

# MEASURE Evaluation

## Working Paper Series

### Formative Assessment of a Future mHealth Site in Nhamatanda, Mozambique

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# Formative Assessment of a Future mHealth Site in Nhamatanda, Mozambique

*Summary of an assessment conducted by  
Filomena de Jesús João and Nena do Nascimento*

Nena do Nascimento

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## Executive Summary

**Background:** *Effective treatment of chronic conditions such as HIV, diabetes, and hypertension requires clients to return periodically to the treatment center for resupply of medications as well as for check-ups and laboratory tests. Failure to return at scheduled times compromises treatment effectiveness and, in the case of HIV, can even lead to antiretroviral therapy (ART) resistance, lower retention in treatment, and increased mortality among patients.*

*In Mozambique, busca activa complements facility care processes. It consists of community outreach done by community workers (known as “activistas”) to locate treatment patients who are overdue for pharmacy pickups or needed consultations.*

*MEASURE Evaluation – in collaboration with the Community Care Program (PCC) and the Clinical HIV/AIDS Services Strengthening in Sofala, Manica and Tete project (CHASS SMT) – is assessing the feasibility of using mobile telephone technology to facilitate communications between the treatment facility and the community workers who carry out busca activa, as well as providing ongoing technical support and documentation of the first phases of the intervention to strengthen implementation and roll out to the U.S. Agency for International Development (USAID)/Mozambique. Mobile Health, or mHealth, can be defined as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, tablets, personal digital assistants (PDAs), and other wireless devices.<sup>1</sup>*

**Methodology:** *Data were collected in Nhamatanda district, Sofala province at the Nhamatanda Rural Hospital and at community-based organization (CBO) training locations. The research questions consisted of the following:*

- 1. What is the current practice for identifying and following up with patients who miss appointments (the busca activa process)? How well is this system working and how long does it take?*
- 2. What is the existing mobile texting capacity among activistas?*
- 3. What are the perceived barriers to using the mHealth package for activistas?*

*MEASURE Evaluation conducted a document review at the PCC CBO and in-depth interviews/discussions with key stakeholders and staff from both PCC and CHASS SMT, which was complemented by a self-administered questionnaire completed by activistas of the Nhamatanda PCC CBO. MEASURE Evaluation also conducted a short visit with another CBO based in Munhava, Beira City, including interviews and discussions with key stakeholders.*

### **Findings:**

**Part 1: Current Process:** *We found serious flaws in the current busca activa process at Nhamatanda Rural Hospital, including deviations from project guidelines. The busca activa system should be substantially improved before a mobile health application is designed and*

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<sup>1</sup> mHealth Alliance. Frequently asked questions [Web page]. Washington, DC, USA: mHealth Alliance; 2013. Accessed 18 July 2013 at: <http://www.mhealthalliance.org/about/faq>.

*introduced, particularly in the areas of information flow, roles and responsibilities, confidentiality and caseload. Recommendations include daily follow up on missed appointments and missed pharmacy pick-ups, clarifications of roles and responsibilities, enhancements in confidentiality, balancing the busca activa workload based on neighborhoods served, and clarification of reporting terms used within the PCC's partner CBO in Nhamatanda.*

*In contrast to the problems found in the Nhamatanda busca activa system, MEASURE Evaluation found that the CBO operating out of Munhava in Beira City evidenced what appears to be a much stronger system. This impression, which must be substantiated with an in-depth assessment similar to what was conducted in Nhamatanda district, suggests that Munhava may be the better location to launch the mHealth activity, after which Nhamatanda could follow. MEASURE Evaluation recommends that program implementers consider this option as it will take less time to improve the current system and have the mHealth activity up-and-running.*

**Part 2: Mobile Capacity and Barriers:** *All activists reported having used a mobile phone, and 85% did so on a daily basis. Activistas made voice calls more often than they sent text messages and were much more comfortable making voice calls. Furthermore, ability to use advanced functions on basic mobile phones is limited – three-fourths of respondents said they asked someone to help them use a mobile phone every day or several times a week. MEASURE Evaluation recommends that sufficient training and practice with mobile phones be implemented to successfully integrate the use of technology among activists. The most basic mobile phone technology is recommended in order to lower the learning curve and uptake of mobile phones for busca activa, as well as decrease the time needed for training.*

*Mobile phone network access is not a great a barrier to mobile phone use. While the majority of activists reported having network problems at least once a week, most said that they could find a mobile phone signal within 15 minutes. Another barrier – privacy – showed mixed results. A third of activists agreed that information on mobile phones is not private or safe. It will be important for the program and partners to continue to monitor and explore mobile phone network signal issues and address privacy concerns when using mobile technology to ensure no patient data is made available to others in the community. Finally, implementers should ensure that all activists can charge their mobile phones free-of-charge.*

**Limitations:** *Due to political instability, meetings and site visits were organized at the last minute. As such, access to CHASS SMT staff and clinic staff was limited. Furthermore, due to administrative issues, the critical CHASS SMT activists based at the Nhamatanda Rural Hospital had only recently received payment after six months without pay. As such, the current busca activa system was most likely in a state of disarray, which may not reflect usual practices.*

**Conclusions:** *The current busca activa system implemented in Nhamatanda district is in need of significant improvements before it will be operating at a level that will enable the introduction of mobile phone technology. Training on usage of mobile phones for busca activa will be important given activists' limited experience with mobile technology. MEASURE Evaluation, CHASS SMT, PCC, the selected technology firm, and USAID must work together closely to ensure*

*strong implementation outcomes. Finally, the team may want to consider using Munhava district as the first design/implementation site. This would require discussion and full agreement from partner and government authorities.*

## Background

**The *busca activa* program issue:** Effective treatment of chronic conditions such as HIV, diabetes, and hypertension requires clients to return periodically to a treatment center for resupply of medications as well as for check-ups and laboratory tests. Failure to return at scheduled times compromises treatment effectiveness and, in the case of HIV, can even lead to antiretroviral therapy (ART) resistance, lower retention in treatment, and increased mortality among patients.

In Mozambique, *busca activa* (active search) complements facility care processes. It consists of community outreach done by community workers (known as *activistas*) to locate treatment patients who are overdue for pharmacy pickups or needed consultations. The *activistas* counsel patients and assist them in returning to the facility to recommence treatment.

**Proposed intervention:** MEASURE Evaluation, in collaboration with the Community Care Program (PCC) and the Clinical HIV/AIDS Services Strengthening in Sofala, Manica and Tete (CHASS SMT) project, proposed assessing the feasibility of using mobile telephone technology to facilitate communications between the treatment facility and the community workers who carry out *busca activa*, as well as providing ongoing technical support and documentation of the first phases of the intervention to strengthen implementation and rollout to the U.S. Agency for International Development (USAID)/Mozambique. Mobile Health, or mHealth, can be defined as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, tablets, personal digital assistants (PDAs), and other wireless devices.<sup>2</sup>

The premise of the proposed intervention is that replacing paper forms and person-to-person transmittal of those forms with Short Message Service (SMS) text messaging via mobile phones has the potential to (a) reduce delays in informing community workers of patients who are overdue for pharmacy pick-ups as well as informing treatment sites when the community worker has located or failed to locate a client; (b) reduce time *activistas* spend traveling to obtain information; and (c) reduce the burden of record-keeping for reporting.

**Need for formative research:** Ensuring that the technological solution fits within the current user processes and systems reduces the barrier to uptake of the technology by increasing the likelihood that users will find the technology useful in their work. However, a poorly designed or poorly implemented system cannot be improved with technology. Therefore, MEASURE Evaluation proposed a formative assessment to collect concrete information on how *busca activa* was currently being implemented at the project site and to understand the existing capacity of community workers to access and use mobile telephones.

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<sup>2</sup> mHealth Alliance. Frequently asked questions [Web page]. Washington, DC, USA: mHealth Alliance; 2013. Accessed 18 July 2013 at: <http://www.mhealthalliance.org/about/faq>.

The details of *busca activa* vary from facility to facility, but usually include the following elements:

- **Community case manager (*gestor de casos*)**. This is a community worker from a local community based organization (CBO) that is responsible for coordinating the *busca activa* process within a health facility. The *gestor* is placed within the health facility and works closely with the pharmacy, the reception, and the social work department (*assistente social*) to facilitate *busca activa*. *Gestores* are paid by the CBO under a subgrant from CHASS SMT.
- **Community workers (*activistas*)**. There are two types of *activistas* implementing *busca activa*. There are *activistas* working for the CHASS SMT-funded CBO. Their main task is to look for patients in the community who are overdue for a pharmacy pick-up (defaulted patients). They are supplemented by *activistas* who work with a CBO funded by PCC. PCC *activistas'* primary role is to provide home-based care support for chronically ill patients and orphans and vulnerable children. They also carry out *busca activa* of patients the CHASS SMT-funded *activistas* are not able to reach.
- **Patient clinical records (*processo clínico do paciente*)**. Patient clinical records are stored in filing cabinets, by the patient's unique filing number which is different from his/her national ID number.
- **Patient identification number (NID)**. Patients are usually identified within the health system by locally-assigned NIDs.
- **National Health Card (*Cartão Nacional de Saúde*)**: Mozambicans use a health card to track vaccinations, appointments, treatments and other health services provided, including referrals to other health facilities.
- **Pharmacy pick-up form (*ficha de levantamento de ARVs [FILAs]*)**. The pharmacist maintains a tickler file of paper forms, which include a patient's name, NID, file number, type of medication to be collected, dosage, and date by which medication should be picked up. The FILAs are organized by day of pick up. Due to constraints in securing permission from health authorities, MEASURE Evaluation was unable to visit the pharmacy to ascertain the normal routine for pharmacy pick-up (i.e., patients who arrive on time).
- **Referral/reporting forms**. *Activistas* keep a book of blank forms in triplicate. When they visit the home of a patient who is overdue for a pharmacy pick-up or clinical appointed visit (defaulted), they fill out a form for the patient and give him or her the original and one copy. The third copy remains in the *activista's* book for reference. The patient is supposed to deliver the original and copy to the *gestor de casos* when he or she returns to the clinic. One copy is then filed in the patient's clinical record and the original is returned to the patient. On a subsequent visit to the patient's home, PCC *activistas* request the patient's completed form, notes the outcome in his or her record book, and includes the information in the next monthly report.
- **Busca activa monitoring register (*livro de controle das buscas activas*)**. This is a government reporting practice. The book is maintained by the *gestor de casos*. It includes the name, NID, address, age group, sex, reasons for being absent from health

clinic, days missing, and dates of patients who were returned to treatment through *busca activa*.

**Reporting:**

CHASS SMT reports on four indicators relating to *busca activa*:

- How many defaulted patients need to be looked for?
- How many defaulted patients are being looked for?
- How many defaulted patients are found and referred?
- How many defaulted patients return to the clinic?

PCC reports on three indicators relating to *busca activa*:

- How many defaulted patients are on their lists?
- How many defaulted patients are found?
- How many defaulted patients return to the health facility?

## Formative Research

### Research questions:

1. What is the current practice for identifying and following up with patients who miss appointments (the *busca activa* process)? How well is this system working and how long does it take?
2. What is the existing mobile texting capacity among *activistas*?
3. What are the perceived barriers to using the mHealth package for *activistas*?

### Site selection:

CHASS SMT consulted with the Sofala provincial health authorities (Direcção Provincial de Saúde [DPS]) to select sites for the feasibility study. DPS selected a neighborhood of Beira city – Munhava – and Nhamatanda district because the sites are easy to reach by road from Beira, the provincial capital, and each facility serves a large number of ART patients.

Nhamatanda was selected as the first operational site. It is a predominantly rural district, which implies that while it will have lower mobile phone ownership and mobile phone coverage than an urban location (such as Munhava), mobile technology will offer the greatest potential to improve the *busca activa* work *activistas* do. *Activistas* in Nhamatanda have to travel longer distances than *activistas* in urban locations, so mobile phones will provide a greater value-added in this location than in urban Munhava. Furthermore, by testing the feasibility of the mHealth approach in a rural site, implementers can more quickly understand if it makes sense to expand in other parts of this predominantly-rural country. Of course, issues such as familiarity with mobile technology and network signal will be barriers implementers will have to work to overcome.

Treatment facility: Nhamatanda Rural Hospital. This is the only Ministry of Health (MISAU) treatment site in the district. According to MISAU records, as of March 2012<sup>3</sup> there were 2,005 patients on ART, including pediatrics.

Primary responsibility for *busca activa*: CHASS SMT through CBO Kugarissica. This includes supporting the *gestor de casos* and four *activistas*. At the time of the site visit, CHASS SMT *activistas* and the *gestor de casos* had only recently begun to receive their monthly wages after a six-month hiatus without any payment.

Secondary responsibility for *busca activa*: PCC through CBO Kupedzana. This includes supporting 37 *activistas* to serve home-based care (HBC) patients and orphans and vulnerable children (OVC); Kupedzana *activistas* also conduct *busca activa* in addition to their primary duties.

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<sup>3</sup> The re-designed MISAU Web site no longer posts treatment data by facility.

Figure 1 presents *busca activa* results reported for the six month period October 2012 to March 2013 by CHASS SMT and PCC.

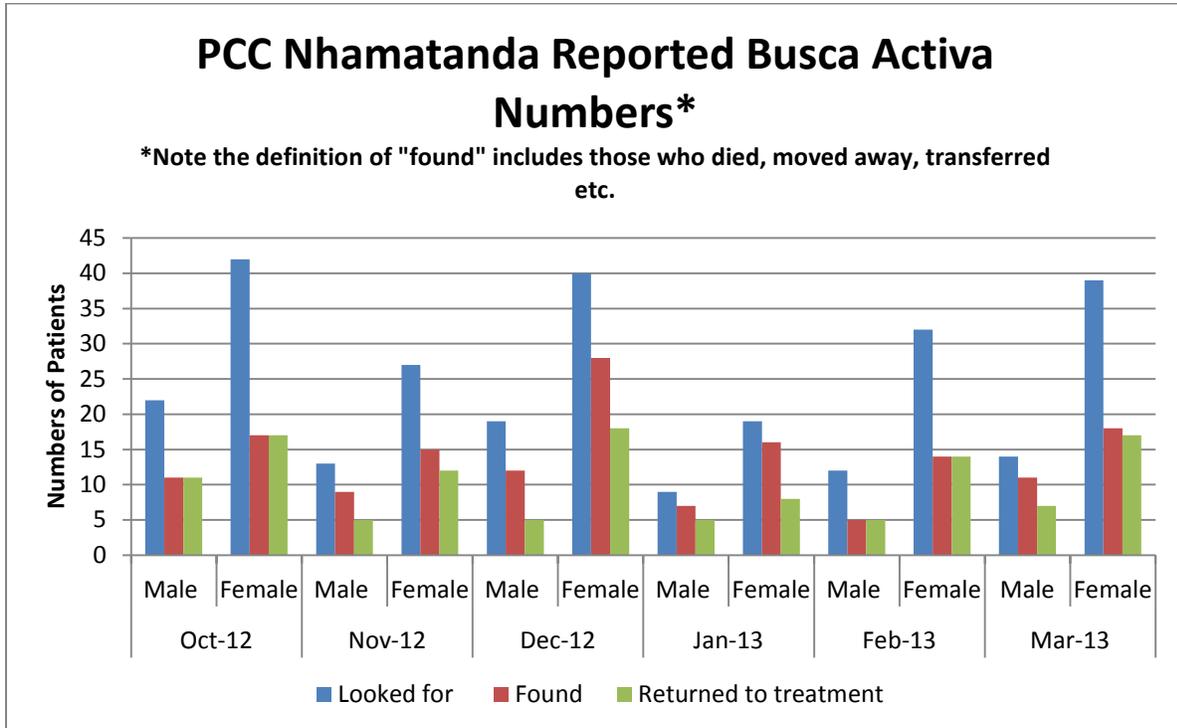
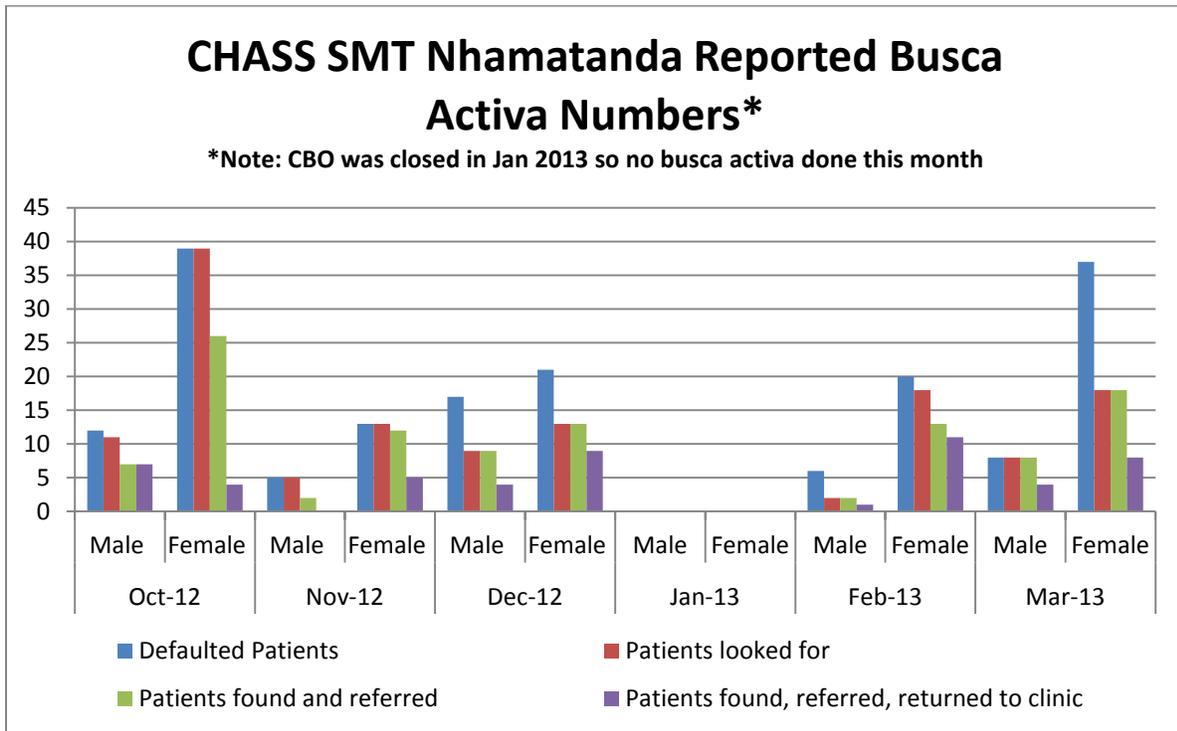


Figure 1: *Busca activa* results reported for the six month period October 2012 to March 2013 by CHASS SMT and PCC.

## Data Collection

The formative assessment included the following methods:

- document review at Kupedzana (PCC);
- in-depth interviews/discussion with key stakeholders and staff involved in the *busca activa* process (questions focused on their work in conducting *busca activa* and their understanding of the *busca activa* process; specific questions around mobile phone use and acceptability of use in their work were also posed to Kupedzana *activistas*); and
- self-administered questionnaire completed by *activistas* from Kupedzana (questions focused on mobile phone use, mobile phone signal availability, and acceptability of use of mobile phones).

## Findings:

### Part 1: Current *Busca Activa* System (Nhamatanda)

The Kugarissica *gestor de casos* and all four Kugarissica *activistas* were interviewed. Six months' records (October 2012 to March 2013) of Kupedzana *busca activa* forms were compiled and discussed with the CBO staff. The Kupedzana supervisor and 27 *activistas* were also interviewed. Thirty-three Kupedzana *activistas* completed the self-administered questionnaire.

**Research question 1.** What is the current practice of identifying and following up with patients who miss appointments (the *busca activa* process)? How well is this system working and how long does it take?

#### Step 1: Receiving the Names for *Busca Activa*

The *gestor de casos* explained the process as follows:

- The pharmacy organizes the FILAs by date of the next pick up. When a patient picks up his/her medication, the pharmacist check-marks the FILA, records the date of the next pickup and returns the FILA to the file.
- Roughly once every two months, the pharmacy separates out the FILAs overdue for pickup (patients who are over two weeks late) and sends them to the hospital reception (in a different building). From there they go to the *asistente social* (in a third building) and finally to the *gestor de casos* (located in the same building as reception).

#### Step 2: Organizing the Defaulters for *Activistas*

We were given several versions of this next step. They are described below.

The gestor de casos explained that she organizes the search done by *activistas* through piles of FILAs. There is a pile of FILAs of individuals that need to be searched for; another pile is of patients that the *activistas* are searching for. In terms of how the information on patients that need to be followed up with is conducted, she said she follows different procedures for CHASS SMT (Kugarissica) and PCC (Kupedzana) *activistas*.

- For CHASS SMT, she distributes seven to 10 FILAs to each *activista* per week until the pile of FILAs is exhausted. It may take weeks to go through a pile when she has a particularly large stack.
- The *activistas* note the patients' file numbers and look through the clinical records for the addresses and other necessary information for each patient, such as age, sex, and medication regimen.
- Once the *activistas* have written the information from the clinical record on forms in their loose-leaf paper folder, they return the FILA to the *gestor de casos*. She puts these FILAs in a separate stack. (When we asked to see the FILAs on hand, she explained that she did not have any because the pharmacy had not given her any lately.)
- She also explained that she also receives files of people to look for through doctors, other medical staff, the reception and *asistente social* on an ad-hoc basis.
- For the Kupedzana (PCC) *activistas*, the *gestor de casos* says she pulls the clinical records of patients identified on the FILAs for them and sorts the patient clinic records by neighborhood (as the PCC *activistas* are organized by neighborhood). The *activistas* similarly open the clinical records and record the relevant information from the files on a loose-leaf sheet of paper in their folders before searching for the patient. The *gestor de casos* also puts the FILAs of these *activistas* in the same pile (the "people being searched for" pile) as the CHASS SMT *activistas*. It was not clear how the *gestor* decided which patients to assign to CHASS SMT and which to assign to PCC.

Kugarissica *activistas* (whose chief task is *busca activa* and are supported by CHASS SMT) reported that the *gestor de casos* makes a list with the NIDs of all of the patients who need to be looked for in that month. In the *gestor de casos*' office, they showed the list for the month of April 2013: it had four columns with NIDs on each column and red check marks next to the NIDs. The *activistas* said that the check marks signified which files they were able to locate.

Kupedzana (PCC) *activistas* and their supervisor described a piece of paper posted on the interior wall of the *gestor de casos*' office with the names, neighborhood, age and other identifying information for overdue patients. They said they would look at the piece of paper on the wall and then record the names and other identifying information they needed in their notebooks before doing a search for a patient.

They said they informed the *gestor de casos* of who they were looking for and she would make a note of it. Other Kupedzana *activistas* mentioned looking through the clinical records to collect information for *busca activa* (similar to that described by the CHASS SMT *activistas*).

Regardless, PCC *activistas* divide up the names of those in need of a visit by the neighborhoods they are responsible for in their other home-based care and OVC support duties.

### **Step 3: The Process in the Community**

Once *activistas* have the names and addresses of the individuals they need to follow up with, they travel to the community where the patient lives and meet with the community leader. They explain what their role is (if the community leader does not already know them) and that they are looking for a family (they do not mention the patient explicitly). The community leader shows them where this particular family resides. If the patient has provided a false address the community leader may not know that individual (this has been known to occur on multiple occasions according to respondents).

When the *activista* visits the home, there are several potential scenarios:

- the patient is home and able to speak with the *activista*;
- the patient lives in the home but is away;
- the patient has moved away;
- the patient may deny being a treatment patient; or
- the patient may have died.

*If the patient is home:* The *activista* discusses the reason for his/her visit and provides a referral form for returning to the clinic. The *activista* either escorts the patient back to the clinic to help explain the process and help intercede with clinic staff, or instructs the patient on where to find the *gestor de casos* at the clinic. If the patient is bedridden and needs assistance (e.g. bicycle ambulance) to make it to the hospital, the *activista* will assist the patient with that.

*If the patient is not at home:* The *activista* leaves a referral form to return to the clinic and goes back to the home to counsel the patient another time. *Activistas* will often tell the family at what time they plan to return so that the patient will be sure to be there at their second or third visit – which, they say, almost always occurs. If the patient is not located after two more visits, the *activista* terminates the search.

*If the patient has moved away:* If the patient's new address is within the clinic catchment area, the *activista* may go look for them at their new residence or ask another *activista* to look for them. If the patient has moved to outside of the catchment area of the clinic, the *activista* terminates the search. This information should be registered on the *busca activa* reporting form.

*If the patient denies being a treatment patient:* *Activista* leaves a referral form and returns to the household at least two more times to try to convince the patient that he/she does need to return to the treatment facility.

If the patient has died: *Activista* makes a note of this on their reporting sheet, and that information should be provided to the reception at the clinic who records the death.

**Table 1: Step 3 Reporting for *Busca Activa***

Kupedzana (PCC)	Kugarissica (CHASS SMT)
<i>Activistas</i> provide referral forms to patients they visit and keeps a copy of the referral form with them	<i>Activistas</i> provides referral forms to patients and report back to the clinic on result of the search in-person at the end of the day
<i>Activistas</i> note defaulters as returned to treatment on their own reporting forms based on counter-referral forms which patient's keep with them	<i>Gestor de casos</i> receives a carbon copy of patient's referral form and completes the patient's referral form noting what services the patient received
Summarized results of PCC's <i>buscas</i> are reported to district health authorities (SDSMAS), district government officials and PCC on a monthly basis	Summarized results of <i>busca activa</i> and other activities are reported to district health authorities and CHASS SMT on a monthly basis.
	<i>Gestor de casos</i> reports results of <i>buscas</i> in a book which is used for national MISAU reporting based on referral forms and also reports to CHASS SMT

#### Step 4: Patients Returning to the Clinic

- When patients return to the clinic with their referral form, if they are not accompany by an *activista* they are instructed to go straight past the reception to the office of the *gestor de casos*. The *gestor de casos* is then supposed to escort them to the reception, to *assistente social*, and for testing as needed. The patient's referral form is completed by the *gestor de casos* which he/she takes back home with them.
- This referral form is what the *activistas* from Kupedzana (PCC) need in order to mark on their forms that a referral has been completed and a patient has resumed treatment. This means they must often return to the home of the patients once again to finalize the *busca activa* reporting.

#### Step 5: Reporting

- For PCC CBO Kupedzana, *activistas* report on *busca activa* on forms that are completed every two weeks during the biweekly reporting meetings their CBO holds. Once a month, CBO staff compile the home-based care monthly reports, which includes *busca activa* numbers, and send the results to the District Service for Women's Health and Social Action (Serviço distrital da Saude Mulher e Acção Social [SDSMAS]), as well as to the district government and the PCC provincial office.
- *Activistas* from Kugarissica (CHASS SMT), on the other hand, report at the end of each day back to the clinic (they work three days a week) on their findings and take more names for the next day depending on how successful they were.

- In all cases, the *gestor de casos* notes the names of people who were found in the *Livro de Controle das Buscas Activas*, which includes the name, NID, address, if they are over or under 15 years of age, sex, date they were looked for and some other identifying information.

### **Busca Activa Data**

- The *busca activa* data for CHASS SMT and PCC are collected and reported separately by each respective CBO. The *gestor de casos* does, however have to report through the clinic book the total number of patients returned to treatment, regardless of *activista* type.
- Because of the way that *busca activa* is being done at the Nhamatanda Rural Hospital, *activistas* look for defaulted patients based on when the pharmacy cleans out the file, rather than in the month when the patient has defaulted. Therefore, the number of individuals searched for illustrates the workload of the *activistas* rather than the number of defaulters per month.
- CBO Kupedzana (PCC) *activistas* have been incorrectly completing the *busca activa* reporting forms. The category “found” (*encontrado*) was checked on the *activistas’* reporting sheets for patients if they found any information about a patient they were looking for – not if they actually found the patient. Therefore, *activistas* checked the box “*encontrado*” and then noted that the person had died, had moved away, or did not live there anymore – instead of not marking that box if they were not able to physically find them. As a result, the numbers of *encontrados* (individuals who were actually located) are mixed together with patients who should have been classified as lost-to-follow-up (LFTU) or dead.

### **Barriers to Busca Activa**

All respondents cited several issues that arise during *busca activa*:

- False addresses and names are a common problem as patients may not want to be looked for within the community due to stigma and discrimination.
- Some patients seek treatment in a district that is not where they normally live and when they are feeling better return to their permanent residence.
- Getting patients to admit that they are in fact the person that the *activista* is looking for and that they need to return to the hospital for treatment may take time. *Activistas* often return to a home multiple times before the patient admits to needing treatment, at which point the *activista* can assist him/her to return.
- Some patients make excuses – some say that they have lost their card, or say they will return to the clinic but never return.
- *Activistas* also lament the number of times they arrive where the person they were looking for had already died.

- Patients may return to the clinic with their referral form, but if they do not go to the *gestor de casos*, clinic staff may fail to complete the form. In this case, the patient's return to treatment is not recorded as a successful *busca activa*.

### Time Spent Conducting *Busca Activa*

MEASURE Evaluation asked PCC *activistas* several questions about how long the current *busca activa* system is taking them.

- PCC *activistas* (Kupedzana) work three days per week providing home-based care and OVC visits and are reimbursed for these three days. *Busca activa* is an additional task. Kupedzana asks them to dedicate an unpaid, fourth day for *busca activa*, but *activistas* explain that all of them work five days a week to complete *busca activa* as well as their other home visits.
- *Activistas* could not explicitly say how much time they spend conducting *busca activa* as it was blended into their other duties as *activistas* (home visits etc.).
- The Kupedzana (PCC) supervisor reported that just reaching one person could take two days in order to find him/her, convince her to come back and accompany her to the clinic.
- PCC *activistas* report visiting the clinic weekly to get the names of people to search for for *busca activa*. According to the 27 *activista* interviews, it takes them an average of 30 minutes to travel from their home to the clinic. This information was corroborated by the supervisor for Kupedzana who said that those who live farthest away can take between 45 minutes to one hour to reach the clinic.

**Table 2: Travel Time to Clinics from PCC *Activistas'* Homes**

Time	Number of <i>Activistas</i>
15 minutes	11
30 minutes	8
45 minutes	5
60 minutes	3

### Location

Multiple *activistas* responded that there were certain neighborhoods (*bairros*) with higher numbers of defaulters, particularly the third and fourth *bairros*. This information is being verified by using PCC *activista* findings but may be further examined during the enhanced paperbased system and when the mHealth solution is up and running.

## Visit to Munhava

MEASURE Evaluation also visited a CBO in Munhava district located in the capital city of Beira. Munhava is the second site selected by the district health authorities as a location of the early launch of the mHealth intervention. The hospital in Munhava also serves a large number of patients on ART (2,780 total vs. 2,005 in Nhamatanda as of March 2012) and is easily accessible by road. The major difference is that Munhava is located in an urban area, while Nhamatanda is primarily rural. Munhava is served by a single CBO, Kugarissica, providing *busca activa* and community care services, funded by both PCC and CHASS SMT.

In conversations with the Kugarissica leader, supervisor, *gestor de casos*, and two *activistas* (one PCC and one CHASS SMT), they were able to clearly articulate how *busca activa* is being implemented. They explained a far more standardized and efficient process than in Nhamatanda. To start with, the *gestor de casos* visits the reception and pharmacy of the hospital daily to collect information on who did is late picking up their medication or who did not make it to a scheduled appointment rather than waiting for the pharmacy to deliver the records. Furthermore, *activistas* appear to be taking advantage of *busca activa* to encourage defaulted patients to sign up for home based care and OVC support services provided by PCC.

## Conclusions (Nhamatanda)

- 1. Faulty information flow:** Information to initiate *busca activa* is supplied by the pharmacy on an infrequent, ad-hoc manner, which makes it more difficult to manage for the *gestor de casos*. Large piles of paper arrive for the *gestor de casos* to sort through and manage as she is able. This inhibits her ability to adequately support the *activistas* doing the *buscas*, leads to the potential mismanagement of patient files, and results in crucial delays reaching ART patients.
- 2. Unclear roles and responsibilities:** Currently the *gestor de casos*, PCC and CHASS SMT *activistas* all say that they are looking through patient clinical records to find information on the people they need to look for but have different understandings of the organization of *busca activa* process. This lack of clarity, overlapping roles and conflicting accounts of the system point to structural problems that impede the effectiveness and efficiency of the process.
- 3. Concerns regarding patient confidentiality:** Giving *activistas* access to clinical records and openly posting the names of defaulted patients on an office wall, compromises the privacy and confidentiality of these especially vulnerable patients.
- 4. Busca activa takes time:** *Activistas* for PCC (Kupedzana) spend a lot of time in transit to do *busca activa*, which is outside of the scope of their salaried three days' work. This includes time to travel to the clinic, time spent going to the patient's home and often returning if they are not successful the first time, and time spent returning with the patient to the hospital as needed (and transporting a bicycle taxi as needed), as well as visiting the home after the hospital visit to see the completed referral form if they do not accompany the patient to the clinic. Travel times just from the home to the clinic

average 30 minutes, and up to one hour. The use of mobile phones to transmit *busca activa* information has the potential to lessen the work burden for the PCC *activistas*.

5. **Busca activa is not standardized:** The differences reported between Nhamatanda and Munhava indicate that *busca activa* practices are not standardized within the same province. For the technology solution of *busca activa* to be effective, *busca activa* practices must be standardized across sites, in addition to making basic improvements to the *busca activa* system.

## Recommendations (Nhamatanda)

- I. **Open up bottleneck at pharmacy:** Rather than waiting for the pharmacy to identify overdue patients and deliver the information to the *gestor de casos*, the *gestor* should visit the pharmacy to collect the information, as is recommended by CHASS SMT and practiced in Munhava.
- II. **Clarify roles, responsibilities, processes:** The process by which the *gestor de casos* transmits information to the *activistas* should be standardized, and each actor's roles and responsibilities within the process clearly understood before adding an mHealth application.
- III. **Enhance patient confidentiality:** Access to the patient clinical files should be tightened. If privacy and confidentiality are not adequately valued in the clinic, sending private patient information to mobile phones may also be problematic.
- IV. **Consider balancing the *busca activa* workload:** Preliminary evidence suggests that the *activistas* from Kupedzana working in two specific neighborhoods have more defaulting patients than those in other neighborhoods. More analysis should be done to better understand this dynamic and what it means for the workloads of the *activistas* working in these neighborhoods and those working in other areas.
- V. **Correct reporting of *encontrados*:** *Activistas* for Kupedzana are incorrectly completing their *busca activa* reporting forms. PCC should educate their supervisors on the correct way to complete the form to improve the validity of data collected with the paper-based system and the upcoming mHealth system.
- VI. **Site selection for mHealth start-up:** While Nhamatanda presents better opportunities for time savings because of greater distances between communities and the treatment site, the current disarray of the *busca activa* system suggests that it will be much more challenging and time-consuming to begin mHealth implementation there as compared with Munhava. MEASURE Evaluation recommends that CHASS SMT and PCC explore the possibility of switching to Munhava as the first site for start-up of the mHealth intervention given the apparent clarity and functionality of the *busca activa* system there. MEASURE Evaluation is prepared to send the local research coordinator to Munhava to replicate the formative assessment to identify needed improvements.

## Part 2: Mobile Phone Usage and Barriers to Use

**Research Question 2:** What is the existing mobile texting capacity among *activistas* and clinic?

Mobile phone coverage in Mozambique is provided by mCel (state-controlled), Vodacom (a subsidiary of United Kingdom-based Vodafone) and Movitel (a relatively new Vietnamese-based company that operates mainly in rural areas). Outside the capital city of Maputo, most users use basic cell phones with small screens and alpha-numeric keys; a 2G network phone with 4 GB of memory retails for less than U.S. \$25.

All 33 Kupedzana *activistas* completed a self-administered questionnaire during a routine reporting meeting in Nhamatanda. Two questionnaires were discarded due to discrepancies in responses, leaving 18 female and 11 male respondents. Roughly half were under the age of 35. Age and sex breakdowns are presented in table 3.

- All of the respondents reported having used a mobile phone before.
- All but one *activista* reported having at least one mobile phone in their household.
- Three quarters reported making voice calls every day.
- Nearly half of *activistas* reported using text messages every day.
- All but one *activista* reported being able to make a voice call without help, while just three-fourths reported being able to send a text message without help.
- Of those under 35 years, all but one male and one female *activista* reported that they were able to send text messages without assistance; the majority of respondents in this age category reported that they used text messaging every day.

**Table 3: Questionnaire Respondents**

<b>Number of Respondents of mHealth Questionnaire by Age</b>				
	<b>Female</b>	<b>Male</b>	<b>No response</b>	<b>Total</b>
<b>34 or younger</b>	11	3	1	15
<b>35 or older</b>	7	8	1	16
<b>Total</b>	18	11	2	31

**Research Question 3:** What are the perceived barriers to using the mHealth package for *activistas*?

- **Ability to use mobile phone without assistance.** Three-fourths of respondents said they asked someone to help them use a mobile phone every day or several times in a week. Asking for assistance in mobile phone use did not vary greatly based on age or gender.
- **Mobile phone network coverage.** Half (58%) of the respondents reported having problems making a phone call or sending a message once a week. Five respondents (16%) said they had difficulty with network coverage many times in a week, while eight (26%) rarely had issues. Given the frequency with which people report using mobile phones, this should be a fairly accurate picture of mobile phone signal where *activistas* live and work.

- **Willingness to look for mobile phone network signal.** Almost all of the *activistas* (29 of 31) said they would look for a place where they could get a network signal if they did not have one, and 25 of the 29 reported that they could find a signal within a 15-minute walk.
- **Location to charge a mobile phone:** Most *activistas* charged their phone either at home or at a neighbor's home (24 out of 31 respondents), while the remaining seven respondents reported using a commercial site where they would pay to have their phone charged.
- **Gender norms.** With the exception of one male *activista*, aged 67, respondents disagreed with the statement that women should not have cell phones.
- **Privacy and security concerns.** A third of respondents agreed with the statement that information on a mobile phone is not private and safe.

## Conclusions

*Activistas'* self-reports suggest that the basic conditions for an mHealth application are already in place in Nhamatanda district: all current *activistas* have used a mobile phone previously and nearly all use them daily. Lack of network coverage is not a major issue. At the same time, at least some training and assistance will be needed for more complex functions, and implementers should allay any concerns about privacy and security of information transmitted by phone, for example, by making messages password-protected. They should also ensure that the programs finds a way for all *activistas* have a place to charge their mobile phones that is free-of-charge.

## Recommendations

- I. **Sufficient time and training of *activistas*:** Training, practice and time to adapt to the new technology will be needed to adequately prepare *activistas* for the technology. Furthermore, given the frequency with which *activistas* report asking for help on using their mobile phones, having a hot line or support function may be an important mechanism to support the transition from a paper system to use of mobile phones for *busca activa*.
- II. **Continue to explore network signal issues:** Some *activistas* may experience problems connecting to the network. More information needs to be collected to understand how much of a barrier network signal will be to implementation of the mHealth *busca activa* solution.
- III. **Privacy concerns:** Adequate protections against sharing of private patient information should be implemented and enforced. At a minimum, messages should be password-protected.
- IV. **Simplest mobile technology:** MEASURE Evaluation recommends using low-end, affordable technology for this mHealth intervention. This will not only ease the

challenges of training *activistas*, it will increase the likelihood that, if successful, the intervention can be scaled up throughout the country.

- V. Address charging mobile phones:** Just under a quarter of all *activistas* (22%) report that they usually pay to charge mobile phones in a *quisoque* (kiosk). As implementers think through the logistics of using mobile phones, they should also ensure that all *activistas* have a place to charge their mobile phones that is free-of-charge.

## Limitations

Due to political instability in Sofala province, data collection was postponed and last-minute arrangements had to be made to organize meetings to fit informants' schedules.

There was insufficient time to obtain permission from district health authorities to visit the treatment facility, limiting MEASURE Evaluation's ability to understand how records were kept and therefore to more fully understand the current *busca activa* system.

Due to administrative issues, CHASS SMT *activistas* and *gestor de casos* had only recently begun to receive their monthly wages after a six-month period without any salaries. This may have contributed to the state of disarray seen the *busca activa* system that may not accurately reflect how it usually functions.

## Next Steps

MEASURE Evaluation verbally debriefed PCC Provincial Staff, CHASS SMT central office staff, USAID and the technology firm of these findings and provided a Microsoft Powerpoint presentation in English and Portuguese. Filomena de João, research coordinator, will be working with PCC and CHASS SMT in Sofala province to understand what changes have been made to the current system and recommend additional changes as needed.

Going forward, and in order for MEASURE Evaluation to complete its anticipated activities on schedule, a strong working relationship needs to be established between MEASURE Evaluation and CHASS SMT/technology firm as quickly as possible. USAID/Mozambique facilitation and participation is needed to ensure all partners are working together in the implementation of this clinic-to-community mHealth solution and that the operational research findings can further enrich the implementation of the mHealth activity.

### MEASURE Evaluation

- Clarify and solidify working relationship with CHASS SMT and the technology firm to enable the implementation of the mHealth activity and the collection of relevant data.
- Submit research protocol for ethics approval.

## **CHASS SMT**

- Establish effective terms of reference with MEASURE Evaluation to enable the design and implementation of the mHealth activity by CHASS SMT and the technology firm and the collection of relevant data needed to assess feasibility and effectiveness of the application.
- Improve the current *busca activa* system prior to design and introduction of the mHealth application and consider selection of Munhava as mHealth implementation site.
- Ensure technology firm uses study findings to inform subsequent roll out of their mHealth solution.

## **PCC**

- Improve CBO reporting, specifically, how to mark a person as *encontrado* (found).
- Harmonize *busca activa* procedures with CHASS SMT, including adopting the same system improvements, prior to introduction of the mHealth application and consider selection of Munhava as mHealth implementation site.

## **USAID/Mozambique**

- Facilitate working relationships between MEASURE Evaluation and CHASS SMT/technology firm.
- Participate in ongoing monitoring of the implementation of the mHealth activity.



# FHI 360 Reference Form



REPÚBLICA DE MOÇAMBIQUE  
Ministério da Saúde

## Guia de Referência do Agente Comunitário de Saúde

(Promoção de acesso e adesão aos cuidados de saúde primários e serviços sociais)



THE SCIENCE OF IMPROVING LIVES

Nome do Utente: \_\_\_\_\_ Idade: \_\_\_\_\_ Sexo: \_\_\_\_\_ NID\*: \_\_\_\_\_ NIT\*: \_\_\_\_\_ Código\*: \_\_\_\_\_  
 Distrito: \_\_\_\_\_ Localidade: \_\_\_\_\_ Bairro: \_\_\_\_\_ Unidade Comunal: \_\_\_\_\_ Nº da Guia: \_\_\_\_\_  
 Quarteirão: \_\_\_\_\_ A casa fica perto de: \_\_\_\_\_ Nome da pessoa que referiu: \_\_\_\_\_  
 Data: \_\_\_\_/\_\_\_\_/\_\_\_\_ Organização/OCB: \_\_\_\_\_  
 Projecto: PCC  CHASS N  CHASS SMT  TB CARE  ESTRADA  Outro  Especifique: \_\_\_\_\_  
 \*Especificar o cuidado / serviço prestado ou a ser prestado: \_\_\_\_\_

**A ser preenchido pelo ACTIVISTA**

**SERVIÇOS SMI:** Maternidade p/ parto: \_\_\_\_\_  
 CPN \_\_\_\_\_  
 CP Familiar \_\_\_\_\_  
 Consulta Pós-Parto \_\_\_\_\_  
 CCR \_\_\_\_\_  
 PTV \_\_\_\_\_

**SERVIÇOS HIV:** ATS \_\_\_\_\_  
 ITS \_\_\_\_\_  
 Pré TARV/IO \_\_\_\_\_  
 Testado HIV + \_\_\_\_\_  
 Abandono TARV \_\_\_\_\_  
 PPE \_\_\_\_\_

**SERVIÇOS TB/Malária:** Suspeito de TB \_\_\_\_\_  
 Contacto de TB \_\_\_\_\_  
 Controlo de BK \_\_\_\_\_  
 Abandono TTb \_\_\_\_\_  
 Reacções do TTb \_\_\_\_\_  
 Suspeito de Malária \_\_\_\_\_

**SERVIÇOS SOCIAIS:** OCB/Apoio Comunitário \_\_\_\_\_  
 Educação \_\_\_\_\_  
 Acção Social \_\_\_\_\_  
 GAVV/Posto Policial \_\_\_\_\_  
 Psicólogo/Técnico de Psiquiatria \_\_\_\_\_  
 IPAJ \_\_\_\_\_

**Suspeito de Malnutrição:**  Banco de socorro/Consulta de triagem:  Outros motivos:

\*Especificar o cuidado / serviço prestado ou a ser prestado: \_\_\_\_\_

**A ser preenchido pela UNIDADE SAUVIÁRIA (marcar todos os serviços em que o utente passou)**

**ATENDIDO NA CONSULTA DE:**

Maternidade p/ parto: _____	CCR _____	TARV _____	Controlo de BK: _____
CPN _____	ATS _____	Sem TB _____	Reacções do TTb _____
CP Familiar _____	ITS _____	Profilaxia por contacto TB _____	PPE _____
Consulta Pós-Parto _____	Testado HIV + _____		Nutricional _____
PTV _____	IO _____		CCS _____
	CD _____		

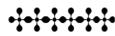
Outros atendimentos: \_\_\_\_\_ Especifique: \_\_\_\_\_

Referido para (US, Acção Social, Educação, OCBs, Apoio psico-social): \_\_\_\_\_ Motivo de referência: \_\_\_\_\_  
 Nome do trabalhador de saúde: \_\_\_\_\_ Nome da US: \_\_\_\_\_ Data: \_\_\_\_/\_\_\_\_/\_\_\_\_

**A ser preenchido pela INSTITUIÇÃO DA REDE DE APOIO**

Acção Social  Educação  OCB  GAVV   
 Outras Redes de apoio \_\_\_\_\_ Especifique: \_\_\_\_\_  
 Nome do trabalhador que referiu: \_\_\_\_\_  
 \*Especificar o cuidado / serviço prestado ou a ser prestado: \_\_\_\_\_ Data: \_\_\_\_/\_\_\_\_/\_\_\_\_

CPN - Consulta Pré Natal • CCR - Consulta de Criança em Risco • CPP - Consulta Pós Parto • CPF - Consulta de Planeamento Familiar • PNCT - Programa Nacional Controlo da Tuberculose • ITS - Infecções de Transmissão Sexual • PPE - Profilaxia Pós-Exposição • ATS - Aconselhamento e Testagem em Saúde • TARV - Tratamento Anti-Retroviral • IO - Infecção Oportunista • GAVV - Gabinete de Atendimento à Víctima de Violência • NID - Número de Identificação de Doente • NIT - Número de Identificação de Tuberculose • Código - Número de Identificação do Membro do Agregado Familiar • CD - Cuidados Domiciliares • CCS - Consulta de Crianças Sãs • PTV - Prevenção de Transmissão Vertical • IPAJ - Instituto de Patrocínio e Assistência Jurídica



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