Private Sector Project for Women's Health

Evaluation Report
PDA Pilot Program

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A. Executive Summary

One of the major activities of the Private Sector Project for Women's Health (PSP) is to implement a home-based outreach program with hard to reach population groups. Home outreach visits focus on women's health, including information sharing on modern methods of contraception, breast and cervical health, and other topics which address women's health needs, as well as increasing use of family planning (FP) services, increasing self-breast exam, and providing referrals to FP and breast cancer health services.

As of September 2010, PSP, through its partners, had visited an estimated 1,283,527 women through Community Health Workers (CHWs). Because CHWs visit such a large number of homes, PSP piloted use of Personal Data Assistance devices (PDAs) as a tool for data collection by CHWs. The pilot program had two objectives: to reduce the amount of time required by CHWs for data entry during home visits; and to minimize errors in both data collection and data entry. To reach a decision on the feasibility of expanding PDA use with the home outreach program, PSP conducted an evaluation of the PDA pilot program, comparing qualitative information, quantitative data, and costs of use of the PDA compared to that of paper client forms.

The assessment found that paper client forms are a better data collection method than PDAs based on the following key findings:

- Paper client visit forms are easier and faster for CHW to use than PDAs. Paper client forms allow CHW to see all visits and information at once, making it easy for CHW to follow trends and make notes, corrections, or additions to client information.
- CHW have better interpersonal communication skills when using paper client forms than when using PDAs. When using the paper client forms, CHW are better able, when compared to those using PDAs, to make eye contact, see facial expressions, establish relations, and maximize the human contact necessary to influence behavior change.
- When CHW used PDAs to collect client information, CHW visited fewer women and had fewer women switching to modern FP methods than when they used paper client forms to collect client information.

The home outreach program should revert to using paper client forms for collecting information from clients during all home visits.

B. Introduction

The Private Sector Project for Women's Health (PSP), funded by the United States Agency for International Development (USAID) 2005 - 2012, has a mandate to improve the health of Jordanian women and families. The project uses an integrated approach to increase demand for modern contraception and related women's health services, increase availability of quality private sector health care services, increase early detection of breast cancer, and address domestic violence against women.

One of the project's major activities is to implement a home outreach program with hard to reach population groups. Home outreach visits focus on women's health, including information sharing on modern methods of contraception, breast and cervical health, and other topics which address women's health needs, as well as increasing use of family planning (FP) services, increasing self-breast exam, and making referrals to FP and breast cancer health services.

To conduct its home outreach program, PSP, through its NGO partners Circassian Charity Association (CCA) and General Union of Voluntary Associations (GUVS), recruited and trained over 140 community health workers (CHW) to visit door-to-door and to counsel women in their homes. CHW conduct home visits, at least twice, with all women of reproductive age (aged 15 to 60 years old) residing in geographical areas with low contraceptive prevalence rates, high unmet need for FP, and recognized poverty pockets or camps. CHW further visit a minimum of 32% of the above-visited women for third and fourth visits to address health problems, follow up with new adopters of modern FP methods, or address unmet need for FP. A further 11% are visited up to eight times to further address health problems, follow up with additional new adopters of modern FP methods, or to further address unmet need for FP.

As of September 2010, PSP, through its partners, had visited an estimated 1,283,527 women. Because CHW visit such a large number of homes, PSP piloted use of Personal Data Assistance devices (PDAs) as a tool for data collection by CHWs. The pilot program had the following objectives:

1. To reduce the amount of time required by CHWs for data entry during home visits
2. To minimize errors in both data collection and data entry

PSP collaborated with a local information technology firm, REALSOFT, to establish a PDA data collection system and to modify the existing home outreach program database to handle direct data entry from the PDAs. CCA selected six existing CHWs, two each in Amman, Irbid, and Zarqa, to participate in the pilot PDA program (to use PDAs rather than paper client forms as a tool for data collection and counseling). REALSOFT trained participating CHW and data entry personnel in use of PDAs. After theoretical and field training, CHW started using the PDAs, in urban and rural areas of Amman, Zarqa and Irbid, on April 11, 2010 and continued through December 2010.

To reach a decision on the feasibility of continuing and expanding PDA use with the home outreach program, PSP conducted an evaluation of the PDA pilot program. The evaluation compared qualitative and quantitative data, as well as financial costs, of the PDA with those of paper client forms. This report presents the evaluation findings.

C. Methodology

PSP hired a consultant, Nadia Al-Alawi, to conduct the qualitative, quantitative, and cost evaluation of the PDA pilot program. The consultant reviewed relevant PSP project documents, including the paper client forms (see Annex 1) and collected data for the evaluation between December 1 and December 19, 2010.

To understand the CHW home outreach program, the consultant interviewed the PSP Outreach Program Manager, Ansam Bizzari. She also shadowed a senior CHW, Kamela Labdoosh, conducting home visits using PDAs.

Following collection of background information, the consultant developed focus group discussion guides for qualitative data collection (see Annex 2). The consultant conducted the interviews and focus group discussions, partially translated by the PSP Outreach Program Manager, with the following CCA staff involved with the PDA pilot program:

- Dr. Sahar Izzat, CCA Community Outreach Field Manager, who has 11 years of experience overseeing community outreach work that uses paper client forms and eight months of experience overseeing community outreach work that uses the PDA

- Kamleh Labdoosh, CCA CHW in Amman, who has 10 years of experience as a CHW using paper client forms and eight months of experience using the PDA.
- Maysoon Abu Shayra, CCA CHW in Amman, who has three years of experience as a CHW using paper client forms and eight months of experience using the PDA.
- Samar Al Barooni, CCA Data Entry Supervisor in Amman, who has 8 years of experience entering data into the home outreach program database using paper client forms and eight months of experience using the PDA.

To obtain quantitative data collected by CHWs during home visits the consultant accessed and analyzed data from the CCA home outreach program database. She compared home visit data from participating CHW before the pilot PDA program with data from participating CHW during the pilot PDA program. Information compared included total number of home visits for each time period and total number of women newly accepting modern FP methods for each time period.

D. Findings

1. Technology

Participating CHW liked learning and using the new technology of the PDAs. They also liked the ease with which they could carry them. In comparison to paper client forms, which were cumbersome and could be heavy to carry during home visits, the PDAs were small, light, and easier to carry around. Likewise, management reported that storage of thousands of paper client forms, on which individual home visit information is recorded, was significantly more cumbersome with paper client forms than with the PDA and electronic record keeping.

While CHW enjoyed using new technology to assist their work, there were drawbacks to using PDAs. Participating CHW were nervous of losing the PDA or its stylus. '*It would be expensive to replace if I lost it,'* said one CHW, noting that she had bought a new coat with deep pockets especially to hold her PDA, and that she walked with her hands in her pocket to ensure she did not lose the small device. Focus group discussion participants also complained that the PDA screen was too small and could not be easily read. CHW reported that if the PDA malfunctioned for any reason, they would not be able to capture data for the remainder of that day (unless they carried paper cards with them at all times).

Interestingly, CHW also reported that while most visited women were excited by and interested in the new technology, others, particularly husbands of visited women, were nervous and suspicious of the devices. Participating CHW reported that some men '*thought the PDA devices could be used to spy on them'*, 's*ince mobile phones can make visual and auditory recordings, the PDA could be used to do the same*', and wondered '*where is the information going?*' In response to these fears, if a husband was present during a home visit, CHW would postpone using the PDA until he left the room.

2. Device Programming

While all respondents noted there were numerous programming challenges with the PDAs, they felt the PDA was effective in preventing missed or incorrect entries for many client questions. Management reported that CHW could not answer some questions until the previous one had been answered, preventing CHW from skipping questions. Likewise, for

many questions, answers were predefined as variables, preventing CHW from entering invalid answers.

Examples of programming challenges or issues presented by respondents included the following:

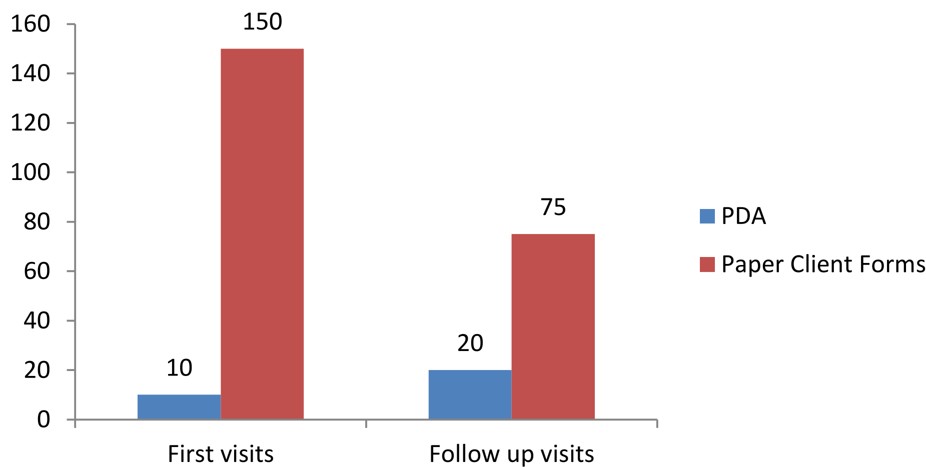
- The records of visited women on the PDA do not have prioritized screens. CHW report scrolling through multiple screens of client and visit information to find information they need. The name and FP intention, for example, are the most important pieces of information for CHW to know prior to visiting a woman, yet these are not on the first screen of a client viewed upon opening a client file.
- The PDA does not include the addresses of the visited women. CHW reported carrying their own hand written address books or maps to women's homes for each trip.
- The PDA client summaries are insufficient to meet the needs of CHW. The PDAs include all the information about each visit to each client, but the summary information for each client is inadequate to meet CHW needs. CHW reported that for any visit other than a first time visit, they needed significant time to prepare a summary of each client prior to home visits. CHW were obliged to carry the summary, in addition to their address books (see above), comments (see below), and the PDA itself.
- There is no "comments" section on the PDA for additional notes on home visits. CHW reported that important information needs to be captured in note form during visits. CHW make notes for example, on the paper client forms of the extended family situation of a visited woman or the need to make a return visit when a client was not home on a particular visit. These types of notes are not possible when CHW used PDAs to record data collected during home visits.
- It is time consuming to make changes to data already entered. CHW report it is hard and very time consuming to change or amend original entries. Respondents stated that the only way to correct a data entry error (they entered the date of the last menstrual period, for example, incorrectly and wished to change it), was to click the "back" button. In some cases, the CHW had to go back several screens to return to the screen containing the error.
- Small data entry errors can result in whole sets of questions being skipped. If a CHW for example, did not know a woman was pregnant until part way through their visit (and data entry), the CHW would either have to restart the whole set of data collection questions or go back many screens to correct the error (and follow the subsequent correct line of questions).
- Some data entry screens allow CHW to leave blanks or respond with incorrect answers.
- Making changes to the data entry program was not possible. Respondents stated, for example, they needed a count of the number of visits conducted, but that they could not add this to the data entry program.
- It is difficult to select clients from the PDA device to visit on any given day. The Community Outreach Field Manager reports that not all selection criteria for choosing clients for follow-up visits are in the current program, therefore a lot of time and paperwork is required to choose which clients to visit at any given point in time.
- CHW could not enter information from more than one woman at a time. CHW report visiting women, for example, when several other clients are also present. With paper client forms, CHW can fill in several forms at one time.

- Technical assistance was not readily available during the pilot program. The Community Outreach Field Manager stated that REALSOFT management was extremely quick to respond to any queries, but the technical team was not as committed or responsive.

3. Data Entry

Once the data is collected and recorded in the PDA devices by the CHW, data entry from the PDA into the home outreach program database is very easy and fast. The Data Entry Supervisor reported synchronization between the PDA and the database computer to be very efficient, taking only minutes. Data entry with the paper client forms is time consuming and provides another point of potential human error. See Figure 1 below for a comparison of the amount of time required to enter data from 110 home visits to married women of reproductive age from one CHW (an average of one week of home visits) with data collected with either PDAs or paper client forms.

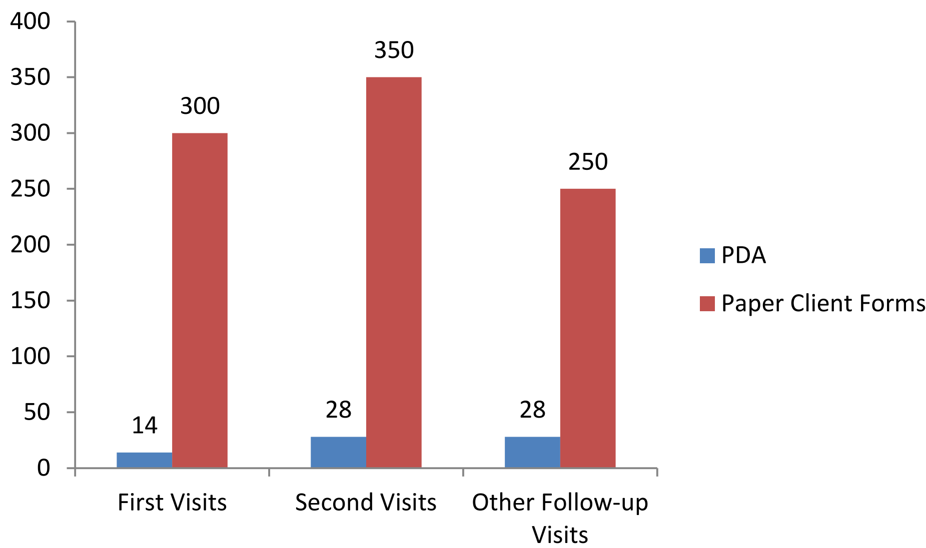
Figure 1: Minutes required to enter data from 110 home visits into home outreach database



4. Quality Control

Identification and correction of errors is much faster when data is collected using paper client forms than when it is collected using PDAs. The Data Entry Supervisor reports that data auditors are able to audit more random samples of client visit records from the home outreach program database when data is collected using paper client forms than when data is collected using PDAs. See Figure 2 for a comparison of the number of visit records audited per day using data collected from PDAs with data collected from paper client forms.

Figure 2: Number of records audited per day



CHW using paper client forms can easily locate and correct errors prior to or while entering information into the home outreach program database. For paper cards, data auditors carefully review and make notations of errors on all incoming paper client forms (one two-sided card per client visit) prior to data entry. CHW revise or correct cards as needed, directly on the original paper client forms. Corrected data is then entered into the computer.

For PDAs, following synchronization of the PDAs with the home outreach database to enter client data (see above), data auditors print all entered information (about 12 pages of) for each client who converted to a modern contraceptive method (about 14% of all visited clients). As with the paper client forms, data auditors carefully review and make notations of errors on client information on these printed papers. CHW then revise or correct data as needed, in the PDA. This takes a considerable amount of time: One two-sided paper client visit form requires 23 individual screens on the PDA; To make a correction on screen 22 of a specific client data set, the CHW must first navigate or scroll through 21 PDA screens; Following correction, data entry personnel resynchronize corrected PDAs with the home outreach database; The PDA is not available for use by CHW, during this time, resulting in further loss of productivity.

5. *Use of Resources*

After establishment of the PDA system, based on time spent by staff, use of the PDA to capture client information during home outreach visits is less expensive than use of paper client forms. The PDA reduces by approximately one third the amount of time required by staff to capture and correct information from client visits. The following table gives an indication of the differences in time spent accurately capturing client information during home outreach visits when using paper client forms and when using PDAs.

Table 1: Comparison of relative time spent when using paper client forms with time spent when using PDAs to accurately capture client information from home outreach visits

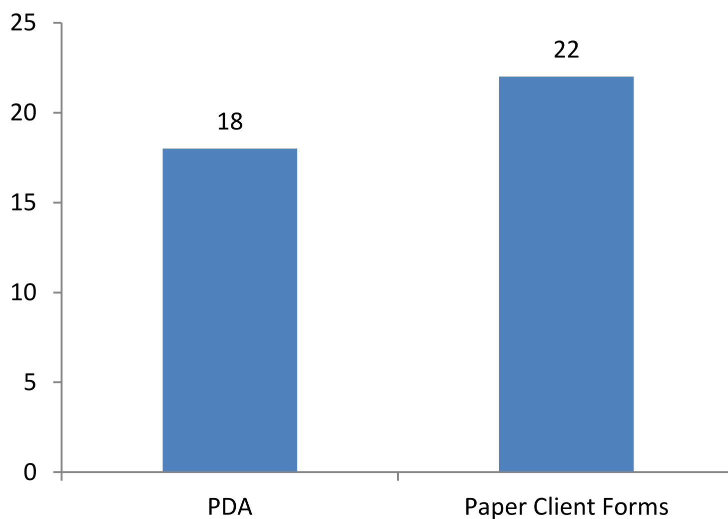
Activity	PDA	Paper Client Forms
Time to visit client	100	82

Activity	PDA	Paper Client Forms
Time to enter data from first visit data	100	1500
Time to enter data from other visits	100	375
Time to audit first visit client records	100	5
Time to audit second visit client records	100	8
Time to audit follow up visit client records	100	11
Total relative time	**600**	**1981**

6. Home Visit Outputs

CHW are able to visit more clients per day when using the paper client forms than when using the PDA devices to collect client information. See Figure 3 for a comparison of the average number of clients visited per day by CHW when using PDAs to collect client information and the number visited by the same CHW when using paper client forms to collect client information (based on information provided by the Community Outreach Field Manager).

Figure 3: Average number of clients visited per day



7. Home Visit Outcomes

Because CHWs using PDA visited only new clients during the pilot PDA program (whereas they would normally visit a range of new and old clients for a mix of first, second, and follow up visits), a direct comparison of home visit outcomes between CHWs using paper client forms and those using PDAs is not possible. Respondents anecdotally report however, that there were fewer visited women switching to modern methods of FP when CHWs used PDAs to record home visit data.

All respondents report the PDA is a barrier or hindrance to building client rapport. Because of the need to "*fiddle with*" the PDA, CHWs are less able to establish eye contact with clients, have less time overall to counsel clients, and are less able to have meaningful two-way interpersonal communication.

8. Respondent Recommendations

All participants of the individual interviews and focus group discussions unanimously recommend using paper client forms (rather than PDA) for collecting and recording client visit information for home outreach program.

For home outreach programs wishing to use computer technology to support implementation, respondents had the following suggestions and recommendations:

- Use technology to share messages and information (e.g. videos/DVDs). Implementers can overcome major barriers to modern FP messages by showing short video clips to women in their homes. This would be effective and provide consistency with FP messages between CHWs.
- Should outreach programs use PDAs to collect information, the CHW should have strong data entry skills or be very familiar with computers.
- Should outreach programs use PDAs to collect information, program the PDAs to have tabs for each screens. This would allow fast and easy scrolling through client files. It would alleviate some of the programming challenges faced during data entry and error correction.
- Use PDAs for first visits only or for activities involving only single client visits. Respondents agreed that many of the programming and quality issues faced were caused by the difficulties in accessing previously established files (i.e. client files from previous visits).
- Should outreach programs use PDA devices to collect information, allow CHWs significantly more time with clients (plan for only seven to eight home visits per day).

E. Conclusions and Recommendations

Despite saving time (and money) during the data entry process, paper client forms are a better data collection method than PDAs with this home outreach program aimed at influencing women's FP practices.

This recommendation is based on the following key finding:

- Paper client visit forms are easier and faster for CHWs to use during home visits than PDAs. Paper client forms allow CHWs to see all visits and information at once, making it easy for CHWs to know their clients, follow health trends, and make notes, corrections, or additions to client information.
- CHWs have better interpersonal communication skills when using paper client forms than when using PDAs. When using the paper client forms, CHWs are better able, when compared to those using PDAs, to make eye contact, see facial expressions, establish relations, and maximize the human contact necessary to influence behavior change.
- When CHWs used PDAs to collect client information, CHWs visit fewer women and are anecdotally reported to have had fewer clients switching to modern FP methods than when they used paper client forms to collect client information.

The home outreach program should use available technology to present educational videos to clients at home in the presence of experienced CHWs. CHWs can show specific videos on contraceptive methods to specific clients as needed and appropriate, and answer any questions arising from the presented information. This will increase the effectiveness of the home outreach program in changing attitudes and behaviors towards modern FP methods.

While it is not recommended for this program, should PDAs be used for data collection for other home outreach programs, REALSOFT needs to greatly improve the programming to address the many issues arising during the pilot program. In addition, CHWs would need more extensive training on use of the device, a more efficient quality control system is needed, and the program should use devices with big screens.

Annex 1
Paper Client Visit Forms

Microsoft Office
Excel 97-2003 Worksl

Annex 2
Focus Group Discussion Guides

Community Health Workers

1. Names, position, and assigned work location of respondents
2. How long had you been using the paper logs?
3. How long have you been using the PDA?
4. What do you like about the PDA?
5. What do you dislike?
6. What do you like about the paper logs?
7. What do you dislike?
8. How did the training needs compare between the two?
9. Can you visit more women per day with PDA or paper logs?
10. How does ease of use compare?
11. How does quality of the information collected/making errors compare?
12. Which do you prefer to use: PDA or paper logs? If a new CHW was starting and they could choose, which would you recommend to them? Why?
13. What suggestions do you have for the PDA?

Data Entry Personnel

1. Name, position, and assigned work location of respondents
2. How long have you been doing data entry with paper logs?
3. How long have you been doing data entry with the PDAs?
4. What do you like about data entry with paper logs?
5. Dislike?
6. What do you like about data entry with the PDA?
7. Dislike?
8. How does the time required for data entry compare between the two?
9. How do the error rates/sizes and correction compare between the two?
10. How do equipment needs compare between the two?
11. How do the data entry/error audit training needs compare between the two?
12. Which do you prefer to use? If a new data entry person was starting, and they could choose, which would you recommend to them?
13. What suggestions do you have for the PDA?

Management

1. Name, position, and assigned work location of the respondents
2. How long have you been overseeing outreach work with paper logs?
3. How long have you been overseeing outreach work with the PDA?
4. What do you like about paper logs?
5. Dislike?
6. What do you like about the PDA?
7. Dislike?
8. How do equipment costs compare between the two?
9. How do training costs compare between the two?
10. How do staff costs compare between the two?
11. How do overall costs compare between the two?
12. How does time for use compare between the two?
13. Which do you prefer?
14. What suggestions do you have for the PDA?