWs were trained to function as fieldworkers during one 6-hour session. Considering our qualitative data, training should be repeated after a 2-week interval. Further indications are that regular support beyond these training sessions will equip CHWs to collect required data without insurmountable problems. Over time, these initial problems should be fully addressed once data collection becomes common practice.

Our qualitative data indicated that some questions caused fieldworkers and community members' great discomfort and embarrassment. Data indicates that questions asking ID numbers, physical and postal addresses, sensitive personal issues, and culturally sensitive related issues should be excluded (Annexure 3-6). Based on the data, all the questionnaires were reviewed, language simplified and sensitive questions removed. Recommended questionnaires are enclosed as Annexure 13 - 17.

It became clear that communities are tired of providing research information without them drawing benefit for their situation in anyway on completion of the research.

Concluding remarks

As a generic surveillance tool to determine CHW impact, Annexure 13-16 are enclosed. Using these forms, an ongoing standardised CHW impact assessment tool will provide contemporary epidemiological information to assist health planners; policy makers and CHW project/programme management to base their decisions on evidence. Further, this information will inform funders and National Treasury to make evidence-based decisions for ongoing funding towards the sustainability of these projects, and identify well-functioning projects for 'best practice' guidelines.

Using available mobile/cell phone technology seems most appropriate even in areas outside a mobile/cell phone network as at least 50 completed questionnaires can be stored on the mobile/cell phone and sent once they either get to an area covered by the mobile/cell phone network.

Mobile/cell phone suppliers should be approached to have them consider becoming involved as part of their social involvement.

Using a single model mobile/cell phone across the board will limit confusion.

Training needs to be extended to two training days, two weeks apart with learners having a project to do before the second training session. These sessions should not exceed from 09:00 - 14:00, due to limited attention span of CHWs and them having to return home at an acceptable time of day.

Translations of a list of standardised definitions of key concepts should be translated at local level into the vernacular as part of training. Questionnaires should be completed in English. This will save employment costs of translators and limit misinterpretations during data analysis.

CHW trainers would need to be trained to competently address operator-, instrument-, technical-, network- and operational-problems at community level. These trainers should each be issued with a prepared mobile/cell phone unit to assist them to guide CHWs when they experience problems and/or need to be contacted.

Both data collection methodologies would need data managers to analyse and interpret data. CHW project and health management should be trained to be able to make sense of the data, although data can be scrolled.

Mobile/cell phone technology needs tested software and technological backup. The software used in this development phase has been further tested and refined since the completion of this project.

Conclusion

CHW impact can be measured at community level using innovative technology.

Recommendations

Based on this study it is recommended that:

1. A detailed financial analysis is conducted to establish the funds required to introduce using available mobile/cell phone technology to establish the impact CHWs have in the communities where they function, and a
2. Phased approach to ensure national roll-out is implemented to measure CHW impact on an ongoing basis. It is recommended that forms attached as Annexure 13 - 16 are used as a standardised generic ongoing surveillance tool to establish the impact CHWs have in the communities where they function. CHW must be equipped to complete these forms as part of their daily function during their training, and that
3. Each CHW project complete the General Information form (ANNEXURE 17) annually, and that the
4. Developed website be used and maintained
5. The feasibility and desirability of having a centralized website and data base be investigated. Alternately that an appropriate report structure be devised albeit local, regional or provincial.

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ANNEXURES

- I. Mobile/cell Phone Training Manual
- II. General Information: Project
- III. Annual Homestead Survey
- IV. Annual Household Survey
- V. Health Visit
- VI. Community Health Worker Monthly form
- VII. Household Visit form
- VIII. Health Visit form
- IX. Monthly CHW Equipment Kit Replenishment form
- X. General Information form: Project

ANNEXURE 1: CELL-PHONE DATA CAPTURE

STANDARD OPERATING PROCEDURE MANUAL

Draft - Tuesday, February 27, 2007

Cell-phones can be used to collect data in a similar manner to small palmtop computers.

The advantage is that any information can easily, confidentially and reliably be uploaded to a secure server within seconds at a very low cost - less than the cost of an SMS.

If the cell-phone is out of range of the cellular-network, the outgoing message can be stored until the phone is within range of the network.

Sensitive information is protected by several levels of security. In the first instance the cell-phone is password protected. In the second instance as soon as the form has been completed, the data is no longer accessible from the cell-phone. Even if the battery in the phone goes flat the data is not lost. Once the data has been transfer to the secure service it can only be accessed with the permission of the principal investigator, In data analysis any individual identifiers while being very important for linking

A questionnaire form be can pre-installed or be downloaded onto the cell-phone and kept updated.

Typically a form can be used to collect information on up to about 50 questions.

Several different forms can be downloaded onto the cell-phone. With a little practice it is easy to use. The questions are easy to read. Answers to questions can be entered in a variety of different forms including text, numbers, dates and single or multiple choices.

Airtime will be pre-loaded and topped up periodically. The cell phones may not be used for personal calls as this will use up airtime. The data collector is responsible for any excess costs associated with private use. R49 worth of SMS is included for communication with the facilitators for queries.

While many cell-phones are very similar the following explains how to use the functionality of a low-cost cell-phone the Nokia 6020 which is used for this application.

1. Switch on the phone, after ensuring that it is properly charged;
2. Enter the pass-word that protects the phone and the main menu display will be seen;
3. Press the centre menu button to enter the menu;
4. If the light goes off at any time during the entry of data, it can be switched on again by pressing this key up or down;
5. Scroll down through the menu by clicking on the select button through messages, call register, contacts, settings, gallery, media, push to talk, organizer and finally arrive at 'applications'
6. Click down on applications and select 'collection'
7. Click on select application and it will open on Mobile Rsearcher
8. Click to open the application - the 'Mobile Researcher' display will show and the phone will buzz indicating that you are correct;
9. Click on the display and there will be several choices of actions to be performed with surveys; select the top option 'conduct surveys'
10. Seven different surveys will be offered as an alternative:
 1. Annual Homestead form
 2. Annual Household form
 3. A Client Health form (general information applicable to everyone and includes disability)
 4. A Child Health form (for under fives and school goers)
 5. A Woman's Health form
 6. An Illness/Adherence form
 7. A Death Report
11. To load any survey, first scroll down to highlight the option and then choose select;
12. The first question of the form will appear in the window;
13. Enter the number or text requested - it will open to a data entry window;
14. As soon as the information has been entered, choose OK and then if the data is correct, choose next;
15. At any stage if the wrong information is chosen, it is possible to choose options and go back. Be careful not to press the quit survey option as if this is done the data entered on the questionnaire that far will be lost;
16. Fill in the information, either a number, text or a choice;
17. There are two kinds of choice that may be offered
 - a. A single choice where the choice indicator has a circular shape and the choice is a black dot inside this - only one choice is allowed and the other choices are excluded;

- b. A multiple choice where the choice indicator has a square shape and the indicator is a cross inside the square. None, one or more of the choices can be entered;
18. Most questions do not require that an answer is given, but be careful not to skip questions; always click on an option after it has been highlighted;
 19. When the end of the questionnaire is reached it will show that it has been completed;
 20. It is important when first reaching a homestead to complete the annual homestead form. The homestead comprises all the households living in a house or cluster of structures that are used as places of residence. The unique identity number for each homestead should be written down and kept in a file with all the others, describing in a unique way how to find the homestead;
 21. The homestead form is only answered once for each homestead once per year;
 22. Once this form is completed open the next form which is the household form. A household is comprised of all the people, usually relatives who shared their living functions such as eating meals; one form is completed for each separate household; this is also done only once in a year;
 23. The next few forms must be completed on every household visit
 24. The client health form is next and asks basic information about one of the individuals in the household; when it reaches a certain point it will ask if the person is disabled. If they are data will be collected, if not the form will end;
 25. After the client information form, answer in sequence the Child Health form if the person is a child or the Woman's Health if the woman needs to be involved;
 26. The next form is an illness/adherence form. If data has previously been entered on the disease, then it goes straight to the adherence section;
 27. The last form is a death report form if there have been any deaths in the household during the previous year
 28. Once the sequence of forms have been completed, it might be wise to select 'back' and then scroll down for the 'upload' option. It will indicate how many surveys are pending uploading;
 29. A green indicator will show how the questionnaires are being uploaded to the secure server; it will indicate as each questionnaire is uploaded and buzz when it is done.
 30. That completes the basic procedure - further options are available and these can be learned over time
 31. "Check for Updates" allows the latest versions of all the questionnaires to be loaded onto the phone. Generally this will not happen often.

This standard operating procedure will itself be updated from time to time to allow for explanations that might seem to lack clarity.

ANNEXURE 2: GENERAL INFORMATION: CBHW PROJECT

Code: GI

Question	Information
1. Project Details:	
Registered Name	
Date of registration	
Organizational Type, e.g. NGO, NPO, CBO, PBO etc.	
Physical Address	
Postal Address	
2. Contact Details:	
Telephone number	
Cellular telephone number	
Facsimile number	
E-mail address	
3. Contact person	
Designation	
Position	
Direct contact number	
Organisational organogram (attach)	
4. Financial information	
Annual report: indicate how this can be accessed.	
5. What is the aim of the project	
What is the vision of the project	
What is the mission of the project	
6. Project evaluation	
Briefly describe the monitoring system in use	
Briefly describe the evaluation system in use	
7. Project record keeping	
Briefly describe record keeping system in place	
Is an electronic database available?	

8. CBHWs:	
Total number active at present	
Attrition numbers for last year	
Main reasons given for attrition	
How many CBHWs are in training?	
Ideal number CBHW required	
Briefly describe CBHW recruitment process.	
9. Training	
List specific training available	
Number CBHWs completed each type of training	
Briefly describe certification of training	
List and briefly describe any academic linkages	
List CBHW career development opportunities	
List contents of your curriculum	
Who trains your CBHWs?	
10. CBHW activities (Attach separate page if needed)	
List CBHW activities	
Briefly discuss means used to sustain activities	

Signed: _____

Name printed: _____

Date: _____

ANNEXURE 3: ANNUAL SURVEY: HOMESTEAD FORM (1)

Enter information once a year for every residential homestead - that is a place which may be a building or several buildings within one property where one or more households may live.

Q	Heading	Question	Enter a number, text or choice
1	Date	What is today's date?	Dd/mm/yyyy
2	Time	What time is it?	00h00
3	Homestead Municipal Code	What is the municipal code for this homestead?	
4	Municipality Ward Number	Which ward number is the municipality in?	
5	Homestead Number	What is the number of the homestead?	
6	Homestead - Number of Families	How many families live in the homestead?	
7	Homestead Address	What is the address of the homestead?	
8	Homestead PO Box	What is the post box number of the homestead?	
9	Homestead Postal Code	What is the postal code of the homestead?	
10	HOH Surname	What is the head of the main household's surname?	
11	HOH First name	What is the head of the main household's first name(s)?	
13	Nearest School	What is the name of the nearest school?	
14	Nearest Clinic	What is the name of the nearest clinic?	
15	Number of Residents	What is the total number of people who live at this homestead?	
16	Number of Dwellings	How many separate dwellings on the homestead?	
17	Total Number of Rooms	What is the total number of rooms at the homestead?	
18	End	What is the time at the end of the visit?	00h00

Voltooi inligting een keer per jaar vir elke plaaslike werf - dit is 'n plek wat 'n gebou mag wees or verskeie geboue op een werf waar een of meer huishoudings mag bly.

ANNEXURE 4: ANNUAL SURVEY: HOUSEHOLD FORM (2)

Enter information once a year for every household in a homestead.

A household can be one person or a group of people who usually live in the same dwelling and make common provision for living essentials.

Q	Heading	Question	Enter a number, text or circle a single or multiple choice
1	Date	What is the date today?	Ddmmyyyy
2	Time	What is the time at the start of the interview?	00h00
3	Homestead ID number	What is the ID number of the homestead?	
4	Household ID Number	What is the ID number of the household?	
5	HOH Surname	What is the head of the main household's surname?	
6	HOH Firstname	What is the head of the main household's first name(s)?	
7	Household Births	How many births were there in the household last year?	
8	Household Deaths	How many deaths were there in the household last year?	
9	Household Residents	How many are at home in the household most nights?	
10	Household Non-residents	How many are not at home in the household most nights but are regarded as household members?	
11	Household Infants	How many infants from 0-1 year resident in the household?	
12	Household Preschool children	How many children from 1-5 years resident in the household?	
13	Household Lower Primary school children	How many children from 6-10 years resident in the household?	
14	Household Teenage girls	How many girls from 11-20 years resident in the household?	
15	Household Teenage boys	How many boys from 11-20 years resident in the household?	
16	Household Women	How many women from 21-60 years resident in the household?	
17	Household Men	How many men from 21-60 years resident in the household?	
18	Household Seniors	How many men and women 61+ years resident in the household?	
19	Household Pregnant women	How many pregnant women resident in the household?	
20	Household Disabled	How many disabled resident and non-resident people in the household?	
21	Household Employed	How many employed resident and non-resident people in the household?	
22	Adult Health Problems	How many adults have a significant or ongoing health problem that needs regular health care?	
23	Child Health Problems	How many children have a serious or ongoing health problem that needs regular health care?	
24	RTC Availability	How many children under 6 years have their Road to Health Cards available?	
25	Household Immunisation	How many children under 6 years are correctly immunised for their age according to their RTH card?	
26	School Attendance	How many children of school going age not going to school regularly?	
27	Household Tuberculosis	How many members of the household were diagnosed with or treated for TB during the year?	
28	Household HIV/AIDS	How many members of the household were diagnosed with or treated for HIV or AIDS during the year?	
29	Household and Bedridden	How many members are housebound or bedridden due to illness?	
30	Household Abuse	Have there been incidents of abuse during the year?	Multiple choice a. Physical abuse of a woman b. Sexual abuse of a woman c. Physical abuse of a child d. Sexual abuse of a child e. Neglect of a child f. Abuse of a man

31	Usual Health Facility	What is the usual health facility used by the household?	Single choice a. Private clinic b. Private doctor c. Public hospital d. Public clinic e. Mobile clinic
32	Home-based Caregiving	Who are the home-based caregivers available to household?	Multiple choice a. CHW b. Home based caregiver (Home nursing provider) c. DOT supporter d. ART supporter e. OVC worker f. Peer educator
33	Water Supply	What is the water supply for the household?	Multiple choice a. River or dam b. Unprotected spring c. Borehole d. Protected spring e. Rainwater tank f. Piped water
34	Household food security	What is the food production capacity of the household in the homestead?	Multiple choice a. None b. Home vegetable garden c. Allotment in communal garden d. Access to fields e. Possess poultry f. Possess domestic livestock
35	Household Toilet	What is the sanitation system for human waste?	Single choice a. None b. Bucket system c. Pit Latrine d. Vented improved e. Flush toilet with septic tank f. Flush toilet with public sewerage
36	Solid Organic Waste	What happens to biological waste such as peelings, spoiled food etc?	Single choice a. Nothing specific b. Collected by municipality c. Burn d. Buried e. Open pit f. Compost
37	Solid Inorganic Waste	What happens to non-biological waste such as plastic, papers, bottles, tins etc?	Single choice a. Nothing specific b. Collected by municipality c. Burn d. Buried e. Open pit f. Recycled
38	Household Power	What is the main source of power for cooking?	Single choice a. Wood b. Coal c. Paraffin d. Gas e. Electricity f. Dung
39	Household Lighting	What is the main source of lighting?	Single choice a. Candles b. Paraffin c. Generator d. Battery electric e. Grid electricity
40	Time at end of interview	What is the time at the end of the visit?	00h00

ANNEXURE 5: HEALTH VISIT FORM (3)

Complete for each living individual - if a person has died since previous visit complete death report

Q	Heading	Question	Enter a number, text or circle a single or multiple choice
1	CHW Number	What is CHW's number?	
2	Consent	Does the client consent to this interview?	Yes/No
3	Date	What is the date today?	Dd/mm/yyyy
4	Time at start of interview	What is the time at the start of the visit?	00h00
5	Homestead ID number	What number has been given to the homestead?	
6	Household ID number	What number has been given to the household?	
7	Client Surname	What is Person's surname?	
8	Client Firstname	What is her/his first or personal name?	
9	Client Middle Name	What is Person's middle name?	
10	ID Status	Does the client have an ID document? Choose one only	a. No - has never had b. Not yet - applied 1-3 months ago c. Not yet - applied 3-6 months ago d. Not yet - applied 6+ months ago e. Yes - not available f. Yes - is available
11	Client ID Number	What is the client's ID number (if available)	
12	Client DOB birth	What is the client's (approximate if not known) date of birth?	dd/mm/yyyy
13	Client Age Range	How old is the client? Choose only one	0-1 year 1 - 5 years 6 - 10 years 11 - 20 years 21+ years
14	Client Gender	Is the client male or female?	Male/Female
15	Birth Certificate Status	Does client have a birth certificate? Choose one only	a. Yes b. No c. Don't know
16	Homestead Residency Status	How often does the client return to the household? Choose one only	a. Annually b. Monthly c. Weekly d. Daily
17	Client Employment Status	How is the client employed? Choose only one.	a. Formally employed b. Informally employed c. Self employed d. Part time employed e. Too young f. Too old g. Not able to work a. Unemployed
18	Client Grant	What grant does the client receive? Choose one or more.	a. None b. Child support grant c. Care (dependency) grant d. Foster care grant e. Old age pension f. Other pension g. Poverty relief
19	Grant Status	What is the status of the client's grant? Choose one only	a. Not applied for b. Applied for, not yet granted c. Applied for, denied d. Received regularly e. Received, but not regular

20	Client Educational Level	What is the educational level of the client? Choose one only	a. Tertiary (University, college) b. Grade 12 c. Grade 11 d. Grade 10 e. Grade 9 f. Grade 8 g. Grade 7 h. Grade 6 i. Grade 5 or less j. Pre-school /Grade R k. Too young for any form of school
21	HOH Relationship	How is the client related to the household head? Choose only one	a. Not related b. Adopted c. Relative d. Sibling e. Parent f. Grandchild g. Child h. Partner i. Wife j. Husband k. Is household head
22	Parental Situation	What is the parental situation? Choose one only	a. Both parents deceased b. Mother deceased, father alive c. Father deceased, mother alive d. Both parents alive and provide care e. Cared for by father, mother absent f. Cared for by mother, father absent g. Not a child
23	Caregiver Status	Is the client a parent or adult caregiver? Choose one only	a. What disabilities does the client have? b. Adult (no child) caring for children in household c. Adult (no child) not caring for children in household e. None
24	Client Health	What is the client's health status? Choose only one.	a. Healthy b. Healthy but disabled c. Disabled with additional disease d. Minor illness e. Serious illness
25	Time at end session	What is the time at the end of session?	00h00
26	Disability section If patient is disabled then complete this section		
27	Client Disabled	Is the client disabled?	Ja/Nee
28	Client Disabled	What disabilities does the client have? Choose one or more.	a. None b. Blind c. Deaf e. Weakness/Paralysis f. Cerebral palsy - muscle spasm g. Mental retardation h. Mental illness i. Epilepsy i. Other
29	Disability Severity	How severe is the disability? Choose one only	a. Mild b. Intermediate c. Severe
30	Client Mobility	Is the client housebound or bedridden? Choose one only	a. Bed-bound b. House-bound c. Can move around on own outside home d. Full mobility

31	Disability Services Provided	What services are being provided to the client? Choose one or more.	a. None b. Homebased care, eg. foot care, nail care, c. Referred to social services or home affairs d. Referred to health services e. Referring to a school or educational service f. Rehabilitation g. Assisted to apply for a grant h. Accompanying person to a service i. Domestic help household eg. cleaning, cooking
32	Client Illness (in addition to disabled)	Does the patient also have an illness?	a. Yes
33	Last Comment	This is the end of the survey. Any final comments (optional)?	
34	Time at end session	What is the time at the end of session?	00h00
If patient has illness then go to ILLNESS SECTION			

CHILD HEALTH SECTION - Complete for children under six years of age			
35	Time at start of interview	What is the time at the start of the session?	00h00
36	CHW Number	What is your CHW number?	
37	Consent	Does the client (or legal guardian if under 18) consent to this interview?	Yes/No
38	Homestead ID number	What is the ID number of the homestead?	
39	Household ID Number	What is the ID number of the household?	
40	Client Has ID Number	Does the client have an ID number?	Yes/No
41	Client Surname	What is the client's surname?	
42	Client Firstname	What is the client's first/personal name?	
43	Client Middle Name	What is the client's middle name (if applicable)?	
44	Client ID Number	What is the client's ID number (if available)	
45	Young child selection	Is the client a child less than six years old	Yes/No
46	RTH Card	Is the road-to-health card available? (Choose one only)	a. Present and up to date b. Present not up to date c. Absent
47	Mid-upper arm Circumference	Mid-arm circumference of child? (cm)	Number (cm)
48	Client Nutrition	What is the nutritional status of the child? (Choose one only)	a. Marasmus b. Kwashiorkor c. Wasted - thin for age d. Stunted - short for age e. Not growing well - losing weight f. Not growing well, weight not increasing/ too slowly g. Good/equate - upward growth curve h. Obesity (very fat)
49	Client Weighing	Child has been weighed at local clinic	a. Within last 2 months b. More than 2 months ago c. Not at all
50	Client Immunising	Child has been immunised at local clinic	a. Within last 2 months b. More than 2 months ago c. Not at all
51	Immunisation card	Is the immunization card present and up to date? (Choose one only)	a. Absent b. Present but not up-to-date c. Up-to-date

52	Child Service provision	What services are being provided to the patient? (Choose one or more?)	a. None b. Road to health chart advice c. Nutrition advice d. Formula feeding advice e. Breast feeding advice f. Weaning advice g. Immunisation advice h. Food supplement i. Referred for treatment or support j. Check milestones
53	Abuse	Any signs of abuse?	Yes/No
54	Time	What is the time at the end of session?	00h00

SCHOOLGOING CHILDREN SECTION - complete if client is a child 6 to 15 years

55	School attendance	Does the child have a school uniform and attend school regularly?	a. No b. Yes, not regularly c. Yes, regularly
56	School uniform		Ja/Nee
57	Child Education Service Provision	What services are being provided to the patient?	a. None b. Homework c. School attendance d. Uniform e. Referred
58	Extramural Participation	Does the child participate in out of school activities	a. Scouts b. Child-to-child c. Group therapy d. Sport e. Drama f. Clubs g. Gangs h. Choirs/singing i. Youth group j. Art work k. None
59	Last Comment	This is the end of the survey. Any final comments (optional)?	No
60	Time	What is the time at the end of session?	00h00

WOMEN'S HEALTH SECTION - complete for women above 10 years old (don't ask more than once in three months for a pregnant women or yearly for healthy women)

61	Time at start of interview	What is the time at the start of the session?	00h00
62	CHW Number	What is your CHW number?	
63	Consent	Does the client (or legal guardian if under 18) consent to this interview?	Yes/No
64	Woman Health Selector	Is the client a girl child less than ten years old	Yes/No
65	Homestead ID number	What is the ID number of the homestead?	
66	Household ID Number	What is the ID number of the household?	
67	Client Has ID Number	Does the client have an ID number?	Yes/No
68	Client Surname	What is the client's surname?	
69	Client Firstname	What is the client's first/personal name?	
70	Client Middle Name	What is the client's middle name (if applicable)?	
71	Client ID Number	What is the client's ID number (if available)	

72	Menstruation	Is the client having normal periods?	a. No - still too young b. Yes - regular c. No, irregular d. No, pregnant e. No, menopausal
73	Sexually Active	Is the client sexually active?	a. Not disclosed b. No c. Yes
74	STI	Does the client have a sexually transmitted infection now or at any time in the last year?	a. No recent history b. Yes - at present c. In past 3 months d. More than twice in past year
75	Contraception	What kind of contraception is the client using?	a. None b. Male condom c. Female condom d. Pill e. Injection f. IUD g. Emergency h. Other
76	Pregnancy Status	If the client is currently pregnant? If so, what stage? Choose one only	a Not pregnant b. First 3 months c. Middle 3 months d. Last 3 months
77	Antenatal Card	Does the client have an Antenatal card showing how regular she has been attending?	a. No b. Yes - irregular attendance c. Yes - regular attendance
78	Antenatal Visits	How many antenatal visits has the client attended so far?	
79	Previous Pregnancy	Has the client had any previous pregnancies?	Yes/No
80	Previous Pregnancy Result	What was the result of her last pregnancy Choose one only	a. Uncomplicated livebirth, full term b. Complicated livebirth, full term c. Livebirth, premature d. Spontaneous abortion in first 6 months e. Termination of pregnancy (TOP) in first 6 months f. Stillborn in last 3 months
81	Previous Pregnancy Count	How many times has the client been pregnant before?	
82	Previous Deliveries	How many times has the client given birth to a baby?	
83	Previous Livebirths	How many of the client's babies were alive at birth?	
84	Previous Multiple Pregnancies	How many twins or multiple births has the client had?	
85	Living Children	How many of the client's children are still alive?	
86	Risk Factors	Does the client have any risk factors? (multiple)	a. High BP b. Diabetes c. Heart disease d. Previous caesarian section e. Smoking f. Drinking g. Previous complications h. Geen
87	PAP Smear	Has the client had a PAP smear in the last five years?	a. No b. Normal c. Suspicious d. Result not known
88	Client HIV Status	Does client know their HIV status?	a. No - but would like to b. No - does not wants to c. Yes - prefers not to disclose d. Yes - HIV- e. Yes - HIV+

89	Woman Health Service Provision	What services are being provided to the client?	a. None b. Refer for antenatal care c. Assisted to apply for a grant d. Referred to social service e. Referred to health services f. Rehabilitation g. Given counseling h. Referred for counseling & testing
90	Last Comment	This is the end of the survey. Any final comments (optional)?	No
91	Time	What is the time at the end of session?	00h00

ILLNESS SECTION - complete for an adult or child that has an illness
If this is a repeat visit for an illness already reported to support adherence go to the section dealing with adherence

92	Time at start of interview	What is the time at the start of the session?	00h00
93	CHW Number	What is your CHW number?	
94	Consent	Does the client (or legal guardian if under 18) consent to this interview?	Yes/No
95	Illness present	Does the client have an illness of some kind?	Yes/No
96	Client Has ID Number	Does the client have an ID number?	Yes/No
97	Homestead ID number	What is the ID number of the homestead?	
98	Household ID Number	What is the ID number of the household?	
99	Client Surname	What is the client's surname?	
100	Client Firstname	What is the client's first/personal name?	
101	Client Middle Name	What is the client's middle name (if applicable)?	
102	Client ID Number	What is the client's ID number (if available)	
103	Client ID Number	Has this person's illness been captured before?	Yes/No
104	Symptoms	Select the symptoms or signs of the illness	a. Rash b. Pelvic pain c. Cough d. Pain in lower limbs e. Swelling (Oedema) f. Fever g. Wasting h. Rapid breathing i. Injury j. Shortness of breath k. Discharge l. Wheezing m. Lump n. Dehydration o. Headache p. Watery diarrhoea q. Neckpain r. Bloody diarrhoea s. Chest pain t. Nausea u. Pain in arms v. Vomiting w. Upper abdominal pain x. Itch y. Pain in lower abdomen

105	Illness Name	What is the name of the present illness if it is known?	<ul style="list-style-type: none"> a. HIV or AIDS b. High BP c. Stroke d. Heart disease e. Arthritis f. Asthma g. Cancer h. Don't know i. Diabetes j. Allergies k. Epilepsy l. Sores m. TB n. Rash o. Ulcers sores
106	Illness Traditional	Does the client believe they have a traditional illness?	<ul style="list-style-type: none"> a. Don't know b. No c. Yes - diagnosed but not treated by traditional healer d. Yes - diagnosed and treated by a traditional healer
107	Client HIV Status	Does the client know their HIV status?	<p>This aspect previously covered in women's health</p> <ul style="list-style-type: none"> b. No - does not want to a. No - but would like to c. Yes - prefers not to disclose e. Yes - HIV+ d. Yes - HIV-
108	Hospital discharge	Is this visit a follow up to a hospital discharge?	Yes/No
109	Client TB Status	Has patient ever had TB?	<ul style="list-style-type: none"> a. Don't know b. No g. Currently on treatment every day h. Currently on treatment but sometimes forgets c. Completed 6 months treatment in past f. Did not complete 6 months of treatment in past d. Had sputum taken at clinic but does not know result e. Had sputum collected but not able to go back to collect result
110	Previous Serious illness	Has the client ever had a serious illness in the past?	<ul style="list-style-type: none"> b. No a. Don't know g. Arthritis/joint pain/jig h. Asthma i. Cancer j. Diabetes k. Diarrhoea or dysentery m. Epilepsy e. Heart disease c. High BP f. Lung disease l. Malaria d. Stroke
111	Client mobility	Is the client housebound or bedridden?	<ul style="list-style-type: none"> a. Bed ridden b. Housebound c. Moves around, but with difficulty d. Moves around without difficulty
112	Home Care	Is the client receiving home care?	<ul style="list-style-type: none"> a. No b. Daily c. Once a week d. Twice a week e. Three times a week f. Four times a week g. Few times a month

113	Facility Attendance	Is the client attending the health services regularly?	<ul style="list-style-type: none"> b. No a. Don't know c. Weekly d. 2+ times a month e. Monthly f. Quarterly
114	Adherence support	What treatment support (if any) is being provided?	<ul style="list-style-type: none"> Ondersteun 'n behandelingsvriend c. None Supervise taking of treatment Replenishes medicines or delivering treatment Checking that there is enough treatment Ticking green card (recording findings) Intervening in problems referring if necessary a. Don't know
115	Adherence Support Duration	For how long has this treatment support been given	<ul style="list-style-type: none"> a. Don't know b. None c. Days d. Weeks e. Months f. Years
116	Medication Received	Are medicines being provided or supervised?	<ul style="list-style-type: none"> a. Don't know b. No c. Medicines supplied only d. Medicines supplied and treatment supervised e. Treatment supervised only
117	History or evidence of abuse?	Does patient have any signs or history of abuse?	<ul style="list-style-type: none"> Don't know No Bruises Unexplained injury Genital injury
118	Services Provided	What services are being provided to the patient?	<ul style="list-style-type: none"> r. Pain relief m. Referral to social worker t. Treating fever o. Referral to clinic q. Feeding s. Oral Rehydration b. Bed care d. Prepare meal f. Cleaning a. None h. Dressing wounds c. First aid j. Treatment observed e. Education or advice l. Given medicine g. Providing comfort n. Counseling i. Providing food p. Washing clothes k. Accompanying patient
119	Kit	Does the CHW have the following items for a kit?	<ul style="list-style-type: none"> f. Hand towel g. Plastic kidney dish h. Scissors i. Tweezer metal j. Nail clipper k. Thermometer l. Plastic sheet a. Carrying bag b. Pen c. Book m. Records d. Apron e. Tape measure

120	Items Used in Visit	What items were used during the visit?	g. Bandage roll h. Bandage s. Gauze j. Safety pins k. Jik l. Salt m. Sugar a. None n. Gentian violence b. Gloves o. Soap c. Dressings p. Nappies d. Pain tablets q. Aqueous cream e. Antiseptic r. Plasters f. Food parcel i. Condoms
121	Visit Fees	Is this visit a fee for service visit or free?	Fee for service Free
122	Time at end session	What is the time at the end of session?	00h00

ADHERENCE SECTION - FREQUENT VISITS			
Complete for frequent visits to assist with some aspect of helping support clients			
123	Time at start of interview	What is the time at the start of the session?	00h00
124	Main Problem	What is the client's main reason for needing an adherence visit? Choose only one.	a. TB b. HIV or AIDS c. Diabetes d. High BP e. Stroke f. Elderly g. Sores or wounds h. Other
125	Side Effects	Is the client experiencing any side effects? Choose one.	a. No b. Yes - minor symptoms c. Yes - serious symptoms
126	Adherence Support	What treatment support is being provided? Choose one or more.	Ondersteun 'n behandelingsvriend c. None Supervise taking of treatment Replenishes medicines or delivering treatment Checking that there is enough treatment Ticking green card (recording findings) Intervening in problems referring if necessary a. Don't know
127	Adherence Referral	Is client being referred? Choose one or more.	a. Referring for side effects b. Referring contacts c. Referring for adherence problem d. Referring for social issues e. Referring if treatment seems not to be working f. Symptoms of changing or new disease (eg. Fever) g. No referral
128	Specimens	Has sputum been collected or results given? Choose one	a. Collecting sputum with consent b. Giving feedback on results c. None
129	Adherence Education/ Training	Have there been any educational activities undertaken? Choose one or more.	a. Encouraging patient to opt for DOT b. Encouraging TB testing or treatment c. Encouraging to join a support group d. Giving health education/motivation e. Discussing obstacles to adherence f. Reminding to visit clinic g. None

130	Support	What support has been given? Choose one or more.	a. Counseling for HIV b. Delivering food c. Provides emotional support d. Dressing a wound e. Weighing f. None
131	Contact Tracing	What contact tracing has been undertaken? Choose one or more.	a. Screening for contacts b. Requested by facility to undertake case finding c. None
132	Family Training	What family training has been given? Choose one or more.	a. Training a client b. Training a family caregiver c. Training a treatment supporter d. None
133	Follow-up	Is visit to follow-up a referral from a facility? Choose one or more.	a. Conveying a message from clinic b. Providing follow up for hospital discharge c. None
134	Time at end session	What is the time at the end of session?	00h00

DEATH REPORT

Complete in the event of the client having died since an earlier visit

Q	Heading	Question	Enter a number, text or circle a single or multiple choice
135	Time at start of interview	What is the time at the start of the session?	00h00
136	Date	What is the date today?	Dd/mm/yyyy
137	CHW Number	What is your CHW number?	
138	Consent	Does the client and family consent to this information being provided	Yes/No
139	Deceased new	Has there been a death since the last visit?	Yes/No
140	Homestead ID number	What is the ID number of the homestead?	
141	Household ID Number	What is the ID number of the household?	
142	Deceased Surname	What is the deceased person's surname?	
143	Deceased Firstname	What is the deceased person's first/personal name?	
144	Deceased Middle Name	What is the deceased person's middle name (if applicable)?	
145	Deceased person's ID Status	Does the person have an ID book? Choose only one	a. No - has never had b. Not yet - applied 1-3 months ago c. Not yet - applied 3-6 months ago d. Not yet - applied 6+ months ago e. Yes - not available f. Yes - is available
146	Deceased ID Number	What is the client's ID number (if available)	
147	Deceased date of birth	What is the deceased (approximate if not known) date of birth?	dd/mm/yyyy
148	Deceased date of death	What is the deceased (approximate if not known) date of death?	Dd/mm/yyyy
149	Age at death	How old was the person when she or he died? Choose only one	< 1 year 1-5 years 6-10 years 11-20 years >21 years
150	Deceased Gender	Is the deceased male or female?	Male/Female
151	Death Certificate	Does family have a death certificate?	a. Don't know b. No c. No, application done more than 3 months ago d. No, application done less than 3 months ago e. No, application done in the last month f. Yes

152	Symptoms	Select the symptoms or signs of the illness	(short list) s. Rash g. Pelvic pain t. Cough h. Pain in lower limbs v. Swelling (Oedema) u. Fever w. Wasting j. Rapid breathing x. Injury k Shortness of breath y. Discharge l. Wheezing z. Lump m. Dehydration a. Headache n. Watery diarrhoea b. Neckpain o. Bloody diarrhoea c. Chest pain p. Nausea d. Pain in arms q. Vomiting e. Upper abdominal pain r. Itch f. Pain in lower abdomen
153	Illness Name	What is the name of the illness if it is known?	m. HIV or AIDS o. High BP b. Stroke d. Heart disease f. Arthritis h. Asthma j. Cancer a. Don't know l. Diabetes c. Allergies n. Epilepsy e. Sores g. TB i. Rash k. Ulcers sores
154	Place of Death	Where did the deceased die?	Home Hospital Elsewhere
155	Deceased Traditional Illness	Is it believed that the deceased died of a traditional illness?	a. Don't know b. No c. Yes - not treated by TH d. Yes - treated by TH
156	Last comments	This is the end of the survey. Any last comments?	
157	Time at end session	What is the time at the end of session?	00h00

ANNEXURE 6: HOMESTEAD FORM ANALYSIS

Completion rates and comments

Table 3a Homestead form: Comparing completion rates for date and time (Paper-based (n=823) versus mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Date	See Date comments, but well completed.	82 (99.7)	100%
Time begin	See Time analysis	771(94)	100%
End time	See Time analysis	745 (91)	100%

Table 3b Homestead form: Comparing completion rates for Homestead identification variables (Paper-based (n=823) versus mobile/cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead Municipal Code	Different field workers reported the code differently if same project. Not problematic and can be standardised.	820 (99.6)	199 (99.5)
Municipality Ward Number	Can be provided for each area and thus standardised, as some wrote names rather than numbers, paper-based only.	822 (99.9)	100%
Homestead Number	Responses ranged from a number that looks like a person's ID to the street address. See Homestead number and Household number comments.	776 (94.3)	192 (96)
Homestead Address	The low completion rate is more a reflection of omissions by the data manager. Address like "next to spaza shop", etc. were not entered in paper-based but in cell phone, also if it was the next door neighbours surname (confidentiality problem). Thus Cell phone appears more complete. The name of the village, area or town might be more useful. Street addresses were reported, but not with the town name.	615 (74.7) Reflects data entry rather than completion will be similar for both methods.	197 (98.5)
Homestead PO Box	Can have better ways to identify a place or person. It was observed that two families who lived in the same area had post boxes in different places. More than Household can also have the same post box address. Responses ranged from a 0 to empty.	665 (80.8)	92 (46)
Homestead Postal Code	Although only three definitely wrong, it would only identify the broad area and not the residency.	686 (83.4)	122 (61)

Table 3c Homestead form: Comparing completion rates for household head names (Paper-based (n=823) versus Cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
HOH Surname:	Well completed. See Surnames and Names comments. Very difficult to enter.	100%	199 (99.9)
HOH First name	Well completed. See Surnames and Names comments. Only entered one name (most frequently only one name was given).	819 (99.5)	194 (97)

Table 3d Homestead form: Comparing completion rates for nearest school and clinic (Paper-based (n=823) versus Cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Nearest School	Only for Tzaneen, Phase 2 paper-based forms and all cell phone. Well completed, but a better ID system can replace the variable. Spelling variations were observed but can be standardised.	771/775 (99.5)	193 (96.5)
Nearest Clinic	Spelling variations were observed but can be standardised. Well completed, but it doesn't say anything about really about distance to the clinic. The nearest might not mean near. Can be important in follow-up of health problems. Relative closeness might be considered as well, possible in Health Visit form.	817 (99.3)	199 (99.9)

Table 3e Homestead form: Comparing completion rates for number of residents and the dwellings (Paper-based (n=823) versus Cell phone (n=200))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead - Number of Families	Problematic. Although well completed it doesn't make sense. Sometimes it is the same number as the total number of residents living at the homestead. Also impossibly high numbers.	810 (98.4)	196 (98)
Number of Residents	Well completed. Not sure whether this is the number of residents living at the homestead or actually number of people seen as part of the household (non-residents also). For a few the number of residents was the same as Homestead ID.	822 (99.9)	198 (99)
Number of Dwellings	Appeared to be problematic not everyone knew always what to report. Saw "0" dwellings in paper-based.	783 (96.5)	187 (93.5)
Total Number of Rooms	Only for Tzaneen Phase 2 paper-based forms and Tzaneen cell phone. A technical problem was observed in Afrikaans cell phone database as the "date of entry" was the available data, which were deleted and omitted from the denominator. Saw "0" rooms in Paper-based. (will check whether this also a sensitive question, to do with "lack")	748/775 (96.5)	171/175 (97.7)

Frequency distributions of people and dwelling

Table 4 Observing frequency distributions of Paper-based and Cell phone: Homestead

Variable and Frequencies	Paper-based	Cell phone
Homestead-Number of Families	n=810	n=196
Median (Range)	1 (1-1460)	1 (1-150)
Number Residents	n=822	n=198
Median (Range)	5 (1-31)	5 (1-795)
Number of Dwellings	n=795	n=187
Median (Range)	1 (0-8)	1 (1-6)
Total number of Rooms	n=748	n=175 (25 Cell phone problems)
Median (Range)	4 (0-6)	3 (1-5)

ANNEXURE 7: HOUSEHOLD FORM ANALYSIS

Completion rates and comments

Table 6a Household form: Comparing completion rates for date and time (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Date	See Date comments, but well completed.	764 (94.6)	100%
Time begin	See Time analysis	738 (91.3)	100%
End time	See Time analysis	719 (88.9)	100%

Table 6b Household form: Comparing completion rates for Household identification variables (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments. Completion rate lower.	715 (88.5)	188 (73.2)
Household ID Number	See Homestead number and Household number comments. Completion rate lower.	693 (85.8)	226 (87.9)

Table 6c Household form: Comparing completion rates for personal identifiers (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
HOH Surname	See Surnames and Names comments.	778 (96.3)	254 (98.8)
HOH First name	See Surnames and Names comments.	772 (95.6)	251 (97.7)

Table 6d Household form: Comparing completion rates for births and deaths (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Household Births	A few problems were observed when a person reported a high number of births, it was the same as the number of births she had (corresponded with the women questionnaire variable).	673 (83.3)	122 (47.5)
Household Deaths	Although a death was reported sometimes no death report was completed. The reasons are not available. Low completion rate.	622 (76.9)	112 (43.6)

Table 6e Household form: Comparing completion rates for residents and non-residents in the household (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Household Residents	Sometimes no residents were reported, which is not possible. All respondents should have completed some number here. This could be due to misunderstanding the question or completing a number in the wrong variable.	776 (96)	251 (97.7)
Household Non-residents	Difficult to check this variable, but it seems as if some responses here belonged in the resident variable.	762 (94.3)	184 (71.6)
Household Infants	Although a birth was reported, sometimes no infant or 0 infants were reported. This needs to be monitored.	660 (81.7)	119 (46.3)
Household Preschool children	Difficult to check variable.	697 (86.3)	138 (53.7)
Household Lower Primary school children	Difficult to check this variable.	706 (87.4)	164 (63.8)
Household Teenage girls	Difficult to check variable.	704 (87.1)	160 (62.3)
Household Teenage boys	Difficult to check variable.	693 (85.8)	162 (63)
Household Women	A problem was observed that although the female variable indicated none, a female questionnaire was completed. This could be due to categorising the person wrongly as a senior, not completing the variable or writing in the wrong block.	768 (95.1)	238 (92.6)
Household Men	Difficult to check variable.	761(94.2)	218 (84.8)
Household Seniors	It is possible that younger than 61 persons was also reported in this variable.	708 (87.6)	147 (57.2)

Table 6f Household form: Comparing completion rates for employment and household health issues (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Household Employed	Difficult to check variable.	757 (93.7)	209 (81.3)
Household Pregnant women	The high reported numbers of women pregnant was correct but does not always make sense in terms of the number of people in the household. Not sure what this means. It also happened that none was indicated or not completed and in the women questionnaire a pregnant women was reported.	676 (83.7)	102 (39.7)
Household Disabled	Difficult to check variable.	653 (80.8)	106 (41.3)
Adult Health Problems	Difficult to check variable.	712 (88.1)	133 (51.8)
Household Tuberculosis	Difficult to check variable.	672 (83.2)	112 (43.6)
Household HIV/AIDS	Difficult to check variable.	664 (82.2)	109 (42.4)
Household and Bedridden	Difficult to check variable.	647 (80.1)	97 (37.7)
Household Abuse	The report rate was 10%. One field worker selected Physical abuse of a women frequently. But it appears the person collected information in a problem area. But it still needs careful interpretation. None could not be selected, therefore the low report rates.	82 (10.1)	36 (14)

Table 6g Household form: Comparing completion rates for children's issues (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Child Health Problems	Difficult to check variable.	708 (87.3)	104 (40.5)
RTC Availability	Difficult to check this variable, but for 19 infants and pre school children no information was available.	711 (87.9)	148 (57.6)
Household Immunisation	Difficult to check this variable, but for 23 infants and pre school children no information was available.	710 (87.9)	144 (56)
School Attendance	Difficult to check variable.	661 (81.8)	111 (43.2)

Table 6h Household form: Comparing completion rates for household's available health services (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Usual Health Facility	In some cases more than was chosen. Only entered one and in most cases it was Public clinic.	799 (98.9)	245 (95.3)
Home-based Care giving	Empty might mean none.	660 (81.7)	216 (84.1)

Table 6i Household form: Comparing completion rates for household food security, waste removal, sanitation, water and power use (Paper-based (n=808) versus Cell phone (n=257))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Household food security	Paper-based well completed.	773 (95.7)	173 (67.3)
Solid Organic Waste	Well completed.	805 (99.6)	252 (98.1)
Solid Inorganic Waste	Well completed.	801 (99.1)	251 (97.7)
Household Toilet	Well completed.	805 (99.6)	249 (96.9)
Water Supply	Well completed.	797 (98.6)	249 (96.7)
Household Power	For paper-based if Wood and Electricity was chosen, only Wood was entered. Well completed.	804 (99.5)	253 (98.4)
Household Lighting	Well completed.	805 (99.6)	248 (96.5)

Table 7a Household form: Comparing frequency distributions for births and deaths (Paper-based (n=808) versus Cell phone (n=257))

Variable	Paper-based	Cell phone
Household Births	n=139	n=50
Total number reported	165	63
Median (range)	0 (0-7)	0 (0-7)
Household Deaths	n=38	n=19
Total number reported	41	19
Median (range)	0 (0-4)	0 (0-1)

Table 7b Household form: Comparing frequency distributions for residents and non-residents in the household (Paper-based (n=808) versus Cell phone (n=257))

Variable	Paper-based	Cell phone
Household Residents	n=739	n=250
Total number reported	3197	1168
Median (range)	4 (1-21)	4 (1-11)
Household Non-residents	n=432	n=109
Total number reported	916	214 non-residents
Median (range)	2 (1-14)	2 (1-8)
Household Infants	n=106	n=51
Total number reported	109	52
Median (range)	1 (1-2)	1 (1-2)
Household Preschool children	n=296	n=93
Total number reported	353	109
Median (range)	1 (1-5)	1 (1-4)
Lower Primary school children	n=358	n=106
Total number reported	469	137
Median (range)	1 (1-10)	1 (1-7)
Household Teenage girls	n=359	n=108
Total number reported	496	149
Median (range)	1 (1-6)	1 (1-4)
Household Teenage boys	n=359	n=96
Total number reported	485	121
Median (range)	1 (1-4)	1 (1-3)
Household Women	n=708	n=231
Total number reported	1147	388
Median (range)	1 (1-6)	1 (1-7)
Household Men	n=625	n=207
Total number reported	916	296
Median (range)	1 (1-6)	1 (1-7)
Household Seniors	n=211	n=84
Total number reported	249	102
Median (range)	1 (1-2)	1 (1-3)

Table 7c Household form: Comparing frequency distributions for employment and household health issues (Paper-based (n=808) versus Cell phone (n=257))

Variable	Paper-based	Cell phone
Household Employed	n=757	n=209
Number of reports	788	371
Median (range)	1 (0-6)	1 (0-22)
Household Pregnant women	n=76	n=7
Total number reported	110	7
Median (range)	1 (1-7)	1 (1-1)
Household Disabled	n=54	n=18
Total number reported	60	19
Median (range)	1 (1-3)	1 (1-2)
Adult Health Problems	n=199	n=85
Total number reported	235	98
Household Tuberculosis	n=39	n=27
Total number reported	41	32
Median (range)	1 (1-2)	1 (1-2)
Household HIV/AIDS	n=21	n=10
Total number reported	23	21
Median (range)	1 (1-2)	1 (1-2)
Household Bedridden	n=21	n=11
Total number reported	25	11
Median (range)	1 (1-2)	1 (1-1)
Median (range)	1 (1-4)	1 (1-2)
Household Abuse	n=82 (83 responses)	n=36 (37 responses)
<ul style="list-style-type: none"> • Physical abuse of a woman • Sexual abuse of a woman • Physical abuse of a child • Sexual abuse of a child • Neglect of a child • Abuse of a man 	77 (92.7%) 1 (1.2%) 0 1 (1.2%) 0 4 (4.9%)	31 (83.8%) 3 (8.1%) 1 (2.7%) 0 0 2 (5.4%)

Table 7d Household form: Comparing frequency distributions for children's issues (Paper-based (n=808) versus Cell phone (n=257))

Variable	Paper-based	Cell phone
Child Health Problems	n=70	n=13
Total number reported	72	16
Median (range)	1 (1-2)	1 (1-4)
RTC Availability	n=327	n=118
Number available	382	151
Household Immunisation	n=318	n=116
Number correctly immunised	382	151
School Attendance	n=50	n=14
Total number reported	94	21
Median (range)	1 (1-5)	1 (1-4)

Table 7e Household form: Comparing frequencies for household's available health services (Paper-based (n=808) versus Cell phone (n=257))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Usual Health Facility	n=799	n=245
• Private clinic	13 (1.6)	0
• Private doctor	30 (3.8)	14 (5.7)
• Public hospital	43 (5.4)	15 (6.1)
• Public clinic	617 (77.2)	153 (62.4)
• Mobile clinic	96 (12)	63 (25.7)
Home-based caregiving	n=660	n=216
• CHW	249 (37.7)	102 (47.2)
• Home based caregiver	338 (51.2)	68 (31.5)
• DOT supporter	26 (3.9)	13 (6)
• ART supporter	2 (0.3)	2 (1)
• OVC worker	0	0
• Peer educator	0	1 (0.5)
• CHW+ Home based caregiver	29 (4.4)	25 (11.6)
• CHW+ DOT supporter	2 (0.3)	1 (0.5)
• CHW+ Home based caregiver+ DOT supporter	0	3 (1.4)
• CHW+ Home based caregiver+ ART supporter	0	1 (0.5)
• CHW+ Home based caregiver+ DOT supporter+ ART supporter+ OVC worker	1 (0.2)	0
• Home based caregiver+ DOT	12 (1.8)	0
• Home based caregiver+ DOT+ OVC worker	1 (0.2)	0

Table 7f Household form: Comparing frequencies for household food security, waste removal, sanitation, water and power use (Paper-based (n=808) versus Cell phone (n=257))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Household Food Security	n=773	n=173
None	572 (74)	103 (59.6)
Home vegetable garden	72 (9.3)	19 (11)
Allotment in communal garden	11 (1.4)	4 (2.3)
Access to fields	43 (5.6)	9 (5.2)
Possess poultry	54 (7)	30 (17.4)
Possess domestic livestock	10 (1.3)	5 (2.9)
Home vegetable garden+ Allotment in communal garden	0	1 (0.6)
Home vegetable garden+ Possess poultry	5 (0.6)	0
Home vegetable garden+ Access to fields+Possess poultry	0	1 (0.6)
Access to fields+ Possess poultry	4 (0.5)	0
Possess poultry+ Possess domestic livestock	2 (0.3)	1(0.6)
Solid Organic Waste	n=805	n=252
Nothing specific	58 (7.2)	30 (11.9)
Collected by municipality	71 (8.8)	88 (34.9)
Burn	157 (19.5)	50 (19.8)
Buried	178 (22.1)	33 (13.1)
Open pit	284 (35.3)	49 (19.4)
Compost	57 (7.1)	2 (0.8)
Solid Inorganic Waste	n=801	n=251
Nothing specific	59 (7.4)	6 (2.4)
Collected by municipality	71 (8.9)	32 (12.8)
Burn	304 (38)	63 (25.1)
Buried	38 (4.7)	8 (3.2)
Open pit	292 (36.5)	43 (17.1)
Recycled	37 (4.6)	99 (39.4)
Household Toilet	n=805	n=249
None	138 (17.1)	29 (11.6)
Bucket system	0	0
Pit Latrine	574 (71.3)	122 (49)
Vented improved	19 (2.4)	7 (2.8)
Flush toilet/septic tank	0	4 (1.6)
Flush toilet/sewerage	74 (9.2)	87 (34.9)

Water Supply	n=797	n=249
River or dam	121 (15.2)	12 (4.8)
Unprotected spring	152 (19.1)	29 (11.6)
Borehole	290 (36.4)	74 (29.7)
Protected spring	1 (0.1)	0
Rainwater tank	0	0
Piped water	169 (21.2)	115 (46.1)
River or dam+ Unprotected spring	0	6 (2.4)
River or dam+ Borehole	44 (5.5)	0
River or dam+ Piped water	17 (2.1)	3 (1.2)
Unprotected spring+Borehole	0	4 (1.6)
Unprotected spring+Protected spring	0	1 (0.4)
Unprotected spring+Rainwater tank	0	1 (0.4)
Unprotected spring+Piped water	0	4 (1.6)
Borehole+ Piped water	2 (0.3)	0
Rainwater tank+ Piped water	1 (0.1)	0
Household Power	n=804	n=253
Wood	581 (72.3)	132 (52.2)
Coal	0	0
Paraffin	30 (3.7)	11 (4.4)
Gas	3 (0.4)	2 (0.8)
Electricity	190 (23.6)	108 (42.7)
Dung	0	0
Household Lighting	n=805	n=248
Candles	137 (17)	34 (13.7)
Paraffin	18 (2.2)	6 (2.4)
Generator	1 (0.1)	0
Battery electric	0	2 (0.8)
Grid electricity	649 (80.6)	206 (83.1)

ANNEXURE 8: HEALTH VISIT FORM ANALYSIS

Completion rates and comments

Table 9a Health visit form: Comparing completion rates for CHW identifier, consent, date and time (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
CHW Number	Cell phone completed this.	631 (87.4)	100%
Consent	Only 1 paper-based had a no but the questionnaire was completed.	701 (97.1)	188 (95.4)
Date	See Date comments, but well completed.	709 (98.2)	100%
Time begin	See Time analysis	678 (93.9)	100%
Time end	See Time analysis	632 (87.5)	100%

Table 9b Health visit form: Comparing completion rates for Household identification variables (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments.	651 (90.2)	177 (89.8)
Household ID number	See Homestead number and Household number comments. Completion rate lower.	608 (84.2)	165 (83.7)

Table 9c Health visit form: Comparing completion rates for personal identifiers (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Surname	See Surnames and Names comments.	721/722 (99.9)	189/197 (95.9)
Client Firstname	See Surnames and Names comments.	719/722 (99.6)	188/197 (95.4)
Client Middle Name	See Surnames and Names comments. More than half reported a second name.	472/722 (65.4)	100/197 (50.8)

Table 9d Health visit form: Comparing completion rates for personal documents (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Birth Certificate Status	Well completed	703 (97.4)	189 (95.9)
ID Status	Well completed. Sometimes this was empty but the ID number given.	688 (95.3)	189 (95.9)
Client ID Number	See ID number comments. Less well completed and some responses were not ID numbers, clearly incorrect, a date of birth or a 0.	426 (59)	147 (74.6)

Table 9e Health visit form: Comparing completion rates for clients' demographic variables (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client DOB birth	Less well completed. Needs to re-think the need for this variable.	647 (89.6)	83 (42.1)
Client Age Range	In a few case the DOB was given but not the age range, it was kept empty although it could be completed (paper-based).	706 (97.8)	192 (97.5)
Client Gender	In the paper-based if this was omitted, and it the name look as if it can be a certain gender, it was left empty, as a data manager can't be sure.	694 (96.1)	194 (98.5)
Client Employment Status	Paper-based more completed.	708 (98.1)	181 (91.8)
Client Educational Level	Less well completed.	609 (84.5)	161 (81.7)

Table 9f Health visit form: Comparing completion rates for respondent's grant status (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Grant	If no grant was applied for, it is possible that this was not completed. But it can also mean that respondents did not want to give an answer.	685 (94.9)	157 (79.7)
Grant Status	If no grant was applied for, it is possible that this was not completed. But it can also mean that respondents did not want to give an answer.	651 (90.2)	150 (76.1)

Table 9g Health visit form: Comparing completion rates for clients' status and residency in the household (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead Residency Status	Well completed	720 (99.7)	195 (98.9)
HOH Relationship	In a few reports the wrong option was selected (husband instead of wife), in the paper-based (cell phone difficult to check). But well completed.	709 (98.2)	195 (98.9)
Parental Situation	In paper-based older persons did not select "Not a child", but an option relating to their parents. Well completed.	696 (96.4)	194 (98.5)
Caregiver Status	A questionnaire design mistake occurred for this variable in the paper-based.	652 (90.3)	190 (96.5)

Table 9h Health visit form: Comparing completion rates for health issues (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
HIV status	Not in paper-based questionnaire or in Afrikaans cell phone.		140/169 (82.8)
Client Health	Well completed.	708 (98.1)	194(98.5)

Table 9i Health visit form: Comparing completion rates for disability issues (Paper-based (n=722) versus Cell phone (n=197))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Disabled	For paper-based this was completed by the data manager by mistake and therefore not reported. The observation was made that if a client was disabled it was marked as such. If a client was not disabled most did not mark anything in this selector. For the cell phone had 3 entries this was not selected but the rest completed.		191 (96.9)
Client Disability	Depends on the number of disabled persons. One cell Phone did not complete the variable, but needs to be in the denominator.	52 (7.2)	14 (7.1)
Disability Severity	Denominator now the number of disabled.	47/52 (90.4)	11/15 (73.3)
Client Mobility	Well completed.	48/52 (92.3)	13/15 (86.7)
Disability Services Provided	It seems none was provided, it was left empty.	47/52 (90.4)	9/15 (60)
Client Illness (in addition to disabled)	For paper-based there was only a "yes" option, therefore the low completion rate.	26/52 (50)	15/15 (100)
Last Comment	Indicates number of comments, but sometimes it was just something like "Good". Also if there was no disability this variable had rarely a response in paper-based.	22 (3)	87 (44.2)

Frequency distributions of health visit form

Table 10a Health visit form: Comparing frequencies for ID status, birth certificate status and demographic variables (Paper-based (n=722) versus Cell phone (n=197))

Variable and categories	Paper-based n (%)	Cell phone n (%)
ID status	n=688	n=189
No - has never had	14 (2)	5 (2.6)
Not yet - applied 1-3 months ago	1 (0.1)	0
Not yet - applied 3-6 months ago	2 (0.3)	2 (1.1)
Not yet - applied 6+ months ago	0	2 (1.1)
Yes - not available	64 (9.3)	38 (20.1)
Yes - is available	607 (88.2)	142 (75.1)
Birth Certificate status	n=703	n=189
Yes	267 (38)	88 (46.6)
No	408 (58)	83 (43.9)
Don't know	28 (4)	18 (9.5)
Client Age range	n=706	n=192
0-1 year	0	0
1 - 5 years	1 (0.1)	0
6 - 10 years	4 (0.6)	2 (1)
11 - 20 years	25 (3.5)	8 (4.2)
21+ years	676 (95.8)	182 (94.8)
Client Gender	n=694	n=194
Male	226 (32.6)	58 (29.9)
Female	468 (67.4)	136 (70.1)
Client Employment Status	n=708	n=181
Formally employed	86 (12.1)	25 (13.8)
Informally employed	35 (4.9)	13 (7.2)
Self employed	44 (6.2)	7 (3.9)
Part time employed	29 (4.1)	11 (6.1)
Too young	24 (3.4)	8 (4.4)
Too old	70 (9.9)	20 (11)
Not able to work	51 (7.2)	19 (9.9)
Unemployed	369 (52.1)	79 (43.6)
Client Educational Level	n=609	n=161
Tertiary (University, college)	16 (2.6)	5 (3.1)
Grade 12	121 (19.9)	30 (18.6)
Grade 11	68 (11.2)	20 (12.4)
Grade 10	62 (10.2)	10 (6.2)
Grade 9	33 (5.4)	6 (3.8)
Grade 8	60 (9.9)	17 (10.6)
Grade 7	28 (4.6)	11 (6.9)
Grade 6	36 (5.9)	12 (7.4)
Grade 5 or less	114 (18.7)	33 (20.5)
Grade Pre-school/Grade R	70 (11.5)	17 (10.6)
Too young for any form of school (no schooling)	1 (0.2)	0

Table 10b Health visit form: Comparing frequencies clients' grant status (Paper-based (n=722) versus Cell phone (n=197)

Variable and categories	Paper-based n (%)	Cell phone n (%)
Client Grant	n=685	n=157
None	282 (41.2)	46 (29.3)
Child support grant	204 (29.8)	47 (30)
Care (dependency) grant	10 (1.5)	4 (2.5)
Foster care grant	5 (0.7)	0
Old age pension	103 (15)	48 (30.5)
Other pension	28 (4.1)	11 (7)
Poverty relief	10 (1.5)	1 (0.6)
Child support grant+ Old age pension	28 (4.1)	0
Child support grant+ Other pension	6 (0.9)	0
Foster care grant+ Old age pension	6 (0.9)	0
Old age pension+ Other pension	3 (0.4)	0
Grant Status	n=651	n=150
Not applied for	261 (40.1)	38 (25.3)
Applied for, not yet granted	8 (1.2)	1 (0.7)
Applied for, denied	1 (0.2)	2 (1.3)
Received regularly	377 (57.9)	107 (71.3)
Received, but not regular	4 (0.6)	2 (1.4)

Table 10c Health visit form: Comparing frequencies for respondent's status and residency in the household (Paper-based (n=722) versus Cell phone (n=197)

Variable and categories	Paper-based n (%)	Cell phone n (%)
Residency Status (how often at home)	n=720	n=195
Annually	6 (0.8)	0
Monthly	32 (4.4)	7 (3.6)
Weekly	36 (5.0)	6 (3.1)
Daily	646 (89.7)	182 (93.3)
HOH Relationship	n=709	n=195
Not related	3 (0.4)	2 (1)
Adopted	1 (0.1)	0
Relative	8 (1.1)	4 (2.1)
Sibling	6 (0.8)	1 (0.5)
Parent	166 (23.4)	31 (15.9)
Grandchild	9 (1.3)	0
Child	79 (11.1)	24 (12.3)
Partner	10 (1.4)	0
Wife	163 (23)	72 (36.9)
Husband	53 (7.5)	23 (11.8)
Is household head	211 (29.8)	38 (19.5)
Parental Situation	n=696	n=194
Both parents deceased	40 (5.7)	9 (4.6)
Mother deceased, father alive	11 (1.6)	1 (0.5)
Father deceased, mother alive	67 (9.6)	25 (12.9)
Both parents alive and provide care	121 (17.4)	55 (28.3)
Cared for by father, mother absent	3 (0.4)	0
Cared for by mother, father absent	41 (5.9)	8 (4.1)
Not a child	413 (59.3)	96 (49.5)
Caregiver Status	n=652	n=190
What disabilities does the client have?	1 (0.2)	0
Adult (no child) caring for children in household	281 (43.1)	133 (70)
Adult (no child) not caring for children in household	76 (11.7)	18 (9.5)
None	294 (45.1)	39 (20.5)

Table 10d Health visit form: Comparing frequencies for health issues (Paper-based (n=722) versus Cell phone (n=197))

Variable and categories	Paper-based n (%)	Cell phone n (%)
HIV Status	n=0	n=140
No - does not wants to		53 (37.9)
No - but would like to		40 (28.3)
Yes - prefers not to disclose		16 (11.4)
Yes - HIV+		6 (4.3)
Yes - HIV-		25 (17.9)
Client Health	n=708	n=194
Healthy	502 (70.9)	123 (63.4)
Healthy but disabled	12 (1.7)	3 (1.5)
Disabled with additional disease	12 (1.7)	1 (1.5)
Minor illness	150 (21.2)	58 (29.9)
Serious illness	32 (4.5)	9 (4.6)

Table 10e Health visit form: Comparing frequencies for disability issues (Paper-based (n=722) versus Cell phone (n=197))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Client Disability	n=52	n=14
None	3 (5.8)	0
Blind	4 (7.7)	1 (7.1)
Deaf	4 (7.7)	1 (7.1)
Weakness/Paralysis	12 (23.1)	2 (14.3)
Cerebral palsy - muscle spasm	3 (5.8)	0
Mental retardation	4 (7.7)	0
Mental illness	9 (17.3)	4 (28.6)
Epilepsy	5 (9.6)	0
Other	7 (13.5)	6 (42.9)
Mental retardation+ Mental illness+ Epilepsy	1 (1.9)	0
Disability Severity	n=47	n=11
Mild	21 (44.7)	6 (54.5)
Intermediate	15 (31.9)	5 (45.5)
Severe	11 (23.4)	0
Client Mobility	n=48	n=13
Bed-bound	1 (1.2)	0
House-bound	13 (27.1)	0
Can move around on own outside home	20 (41.7)	8 (61.5)
Full mobility	14 (29.2)	5 (38.5)
Disability Services Provided	n=47	n=9
None	7 (14.9)	0
Homebased care, eg. foot care, nail care	3 (6.4)	0
Referred to social services or home affairs	1 (2.1)	0
Referred to health services	18 (38.3)	4 (44.6)
Referring to a school or educational service	2 (4.3)	0
Rehabilitation	4 (8.5)	0
Assisted to apply for a grant	4 (8.5)	0
Accompanying person to a service	1 (2.1)	0
Domestic help household eg. cleaning, cooking	1 (2.1)	2 (22.2)
None+ Assisted to apply for a grant	0	1 (11.1)
Homebased care+ Rehabilitation	1 (2.1)	0
Homebased care+ Referred to health services+ Rehabilitation	1 (2.1)	0
Homebased care+ Referred to health services+ Domestic help	0	1 (11.1)
Referred to social services or home affairs+ Referred to health services	0	1 (11.1)
Referred to social services or home affairs+ Assisted to apply for a grant	1 (1.2)	

Referred to health services+ Rehabilitation	2 (4.3)	
Referred to health services+ Assisted to apply for a grant	1 (1.2)	
Client Illness (in addition to disabled)	n=26	n=15
Yes	24 (92.3)	7 (46.7)
No	2 (7.7)	8 (53.3)

ANNEXURE 9: CHILD FORM ANALYSIS

Completion rates and comments

Table 12a Child form: Comparing completion rates for time, CHW identification and consent, and child/school selection (Paper-based (n=457) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Time begin	See Time analysis. Low completion rate for paper-based.	301 (65.9)	100%
End time	See Time analysis.	406 (88.8)	100%
CHW Number		272/422 (64.5)	100%
Consent	35 paper-based said no, but questionnaire was completed.	286/422 (67.8)	100%
Young child selection	For paper-based in a few questionnaires it was recorded as no, but the child section completed.	305/422 (72.3)	64 (96.9)
School selector	Not in paper-based. For cell phone when not completed, a "No" was not selected. One "Yes" should have been a "No" and one completed questionnaire had no selector.		18 (27.3)

Table 12b Child form: Comparing completion rates for Homestead and Household identification variables (Paper-based (n=422) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments.	265 (62.8)	62 (93.9)
Household ID Number	See Homestead number and Household number comments. For both even lower completion rate than homestead ID.	247 (58.5)	60 (90.9)

Table 12c Child form: Comparing completion rates for names and ID (Paper-based (n=422) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	289 (68.5)	17 (25.8)
Client Firstname	See Surnames and Names comments. Low completion rate for cell phone.	287 (68)	15 (22.7)
Client Middle Name	See Surnames and Names comments. Might not have a middle name.	150 (35.6)	3 (4.6)
Client Has ID Number		272 (64.5)	64 (96.9)
Client ID Number	See ID number comments. Observed 7 zeros, a date and a single number in cell phone. Low completion rate and non-ID entries.	78 (18.5)	47 (71.2)

Table 12d Child form: Comparing completion rates for child health issues (Paper-based (n=305) versus Cell phone (n=52))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
RTH Card	Well completed.	296 (97.1)	51 (98.1)
Mid-upper arm Circumference	Low completion rates.	120 (39.3)	18 (34.6)
Client Nutrition		290 (95.1)	51 (98.1)
Client Weighing		295 (96.7)	51 (98.1)
Client Immunising		276 (90.5)	49 (94.2)
Immunisation card		290 (95.1)	51 (98.1)
Child Service provision	Cell phone lower completion rate.	275 (90.2)	44 (84.6)
Abuse	Low completion rate for paper-based.	211 (69.2)	47 (90.4)

Table 12e Child form: Comparing completion rates for school children issues (Paper-based (n=358) versus Cell phone (n=17))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
School attendance	Design problem.	352 (98.3)	16 (94.1)
School uniform	Question not in Phase 1 paper-based questionnaires, but recorded where possible.	168 (46.9)	100%
Child Education Service Provision		318 (88.8)	100%
Extra mural Participation		352 (98.3)	100%
Last Comment	Low completion rates.	45/457 (9.8)	29/66 (43.9)

Frequency distributions of child health and school issues

Table 13a Child form: Comparing frequencies for child health issues (Paper-based (n=305) versus Cell phone (n=52))

Variable	Paper-based	Cell phone
Mid-arm circumference	n=120	n=18
Median (range)	16 (10-20)	16 (12-19)
Variable and categories	Paper-based n (%)	Cell phone n (%)
RTH Card	n=296	n=51
Present and up to date	254 (85.8)	44 (86.3)
Present not up to date	35 (11.8)	4 (7.8)
Absent	7 (2.4)	3 (5.9)
Client Nutrition	n=290	n=51
Marasmus	0	0
Kwashiorkor	0	0
Wasted - thin for age	3 (1)	2 (3.9)
Stunted - short for age	5 (1.7)	1 (2)
Not growing well - losing weight	35 (12.1)	0
Not growing well, weight not increasing/ too slowly	20 (6.9)	2 (3.9)
Good/equate - upward growth curve	215 (74.1)	44 (86.3)
Obesity (very fat)	12 (4.1)	2 (3.9)
Client Weighing	n=295	n=51
Within last 2 months	203 (68.8)	38 (74.5)
More than 2 months ago	75 (25.4)	10 (19.6)
Not at all	17 (5.8)	3 (5.9)
Client Immunising	n=276	n=49
Within last 2 months	175 (63.4)	33 (67.3)
More than 2 months ago	84 (30.4)	14 (28.5)
Not at all	17 (6.2)	2 (4.1)
Immunisation card	n=290	n=51
Absent	9 (3.1)	1 (2)
Present but not up-to-date	28 (9.7)	6 (11.8)
Up-to-date	253 (87.2)	44 (86.3)
Abuse	n=211	n=47
Yes	6 (2.8)	3 (6.4)
No	205 (97.2)	44 (93.6)

Table 13b Child form: Comparing frequencies for child service provision (Paper-based (n=305) versus Cell phone (n=52))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Child Service provision	n=275	n=44
Food supplement	21 (7.6)	2 (4.5)
Referred for treatment or support	2 (0.7)	1 (2.3)
Check milestones	5 (1.8)	2 (4.5)
Road to health chart advice	32 (11.6)	15 (34.1)
Nutrition advice	24 (8.7)	5 (11.4)
Formula feeding advice	5 (1.8)	0
Breast feeding advice	28 (10.2)	1 (2.3)
Weaning advice	1 (0.4)	1 (2.3)
Immunisation advice	30 (10.9)	2 (4.5)
None	71 (25.8)	1 (2.3)
Food supplement+ Road to health chart advice	1 (0.4)	0
Food supplement+ Road to health chart advice+ Breast feeding advice	1 (0.4)	0
Food supplement+ Nutrition advice	1 (0.4)	0
Food supplement+ Formula feeding advice	1 (0.4)	0
Food supplement+ Breast feeding advice	2 (0.7)	0
Referred+ Road to health chart advice+ Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	0
Referred+ Nutrition advice	3 (1.1)	0
Referred+ Nutrition advice+ Breast feeding advice+ Immunisation advice	2 (0.7)	0
Referred + Immunisation advice	1 (0.4)	0
Referred+ Breast feeding advice+ Immunisation advice	2 (0.7)	0
Check milestones+ Road to health chart advice	1 (0.4)	0
Check milestones+ Nutrition advice	1 (0.4)	0
Check milestones+ Immunisation advice	1 (0.4)	0
Check milestones+ Road to health chart advice+ Breast feeding advice	0	1 (2.3)
Road to health chart advice+ Nutrition advice	2 (0.7)	4 (9.1)
Road to health chart advice+ Nutrition advice+Breast feeding advice	0	1 (2.3)
Road to health chart advice+ Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	0
Road to health chart advice+ Nutrition advice+Breast feeding advice+ Immunisation advice	1 (0.4)	0
Road to health chart advice+Breast feeding advice	4 (1.5)	1 (2.3)
Road to health chart advice+Breast feeding advice+ Immunisation advice	2 (0.7)	0
Road to health chart advice+ Immunisation advice	6 (2.2)	0
Nutrition advice+ Formula feeding advice+ Immunisation advice	1 (0.4)	
Nutrition advice+ Breast feeding advice	7 (2.5)	1 (2.3)
Nutrition advice+ Immunisation advice	7 (2.5)	2 (4.5)
Formula feeding advice+ Breast feeding advice+ Immunisation advice	1 (0.4)	1 (2.3)
Breast feeding advice+ Immunisation advice	4 (1.5)	0

Table 13c School going children form: Comparing frequencies for school going children issues (Paper-based (n=358) versus Cell phone (n=17))

Variable and categories	Paper-based n (%)	Cell phone n (%)
School attendance	n=352	n=16
Yes, regularly	317 (90.1)	16 (100)
Yes, not regularly	15 (4.3)	0
No	20 (5.7)	0
School uniform	n=168	n=17
Yes	129 (76.8)	13 (76.5)
No	39 (23.2)	4 (23.5)

Child Education Service Provision	n=318	n=17
None	90 (28.3)	3 (17.6)
Homework	41 (12.9)	2 (11.8)
School attendance	45 (14.2)	4 (23.5)
Uniform	22 (6.9)	0
Referred	10 (3.1)	3 (17.6)
None+ Homework+ School attendance	1 (0.3)	0
Homework+ School attendance	9 (2.8)	1 (5.9)
Homework+ School attendance+ Uniform	47 (14.8)	3 (17.6)
Homework+ Uniform	31 (9.7)	1 (5.9)
Homework+ Referred	2 (0.6)	0
School attendance+ Uniform	20 (6.3)	0
Extramural Participation	n=352	n=17
None	28 (8.0)	1 (5.9)
Child-to-child	146 (41.5)	12 (70.6)
Group therapy	0	0
Sport	52 (14.8)	0
Drama	2 (0.6)	0
Clubs	4 (1.1)	0
Gangs	0	0
Choirs/singing	10 (2.8)	0
Youth group	2 (0.6)	0
Art work	1 (0.3)	0
Scouts	2 (0.6)	0
None+ Child-to-child	0	1 (5.9)
Child-to-child+ Art work	6 (1.7)	0
Child-to-child+ Scouts	4 (1.1)	0
Child-to-child+Sport	42 (11.9)	1 (5.9)
Child-to-child+Sport+Art work	4 (1.1)	0
Child-to-child+Sport+ Scouts	0	1 (5.9)
Child-to-child+Sport+ Drama+Choirs/singing	1 (0.3)	0
Child-to-child+Sport+ Choirs/singing	6 (1.7)	1 (5.9)
Child-to-child+Sport+ Choirs/singing+ Art work+ Scouts	1 (0.3)	0
Child-to-child+Sport+ Choirs/singing+ Scouts	1 (0.3)	0
Child-to-child+ Drama	5 (1.4)	0
Child-to-child+ Drama+ Scouts	2 (0.6)	0
Child-to-child+ Drama+ Choirs/singing+Scouts	1 (0.3)	0
Child-to-child+ Choirs/singing	2 (0.6)	0
Child-to-child+ Choirs/singing+ Youth group	1 (0.3)	0
Child-to-child+ Youth group	3 (0.9)	0
Group therapy+Sport	1 (0.3)	0
Group therapy+ Choirs/singing+Scouts	1 (0.3)	0
Sport+ Art work	3 (0.9)	0
Sport+Scouts	4 (1.1)	0
Sport+ Choirs/singing	3 (0.9)	0
Sport+ Choirs/singing+Scouts	1 (0.3)	0
Sport+ Youth group	4 (1.1)	0
Drama+Art work	2 (0.6)	0
Drama+Choirs/singing	2 (0.6)	0
Choirs/singing+Scouts	4 (1.1)	0

ANNEXURE 10: WOMEN FORM ANALYSIS

Completion rates and comments

Table 15a Women form: Comparing completion rates for time, CHW identification and consent, and women selection (Paper-based (n=666) versus Cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Time begin	See Time analysis.	608 (91.3)	100%
End time	See Time analysis.	579 (86.9)	100%
CHW Number		506/613 (82.5)	100%
Consent		604/613 (98.5)	164 (95.4)
Woman Health Selector	For paper-based this question led to confusing answers, instead of "No", "Yes" was completed. A positive statement will be better.	600/613 (97.8)	166 (96.5)

Table 15b Women form: Comparing completion rates for Homestead and Household identification variables (Paper-based (n=613) versus Cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments	549 (89.6)	159 (92.4)
Household ID Number	See Homestead number and Household number comments. For both lower completion rate than homestead ID.	495 (80.8)	145 (84.3)

Table 15c Women form: Comparing completion rates for names and ID (Paper-based (n=613) versus Cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	606 (98.9)	7 (4.1)
Client Firstname	See Surnames and Names comments. Low completion rate for cell phone.	606 (98.9)	8 (4.7)
Client Middle Name	See Surnames and Names comments. Possible not to have another name.	381 (62.2)	2 (1.2)
Client Has ID Number		585 (95.4)	167 (97.1)
Client ID Number	See ID number comments. In cell phone DOB, year or wrong ID numbers were observed. Paper-based also had these but only wrong numbers were entered. These completion rates reflects any kind of entry.	294 (47.9)	130 (75.6)

Table 15d Women form: Comparing completion rates for women's health issues (Paper-based (n=666) versus Cell phone (n=172))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Menstruation	Well completed.	654 (98.2)	169 (98.3)
Sexually Active	Problem question.	633 (95.1)	164 (95.4)
STI	Cell phone less completed.	644 (96.7)	147 (85.5)
Contraception	Cell phone less completed.	643 (96.6)	153 (88.9)
PAP Smear		606 (90.1)	145 (84.3)
Client HIV Status	Only for paper-based.	602 (90.4)	
Woman Health Service Provision	The "None" not always completed if there was none.	584 (87.7)	124/ (72.1)

Table 15e Women form: Comparing completion rates for pregnancy issues (Paper-based (n=666) versus Cell phone (n=172)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Pregnancy Status	Cell phone less completed. It can be if a women wasn't pregnant, this and the following related questions were not completed.	638 (95.8)	113 (65.7)
Antenatal Card	All could be completed this question as a "No" could be recorded.	578 (86.8)	9 (5.2)
Antenatal Visits	Only for pregnant women. 42 for paper-based and 6 for cell phone were reported in pregnancy status..	38/42 (90.5)	4/6 (66.7)
Previous Pregnancy	This question was not in the Phase 1 forms. Lower completion rates. Problems in paper-based where a "No" was reported but later number children were reported.	547/613 (89.2)	123 (71.5)
Previous Pregnancy Result	Possible not to have a reply here, but completion rates still low, if the frequencies of the next variables are taken into account.	428 (64.3)	54 (31.4)
Risk Factors	The "None" not always completed if there was none.	314 (47.2)	122 (70.9)

Table 15f Women form: Comparing completion rates for number of pregnancy outcomes (Paper-based (n=666) versus Cell phone (n=172)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Previous Pregnancy Count	Possible to have a zero, but many left it empty if no number relevant.	591 (88.7)	117 (68)
Previous Deliveries	Possible to have a zero, but many left it empty if no number relevant. Both methods reported 2 more than the previous question.	593 (89)	119 (69.2)
Previous Livebirths	Possible to have a zero, but many left it empty if no number relevant.	586 (87.9)	119 (69.2)
Previous Multiple Pregnancies	Possible to have a zero, but many left it empty if no number relevant.	499 (74.9)	28 (16.3)
Living Children	Possible to have a zero, but many left it empty if no number relevant.	587 (88.1)	120 (69.8)
Last Comment	Low completion rates.	118 (17.7)	82 (47.7)

Frequency distributions of women's health

Table 16a Women form: Comparing frequencies for women's health issues (Paper-based (n=666) versus Cell phone (n=172))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Menstruation	n=654	n=169
No - still too young	7 (1.1)	0
Yes - regular	417 (63.8)	98 (58)
No, irregular	52 (8)	17 (10.1)
No, pregnant	23 (3.5)	2 (1.2)
No, menopausal	155 (23.7)	52 (30.8)
Sexually Active	n=633	n=164
Not disclosed	70 (11.1)	24 (14.7)
No	169 (26.7)	43 (26.2)
Yes	394 (62.2)	97 (59.1)
STI	n=644	n=147
No recent history	587 (91.1)	128 (87.1)
Yes - at present	22 (3.4)	10 (6.8)
In past 3 months	20 (3.1)	7 (4.8)
More than twice in past year	15 (2.3)	2 (1.4)
Contraception	n=643	n=153
Emergency	0	0
Other	19 (3)	4 (2.6)
None	320 (49.8)	59 (38.6)
Male condom	32 (5)	12 (7.8)
Female condom	8 (1.2)	1 (0.7)
Pill	75 (11.7)	21 (13.8)
Injection	175 (27.2)	41 (26.8)
IUD	0	1 (0.7)
Emergency+ Other+ None+ Injection+ IUD	0	1 (0.7)
Other+ None	0	3 (2)
None+ Male condom	0	3 (2)
Male condom+ Female condom	2 (0.3)	1 (0.7)
Male condom+ Pill	7 (1.1)	4 (2.6)
Male condom+ Injection	2 (0.3)	1 (0.7)
Female condom+ Pill	1 (0.2)	0
Female condom+ Injection	2 (0.3)	0
Pill+ Injection	0	1 (0.7)
PAP smear	n=606	n=145
No	471 (77.7)	102 (70.3)
Normal	96 (15.8)	39 (26.8)
Suspicious	19 (3.1)	3 (2.1)
Result not known	20 (3.3)	1 (0.7)
Client HIV Status	n=602	n=0
No - does not wants to	270 (44.9)	
No - but would like to	183 (30.4)	
Yes - prefers not to disclose	22 (3.7)	
Yes - HIV+	7 (1.2)	
Yes - HIV-	120 (19.9)	

Table 16b Women form: Comparing frequencies for women's pregnancy issues (Paper-based (n=666) versus Cell phone (n=172))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Pregnancy Status	n=638	n=113
Not pregnant	596 (93.4)	107 (94.7)
First 3 months	8 (1.3)	3 (2.7)
Middle 3 months	17 (2.7)	2 (1.8)
Last 3 months	17 (2.7)	1 (0.9)
Antenatal Card	n=578	n=9
No	523 (90.5)	5 (55.6)
Yes - irregular attendance	10 (1.7)	2 (22.2)
Yes - regular attendance	45 (7.8)	2 (22.2)
Antenatal Visits	n=38	n=4
Median (range)	4 (0-14)	2 (0-4)
Previous Pregnancy (not in phase1 questionnaires)	n=547	n=123
Yes	389 (71.1)	74 (60.2)
No	158 (28.9)	49 (39.8)
Previous Pregnancy Result	n=428	n=54
Uncomplicated livebirth, full term	170 (39.7)	35 (64.9)
Complicated livebirth, full term	192 (44.9)	18 (33.3)
Livebirth, premature	14 (3.3)	0
Spontaneous abortion in first 6 months	12 (2.8)	1 (1.9)
Termination of pregnancy (TOP) in first 6 months	37 (8.6)	0
Stillborn in last 3 months	3 (0.7)	0
Risk Factors	n=314	n=122
Previous complications	81 (25.8)	0
None	85 (27.1)	76 (62.3)
High BP	68 (21.7)	21 (17.2)
Diabetes	11 (3.5)	2 (1.6)
Heart disease	0	5 (2.5)
Previous caesarian section	19 (16.1)	10 (8.2)
Smoking	17 (5.4)	3 (2.4)
Drinking	16 (5.1)	1 (0.8)
Previous complications+None	0	1 (0.8)
High BP+ Diabetes	5 (1.6)	1 (0.8)
High BP+ Diabetes+ Smoking	1 (0.3)	1 (0.8)
High BP+ Diabetes+ Smoking+ Drinking	2 (0.6)	1 (0.8)
High BP+ Diabetes+ Heart disease	0	1 (0.8)
High BP+ Heart disease	1 (0.3)	0
High BP+ Smoking	1 (0.3)	0
High BP+ Smoking+ Drinking	1 (0.3)	0
Diabetes+ Drinking	0	1 (0.8)
Heart disease+ Previous caesarian section	1 (0.3)	0
Previous caesarian section+ Smoking+ Drinking	1 (0.3)	0
Smoking+ Drinking	4 (1.3)	0

Table 16c Women form: Comparing frequencies for women's pregnancy outcomes (Paper-based (n=666) versus Cell phone (n=172))

Variable	Paper-based	Cell phone
Previous Pregnancy Count	n=591	n=117
Median (range)	3 (1-11)	4 (1-50)
Previous Deliveries	n=593	n=119
Median (range)	3 (1-11)	4 (1-12)
Previous Livebirths	n=586	n=119
Median (range)	3 (1-11)	4 (-10)
Previous Multiple Pregnancies	n=499	n=28
Median (range)	1 (1-2)	1 (1-3)
Living children	n=587	n=120
Median (range)	3 (1-10)	3 (1-10)

Table 16d Women form: Comparing frequencies for women health service provision (Paper-based (n=666) versus Cell phone (n=172))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Woman Health Service Provision	n=584	n=124
None	238 (40.8)	62 (50)
Assisted to apply for a grant	12 (2.1)	8 (6.5)
Referred to social service	4 (0.7)	6 (4.8)
Rehabilitation	2 (0.3)	0
Given counseling	39 (6.7)	15 (12.1)
Referred for counseling & testing	188 (32.2)	24 (19.3)
Refer for antenatal care	3 (0.5)	4 (3.2)
Referred to health services	79 (13.5)	1 (0.8)
None+ Rehabilitation	0	1 (0.8)
Assisted to apply for a grant+ Given counseling	0	1 (0.8)
Assisted to apply for a grant+ Given counseling+ Referred to health services	1 (0.2)	0
Assisted to apply for a grant+ Referred to social service+ Referred to health services	1 (0.2)	0
Referred to social service+ Given counseling	1 (0.2)	0
Referred to social service+ Referred to health services	3 (0.5)	0
Rehabilitation+ Referred for counseling & testing	1 (0.2)	0
Given counseling+ Referred for counseling & testing	2 (0.3)	1 (0.8)
Given counseling+ Refer for antenatal care	1 (0.2)	1 (0.8)
Given counseling+ Referred to health services	4 (0.7)	0
Referred for counseling & testing+ Referred to health services	5 (0.9)	0

ANNEXURE 11: ILLNESS, KIT UPDATE AND FREQUENT VISIT FORMS ANALYSIS

Completion rates and comments

Table 18a Illness form: Comparing completion rates for time, CHW identification and consent, and illness selector and captured (Paper-based (n=192) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Time begin	See time analysis	161 (83.9)	100%
End time illness	Not in cell phone	160/185 (86.5)	
Time begin frequent visit	Not in cell phone	125/136 (91.9)	
End time	See Time analysis	119/136 (87.5)	100%
CHW Number		131/146 (89.7)	100%
Consent		142/146 (97.3)	100%
Illness present	Sometimes a "No" as they completed some forms, for sake of completion it seems.	144/146 (98.6)	65 (98.5)
Illness captured	Both methods had "Yes" which can't be during this data collection, possible meaning they were already aware of the illness.	129/146 (88.4)	59 (89.4)

Table 18b Household form: Comparing completion rates for Household identification variables (Paper-based (n=146) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments	133/146 (91.1)	60/66 (90.1)
Household ID Number	See Homestead number and Household number comments	116/146 (79.5)	55/66 (83.3)

Table 18c Illness form: Comparing completion rates for names and ID (Paper-based (n=146) versus Cell phone (n=66))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Client Surname	See Surnames and Names comments. Low completion rate for cell phone.	143/146 (97.9)	4/66 (6.1)
Client Firstname	See Surnames and Names comments. Low completion rate for cell phone.	143/146 (97.9)	4/66 (6.1)
Client Middle Name		103/146 (70.6)	1/66 (1.5)
Client Has ID Number		139/146 (95.2)	65/66 (98.5)
Client ID Number	See ID number comments. Low completion rates as cell phone also had zeros, DOB and year completed and not ID number.	60/146 (41.1)	51/66 (77.3)

Table 18d Illness form: Comparing completion rates symptoms and illness (Paper-based (n=185) versus Cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Symptoms		136 (73.5)	18 (85.7)
Illness Name	For paper-based more completed this variable.	166 (89.7)	18 (85.7)
Previous Serious illness	Observed that the same illness that was reported before was reported here.	171 (92.4)	17 (80.9)

Table 18e Illness form: Comparing completion rates for other client health issues (Paper-based (n=185) versus Cell phone (n=21))

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Illness Traditional		175 (94.6)	100%
Client HIV Status	Paper-based only.	169 (91.4)	
Hospital discharge	Seems to a problem question, which needs attention. Many said "Yes" and the question is whether this is true or a misunderstanding of the question.	140 (75.7)	100%
Client TB Status		174 (94.1)	100%
Client mobility		140 (75.7)	16 (76.2)
History or evidence of abuse?		176 (95.1)	20 (95.2)

Table 18f Illness form: Comparing completion rates for care issues (Paper-based (n=185) versus Cell phone (n=21)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Home Care		172 (92.9)	18 (85.7)
Facility Attendance		176 (95.1)	20 (95.2)
Adherence support	The 2 forms did not have the same response categories.	172 (92.9)	18 (85.7)
Adherence Support Duration		179 (96.8)	18 (85.7)
Medication Received		175 (94.6)	20 (95.2)
Services Provided		178 (96.2)	20 (95.2)

Table 18g Illness form: Comparing completion rates for kit issues (Paper-based (n=185) versus Cell phone (n=21)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Kit	Not useful as they did not carry their kit with them most of the time during data collection.	121 (65.4)	12 (57.1)
Items Used in Visit	Not useful as they did not carry their kit with them most of the time during data collection.	87 (47)	16 (76.2)
Visit Fees	Not sure what a Fee means here as some said they did charged a fee.	158 (85.4)	17 (80.9)

Table 18h Illness form: Comparing completion rates for frequent visit activities (Paper-based (n=136) versus Cell phone (n=45)

Variable	Comments	Completion rate n/n (%)	
		Paper-based	Cell phone
Main Problem	Lower completion rate for paper-based.	122 (89.7)	43 (95.6)
Side Effects		133 (97.8)	43 (95.6)
Adherence Support		133 (97.8)	32 (71.1)
Adherence Referral		130 (95.6)	40 (88.9)
Specimens	Lower completion rates.	120 (88.2)	19 (42.2)
Adherence Education/ Training		132 (97.1)	37 (82.2)
Support	Lower completion rate for cell phone.	130 (95.6)	31 (68.9)
Contact Tracing	Lower completion rate for cell phone.	125 (91.1)	27 (60)
Family Training		132 (97.1)	44 (97.8)
Follow-up		129 (94.9)	42 (93.3)
Condition	Not in paper-based or Afrikaans cell phone (7)		20/38 (52.6)
Comments	Not in paper-based		35 (77.7)

Frequency distributions of illness and frequent visit

Table 19a Illness form: Comparing frequencies for illness capture, symptoms and illness (Paper-based (n=185) versus Cell phone (n=21)

Variable and categories	Paper-based n (%)	Cell phone n (%)
Illness captured before	n=129	n=59
Yes	96 (74.4)	45 (76.3)
No	33 (25.6)	14 (23.7)
Symptoms	n=136	n=18
Rash	3 (2.2)	0
Pelvic pain	3 (2.2)	0
Cough	9 (6.6)	2 (11.1)
Pain in lower limbs	0	0
Swelling (Oedema)	2 (1.5)	0
Fever	0	2 (11.1)
Wasting	0	0
Rapid breathing	0	0
Injury	1 (0.7)	1 (5.6)
Shortness of breath	3 (2.2)	0
Discharge	1 (0.7)	0
Wheezing	2 (1.5)	2 (11.1)
Lump	0	0
Dehydration	1 (0.7)	0
Headache	17 (12.5)	4 (22.3)

Watery diarrhoea	1 (0.7)	0
Neckpain	0	0
Bloody diarrhoea	1 (0.7)	0
Chest pain	3 (2.2)	1 (5.6)
Nausea	1 (0.7)	1 (5.6)
Pain in arms	6 (4.4)	0
Vomiting	2 (1.5)	0
Upper abdominal pain	2 (1.5)	0
Itch	1 (0.7)	0
Pain in lower abdomen	2 (1.5)	0
Rash+ Neckpain	0	1 (5.6)
Rash+ Vomiting+ Itch	1 (0.7)	0
Rash+ Itch	1 (0.7)	0
Rash+ Cough+ Headache+ Chest pain+Itch	1 (0.7)	0
Rash+ Pain in lower limbs+ Rapid breathing+ Chest pain+ Nausea+ Pain in arms+Itch	1 (0.7)	0
Rash+Fever+Itch	1 (0.7)	0
Shortness of breath+ Wheezing	2 (1.5)	0
Shortness of breath+ Dehydration+ Headache+ Bloody diarrhoea	1 (0.7)	0
Shortness of breath+ Headache	1 (0.7)	0
Shortness of breath+Chest pain	1 (0.7)	0
Discharge+Itch	1 (0.7)	0
Discharge+ Pain in lower abdomen	1 (0.7)	0
Dehydration+Chest pain	1 (0.7)	0
Dehydration+Vomiting	1 (0.7)	0
Dehydration+ Watery diarrhoea+Vomiting	0	1 (5.6)
Headache+ Neckpain	2 (1.5)	0
Headache+Neckpain+Chest pain+Upper abdominal pain+Pain in lower abdomen	1 (0.7)	0
Headache+ Neckpain+Pain in arms	1 (0.7)	0
Headache+Chest pain	2 (1.5)	0
Headache+Nausea	1 (0.7)	0
Headache+ Nausea+Upper abdominal pain	1 (0.7)	0
Headache+Pain in arms	1 (0.7)	0
Headache+Upper abdominal pain	1 (0.7)	0
Headache+Pain in lower abdomen	1 (0.7)	0
Watery diarrhoea+Chest pain	1 (0.7)	0
Watery diarrhoea+Vomiting	1 (0.7)	0
Watery diarrhoea+Pain in lower abdomen	1 (0.7)	0
Neckpain+Pain in arms	1 (0.7)	0
Chest pain+Itch	1 (0.7)	0
Pain in arms+Pain in lower abdomen	1 (0.7)	0
Pelvic pain+Cough+ Swelling (Oedema)+Pain in arms	0	1 (5.6)
Cough+Headache	7 (5.1)	0
Cough+Pain in lower limbs+Wheezing	0	1 (5.6)
Cough+ Headache+Pain in arms	1 (0.7)	0
Cough+ Headache+Vomiting	1 (0.7)	0
Cough+Chest pain	8 (5.9)	0
Cough+Chest pain+Upper abdominal pain	1 (0.7)	0
Cough+Pain in lower limbs+Headache+ Neckpain+Upper abdominal pain	1 (0.7)	0
Cough+ Swelling (Oedema)+Fever+Injury+ Headache+Neckpain+Chest pain+Pain in arms	1 (0.7)	0
Cough+Fever	2 (1.5)	0
Cough+Fever+Shortness of breath+Chest pain	1 (0.7)	0
Cough+Fever+Headache	1 (0.7)	0
Cough+Fever+Vomiting	1 (1.5)	0
Pain in lower limbs+Shortness of breath+Headache+ Chest pain+Pain in lower abdomen	1 (0.7)	0

Pain in lower limbs+Injury+Shortness of breath+ Headache+Chest pain+Pain in arms+Upper abdominal pain+Pain in lower abdomen	1 (0.7)	0
Pain in lower limbs+Headache+Neck pain+Nausea+ Pain in lower abdomen	1 (0.7)	0
Pain in lower limbs+Nausea+Itch	1 (0.7)	0
Pain in lower limbs+Pain in arms	2 (1.5)	0
Swelling (Oedema)+Headache	1 (0.7)	0
Fever+Headache	3 (2.2)	0
Fever+Headache+Vomiting	2 (1.5)	1 (5.6)
Fever+ Watery diarrhoea	1 (0.7)	0
Fever+Chest pain	1 (0.7)	0
Fever+Pain in arms	1 (0.7)	0
Fever+Vomiting	1 (0.7)	0
Illness name	n=116	n=18
HIV or AIDS	12 (7.2)	3 (16.7)
High BP	43 (25.9)	6 (33.3)
Stroke	5 (3.6)	0
Heart disease	2 (1.2)	0
Arthritis	2 (1.2)	0
Asthma	10 (6)	1 (5.6)
Cancer	1 (0.6)	0
Don't know	7 (4.2)	3 (16.7)
Diabetes	13 (7.8)	0
Allergies	1 (0.6)	0
Epilepsy	9 (5.4)	1 (5.6)
Sores	8 (4.8)	0
TB	12 (7.2)	4 (22.2)
Rash	0	0
Ulcers sores	5 (3)	0
HIV or AIDS+Sores	1 (0.6)	0
HIV or AIDS+TB	3 (1.8)	0
High BP+Epilepsy	3 (1.8)	0
High BP+TB	1 (0.6)	0
High BP+Ulcers sores	1 (0.6)	0
High BP+Stroke	2 (1.2)	0
High BP+Stroke+Heart disease	1 (0.6)	0
High BP+Heart disease	4 (2.4)	0
High BP+Arthritis	2 (1.2)	0
High BP+Arthritis+Asthma	1 (0.6)	0
High BP+Arthritis+Asthma+Diabetes	1 (0.6)	0
High BP+Asthma	2 (1.2)	0
High BP+Cancer+Rash	1 (0.6)	0
High BP+Diabetes	6 (3.6)	0
High BP+Diabetes+Ulcers sores	1 (0.6)	0
Stroke+Epilepsy	1 (0.6)	0
Stroke+Cancer	1 (0.6)	0
Arthritis+Cancer	1 (0.6)	0
Arthritis+Sores	1 (0.6)	0
Diabetes+Sores	1 (0.6)	0
Previous Serious Illness	n=171	n=17
No	47 (27.5)	1 (5.9)
Don't know	11 (6.4)	13 (76.5)
Arthritis/joint pain/jig	7 (4.1)	0
Asthma	7 (4.1)	0
Cancer	3 (1.8)	0
Diabetes	10 (5.8)	0
Diarrhoea or dysentery	12 (7)	0

Epilepsy	7 (4.1)	1 (5.9)
Heart disease	1 (0.6)	0
High BP	38 (22.2)	1 (5.9)
Lung disease	2 (1.2)	0
Malaria	0	0
Stroke	4 (2.3)	0
High BP+Lung disease	1 (0.6)	0
High BP+Stroke	2 (1.2)	0
Arthritis/joint pain/jig+High BP	1 (0.6)	0
Arthritis/joint pain/jig+Asthma	3 (1.8)	0
Arthritis/joint pain/jig+Asthma+High BP	1 (0.6)	0
Arthritis/joint pain/jig+Asthma+Epilepsy	1 (0.6)	0
Arthritis/joint pain/jig+Asthma+Heart disease+High BP	1 (0.6)	0
Arthritis/joint pain/jig+Diabetes+High BP	2 (1.2)	0
Asthma+High BP	3 (1.8)	1 (5.9)
Cancer+High BP	1 (0.6)	0
Cancer+ Diarrhoea or dysentery+Heart disease+High BP+Stroke	1 (0.6)	0
Diabetes+High BP	4 (2.3)	0
Diabetes+Heart disease+High BP	1 (0.6)	0

Table 19b Illness form: Comparing frequencies for other client health issues (Paper-based (n=185) versus Cell phone (n=21))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Illness Traditional	n=175	n=21
Don't know	12 (7.4)	7 (33.3)
No	146 (83.4)	14 (66.7)
Yes - diagnosed but not treated by traditional healer	10 (5.7)	0
Yes - diagnosed and treated by a traditional healer	6 (3.4)	0
Client HIV Status	n=169	n=0
No - does not wants to	83 (49.1)	
No - but would like to	26 (15.4)	
Yes - prefers not to disclose	17 (10.1)	
Yes - HIV+	20 (11.8)	
Yes - HIV-	23 (13.6)	
Hospital discharge	n=140	n=21
Yes	87 (62.1)	12 (57.1)
No	53 (37.9)	9 (42.9)
Client TB Status	n=174	n=21
Don't know	2 (1.1)	0
No	149 (85.6)	17 (81)
Currently on treatment every day	7 (4)	2 (9.5)
Currently on treatment but sometimes forgets	2 (1.1)	0
Completed 6 months treatment in past	12 (6.9)	1 (4.8)
Did not complete 6 months of treatment in past	1 (0.6)	1 (4.8)
Had sputum taken at clinic but does not know result	0	0
Had sputum collected but not able to go back to collect result	1 (0.6)	0
Client mobility	n=140	n=16
Bed ridden	5 (3.6)	2 (12.5)
Housebound	11 (7.9)	2 (12.5)
Moves around, but with difficulty	15 (10.7)	3 (18.8)
Moves around without difficulty	109 (77.9)	9 (56.3)
History or evidence of abuse?	n=176	n=20
Don't know	6 (3.4)	2 (10)
No	167 (97.9)	18 (90)
Bruises	0	0
Unexplained injury	3 (1.7)	0
Genital injury	0	0

Table 19c Illness form: Comparing frequencies for care issues (Paper-based (n=185) versus Cell phone (n=21))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Home Care	n=172	n=18
No	95 (55.2)	7 (38.9)
Daily	27 (15.7)	6 (33.3)
Once a week	17 (9.9)	1 (5.6)
Twice a week	2 (1.2)	1 (5.6)
Three times a week	1 (0.6)	1 (5.6)
Four times a week	6 (3.5)	0
Few times a month	24 (14)	2 (11.1)
Facility Attendance	n=176	n=20
No	33 (18.8)	2 (10)
Don't know	0	1 (5)
Weekly	10 (5.7)	1 (5)
2+ times a month	7 (4)	1 (5)
Monthly	122 (69.3)	15 (75)
Quarterly	4 (2.3)	0
Adherence support	n=172	n=18
Ondersteun 'n behandelingsvriend	1 (0.6)	0
None	76 (44.2)	5 (27.8)
Supervise taking of treatment	31 (18)	0
Replenishes medicines or delivering treatment	2 (1.2)	0
Checking that there is enough treatment	14 (8.1)	0
Ticking green card (recording findings)	6 (3.5)	0
Intervening in problems referring if necessary	12 (7)	0
Don't know	26 (15.1)	1 (5.6)
CBHW daily	0	0
CHW few times a week	0	3 (16.7)
CHW few times a month	0	2 (11.1)
Treatment supported daily	0	0
Treatment supporter few times a month	0	0
Health facility/professional	0	2 (11.1)
Family member	0	1 (5.6)
Friend	0	0
Supervise taking of treatment+Checking that there is enough treatment+Intervening in problems referring if necessary	1 (0.6)	0
Supervise taking of treatment+Intervening in problems referring if necessary	1 (0.6)	0
Checking that there is enough treatment+Intervening in problems referring if necessary	1 (0.6)	0
Ticking green card (recording findings)+Intervening in problems referring if necessary	1 (0.6)	0
CBHW daily+Treatment supported daily	0	1 (5.6)
CHW few times a week+Family member	0	1 (5.6)
CHW few times a week+Family member+ Friend	0	1 (5.6)
Treatment supported daily+Health facility/professional+Family member	0	1 (5.6)
Adherence Support Duration	n=179	n=18
Don't know	4 (2.2)	2 (11.1)
None	16 (8.9)	2 (11.1)
Days	7 (3.9)	0
Weeks	5 (2.8)	0
Months	59 (33)	6 (33.3)
Years	88 (49.2)	8 (44.4)
Medication received	n=175	n=20
Don't know	4 (2.3)	3 (15)
No	68 (38.9)	4 (20)
Medicines supplied only	33 (18.9)	2 (10)
Medicines supplied and treatment supervised	56 (32)	6 (30)
Treatment supervised only	14 (8)	5 (25)

Services provided	n=178	n=20
Pain relief	2 (1.1)	0
Referral to social worker	2 (1.1)	0
Treating fever	2 (1.1)	0
Referral to clinic	91 (51.1)	6 (30)
Feeding	0	0
Oral Rehydration	0	0
Bed care	2 (1.1)	0
Prepare meal	0	0
Cleaning	1 (0.6)	0
None	42 (23.6)	5 (25)
Dressing wounds	0	0
First aid	0	0
Treatment observed	0	1 (5)
Education or advice	2 (1.1)	2 (10)
Given medicine	2 (1.1)	1 (5)
Providing comfort	0	0
Counseling	1 (0.6)	0
Providing food	0	0
Washing clothes	0	0
Accompanying patient	0	0
Pain relief+Education or advice	1 (0.6)	0
Pain relief+Referral to clinic	5 (2.8)	0
Pain relief+Referral to clinic+Oral Rehydration	1 (0.6)	0
Pain relief+None	0	1 (5)
None+Given medicine	1 (0.6)	0
Education or advice+Providing comfort+Counseling	1 (0.6)	0
Referral to social worker+Treatment observed	1 (0.6)	0
Referral to social worker+Referral to clinic	1 (0.6)	0
Referral to social worker+Referral to clinic+Education or advice	1 (0.6)	0
Treating fever+Referral to clinic	2 (1.1)	1 (5)
Treating fever+Referral to clinic+Oral Rehydration+ Education or advice	1 (0.6)	0
Treating fever+Referral to clinic+Cleaning+Providing comfort+Counseling	1 (0.6)	0
Referral to clinic+Education or advice	6 (3.4)	0
Referral to clinic+Counseling	1 (0.6)	0
Referral to clinic+Education or advice+Counseling	0	1 (5)
Referral to clinic+Feeding+Bed care+Prepare meal+Cleaning+Treatment observed+Washing clothes	1 (0.6)	0
Referral to clinic+Cleaning+Treatment observed+ Education or advice+Counseling	0	1 (5)
Referral to clinic+Treatment observed+Education or advice	0	1 (5)
Referral to clinic+Oral Rehydration	1 (0.6)	0
Referral to clinic+Oral Rehydration+Education or advice	1 (0.6)	0
Referral to clinic+Prepare meal+Cleaning	1 (0.6)	0
Referral to clinic+Prepare meal+Cleaning+Washing clothes	1 (0.6)	0
Oral Rehydration+Dressing wounds	1 (0.6)	0
Oral Rehydration+Counseling	1 (0.6)	0
Bed care+Cleaning	1 (0.6)	0
Visit Fees	n=158	n=17
Fee for service	2 (1.3)	1 (5.9)
Free	155 (98.7)	16 (94.1)

Table 19d Illness form: Comparing frequencies for frequent visit issues (Paper-based (n=136) versus Cell phone (n=45))

Variable and categories	Paper-based n(%)	Cell phone n(%)
Main Problem	n=122	n=43
TB	13 (10.7)	7 (16.3)
HIV or AIDS	10 (8.2)	4 (9.3)
Diabetes	12 (9.8)	5 (11.6)
High BP	31 (25.4)	17 (39.6)
Stroke	3 (2.5)	2 (4.7)
Elderly	5 (4.1)	1 (2.3)
Sores or wounds	5 (4.1)	0
Other	23 (18.9)	7 (16.3)
TB+HIV or AIDS	2 (1.6)	0
TB+High BP	1 (0.8)	0
HIV or AIDS+Sores or wounds	1 (0.8)	0
Diabetes+High BP	7 (5.7)	0
High BP+Stroke	1 (0.8)	0
High BP+Stroke+Sores or wounds	1 (0.8)	0
High BP+Elderly	1 (0.8)	0
High BP+Other	6 (4.9)	0
Side Effects	n=133	n=43
No	91 (68.9)	24 (55.9)
Yes - minor symptoms	35 (26.5)	12 (27.9)
Yes - serious symptoms	6 (4.5)	7 (16.3)
Adherence Support	n=133	n=32
Ondersteun 'n behandelingsvriend	1 (0.8)	0
None	64 (48.1)	16 (50)
Supervise taking of treatment	26 (19.5)	1 (3.1)
Replenishes medicines or delivering treatment	5 (3.8)	0
Checking that there is enough treatment	15 (11.3)	4 (12.5)
Ticking green card (recording findings)	5 (3.8)	4 (12.5)
Intervening in problems referring if necessary	7 (5.3)	5 (15.6)
Don't know	5 (3.8)	0
Ondersteun 'n behandelingsvriend+Intervening in problems referring if necessary	0	1 (3.1)
None+Checking that there is enough treatment+ Ticking green card (recording findings)	0	1 (3.1)
Supervise taking of treatment+Ticking green card (recording findings)	1 (0.8)	0
Supervise taking of treatment+Intervening in problems referring if necessary	1 (0.8)	0
Replenishes medicines or delivering treatment+ Intervening in problems referring if necessary	1 (0.8)	0
Checking that there is enough treatment+Intervening in problems referring if necessary	1 (0.8)	0
Ticking green card (recording findings)+Intervening in problems referring if necessary	1 (0.8)	0
Adherence Referral	n=130	n=40
No referral	83 (63.8)	16 (40)
Referring for side effects	11 (8.5)	10 (25)
Referring contacts	1 (0.8)	0
Referring for adherence problem	11 (8.5)	6 (15)
Referring for social issues	3 (2.3)	1 (2.5)
Referring if treatment seems not to be working	9 (6.9)	2 (5)
Symptoms of changing or new disease (eg. Fever)	9 (6.9)	1 (2.5)
Referring for side effects+Referring for adherence problem	1 (0.8)	2 (5)
Referring for side effects+Referring for adherence problem+Symptoms of changing or new disease (eg. Fever)	1 (0.8)	0
Referring for side effects+Symptoms of changing or new disease (eg. Fever)	1 (0.8)	0
Referring for side effects+Referring if treatment seems not to be working	0	2 (5)
Specimens	n=120	n=19
Collecting sputum with consent	1 (0.8)	0
Giving feedback on results	12 (10)	6 (31.6)
None	107 (89.2)	13 (68.4)
Adherence Education/Training	n=132	n=37
None	46 (34.8)	10 (27)

Encouraging patient to opt for DOT	2 (1.5)	2 (5.4)
Encouraging TB testing or treatment	1 (0.8)	0
Encouraging to join a support group	0	2 (5.4)
Giving health education/motivation	16 (12.1)	11 (29.7)
Discussing obstacles to adherence	2 (1.5)	1 (2.7)
Reminding to visit clinic	41 (31.1)	1 (2.7)
None+Encouraging to join a support group	0	3 (8.1)
Encouraging patient to opt for DOT+Encouraging TB testing or treatment+Giving health education/ motivation+Reminding to visit clinic	2 (1.5)	0
Encouraging patient to opt for DOT+Giving health education/motivation	1 (0.8)	0
Encouraging patient to opt for DOT+Giving health education/ motivation+Reminding to visit clinic	2 (1.5)	0
Encouraging patient to opt for DOT+Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+Giving health education/motivation	2 (1.5)	0
Encouraging to join a support group+Giving health education/motivation+Discussing obstacles to adherence+Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+Giving health education/motivation+Reminding to visit clinic	1 (0.8)	0
Encouraging to join a support group+Discussing obstacles to adherence	2 (1.5)	0
Encouraging to join a support group+Discussing obstacles to adherence+Reminding to visit clinic	1 (0.8)	1 (2.7)
Encouraging to join a support group+Reminding to visit clinic	2 (1.5)	3 (8.1)
Encouraging to join a support group+Giving health education/motivation+Discussing obstacles to adherence	0	1 (2.7)
Giving health education/motivation+Discussing obstacles to adherence	1 (0.8)	2 (5.4)
Giving health education/motivation+Discussing obstacles to adherence+Reminding to visit clinic	2 (1.5)	0
Giving health education/motivation+Reminding to visit clinic	4 (3)	0
Discussing obstacles to adherence+Reminding to visit clinic	2 (1.5)	0
Support	n=130	n=31
Counseling for HIV	13 (10)	3 (9.7)
Delivering food	2 (1.5)	0
Provides emotional support	27 (20.8)	11 (35.5)
Dressing a wound	2 (1.5)	0
Weighing	10 (7.7)	2 (6.5)
None	67 (51.5)	6 (41.9)
Counseling for HIV+Provides emotional support	6 (4.6)	2 (6.5)
Counseling for HIV+Dressing a wound	1 (0.8)	0
Delivering food+Provides emotional support	1 (0.8)	0
Provides emotional support+Weighing	1 (0.8)	0
Contact Tracing	n=125	n=27
None	119 (95.2)	23 (85.2)
Screening for contacts	3 (2.4)	0
Requested by facility to undertake case finding	3 (2.4)	4 (14.8)
Family Training	n=132	n=44
None	44 (33.3)	5 (11.4)
Training a client	45 (34.1)	27 (61.4)
Training a family caregiver	22 (16.7)	5 (11.4)
Training a treatment supporter	13 (9.8)	0
Training a client+Training a family caregiver	2 (1.5)	3 (6.8)
Training a client+Training a family caregiver+Training a treatment supporter	1 (0.8)	1 (2.3)
Training a client+Training a treatment supporter	3 (2.3)	1 (2.3)
Training a family caregiver+Training a treatment supporter	2 (1.5)	2 (4.6)
Follow-up	n=129	n=42
None	40 (31)	15 (35.7)
Providing follow up for hospital discharge	49 (38)	23 (54.8)
Conveying a message from clinic	34 (26.1)	4 (4.9)
Providing follow up for hospital discharge+Conveying a message from clinic	6 (4.7)	0
Condition	n=0	n=20
Moves - easily		9 (45)
Moves - difficult		10 (50)
Bedridden		1 (5)

ANNEXURE 12: DEATH FORM ANALYSIS

Completion rates and comments

Table 21a Death form: Comparing completion rates for time, CHW identification and consent, death report and comments (Paper-based (n=30) versus Cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Cell phone
Time begin	See Time analysis	29 (96.7)	100%
End time	See Time analysis	28 (93.3)	100%
Date	By oversight not entered in paper-based but well completed.		100%
CHW Number		27 (90)	100%
Consent		100%	100%
Deceased new		26 (86.7)	100%
Last comments	Most comments: "Good".	16 (53.3)	9 (56.3)

Table 21b Death form: Comparing completion rates for Household identification variables (Paper-based (n=30) versus Cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Cell phone
Homestead ID number	See Homestead number and Household number comments.	29 (96.7)	100%
Household ID Number	See Homestead number and Household number comments.	24 (80)	100%

Table 21c Death form: Comparing completion rates for names and documentation (Paper-based (n=30) versus Cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Cell phone
Deceased Surname	See Surnames and Names comments.	100%	100%
Deceased Firstname	See Surnames and Names comments.	100%	100%
Deceased Middle Name	Can be lower completion rate if no second name.	19 (63.3)	13 (81.3)
Deceased person's ID Status		100%	100%
Deceased ID Number	Paper-based had a wrong number and cell had zeros and DOBs. See ID number comments.	5 (16.7)	12 (75)
Death Certificate		100%	15 (93.8)

Table 21d Death form: Comparing completion rates for deceased demographic variables (Paper-based (n=30) versus Cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Cell phone
Deceased date of birth	Less well completed.	23 (76.7)	7 (43.8)
Deceased date of death	Less well completed.	21 (70)	7 (43.8)
Age at death	One cell had a DOB instead of an age category, easy to correct	100%	15 (93.8)
Deceased Gender		100%	100%

Table 21e Death form: Comparing completion rates for deceased symptoms, illness and other death issues (Paper-based (n=30) versus Cell phone (n=16))

Variable	Comments	Completion rate n (%)	
		Paper-based	Cell phone
Symptoms	Completion rates lower.	23 (76.7)	14 (87.5)
Illness Name		24 (80)	15 (93.8)
Place of Death	Well completed	100%	100%
Deceased Traditional Illness		29 (96.7)	14 (87.5)

Frequency distributions of death issues

Table 22a Death form: Comparing frequencies for document and demographic variables (Paper-based (n=30) versus Cell phone (n=16))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Deceased person's ID Status	n=30	n=16
No - has never had	3 (10)	1 (6.3)
Not yet - applied 1-3 months ago	0	0
Not yet - applied 3-6 months ago	0	0
Not yet - applied 6+ months ago	0	0
Yes - not available	6 (20)	6 (37.6)
Yes - is available	21 (70)	9 (56.3)
Death Certificate	n=30	n=15
Don't know	0	1 (6.7)
No	3 (10)	0
No, application done more than 3 months ago	0	0
No, application done less than 3 months ago	0	0
No, application done in the last month	0	0
Yes	27 (90)	14 (93.3)
Age at death	n=30	n=14
< 1 year	3 (10)	0
1-5 years	0	0
6-10 years	0	0
11-20 years	2 (6.7)	0
>21 years	25 (83.3)	14 (100)
Deceased Gender	n=30	n=16
Male	14 (46.7)	8 (50)
Female	16 (53.3)	8 (50)

Table 22b Death form: Comparing frequencies for symptoms, illness and other death issues (Paper-based (n=30) versus Cell phone (n=16))

Variable and categories	Paper-based n (%)	Cell phone n (%)
Symptoms	n=23	n=14
Rash	0	0
Pelvic pain	0	0
Cough	0	0
Pain in lower limbs	1 (4.3)	1 (7.1)
Swelling (Oedema)	0	1 (7.1)
Fever	0	0
Wasting	1 (4.3)	0
Rapid breathing	0	0
Injury	0	0
Shortness of breath	1 (4.3)	2 (14.3)
Discharge	0	0
Wheezing	0	0
Lump	0	0
Dehydration	1 (4.3)	0
Headache	0	1 (7.1)
Watery diarrhoea	1 (4.3)	0
Neckpain	0	0
Bloody diarrhoea	0	1 (7.1)
Chest pain	0	2 (14.3)
Nausea	0	0
Pain in arms	0	0
Vomiting	0	0
Upper abdominal pain	0	0

Itch	0	0
Pain in lower abdomen	0	0
Rash+Fever+Vomiting	1 (3.4)	0
Rash+ Cough	0	1 (7.1)
Rash+Nausea+Vomiting	1 (3.4)	0
Shortness of breath+Headache+Pain in arms	1 (3.4)	0
Shortness of breath+ Headache	0	1 (7.1)
Watery diarrhoea+Vomiting	2 (8.7)	0
Cough+Dehydration	1 (3.4)	0
Cough+Dehydration+Nausea+Vomiting	1 (3.4)	0
Cough+ Headache+Chest pain+Vomiting	1 (3.4)	0
Cough+Chest pain	2 (8.7)	0
Cough+Chest pain+Pain in lower abdomen	1 (3.4)	0
Cough+Nausea	1 (3.4)	0
Cough+ Swelling (Oedema)+Fever+Shortness of breath+Dehydration+Headache+Watery diarrhoea+ Chest pain+Vomiting	1 (3.4)	0
Cough+Shortness of breath+Chest pain	1 (3.4)	0
Bloody diarrhoea+Nausea	1 (3.4)	0
Rapid breathing+ Shortness of breath	0	1 (7.1)
Swelling (Oedema)+Shortness of breath	0	1 (7.1)
Swelling (Oedema)+Pain in lower abdomen	1 (3.4)	0
Fever+Shortness of breath+Headache	0	1 (7.1)
Fever+Wasting+Dehydration+Headache+Vomiting	1 (3.4)	0
Fever+Dehydration+Watery diarrhoea	0	1 (7.1)
Fever+Headache+Vomiting	1 (3.4)	0
Illness name	n=24	n=15
HIV or AIDS	4 (16.7)	1 (6.7)
High BP	0	1 (6.7)
Stroke	0	2 (13.3)
Heart disease	1 (4.2)	1 (6.7)
Arthritis	0	0
Asthma	0	0
Cancer	4 (16.7)	4 (26.7)
Don't know	6 (25)	3 (20)
Diabetes	2 (8.3)	1 (6.7)
Allergies	0	0
Epilepsy	1 (4.2)	0
Sores	0	0
TB	3 (12.5)	2 (13.3)
Rash	0	0
Ulcers sores	0	0
HIV or AIDS+Rash	1 (4.2)	0
High BP+ Heart disease+Diabetes	1 (4.2)	0
High BP+Cancer	1 (4.2)	0
Place of Death	n=30	n=16
Home	15 (50)	6 (37.5)
Hospital	12 (40)	8 (50)
Elsewhere	3 (10)	2 (12.5)
Illness Traditional	n=29	n=14
Don't know	2 (6.9)	8 (57.2)
No	26 (89.7)	5 (37.5)
Yes - not treated by TH	0	1 (7.1)
Yes - treated by TH	1 (3.4)	0

ANNEXURE 13: COMMUNITY HEALTH WORKER MONTHLY FORM

Question	Response
What is your CHW number?	
What is today's date?	
What is the name of the organisation you work for?	
Have you received a stipend this month?	a. Yes b. No c. Volunteer
Did you attend your support group this month?	a. Yes b. No
Did you receive training this month?	a. Yes b. No
What presentations did you do this month, if any?	a. b. c. d.
What meetings did you attend?	a. b. c. d. e.
Did you work with a clinic this month?	a. Yes b. No
How are you feeling?	a. Satisfied b. Dissatisfied c. Neutral d. Excited e. Worried
Any comments or suggestions?	
Was your kit replenished?	a. Yes b. No c. Not needed

ANNEXURE 14: HOUSEHOLD VISIT FORM

1. Enter information during first visit AND once a year for residents per household.
2. A household can be one person or a group of people who live in the same home.

Question	Response
What is the date today?	Dd mm yyyy
What is the number of the household?	
What is the usual health facility used by this household? Select one option	a. private clinic b. private doctor c. public hospital d. public clinic e. mobile clinic
Do you feel this facility is: Select one option	a. Close b. Far c. Too far
Number who do not live at home most nights but are regarded as members of the household	
Total number of people who live in this household	
Infants from birth to 1 year old	
Children from 2 to 5 years old	
Children from 6 to 10 years old	
Girls from 11 to 20 years old	
Boys from 11 to 20 years old	
Women from 21 to 60 years old	
Men from 21 to 60 years old	
Men and women 61 years and older	
Number of members who are disabled	
How many children (0- 19 years old) have an ongoing health problem that needs regular health care?	
How many adults (20 years and older) have an ongoing health problem that needs regular health care?	
How many members are housebound or bedridden due to illness?	
Who provide home based care to this household?	
May select more than one option	a. None b. CHW c. Home based Caregiver d. DOT supporter e. ART Supporter f. OVC Worker g. Peer educator

ANNEXURE 15: HEALTH VISIT FORM

Enter information during first visit AND once a year for every resident household member.

Question	Response
What is your CHW number?	
What is the date today?	Dd/mm/yyyy
What number has been given to the household?	
What is the client's unique ID number in the CHW register?	
How old is the client?	0 - 11 months 1- 5 years 6 -10 years 11- 20 years older than 21 years
What is the client's gender?	Male Female
Does client live or return to the household?	Monthly Weekly Daily Annually
How is the client related to the head of the household?	Not related Adopted Relative Sibling Parent Grand-child Child Partner Wife Husband Is household head
What is the parental situation?	Child with both parents that died Child with mother that died, but father alive Child with father that died, but mother alive Child with both parents alive who look after child Child cared for by mother with absent father Child cared for by father with absent mother Client is not a child (20 years and older)
Is the client a parent or adult caregiver?	No (child) Parent caring for one or more child in family Adult without child but caring for child Adult without child and not caring for child
What is the client's health status?	Healthy Disabled, but healthy Disabled with additional disease Minor illness Serious illness

DISABLED PERSON - Complete if client is disabled

Question	Response [mark selection (s)]
What kind of disability does client have?	Blind Deaf Arm / leg gone lame Cerebral palsy - muscle spasm Mental retardation Mental illness Epilepsy Other
How severe is the disability?	Not so bad Bad Very bad
Is the client housebound or bedridden?	Bed-bound Housebound Can move around on own outside home Walk with assistance
What services are being provided to the client?	None Home based care, e.g. foot care, nail care, Referred to social services or home affairs Referred to health services Referred to a school or educational service Rehabilitation Assisted to apply for a grant Accompanying person to a service Help in home e.g. cleaning, cooking a meal, etc.
Does the client also have an illness?	Yes No

CHILD HEALTH SECTION - Complete for children under six years of age

Question	Response [mark selection (s)]
What is your CHW number?	
What is the date today?	Dd/mm/yyyy
What number has been given to the household?	
What is the client's unique ID number in the CHW register?	
Is the road-to-health card available?	Present and up to date Present - not up-to-date Absent
Mid upper-arm circumference of child?	
What is the nutritional status of the child?	Marasmus Kwashiorkor Wasted - thin for age Stunted - short for age Obesity (very fat) Not growing well - weight not increasing or increasing too slowly Good or adequate - growth curve is upward Not growing well - losing weight
Child has been weighed at local clinic	Within last 2 months More than 2 months ago Not at all
Child has been immunized at local clinic	Within last 2 months More than 2 months ago Not at all
Is the immunization card present and up to date?	Absent Present but not up-to-date Up-to-date
What services are being provided to the client?	None Check milestones Road to health chart advice Nutrition advice given Formula feeding advice Breast feeding advice Immunization advice given Weaning advice Food supplement provided Referred for treatment or support

PREGNANCY SECTION - Complete if woman is pregnant

Question	Response [mark selection (s)]
What is your CHW number?	
What is the date today?	Dd/mm/yyyy
What number has been given to the household?	
What is the client's unique ID number in the CHW register?	
How far pregnant is this woman?	Months
Does this woman have an antenatal card showing how regular she has been attending?	No Yes - but irregular attendance Yes - regular attendance
How many antenatal visits has she attended so far?	
What was the result of her last pregnancy?	Uncomplicated live birth, full term Complicated live birth, full term Live birth, premature Spontaneous abortion: 1st 6 months Termination of pregnancy: 1st 6 months Stillborn in last 3 months
How many times has she been pregnant before?	
How many times has she given birth?	
How many of her babies were alive at birth?	
How many twins or multiple births has she had?	
How many of her children are still alive?	
Does she have any of these risk factors?	None Diabetes Heart disease Previous caesarian section Smoking Drinking High Blood Pressure Previous complications
Does client know her HIV status?	Does not know, but wants to know Does not want to know Yes, prefers not to disclose Yes, HIV negative Yes, HIV positive
What services are being provided to the client?	None Given counseling Assisted to apply for a grant Referred for: <ul style="list-style-type: none"> • antenatal care • social service • health services • counseling & testing

ILLNESS SECTION - complete for an ill (sick) adult or child

Question	Response [mark selection (s)]																										
What is your unique CHW number?																											
What is the date today?	Dd/mm/yyyy																										
What number has been given to the household?																											
What is the client's unique ID number in the CHW register?																											
Tick symptoms or signs of the illness	<table> <tr> <td>Headache</td> <td>Watery diarrhoea</td> </tr> <tr> <td>Neck pain</td> <td>Bloody diarrhoea</td> </tr> <tr> <td>Chest pain</td> <td>Nausea</td> </tr> <tr> <td>Pain in arms</td> <td>Vomiting</td> </tr> <tr> <td>Upper abdominal pain</td> <td>Itching</td> </tr> <tr> <td>Pain in lower abdomen</td> <td>Rash</td> </tr> <tr> <td>Pelvic pain</td> <td>Cough</td> </tr> <tr> <td>Pain in lower limbs</td> <td>Fever</td> </tr> <tr> <td>Swelling (Oedema)</td> <td>Rapid breathing</td> </tr> <tr> <td>Wasting</td> <td>Shortness of breath</td> </tr> <tr> <td>Injury</td> <td>Wheezing</td> </tr> <tr> <td>Discharge</td> <td>Dehydration</td> </tr> <tr> <td>Lump</td> <td>Loosing a lot of weight</td> </tr> </table>	Headache	Watery diarrhoea	Neck pain	Bloody diarrhoea	Chest pain	Nausea	Pain in arms	Vomiting	Upper abdominal pain	Itching	Pain in lower abdomen	Rash	Pelvic pain	Cough	Pain in lower limbs	Fever	Swelling (Oedema)	Rapid breathing	Wasting	Shortness of breath	Injury	Wheezing	Discharge	Dehydration	Lump	Loosing a lot of weight
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What is the name of the present illness (if it is known)?	<table> <tr> <td>Don't know</td> <td>Stroke</td> </tr> <tr> <td>Allergies</td> <td>Heart disease</td> </tr> <tr> <td>Sores</td> <td>Arthritis</td> </tr> <tr> <td>Tuberculosis (TB)</td> <td>Asthma</td> </tr> <tr> <td>Rash</td> <td>Cancer</td> </tr> <tr> <td>Ulcers sores</td> <td>Diabetes</td> </tr> <tr> <td>HIV or AIDS</td> <td>Epilepsy</td> </tr> <tr> <td>High Blood pressure</td> <td></td> </tr> </table>	Don't know	Stroke	Allergies	Heart disease	Sores	Arthritis	Tuberculosis (TB)	Asthma	Rash	Cancer	Ulcers sores	Diabetes	HIV or AIDS	Epilepsy	High Blood pressure											
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Tuberculosis (TB)	Asthma																										
Rash	Cancer																										
Ulcers sores	Diabetes																										
HIV or AIDS	Epilepsy																										
High Blood pressure																											
Does the client believe they have a traditional illness?	No Don't know Yes, been diagnosed but not treated by a traditional healer Yes, diagnosed and treated by a traditional healer																										
Has this client ever had TB?	No Completed six months' treatment before Had sputum taken at clinic but does not know result Had sputum collected but unable to go back to collect result Did not complete 6 months of treatment in past Currently on treatment every day Currently on treatment but sometimes forgets																										
Does the client know his/her HIV status?	Does not know, but wants to know Does not want to know Yes, prefers not to disclose Yes, HIV negative Yes, HIV positive																										
Is the client housebound or bed ridden?	Bed ridden Housebound Gets around but with difficulty Gets around without difficulty																										
Is client receiving home care?	<table> <tr> <td>No</td> <td>Daily</td> <td>Once per week</td> </tr> <tr> <td>Twice per week</td> <td></td> <td>Three times per week</td> </tr> <tr> <td>Four times per weekly</td> <td></td> <td>Few times per month</td> </tr> </table>	No	Daily	Once per week	Twice per week		Three times per week	Four times per weekly		Few times per month																	
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Is the client attending the health services regularly?	<table> <tr> <td>No</td> <td>Weekly</td> <td>Twice per month</td> </tr> <tr> <td>Monthly</td> <td></td> <td>Three monthly</td> </tr> </table>	No	Weekly	Twice per month	Monthly		Three monthly																				
No	Weekly	Twice per month																									
Monthly		Three monthly																									

FREQUENT VISIT SECTION - complete for an adult or child

Question	Response [mark selection (s)]			
What is your CHW number?				
What is the date today?	Dd/mm/yyyy			
What number has been given to the household?				
What is the client's unique ID number in the CHW register?				
Is this visit to follow-up a referral from a facility?	No, it is a frequent visit			
Referred by clinic				
Providing follow up for hospital discharge				
What is the client's main reason for this visit?	Tuberculosis (TB) HIV or AIDS Diabetes High Blood Pressure Stroke Elderly Sores or wounds Other			
Are medicines being?	No Supplied only Supplied and treatment supervised Treatment supervised only			
What kind of treatment support is the client mainly getting?	None CHW daily CHW a few times a week CHW a few times a month CHW, but less than once a month Family member Health facility or professional Buddy Treatment supporter			
What is the client's main reason for needing a visit?	Tuberculosis (TB) HIV or AIDS Diabetes High Blood Pressure Stroke Elderly Sores or wounds Other			
Is the client experiencing any side effects?	No Yes, minor symptoms Yes, serious symptoms			
What treatment support is being provided?	Supervise taking of treatment Replenishes medicines or delivering treatment Checking that there is enough treatment Ticking green card (recording findings) Intervening in problems - referring if necessary Supporting a treatment buddy			
Is client being referred?	No referral Having side effects Contacts Have adherence problem For social issues Treatment seems not to be working Symptoms/signs of changing or new disease (e.g. Fever)			
Has sputum been collected or results given?	No Collecting sputum with consent Giving feedback on results			
Which of these educational activities were undertaken?	None Encouraging patient to opt for DOT Encouraging TB testing or treatment Encouraging to join a support group Giving health education/ motivation Discussing obstacles to adherence Reminding to visit clinic			
What contact tracing has been undertaken?	None Screening for contacts Requested by facility to undertake case finding			
What family training has been given?	None Training a client Training a family caregiver Training a treatment supporter			
What services are being provided to the client?				
None	Bed care	First aid	Prepare meal	Education or advice
Cleaning	Providing comfort	Dressing wounds	Providing food	Treatment observed
Accompanying patient	Pain relief	Given medicine	Counseling	Deliver food
Referral to social worker	Referral to clinic	Feeding	Washing clothes	Oral Re-hydration
Treating fever	HIV counseling	Weighing	Providing emotional support	

ANNEXURE 16: MONTHLY CHW EQUIPMENT KIT REPLENISHMENT

Question	Response [mark selection (s)]
Your unique CHW number	
What is today's date	
Does the CHW have the following items for a kit?	Carrying bag Pen Book Records Household Register Hand Tape measure Hand towel Tweezer (metal) Nail clipper Thermometer Plastic sheet Apron Plastic kidney dish Scissors
What items do you need?	None Gloves Dressings Pain tablets Antiseptic Gentian violence Bandage roll bandage Gauze Safety pins Jik Salt Sugar Soap Nappies Aqueous cream Plasters Condoms Food parcel

ANNEXURE 17: GENERAL INFORMATION: CBHW PROJECT

Question	Information
1. Project Details:	
Registered Name	
Date of registration	
Organizational Type, e.g. NGO, NPO, CBO, PBO etc.	
Physical Address	
Postal Address	
2. Contact Details:	
Telephone number	
Cellular telephone number	
Facsimile number	
E-mail address	
3. Contact person	
Designation	
Position	
Direct contact number	
Organisational organogram (attach)	
4. Financial information	
Annual report: indicate how this can be accessed.	
5. What is the aim of the project	
What is the vision of the project	
What is the mission of the project	
6. Project evaluation	
Briefly describe the monitoring system in use	
Briefly describe the evaluation system in use	
7. Project record keeping	
Briefly describe record keeping system in place	
Is an electronic database available?	

8. CBHWs:	
Total number active at present	
Attrition numbers for last year	
Main reasons given for attrition	
How many CBHWs are in training?	
Ideal number CBHW required	
Briefly describe CBHW recruitment process.	
9. Training	
List specific training available	
Number CBHWs completed each type of training	
Briefly describe certification of training	
List and briefly describe any academic linkages	
List CBHW career development opportunities	
List contents of your curriculum	
Who trains your CBHWs?	
10. CBHW activities (Attach separate page if needed)	
List CBHW activities	
Briefly discuss means used to sustain activities	

Signed: _____

Name printed: _____

Date: _____



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