JHPIEGO An Affiliate of Johns Hopkins University
A GLOBAL LEADER IN IMPROVING HEALTH CARE FOR WOMEN AND FAMILIES

An Evaluation of the Effect of Outreach on Cervical Cancer Prevention Efforts in Rural Ghana

Ghana Cervicare Outreach Group:

Sydney Adadevoh, MD
Amanda Adu-Amankwah, SRN, CMB
Paul Blumenthal, MD, MPH
Sylvia Deganus, MB ChB, MSc
Victor Dzokoto, MD
George Equagoo, AM
Lynne Gaffikin, Dr PH
Robbyn Lewis, MPH
Henrietta Odoi-Agyarko, MB ChB, MSc

Funding from the
Bill and Melinda Gates Foundation, through the
Alliance for Cervical Cancer Prevention,
Rotary Club of Accra-Achimota District 9100 and
Rotary Club of Oakland District 5170

Prepared by

Amy Kleine, MPH, MSW
Lynne Gaffikin, DrPH
Robbyn Lewis, MPH
Amanda Adu-Amankwah, SRN, CMB
Sylvia Deganus, MB ChB, MSc
Saleh Ahmed, MS, MPH

for the

Ghana Cervicare Outreach Group

May 2004

JHPIEGO An Affiliate of Johns Hopkins University
A GLOBAL LEADER IN IMPROVING HEALTH CARE FOR WOMEN AND FAMILIES

An Evaluation of the Effect of Outreach on Cervical Cancer Prevention Efforts in Rural Ghana

Prepared by:

Amy Kleine, MPH, MSW
Lynne Gaffikin, DrPH
Robbyn Lewis, MPH
Amanda Adu-Amankwah, SRN, CMB
Sylvia Deganus, MB ChB, MSc
Saleh Ahmed, MS, MPH

for the Ghana Cervicare Outreach Group:

Sydney Adadevoh, MD
Amanda Adu-Amankwah, SRN, CMB
Paul Blumenthal, MD, MPH
Sylvia Deganus, MB ChB, MSc
Victor Dzokoto, MD
George Equagoo, AM
Lynne Gaffikin, Dr PH
Robbyn Lewis, MPH
Henrietta Odoi-Agyarko, MB ChB, MSc

May 2004

Funding from the Bill and Melinda Gates Foundation, through the Alliance for Cervical Cancer Prevention, Rotary Club of Accra-Achimota District 9100 and Rotary Club of Oakland District 5170

JHPIEGO, an affiliate of Johns Hopkins University, builds global and local partnerships to enhance the quality of health care services for women and families around the world. JHPIEGO is a global leader in the creation of innovative and effective approaches to developing human resources for health.

JHPIEGO
Brown's Wharf
1615 Thames Street
Baltimore, Maryland 21231-3492, USA
www.jhpiego.org

Editor: Samantha L. Stokes

Production Assistance: Youngae Kim

Cover Photo: Durbar Festival Procession in Amasaman.
Photographer: Rotary Club of Accra-Achimota District 9100

Ghana Cervicare Outreach Group members listed alphabetically on title page and cover page.

Printed in the United States of America

May 2004

PREFACE AND ACKNOWLEDGMENTS

This report describes the findings of an evaluation of an outreach effort in Amasaman Sub-District, Ga District, Ghana. The outreach was jointly supported by the Ministry of Health of Ghana and the Cervical Cancer Prevention Program (CECAP) Office of the JHPIEGO Corporation, Maryland, USA. Financial support came from the Bill and Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention.

The evaluation aimed to document any change in recruitment rates at Amasaman Health Centre for cervical cancer prevention services subsequent to the initiation of outreach, as well as any subsequent effects of these efforts on other outcomes, such as follow-up rates.

Amasaman Sub-District Health Centre community health nurses *(*Faustina Amoah, Grace Attu, Mabel Binka, Grace Bruce, Leticia Anning Donkor, Sabina Enninful, Felicia Koranteng, Esther Lartey, Grace Osei, Vivian Owusu, and Vivian Yemoh), who delivered cervical cancer prevention messages to the women and men of Amasaman Sub-District must be recognized for their truly inspiring dedication to public service, and for their special efforts to raise awareness about cervical cancer prevention. The nurse midwife service providers (Vivian Amarteifio, Agnes Andoh, and Eunice Mensah) who offered screening and treatment services, and the clinical supervisors from Ridge Hospital (Edward Attoh, Alexander Laryea, and Satya Sackey) and Korle Bu Teaching Hospital (Nelson Damale, Kwabena Nkyekyer) are also acknowledged for their great dedication.

We extend sincere gratitude to the members of the Rotary Club of Accra-Achimota District 9100 and the Rotary Club of Oakland District 5170. Under the leadership of Brad Howard, past-District Governor of District 5170, and Dr Victor Dzokoto of District 9100, these clubs recognized the importance of cervical cancer prevention, and dedicated generous support to the public awareness raising and service delivery activities in Amasaman Sub-District.

The Health Research Unit of the MOH-GHS, under leadership of Dr John Gyapong and Dr Amanuah Chinbuah, was instrumental in assisting JHPIEGO to manage data for this project. The team extends many thanks to the HRU team for their professionalism and technical data management support.

Finally, recognition and thanks go to members of the Cervicare Advisory Group, for their ongoing advocacy and encouragement.

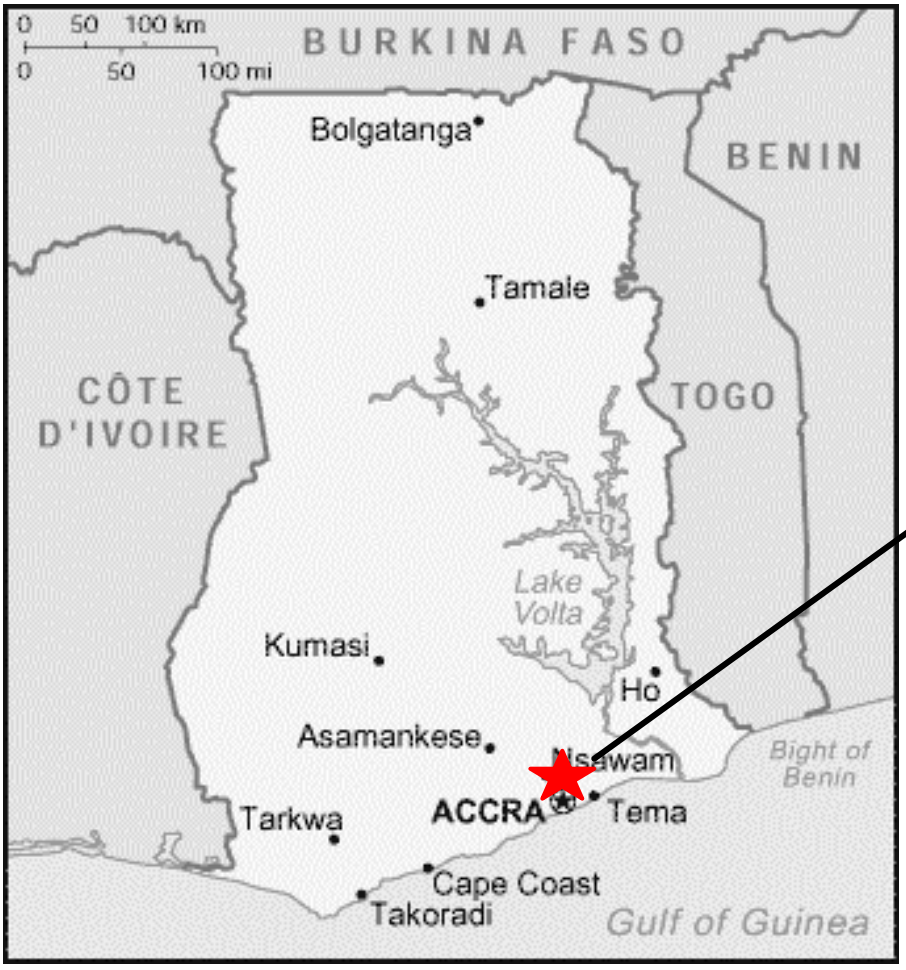
TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

CECAP	Cervical Cancer Prevention Program
CHN	Community Health Nurse
CWC	Child Welfare Clinic
DHMT	District Health Management Team
FFU	First Follow-Up
GHS	Ghana Health Service
IARC	International Agency for Research on Cancer
MOH	Ministry of Health
SAFE	Safety, Acceptability, Feasibility, and program Effort
SCJ	Squamocolumnar Junction
SVA	Single Visit Approach
VIA	Visual Inspection with Acetic Acid

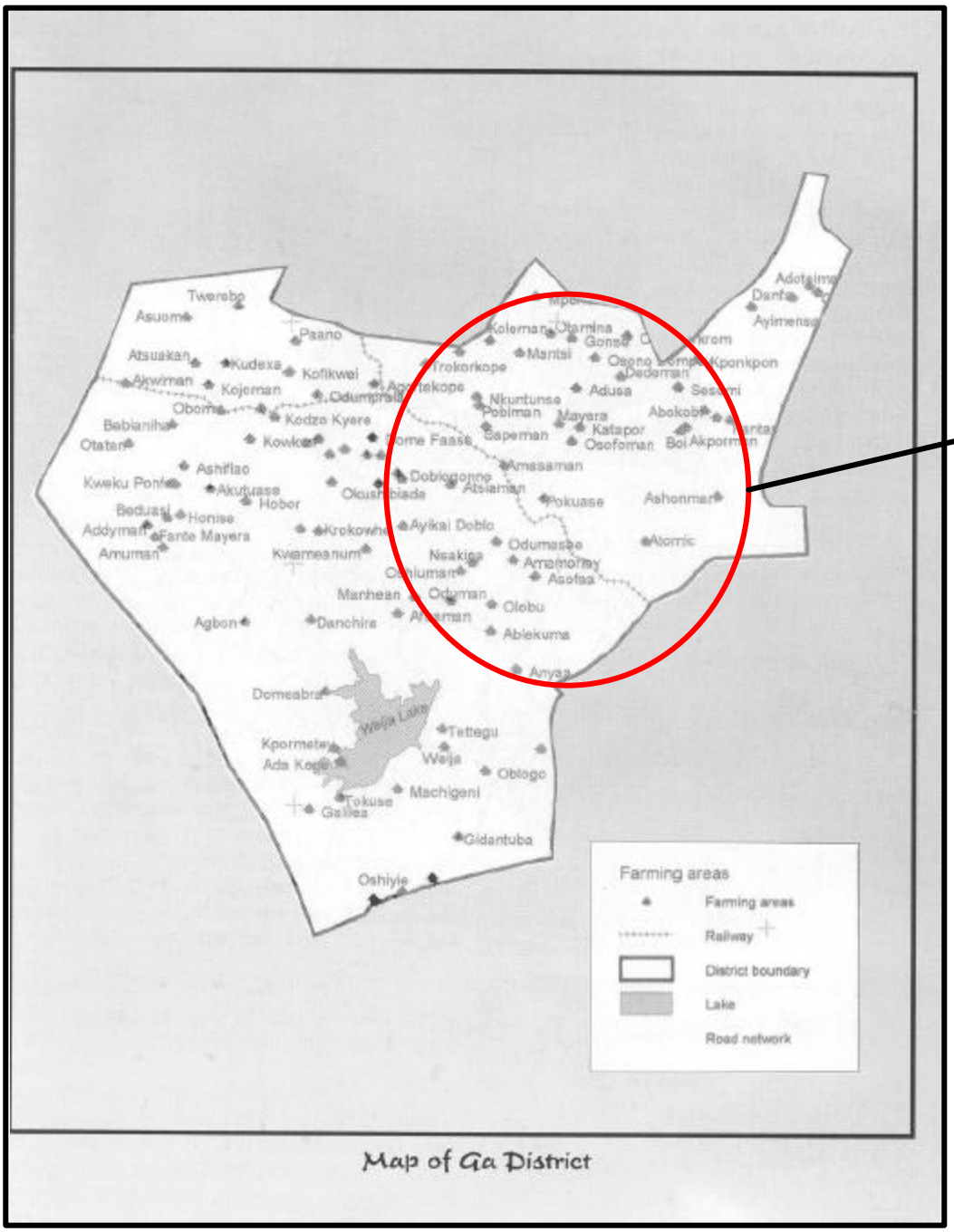
PROJECT LOCATION

Amasaman Health Centre is located in Amasaman Sub-District, Ga district, Greater Accra Region in Ghana. It is accessible by paved road from Accra, which is approximately 20 miles southeast of the Sub-District. This site was selected because it serves women in rural communities throughout Amasaman Sub-District, but is close enough to urban Accra to ensure access to adequate clinical supervision and referral systems.



Amasaman
Sub-District,
Ga district
Greater Accra
Region, Ghana

GA DISTRICT MAP



INTRODUCTION

CERVICAL CANCER IN GHANA

Cervical cancer is the second most common cancer among women. Globally, 400,000 women will develop this disease every year. Those in limited resource settings suffer disproportionately, consisting of 80% of all new cases (Pisani 1998). More tragically, cervical cancer will result in the death of as many as 200,000 women annually. But cervical cancer need not be fatal. Most of these deaths can be prevented by the widespread application of cervical cancer screening and treatment, as appropriate.

In sub-Saharan Africa, cervical cancer is the most common cancer of women. In West, East, Central, and Southern Africa, cervical cancer accounts for 20–25% of all new cancers among women (est. IARC 1990). Effective screening and treatment services are scarce or nonexistent and many women in countries with limited resources, such as Ghana, suffer from cervical cancer because they have little understanding of the disease, the modes of transmission, and the means of prevention.

The International Agency for Research on Cancer (IARC) reported in 2000 that of 6,176 cancers in women surveyed in Ghana, 1,307 (21.2%) were cervical cancer (IARCPress 2000). Of 3,720 deaths from cancer in women, 672 (18%) were from cervical cancer. A limited survey done in the 1980's by the Ghana Medical Service in the Greater Accra Region found that of 4,215 women with cancer, 21.4% had cervical cancer.

The chief of the Pathology Department at the University of Ghana Medical School, Korle Bu Teaching Hospital, reported that cervical cancer comprises 60.5% of the cancers of the female reproductive system seen at the hospital, 70% of which are in very advanced stages. He reports that cervical cancer comprises 13.6% of all malignancies seen by the Department of Pathology (Korle Bu Hospital Department of Pathology, Chairman).

Cervical cancer screening is uncommon in Ghana. Pap tests are available in limited numbers in a few locations, but are virtually unknown to the general population of women. Korle Bu Hospital reported that only 1,500 Pap tests were performed at the hospital in 1999. The government teaching hospital in Kumasi and private clinics also offer the Pap test.

GHANA SAFE PROJECT

From early 2000 through July 2003, the Ministry of Health (MOH)/Ghana Health Service (GHS), in partnership with JHPIEGO, implemented a **S**afety, **A**ccessibility, **F**easibility, and program **E**ffort (SAFE) demonstration project, locally referred to as Cervicare. The objective of this project was to rigorously assess the "single visit approach" (SVA) to cervical cancer prevention, using visual inspection with acetic acid (VIA) linked to the offer of treatment with cryotherapy, as an alternative to a cytology-based cervical cancer prevention program. VIA is a simple procedure that consists of swabbing the cervix with vinegar, waiting for one minute, and viewing the cervix with a light source. Precancerous lesions are suspected if aceto-white lesions appear near the squamocolumnar junction (SCJ). If lesions meet all established criteria (e.g., occupy less than 75% of the cervix's surface area), the woman is offered the option of immediate

treatment with cryotherapy. Otherwise, or if the woman chooses, she is referred to another facility for follow-up care.

To implement the Cervicare project, two sites were selected: one in a regional hospital in the urban center of Accra, Ridge Hospital; and the other in a semi-rural Sub-District health center in the Greater Accra Region, Amasaman Sub-District Health Centre. At the urban site, the project tested and collected data on 3,665 women between 26 March 2001 and 31 July 2003 (Gaffikin et al 2004).

In December 2001, four nurse providers began testing women with VIA at the semi-rural site of Amasaman Sub-District Health Centre (hereinafter referred to as Amasaman Health Centre or Health Centre). Between December 2001 and 31 July 2003, the rural site tested and collected data on 3,225 women. Preliminary results show an overall VIA test-positive rate of 5.96% (190/3,188) among those women for whom a test result was available. As of February 2004, 93 women (out of 169 eligible) had attended the first follow-up appointment and 55 (out of 133 eligible) came for the one-year follow-up visit. Additional data from these visits are still being collected and analyzed.

As health officials in Ghana consider expanding the cervical cancer prevention initiative using the SVA, they look to the experience in Amasaman as an example of service delivery in a rural setting because 56.2% of the Ghanaian population lives in a rural area (Ghana Statistical Service 2000). The Cervicare project measured specific indicators of safety, acceptability, and feasibility. In addition to these indicators, coverage is also an important measure of project success. To examine how much coverage could be achieved in the rural environment in a short time frame, an active outreach strategy was implemented. This report details this outreach effort and evaluation findings regarding its effect on overall recruitment rates and coverage, in Amasaman particularly.

OBJECTIVES OF EVALUATION

An evaluation was conducted in October 2003 to assess outcomes achievements in the period from 7 May through 30 September 2003.

The specific objectives of this evaluation were:

- To measure the percentage of women getting a VIA test who were recruited through outreach;
- To measure overall and village-specific coverage with cervical cancer prevention services in Amasaman Sub-District;
- To compare overall and village-specific coverage before and since outreach began; and
- To compare characteristics of women tested before and since outreach began.

METHODOLOGY

The methods used to conduct the evaluation were: synthesis and analysis of quantitative data contained in project databases and population data sources, and collection of qualitative data through in-depth interviews with project staff and observations of activities. Visits and interviews were conducted between 29 September and 25 October 2003.

DATA COLLECTION

To document the effects of the outreach strategy undertaken in Amasaman Sub-District, a convenience sample of five outreach nurses and three nurse providers was selected, and individuals were interviewed. Project-related documents were reviewed, and child welfare clinics (CWCs) were observed.

To measure overall and village-specific VIA coverage, data were obtained from the Amasaman Cervicare project database, which includes records for women tested from 7 December 2001 through 31 July 2003. For women tested in August and September 2003, records were added to an Excel file by transferring information from testing forms, resulting in a database containing records for all women tested at Amasaman Health Centre between 7 December 2001 and 30 September 2003. Each record contains numeric fields for district and Sub-District and text fields for address and village name. Using this information, along with population census data, approximate coverage of women who had received a VIA test was calculated. Using the demographic characteristics and test results available in the database, general characteristics of women could also be assessed overall, before, and during outreach.

Population census data, denominators of coverage calculations, were gathered from three sources: the Ga District Assembly, the Ga District Health Management Team (DHMT) and the Census Unit of Ghana's National Statistical Service. Data from the Census Unit contained all villages within Ga District and reflected the status as of 30 April 2000. Using a list of villages in Amasaman Sub-District compiled by the Ga DHMT for cross-verification, the census was limited to include only those villages within the project's catchment area. Population growth rates and percentages of women of reproductive age were derived from the Summary Report of the 2000 Population and Housing Census.

The coverage denominators were the total number of women aged 25–45 years as of 2003 in Amasaman Sub-District overall and by locality. The final list of villages contained within Amasaman Sub-District was developed by conferring with local staff who identified which villages on the Ga district list from the Census Unit for the year 2000 were found in Amasaman Sub-District. To generate estimates of the total eligible population in the year 2003, a regional annual growth rate of 4.4% and corresponding monthly rate of 0.367% were used (Ghana Statistical Service 2000).

To measure the percentage of women getting a VIA test who were recruited through outreach, the above described client database was used in addition to an outreach database created for the purpose of tracking activities conducted by the community health nurses (CHNs). For each outreach visit, nurses completed two forms. One form indicated the location and date of the visit, and the second listed women who booked appointments for a VIA test and the date the

test was actually done. The woman's recruitment number links these two databases and was used to verify whether those who booked appointments were actually tested. The outreach database also provided information on: number of visits conducted, number of women and men attending outreach visits, and number of appointments booked.

The number of women listed in the database from each village was counted and matched to villages for which census data existed to form the coverage numerator. Women tested identified their "home village" however, in various ways. Some women reported the name of their specific village, some the nearest locality. Some women knew the village name but did not know the Sub-District name. When a woman's village could not be matched to census data, her record was grouped into the largest common locality that could be determined from her address. These groupings were confirmed with input from local staff members, who indicated which villages were considered sub-sets of larger localities.

OUTREACH EFFORT

RATIONALE

With a target population of over 36,000 women aged 25–45 years in Amasaman Sub-District, it is a formidable challenge to achieve target coverage levels for cervical cancer prevention services, defined as ≥ 7% of eligible women per annum (based on the family planning coverage target of 7%). In the initial Cervicare project beginning in December 2001, 4 nurse providers were trained but one resigned eight months into the project, leaving 3 to conduct SVA services. In addition to performing VIA and cryotherapy treatment, the nurses were also expected to educate and recruit women throughout the Sub-District by speaking at churches and other places where women gather. While recruitment was strong at the beginning due to the novelty of the service and the momentum behind the initiative, recruitment tapered off and, in one month, only 40 women sought services. It was thought, if more women were to be recruited and coverage increased, a different strategy would have to be used that addressed barriers to testing. The active outreach effort implemented, beginning in May 2003, attempted to overcome identified barriers that prevented women from seeking cervical cancer prevention services.

PARTNERSHIP WITH ROTARY INTERNATIONAL

The first strategic efforts made to reach out to women and their male partners in Amasaman Sub-District resulted from collaboration with Rotary International. The Accra-Achimota Rotary Club partnered with the Rotary Club of Oakland, California to support the Cervicare project with an award of $46,000 for equipment, materials, and outreach and education activities (Dzokoto 2003). The main activity resulting from this collaboration was a Durbar Festival, held on 23 May 2003 in Amasaman. The purpose of the festival was to gather women, men, families, and officials from surrounding towns and villages to raise awareness about the Cervicare project. The event, attended by over 700 people including village chiefs and queens as well as public health representatives as Rotarians, was considered a success by its organizers.

Photograph: Rotary Club of Accra-Achimota

A Durbar Festival was held in May 2003 to raise awareness about Cervicare.

ENGAGING COMMUNITY HEALTH NURSES

Amasaman Health Centre boasts a strong cadre of trained CHNs who monitor maternal and child health via regularly scheduled CWCs. Because these nurses already reach women throughout Amasaman Sub-District on a daily basis, it seemed logical for them to assist with promotion of cervical cancer prevention services. The Cervicare project negotiated an agreement under which the CHNs would educate and actively recruit women for SVA services. In exchange for their time and effort, the project provided a monthly stipend.

TRAINING

In April 2003, 10 CHNs attended a two-day training at Amasaman Health Centre during which they learned about cervical cancer and the objectives of the Cervicare project, created educational messages, and discussed ways to approach women in their communities. Between them, the nurses speak all of the local languages (Twi, Ga, Fanti, and Ewe), enabling them to easily communicate with women. During the training, they developed a list of words related to cervical cancer that women would understand in the local language. Each nurse was supplied with brochures, a model of a vagina and speculum, and a VIA atlas for use during educational talks. Finally, they were oriented to the outreach log and booking log. The outreach log was used to document the date, venue, and attendance of each outreach visit while the booking log listed women who make appointments for a VIA test.

CHILD WELFARE CLINICS

Beginning in May 2003, the CHNs integrated Cervicare activities into their scheduled CWCs. The itinerary for the clinics was established at the beginning of the year, based on population density and convenience. One nurse was dedicated to the area of Oduman where a health post is located, and the other nine divided themselves into three teams. These teams coordinate their daily clinics within the same geographic area because there is only one vehicle and driver dedicated to the CWC program. For example, on one day all of the CWCs are located in Dome at 3 different sites. Where the population is larger, they conduct clinics weekly or bi-weekly and where it is smaller, they visit once every two or three months. For all other sites, clinics are held monthly.

Photograph: Robbyn Lewis

CHNs provide services at a Child Welfare Clinic in the shade of a tree.

Mothers learn about the clinics from friends or neighbors, or health personnel refer them after the birth of a child. All children receive a "Road to Health" card with their first immunization. On this card, the dates of subsequent clinics are written as reminders but nurses also use a megaphone when arriving in a community to announce that a clinic will start. Children aged six weeks to five years are invited to attend the clinics, until they are fully immunized according to the national immunization schedule. Hence, the women at clinics are primarily mothers of young children or, in some cases, grandmothers or other relatives. Some fathers also bring their children to the CWC.

At the beginning of each session, instead of giving a health education talk on breastfeeding or nutrition, during the Cervicare outreach period, CHNs are teaching women about cervical cancer and provided information about how they can get a VIA test. Eligible women are given the opportunity to make an appointment for an upcoming VIA clinic during the one-on-one counseling session that is part of the CWC.

APPOINTMENTS

The CHNs' major responsibility related to Cervicare is to schedule and follow VIA testing appointments. Each nurse is assigned one day of the week on which she can schedule a maximum number of appointments. For example, one team of nurses scheduled women for tests on Tuesdays. If there are three nurses on the team, each one can schedule seven women. If there are four, each can schedule five women. This system was designed to ensure that nurse providers would not be overburdened on clinic days and to allow some slots for walk-ins.

When women book an appointment, their names are recorded on the booking log and they receive a reminder card with the date of the VIA clinic appointment. In some cases, women are booked up to three weeks in advance since CWCs are held monthly. The further in advance an appointment is made, however, the more likely the woman may default. For example, one CHN described:

> "When we talk to them, we tell them 'if you can go on Thursday, when you come for counseling, tell me and I will give you an appointment.' You do this the first five women and give them the card, then if they keep coming you give the following week. That is a problem, though, because [women] tend to forget and if they don't come, you have to follow up."

For those who attend the clinic and are tested, the date of the test and the recruitment number are written next to the name on the Booking Log. This allows staff to measure the successful booking rates and assess the number of women tested attributable to outreach.

EDUCATIONAL SESSIONS

When they were trained, CHNs were provided with some basic materials to support their educational sessions: the VIA atlas (photos of cervices with various diagnoses), a talking points guide, a model of a vagina constructed with foam and plastic, and a speculum. During observed educational talks, the VIA atlas was used to explain to women what the cervix would look like in the case of a positive test or suspected cancer.

Often, women at the CWC who have experienced the VIA test share their impressions with the others. One nurse shared:

> "We realized that as people started coming [for the test] when we go out they are helping us. I ask if there is someone who has done it and she jumps up and takes over. She tells them it is not painful and doesn't take time. When they do that you, yourself, are happy."

Given that two major barriers to testing are time and fear that the procedure will be painful, a woman's personal testimony during educational sessions is particularly valuable.

Through these educational sessions, nurses raise awareness about cervical cancer and the importance of prevention. In most cases, women are unfamiliar that this service was offered at Amasaman Health Centre before learning of it at the CWC. The information provided by nurses appears to be sufficient to motivate most women to consider getting a VIA test. For them to follow through with the test, however, other obstacles have to be overcome.

REACHING OLDER WOMEN

Because CHNs conduct their outreach activities at CWCs, they mainly access women with young children who are generally under 40 years of age. The target age group for VIA testing, however, extends to 45 years. It is important to ensure that women in the older segment of the age range are aware of the initiative since they may be at greater risk. To reach these women, some CHNs held educational sessions at local churches or traveled house to house. As more women from the CWCs are tested resulting in fewer available for recruitment, the nurses plan to organize promotional talks with older women by requesting the assistance of the village queen or other local official to gather them. After five months of outreach activities, however, this practice was not yet employed.

REACHING MEN

One objective of the outreach effort was to extend educational messages to women's partners. Qualitative interviews revealed that some husbands are reluctant to allow their wives to be tested, and others impose barriers to their treatment. More importantly, men have expressed the desire to be educated about their wives' health and that they must grant permission for her to seek care. By increasing men's knowledge and involvement, the project hoped to decrease a significant barrier to testing. Therefore, the outreach strategy was also conceived with the intent of involving men in women's decision to seek a VIA test.

The first step towards meeting this objective was to encourage men to attend educational talks at CWCs. At the date of the outreach evaluation, CHNs had not actively recruited men, but in some cases they accompany their wives or bring children to CWCs. Nurses were asked to record the number of men attending each outreach visit (statistics reported below on **page 12**).

> "At times it is the husband who does not agree. When he finds out that [the wife] can't have sex for some time and that they have to use a condom, some men don't like to use [it] so they ask their wife not to come back. So we have to follow up and talk to their husbands so they will allow [their wives] to come."

Another nurse shared this experience:

> "The other day I talked to a man who said that his wife was misbehaving and he would not allow her to come [for the VIA test]. I talked to him and convinced him (she ended up being positive), so I went to the house the following morning and the man thanked me. I was happy because I saved a soul."

The CHNs are aware that including men in their outreach activities is critical, but at the time of the evaluation, the outreach strategy was not adequately designed for this purpose. More attention should be paid to this issue in the near future.

ACTIVITIES RELATED TO FOLLOW-UP

In addition to their promotion and recruitment responsibilities, CHNs also assist in locating women who need cryotherapy treatment or default on their first or one-year follow-up visit after treatment. When asked what happens when women do not attend their follow-up appointments, a nurse provider said:

> "That is why we have trained the outreach nurses. We give them names and addresses [of women] so they trace them and bring them. They come."

Although names and addresses are provided, nurses expressed that they often have a difficult time finding women because "some of them don't give the correct address. We go and we can't find them. Some of them change their name, I don't know why." They also reported that this is a "tedious" and time-consuming activity that can only be done outside of regular clinic hours. This task was within the scope of work of three trained SVA nurse providers, so by having the CHNs assume follow-up responsibilities, it allowed them to focus on attending to women at VIA clinics. Both providers and project staff perceived this as an enormous benefit. Despite their efforts, however, the CHNs were unable to significantly improve the follow-up rates.

COSTS OF OUTREACH EFFORT

Costs associated with planning for, executing, and managing the outreach activities were calculated in order to show the amount of additional monies that had to be committed over and above other project costs. Of the total estimated outreach expenses, $25,140, almost half was used for the planning and execution of the Durbar Festival, which was supported entirely by the Achimota Rotary Club. The remaining costs, absorbed by the Cervicare project, concerned personnel time for planning, managing, and conducting the outreach effort. Less than 6% of the total costs were for remuneration of outreach nurses (their stipend was 30% of their monthly salary, to compensate them for the additional time and effort spent over and above their daily job duties).

While a cost-effectiveness analysis was not done, it was possible to estimate the average cost per woman recruited through outreach activities. During the evaluation period of May through September 2003, 1,040 women were tested with VIA at Amasaman Health Centre. Of these, 852 tests were directly attributable to outreach activities. Thus, the cost of the program per woman recruited through outreach was $29.50. If the cost of the Durbar Festival is excluded, the per-woman cost decreases to $15.42. These expenses were supplemental to standard Cervicare project costs.

In summary, CHNs have integrated cervical cancer prevention activities into their existing scope of work as monitors of maternal and child health. They have acquired the necessary skills and knowledge to educate and motivate women to seek a VIA test at Amasaman Health Centre. Finally, they have provided invaluable assistance to nurse providers by working to increase the follow-up rate. The findings discussed in the results section quantify how successfully the nurses have completed appointed tasks and positively affected recruitment.

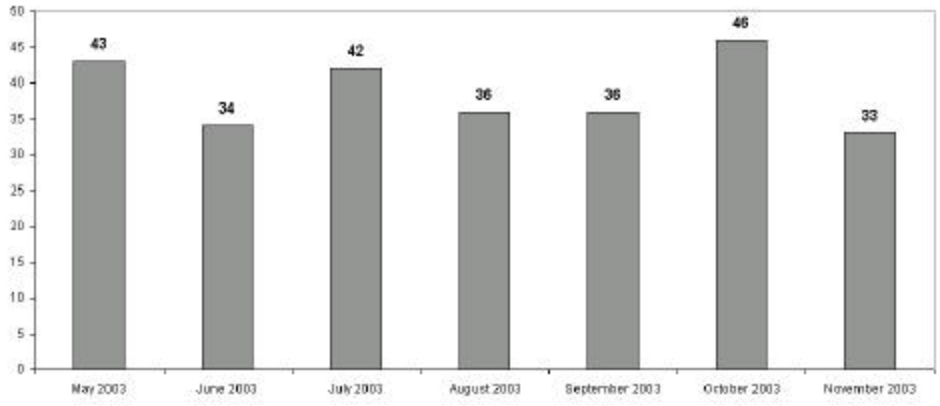
RESULTS

To determine the extent to which the outreach effort achieved its stated objectives, the following indicators were assessed: number of outreach sessions, booking rate, successful booking rate, and male attendance. To measure the effect of the outreach effort on recruitment and the type of women tested, additional indicators were assessed: number of monthly VIA tests, change in number of tests before and during outreach, percentage of VIA tests attributable to outreach, VIA results of women tested, age of women tested, and residence of women tested.

NUMBER OF OUTREACH SESSIONS

The primary activity of the CHNs was to conduct outreach sessions. **Figure 1** shows the number of sessions conducted each month between May and November 2003. On average, each of the 10 CHNs was expected to hold one session per week, or four monthly. Hence, the total expected number of outreach sessions was 40 per month. There were only three months in the evaluation time frame (May to September 2003) during which this expectation was met although on average the number of sessions held was 38.5, close to 40. In months when the number of sessions exceeded 40, nurses reported additional home visits or outreach to venues such as churches. In months when fewer than 40 sessions were held, nurses reported absences or vacation.

Figure 1: Number of Outreach Sessions Conducted, Monthly May 2003–November 2003*

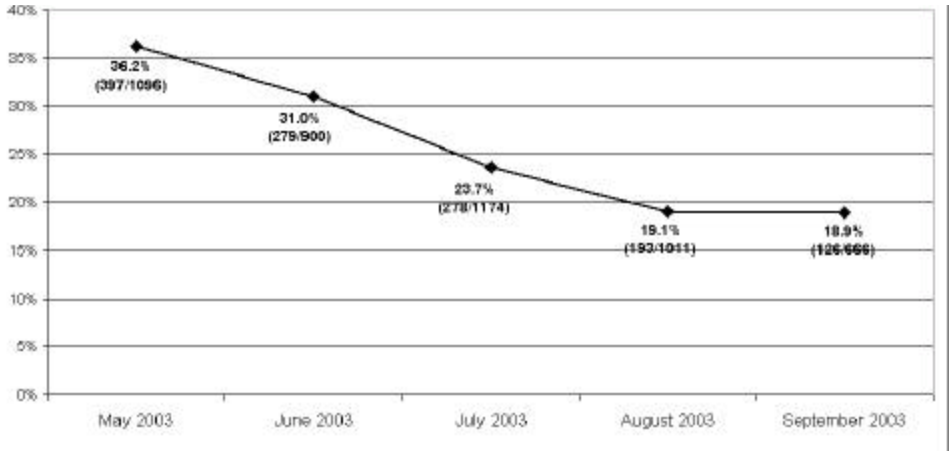


BOOKING RATE

CHNs recorded whether women in attendance were in the target age range (25–45 years). During the individual consultations at each clinic, eligible women were asked whether they were interested in getting a VIA test at Amasaman Health Centre. If they responded positively, this was recorded on the booking log. **Figure 2** shows the percentage of women in attendance at CWCs or other outreach sessions that booked appointments, by month. There was a significant decrease over five months of the effort, which was primarily due to saturation of clients. That is, many of the same women attend the CWCs each month and the potential client pool decreases as women are tested. The percentage booked correspondingly decreased. In August and September, the booking rate essentially leveled out. As **Figure 3** shows, the majority of women who booked appointments in the earlier months did not follow through by being tested. So,

while the booking rate is lower in the latter months, approximately the same numbers of women were being tested as in earlier months.

Figure 2: Percentage of Women Attending Outreach Sessions Booked for VIA test, by Month May 2003–September 2003



SUCCESSFUL BOOKING RATE

After women's names were recorded in the booking log, they were tracked to determine whether they were tested. If they were tested, the test date and recruitment number were added next to their names in the booking log. The successful booking rate, then, is the percentage of booked women actually tested within the analysis time frame (i.e., by September 2003). **Figure 3** shows that this rate increased dramatically over the five month time period of the evaluation, beginning with 45.3% in May and increasing to 87.3% in September. **Figure 3** also shows data for the months of October and November, which were reported by the Project Manager manually but were not available for analysis using the database. The additional data demonstrate that the outreach effort continued to successfully book women for VIA tests beyond the date of the evaluation (the outreach effort will continue until September 2004). The steady increase observed in this graph is explained by the change in recruitment strategy on the part of the CHNs. In the first two months, CHNs booked any woman who expressed interest in receiving a VIA test. For numerous reasons, however, many of them did not follow through with their appointments. According to the nurses, **women forgot to get tested if their appointment was booked too far in advance, or they did not have money to pay for transportation to the health center**.

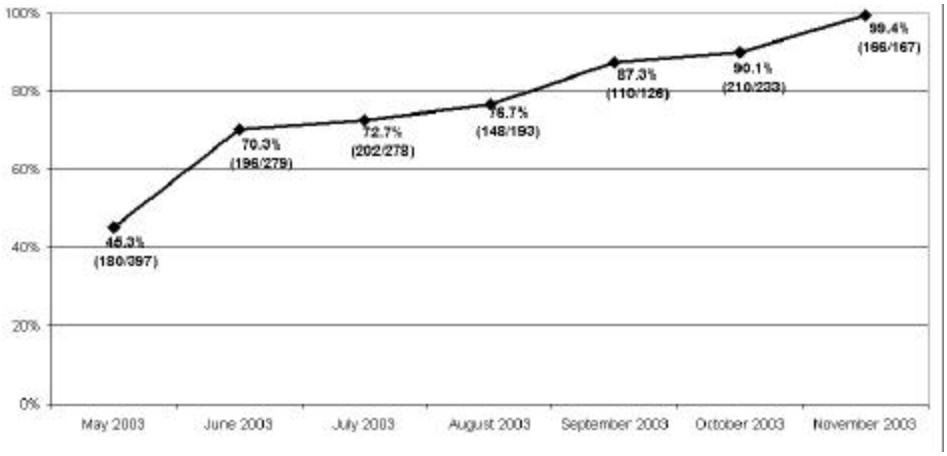
To address the problem of defaulting appointments, the nurses became more stringent about booking procedures in later months. For example, one nurse said:

> "I give them a [reminder] card. If you give them the card they feel more that they have to come. I tell them that we count the cards so when they don't come, I pay for the card. That is what I have to tell them so they will come—but I don't really pay for the card."

Before a woman was booked, she was asked to be certain she could make her appointment. Because each nurse had a cap on the number of women she was allowed to book for any VIA

clinic day, it was important to fill these slots with women who were certain they could attend. As emphasized in **Figure 3**, the nurses became increasingly efficient in this practice.

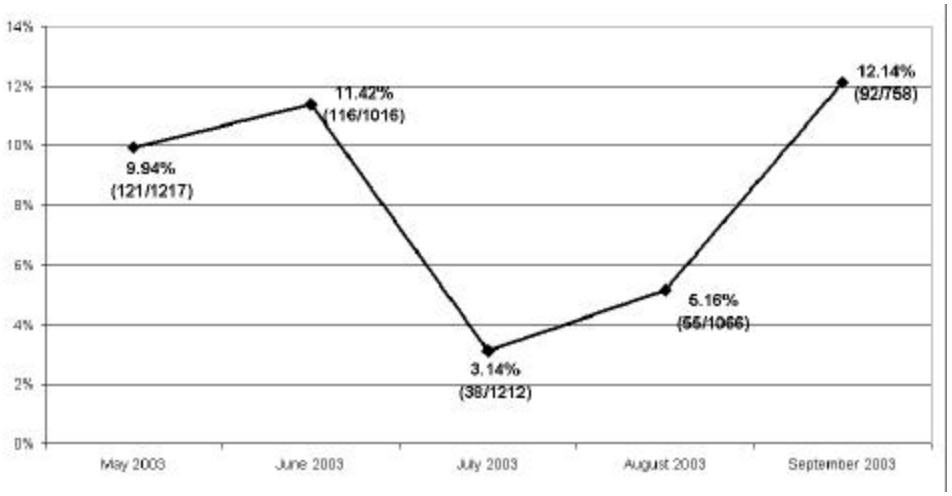
Figure 3: Percentage of Women Booked at Outreach Sessions and VIA tested, by Month May 2003–November 2003



MALE ATTENDANCE AT OUTREACH SESSIONS

While male acceptance and knowledge of VIA and cryotherapy were not measured, statistics were collected on male attendance at outreach sessions. Over the course of five months, 422 men were reported to have attended these sessions, comprising 8% of all participants. Nurses reported that the majority of men attending CWCs were either bringing their children for immunizations or accompanying their wives. The nurses counted men only if they approached the nurses for a service, but not if they simply listened to the educational message, meaning that the actual number of men in attendance may be underestimated. **Figure 4** shows the percentage of total attendees at clinic sessions that were male, by month. While the male attendance is a relatively small percentage, it does represent an increase in the number of men who have been exposed to information about Cervicare and suggests the level of male attendance that can be expected with little to no targeted effort. To increase this number, specific strategies to reach men directly would need to be developed and applied.

Figure 4: Percentage Male Attendance at Outreach Sessions, by Month May 2000–September 2003



NUMBER OF MONTHLY VIA TESTS

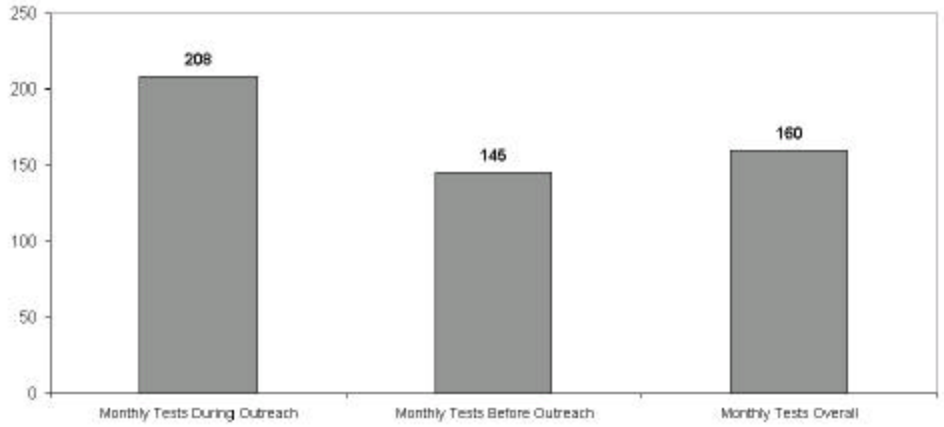
The number of tests performed at Amasaman Health Centre each month since services were initiated in December 2001 is shown in **Figure 5**. While the number has fluctuated over time due to both provider availability and client demand, the numbers were gradually going down prior to May 2003. The dramatic increase in May 2003 (vertical line on graph) was subsequent to the Durbar Festival and the launch of the outreach effort. At this time, recruitment returned to the levels observed at the beginning of service delivery, when interest was newly generated in VIA testing. The data indicate that opportunistic testing was not adequately capturing the target population and that an active outreach campaign succeeded in re-generating interest.

Figure 5: Number of VIA Tests, by Month
December 2001–September 2003

AVERAGE NUMBER OF MONTHLY VIA TESTS

The average number of VIA tests increased sharply after the outreach effort began, as shown in **Figure 6**. On average, 160 tests were performed monthly until September 2003. Before outreach, from December 2001 through April 2003, a total of 2,469 VIA tests were done, for a monthly average of 145 tests (2,469/17). In the months from May to September 2003, 1,040 total tests were performed, the monthly average increasing to 208 tests (1,040/5). Given that nurse providers were instructed to perform up to 20 tests per clinic day, and they worked an average of 12 clinic days per month, their maximum productivity was 240 tests per month. This translates to 4,080 possible tests in the period before outreach, and 1,200 possible tests during outreach. Considering the number of tests actually performed in these two time periods, the nurses were apparently working at 60.5% (2,469/4,080) of maximum capacity in the period before outreach and at 86.6% (1,040/1,200) of maximum capacity during the outreach phase. In reality, however, there were many months during which fewer than 3 providers were working, which lowered the potential productivity. This means that after the outreach phase began, demand increased to a level meeting or exceeding provider "supply," maximizing the time and efforts of the nurse providers.

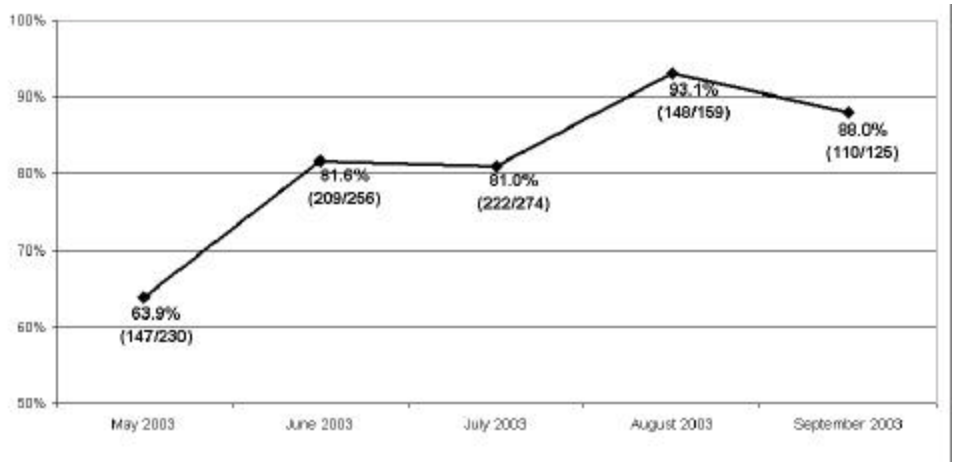
Figure 6: Comparison of Average Number of Monthly VIA Tests Overall, Before, and During Outreach Phase



PERCENTAGE OF VIA TESTS ATTRIBUTABLE TO OUTREACH EFFORT

Of the total number of VIA tests performed each month at Amasaman Health Centre from May through September 2003, the majority was directly attributable to outreach activities. This was calculated using the outreach log database and the Amasaman SAFE database. If a woman's name was recorded on a booking log and was later tested, her test was considered "attributable to outreach." For example, in May 2003, 230 women were tested with VIA. Of these, CHNs were responsible for recruiting 147 (63.9%) women, as shown in **Figure 7**. Overall, of 1,040 women tested with VIA from May–September 2003, 836 (80.4%) were attributed to outreach efforts. The remaining women tested were "walk-ins" who arrived at the clinic without an appointment, having learned about the project through alternate means. Though not measured, it is possible that some of the walk-ins were also indirectly attributable to outreach. Women who were exposed to outreach nurses' educational messages may have encouraged others to attend the clinic or women who did not initially book an appointment may have later decided to be tested, after learning about the project.

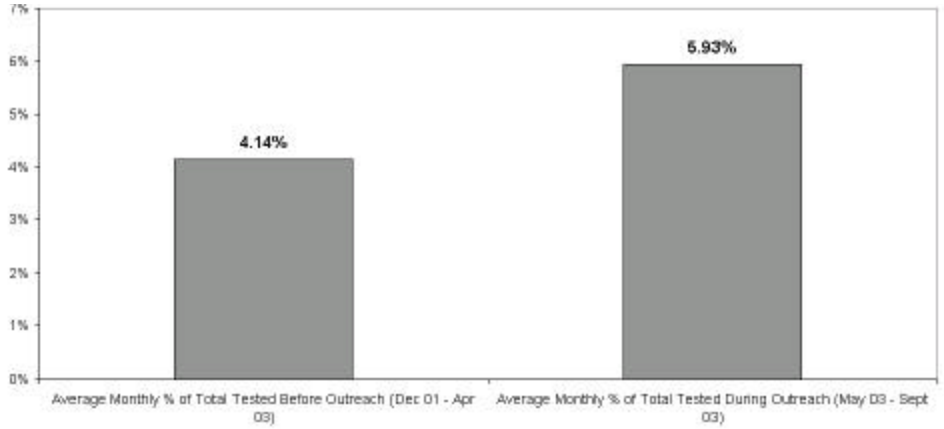
Figure 7: Percentage of Women VIA-Tested who were Booked during Outreach Sessions, by Month May 2003–September 2003



VIA TESTING AND FOLLOW-UP BEFORE VERSUS DURING OUTREACH

Another way of assessing the effect of the outreach effort is to compare the percentage of total VIA tests performed before versus during the outreach phase. 70.3% (2,469 / 3,509) of the total women tested received VIA in the first 17 months of the program, the period before active outreach began. This represents an average of 4.14% (70.3 / 17) of all women tested per month, as shown in **Figure 8**. The remaining 29.6% (1,040 / 3,509) of all women tested did so during the five months that outreach activities were underway, for an average of 5.92% (29.6 / 5) of all women tested per month. This confirms that when demand is generated to meet available supply, coverage is achieved more quickly and resources are utilized more efficiently.

Figure 8: Average Monthly Percentage of All Women VIA-Tested Before versus During Outreach December 2001–September 2003



FOLLOW-UP RATES

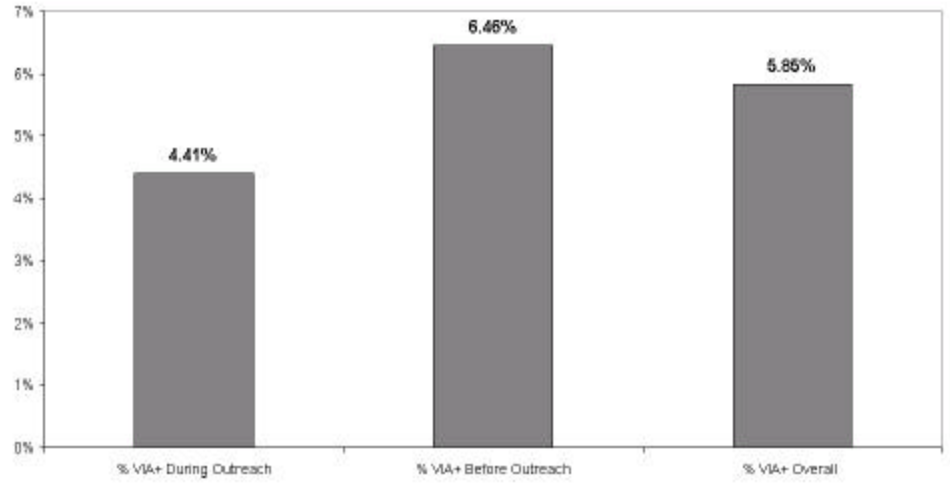
To assess whether there was a change in follow-up rates as a result of the work of CHNs, the rates before versus during outreach were compared. There were 132 women due for First Follow-Up (FFU) appointments between March 2002 and April 2003. Of these, 72 returned (54.5%). Between May and September 2003, 37 women were due for FFU appointments, and 21 returned (56.7%). This suggests that there was no short-term effect on the first follow-up rate as a consequence of outreach.

VIA RESULTS OF WOMEN TESTED

An important factor to consider when evaluating the effect of the outreach effort is any change in VIA-positive rates. **Figure 9** shows the percentage of women who tested VIA-positive overall, before, and during the outreach phase. While the overall VIA-positive rate of 5.85% was relatively low, and less than half that recorded at the urban site (13.2%), it decreased after active outreach began, from 6.46% to 4.41% (a difference of nearly 2 absolute percentage points). **Figure 10** shows the percentage of women who were VIA-positive before outreach, during outreach, and overall, by age group. For all age groups except 40–45, the VIA-positive rate decreased during the outreach phase, but the decrease between the two phases in the 25–29 age group is small. The overall VIA-positive rate in the 25–29 age group is the highest, which suggests that in this population, women in this age group are either at higher risk for developing precancer or for having conditions that result in false positive VIA tests or both. All differences observed in each age group before versus during outreach may be a statistical

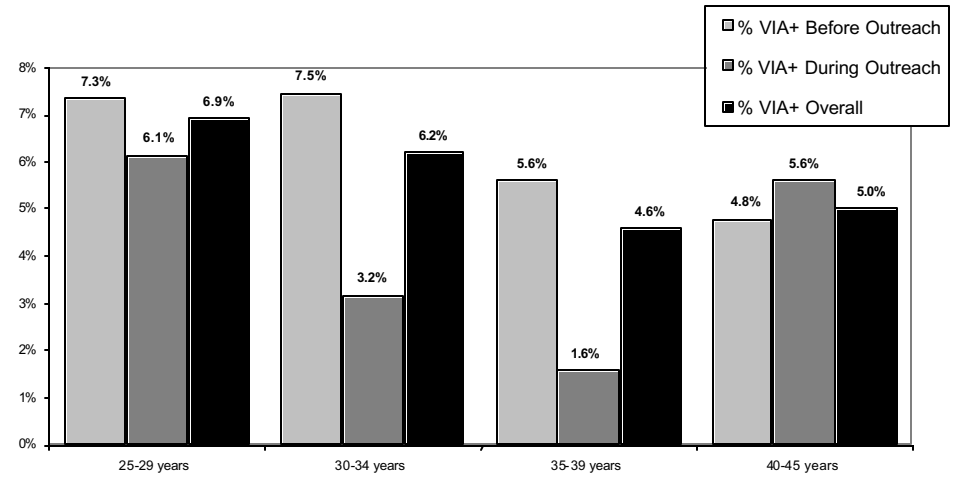
artefact however, because they are based on very small numbers of women who tested VIA-positive after outreach began.

Figure 9: Percentage of Women VIA-Positive Before versus During Outreach and Overall



If the change in the VIA-positive rate does not reflect an increase in false-positives, it appears as if women at lower risk of precancer attended the VIA clinic after outreach began. Because nurses were reaching a wider audience than in the past, it is possible that women were deciding to be tested, regardless of risk status. If the Ministry of Health (MOH) supports at least once in a lifetime testing and this is the only time that these women get tested, then the possibility that lower risk women have been tested as part of the outreach effort to date may not be an issue. However, given that the long-term goal of Cervicare is to reduce morbidity and mortality associated with cervical cancer, this may represent an unforeseen outcome of the outreach strategy. To specifically identify and recruit women at higher risk, for a more efficient intervention a more targeted strategy would have to be adopted (e.g., triage based on clinical history. See University of Zimbabwe / JHPIEGO Cervical Cancer Prevention Program 1999).

Figure 10: Percentage of Women VIA-Positive Before and During Outreach Phase, and Overall, by Age Group



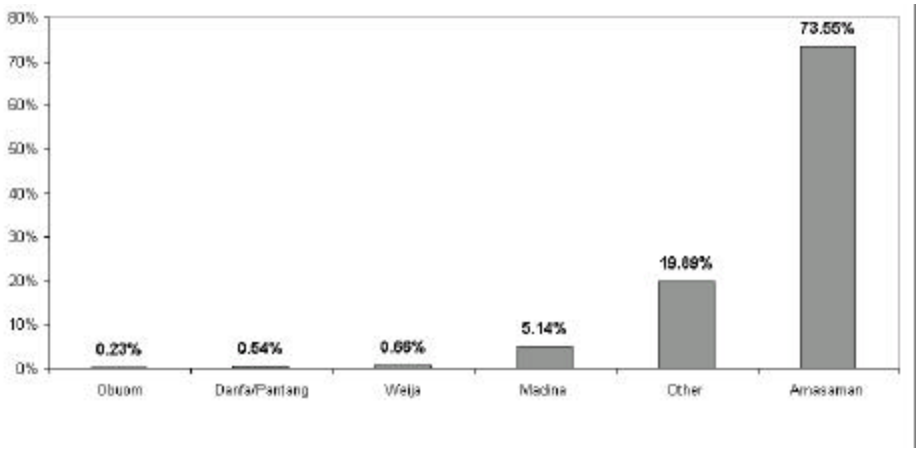
AGE OF WOMEN VIA-TESTED

Because nurses recruit at CWCs, they mainly reach health-seeking women of childbearing age. It is of interest to assess whether the outreach strategy has led to a decrease in the average age of women tested. The mean age of women tested before versus during outreach was almost the same (32.7 versus 32, respectively). Most screening programs target women in their thirties and forties because dysplasia rates generally peak at age 35 (PATH 1998). In this population, the age group with high levels of suspect precancer is 25–29. This is consistent, however, with the findings of other studies in Africa (University of Zimbabwe/JHPIEGO Cervical Cancer Prevention Program 1999) and with anecdotal reports of precancer occurrence in younger age groups in Sub-Saharan Africa, possibly due to earlier age of sexual relations, among other factors.

ORIGIN OF WOMEN VIA-TESTED, BY DISTRICT AND SUB-DISTRICT

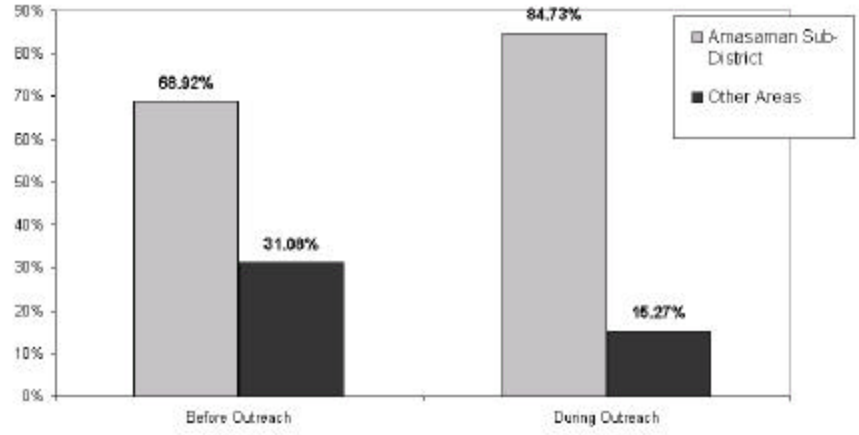
While the Cervicare project at Amasaman Health Centre aims to provide the SVA service to women living within Amasaman Sub-District, it has also attracted a large number of women living outside of this geographic area. Women likely travel to seek this service because it is only offered at two health facilities in Ghana, the other being Ridge Hospital in Accra. **Figure 11** shows that 73.55% (2,578/3,505) of all women tested through September 2003 were from Amasaman Sub-District. Another 6.57% of women were from neighboring Sub-Districts within Ga District (Madina, Weija, Danfa/Pantang, and Obuom), and 19.89% were classified as "other," indicating that they were from districts other than Ga.

Figure 11: Origin of Women Tested in Amasaman Health Centre, by Sub-District December 2001–September 2003



While no woman was ever turned away based on her home address, because CHNs recruit at locations within the Sub-District, it was expected that a greater percentage of women tested after outreach would live in Amasaman. **Figure 12** compares origin of women before and after outreach and demonstrates that this was the case. In the months from December 2001 through April 2003, 68.92% (1,701/2,468) of women who received a VIA test reported that they lived in Amasaman Sub-District whereas 84.73% (877/1,035) of women tested between May and September 2003 indicated Amasaman Sub-District residence. Although a higher percentage of women tested during outreach were from Amasaman, women from outside of the Sub-District continued to seek services, albeit at a relatively lower rate.

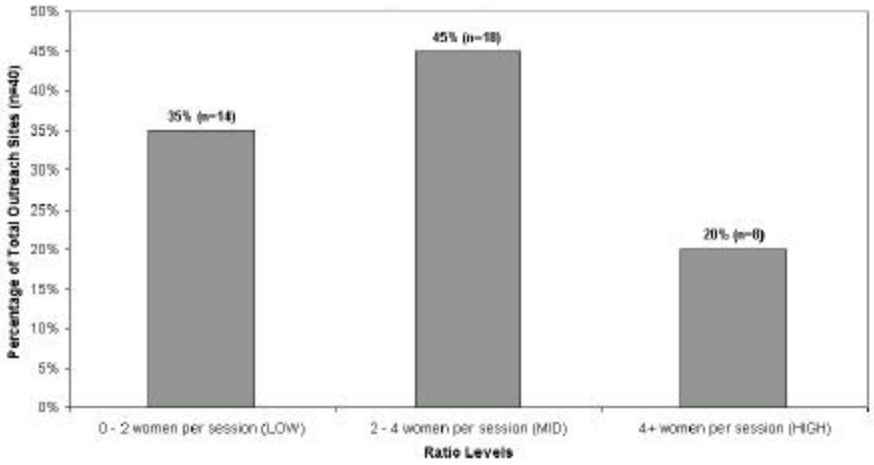
Figure 12: Percentage of Women Tested Before and During Outreach Living Within and Outside of Amasaman Sub-District



RATIO OF NUMBER OF WOMEN VIA-TESTED TO OUTREACH SESSIONS

Figure 13 shows the ratio of women booked at an outreach site (40 sites total) who ultimately got VIA-tested to outreach sessions held at that outreach site, by level (low, mid, versus high). As noted, two or fewer women got VIA-tested per session held for 14 sites (35% of the total). At the majority of sites (18 or 45%), between two and four women were ultimately tested per outreach session held. For the smallest number of outreach sites (8 or 20%), four or more women got VIA-tested per session held.

Figure 13: Ratio of Women Tested to Outreach Sessions in Amasaman Sub-District, by Level May 2003–September 2003



No clear pattern emerges from the data to suggest why the observed variance in ratios. For example, in the middle category are an outreach site with a very large eligible population (2,700) and a high number of outreach sessions (20) as well as a site with a very small eligible population (12) and a low number of outreach sessions (1). It is clear, however, that for maximum efficiency, an outreach effort should aim for the highest ratio possible of women tested to sessions held. To promote this, adequate transportation should be available to women and appointments should only be booked for women who are likely to be tested. Additionally, CHNs should provide women with relevant information about the service when they are

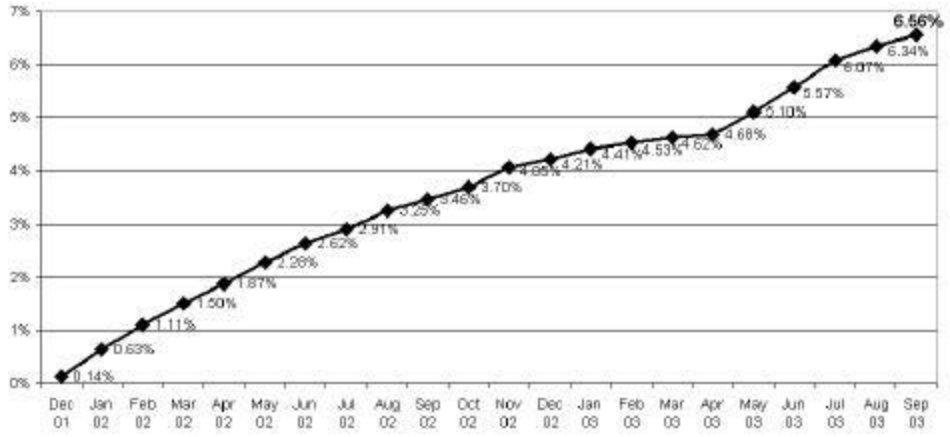
booking them and address potential barriers to accessing services to ensure women follow through with their appointments.

In summary, since its initiation in May 2003, the outreach effort resulted in an increased number of women tested with VIA at Amasaman Health Centre. CHNs have successfully generated demand for VIA services to meet available supply, maximizing use of resources. CHNs have developed strategies to recruit and encourage women to be VIA tested using an existing health outreach strategy, thus requiring few additional inputs. Also, since the active outreach strategy was initiated, some changes have been observed in key characteristics of women seeking VIA tests. Women tested during the outreach phase, compared to the general recruitment phase, have been more likely to live in Amasaman Sub-District and appear to have been at lower risk for suspect precancer.

SUB-DISTRICT COVERAGE

To achieve measurable reduction in morbidity and mortality associated with cervical cancer, it has been estimated that 75% to 80% of women at risk should receive a screening test and treatment, if appropriate (de Wolf 1997). In Amasaman Sub-District, the local staff established a goal to reach or exceed 7% coverage annually—the local family planning target acceptance rates (actual rates were approximately 5.6% in 2002 and lower than 4% in the two years prior [Ga District Health Management Team 2003]).

Figure 14: Percentage Coverage with VIA
December 2001–September 2003
Amasaman Sub-District (DHMT Data)



To calculate the percentage of the eligible population that received a VIA test within Amasaman Sub-District (coverage), women who claimed to live outside of this area were excluded from the analysis. From December 2001 through September 2003, 2,579 women living in Amasaman Sub-District received a VIA test. The eligible population for this geographic area in 2003 was 38,675—15.34% of the total population for the sub-district (38,675 / 252,119) as reported by the DHMT of Ga District. (Census data for the Greater Accra Region in the year 2000 were used to determine the percentage of women falling in this age bracket [Ghana Statistical Service 2000]). Total coverage achieved over time is shown in **Figure 14**. To calculate the number of eligible women by month, the regional growth rate of 4.4% was divided over 12 months (0.367%), assuming a target population of 38,675 in April 2003. Under these assumptions, an overall Sub-

District coverage rate of 6.56% (2,583 / 39,390) was achieved by September 2003, after 22 months of service.

After one year of service, through November 2002, the sub-district coverage achieved was approximately 4.0% (1,539 / 37,973). To reach 7% coverage at that point, the family planning target, nurses would have had to test 2,688 women. In fact, the team had tested a total of 2,080 women, but 26% of them were not counted towards the sub-district coverage rate because they did not reside in Amasaman Sub-District. Considering the maximum number of tests the nurses could potentially conduct in one year was 2,880 (20 tests per day x 12 days per month x 12 months), based on their normal schedule of three clinic sessions weekly, in principle they could have reached over 7% of eligible women without increasing their resources. This assumes, however, that they could limit their service to women living only within Amasaman Sub-District, which is unrealistic and undesirable.

In the full pre-outreach phase, from December 2001 through April 2003, approximately 4.68% coverage was achieved (1,810 / 38,675) in Amasaman Sub-District. By September 2003, this percentage had increased almost 2 absolute percentage points to 6.56% (2,583 / 39,390). If the coverage achieved in this 5-month outreach period were projected out to 12 months (through April 2004), maintaining the average monthly rate of 176 VIA tests for women in Amasaman Sub-District (84.7% of 208), the team would reach 5.27% coverage in one year (176 monthly tests x 12 / 40,413). This compares to the 4% coverage rate achieved in the first year, through November 2002 (See **Table 1**).

Table 1. Coverage Attainable in 12 Months Assuming Outreach-Phase Productivity

Average Monthly VIA Tests During Outreach	208
Percentage of Women Living in Amasaman During Outreach	87.4%
Average Monthly VIA Tests for Women in Amasaman	176
Projected Total in 12 Months	2,112
Avg. Eligible Population, May 2003–April 2003 (DHMT)	40,413
Projected Coverage in 12 Months	5.22%

LOCALITY-SPECIFIC COVERAGE

Locality-specific coverage was analyzed in order to assess more precisely the effect of outreach. To do this analysis, each woman's record was assigned a code corresponding to a given locality for which population data were also available. If women reported a small village that was a sub-set of a larger locality, they were grouped into this locality. Local staff assisted in the process of identifying a 'codable' locality for each woman's record. The villages that were grouped into larger localities are reported in **Appendix A**.

Once all women's VIA records were place-coded, they were matched to an Excel spreadsheet containing names of localities in Amasaman Sub-District, corresponding codes, and population sizes. The National Statistical Service provided the total population data for the year 2000 in Ga District. From this, the number of women aged 25–45 years in each locality was calculated as 15.34% of the total population, based on population demographics for the Greater Accra Region. The resulting number was then projected to 2001 at the regional growth rate of 4.4%, and then monthly to September 2003 at the rate of 0.367% per month (4.4% / 12) (Ghana

Statistical Service 2000). The number of women who lived in each coded locality was tallied and then divided by the total eligible population size, for locality-specific coverage rates. Results for the 15 largest localities, with eligible populations greater than 500, are shown in **Table 2**. Of the 33,025 women estimated to be in the eligible age group (25–45 years) in Amasaman Sub-District, 27,068 or 81.9% of them live in these 15 localities. Overall, 1,858 women were tested from these 15 localities, representing 72% (1,858 / 2,579) of all women tested in Amasaman Sub-District. The complete coverage results can be found in **Appendix B.**

Table 2. Percentage Coverage in Amasaman Sub-District Localities with >500 women aged 25–45 Years

LOCALITY	ELIGIBLE POPULATION			NUMBER WOMEN TESTED			COVERAGE		
	Overall	Before	During	Overall	Before	During	Overall	Before	During
Amasaman	678	672	700	377	308	69	55.57%	45.82%	9.86%
Pokuase	1,861	1,843	1,919	435	359	76	23.38%	19.47%	3.96%
Afiaman	510	505	526	95	66	29	18.64%	13.07%	5.52%
Medie	570	565	588	49	31	18	8.59%	5.49%	3.06%
Ofankor	2,772	2,747	2,859	217	104	113	7.83%	3.79%	3.95%
New Achimota (Mile 7)	1,250	1,238	1,289	76	41	35	6.08%	3.31%	2.72%
Tantra Hill	1,379	1,366	1,422	66	33	33	4.79%	2.42%	2.32%
New Achimota	1,535	1,521	1,583	70	46	24	4.56%	3.03%	1.52%
Taifa	4,480	4,439	4,621	192	138	54	4.29%	3.11%	1.17%
Dome	5,075	5,029	5,235	200	129	71	3.94%	2.57%	1.36%
Israel	897	888	925	20	7	13	2.23%	0.79%	1.41%
New Achimota-Alahji	1,117	1,107	1,152	18	5	13	1.61%	0.45%	1.13%
Ablekuma / Olobu	1,112	1,102	1,147	15	5	10	1.35%	0.45%	0.87%
Tabora	1,504	1,490	1,551	13	3	10	0.86%	0.20%	0.64%
Chantan	2,328	2,306	2,401	15	3	12	0.64%	0.13%	0.50%

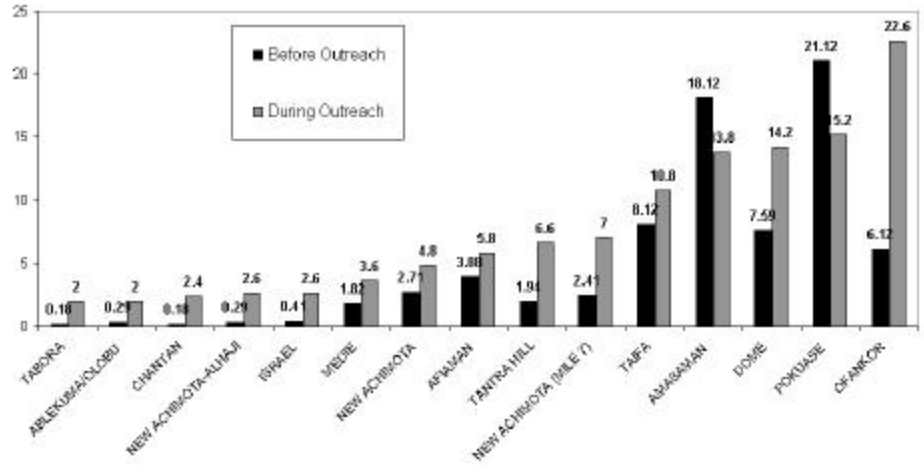
Locality-specific coverage was also calculated for a small number of localities within Ga District but outside of Amasaman Sub-District, because population data were available for these areas. The same process described above was used for these calculations. These results are reported in **Appendix C**.

LOCALITY COVERAGE BY PHASE

To assess any difference in recruitment before versus during outreach by locality, the number of months services were offered must be considered. To control for this factor, the total number of tests in each phase was divided by the number of service months (17 pre-outreach and 5 during outreach). These numbers were then compared to show whether recruitment increased or

decreased during outreach in each locality. **Figure 15** shows the average number of women tested monthly who lived in the 15 largest localities, before versus during outreach (shown in order of increasing average number of monthly tests during outreach). In all but two localities, the average number of women tested monthly increased after outreach efforts began. This is not surprising given that, overall, the average number of women tested monthly increased from 145 to 208 tests between the two periods. The localities in which the average number of tests decreased, Amasaman and Pokuase, are located close to Amasaman Health Centre, and active outreach may not have been necessary to reach these women. Once outreach began, however, and women were coming to the center from throughout the Sub-District with appointments, the number of opportunistic tests (e.g., for women living nearby) decreased.

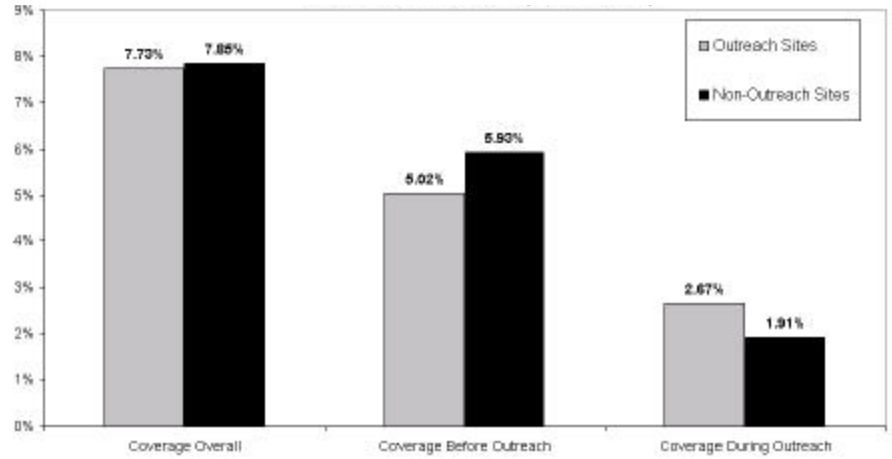
Figure 15: Average Number of Women Tested Monthly from 15 Largest Localities, Before versus During Outreach Amasaman Sub-District



EFFECT OF OUTREACH SESSIONS ON COVERAGE IN OUTREACH VERSUS NON-OUTREACH SITES WITHIN AMASAMAN SUB-DISTRICT

It was expected that more women would be tested who live in sites where outreach is conducted. To assess this, an outreach site was defined as a locality in which one or more outreach sessions were conducted between May and September 2003. The number of women living in an outreach site was assumed to be equal to the eligible population for the locality where the outreach session took place. In many places there are multiple outreach sites, but the population could not be divided based on the particular location of the outreach site **within** the locality. **Figure 16** shows a comparison of coverage between outreach and non-outreach sites, based on data obtained from the Cervicare database and the Census Bureau. Overall and before outreach, the coverage was slightly higher in non-outreach sites, likely due to the fact that the majority of eligible women (87.5%) live in outreach sites. During the outreach period, however, coverage in outreach sites was higher than in non-outreach sites.

Figure 16: Coverage Overall, Before, and During Outreach in Outreach Sites and Non-Outreach Sites Amasaman Sub-District (Census Data)



EFFORTS TO ACHIEVE 80% COVERAGE

With current resources, an average of 160 tests were performed monthly at Amasaman Health Centre (See **Figure 6**). Given that only 74% of the women tested overall lived within Amasaman Sub-District (where coverage was measured), then the number of tests performed for Amasaman residents was 118 per month. To test 80% of all women of eligible age at least once in a lifetime, the nurses would have to test a total of 29,610 women, or 5,922 women each year for 5 years (based on April 2002 DHMT population). At a rate of 118 tests per month, however, it would take 251 months, or 21 years, to test this number of women—and this does not consider the population growth that will occur over the next 20 years. **Table 3** below shows how changes in various inputs would affect coverage rates achieved (not including increases in eligible women due to population growth rates). For example, scenario 2 shows that if the number of tests per day was increased from less than 10 to 20 and 12 service days per month were maintained, then nurses could perform 240 tests per month. At this rate, it would take 24.675 months to test 5,922 women, or 10.28 years to test 29,610 women (80% coverage goal in 5 years).

Table 3. Effect of Various Inputs on Potential Coverage

SCENARIO	# PROVIDERS	DAILY TESTS	DAYS / MONTH	# TESTS NEEDED PER YEAR / # TESTS PER MONTH	# YEARS TO REACH 80%*
1. Current scenario	3	9.83	12	5,922 / 118 = 50.18 x 5 = 251 months	21 years
2. Increase number of tests per day to 20	3	20	12	5,922 / 240 = 24.675 x 5 = 123.375 months	10.28 years
3. Increase number of service days to 20 per month	3	20	20	5,922 / 400 = 14.75 x 5 = 73.75 months	6.15 years
4. Increase number of providers and daily tests	5	35	12	5,922 / 420 = 14.1 x 5 = 70.5 months	5.875 years
5. Increase number of providers, number of daily tests, and number of service days	5	35	14	5,922 / 490 = 12.08 x 5 = 60.4 months	5 years

** Does NOT consider annual growth rate, so this is an underestimate of actual years to 80%.*

The feasibility of the above scenarios depends on available financial, material, and personnel resources in Amasaman Sub-District. Clearly, in order to achieve increased coverage, several inputs are required: additional nurses must be trained, additional exam rooms, beds, cryotherapy units, gas tanks, and other materials must be made available, and more women must be recruited on a daily basis in order to increase the supply of services. First, though, policymakers and stakeholders must decide whether they desire, and can afford, a coverage target of 80%. If this is not a priority of the MOH, it is unlikely that resources will be re-allocated to the effort.

In summary, while overall coverage achieved within Amasaman Sub-District was lower than the project target of 7%, the outreach strategy has proven to increase recruitment and, therefore, coverage with cervical cancer prevention services. The data presented above reveal that numbers of women tested and coverage were all positively affected by outreach activities. By examining locality-specific coverage, it was possible to explore reasons for higher or lower coverage and identify those areas in which further recruitment is needed. To increase overall coverage, more women would have to be informed of the service and encouraged to seek testing—but to accommodate these women, other inputs would have to be available, including more trained providers (See **Appendix D**).

Of the factors discussed in **Appendix D**, some appear to affect coverage at Amasaman Health Centre more than others: number of providers, number of provider days, supplies and equipment, and accessibility. If these could all be increased and strengthened, coverage would likely increase more rapidly. In particular, a mobile clinic strategy at select locations throughout the Sub-District, such as at maternity clinics, would allow women to gain easy access to VIA testing. Nurse providers and CHNs suggested that this strategy be used for women living in more remote areas.

STRENGTHS AND CHALLENGES

STRENGTHS

- Financial and material inputs were minimum, as this effort built on the existing cervical cancer prevention project and community health outreach efforts at the Amasaman Health Centre.
- The community outreach effort involved the use of existing human resources to educate and motivate women in Amasaman Sub-District to seek VIA testing.
- Community health nurses were capable of delivering accurate messages about cervical cancer prevention after a brief two-day training.
- Community health nurses were able to reach women of childbearing age conveniently through the Child Welfare Clinics.
- Nurse providers at Amasaman expressed satisfaction with the work of community health nurses, and claimed that it eased their workload.

CHALLENGES

- The outreach effort's reach was limited to sites already frequented by community health nurses, with the exception of a few additional home and church outreach sessions.
- Older women, and other women at higher risk for precancer, were less likely to be reached as the effort focused on women attending vaccination clinics.
- While some men attended child welfare clinics, a specific effort to educate and motivate them was not part of this outreach strategy.
- Because community health nurses were paid a stipend for their work, this outreach effort may not be sustainable in the long term.
- Given that a high percentage of women tested were booked through outreach, the opportunity for walk-in tests to be performed was likely reduced.

RECOMMENDATIONS

- Efforts to inform and motivate women and men to participate in cervical cancer prevention services should involve available health personnel. Auxiliary staff can easily be trained to deliver outreach messages.
- To strengthen the capacity of outreach personnel, a supervisor should provide technical support, monitoring, and evaluation.
- For program expansion, cervical cancer prevention education should continue to be integrated into existing health services, such as child welfare clinics, as this an efficient means to increase participation.
- For men to be more involved in their partner's decision to seek a VIA test, targeted efforts to educate them should be initiated. These may include meeting men where they gather, and engaging male educators to deliver outreach messages.
- A large Durbar-type festival can raise community awareness about health services, but it is not economically feasible unless supported by external funding. If such an event is to be held, it could be combined with other women's and reproductive health issues.
- While targeted outreach efforts increase the number of women tested, efforts should continue to be made to identify women at highest risk for cervical precancer. Otherwise, missed opportunities for prevention may occur.
- Mobile strategies should be considered in order to increase access to and coverage by outreach and screening services.
- Strategies to involve Community Health Workers in active follow up of test-positive clients who have not yet received treatment should be explored.

CONCLUSIONS

The outreach effort undertaken in Amasaman Sub-District demonstrated:

- Auxiliary nurses can easily be trained to deliver accurate messages regarding cervical cancer prevention using the SVA with VIA and cryotherapy;
- It is economically feasible to involve existing health personnel in recruiting women to participate in cervical cancer prevention services;
- Targeted outreach efforts result in increased numbers of women tested with VIA; and
- Integration of cervical cancer prevention education into existing health services is acceptable by health personnel.

Because recruitment increased during the outreach phase, and coverage within Amasaman Sub-District increased, stakeholders involved in the planning and implementation of the outreach effort considered it a success. The main drawback of the initiative was the fact that the percentage of women who were VIA-positive decreased during the outreach phase, suggesting that outreach captured lower-risk individuals. To ensure that women at highest risk for precancer are tested, risk factor data could be used to identify and target this group.

As cervical cancer prevention using the SVA expands to other regions of Ghana, particularly rural health centers, an outreach strategy such as that described herein should accompany service delivery. In the absence of such a strategy, adequate coverage to decrease the burden of cervical cancer in the long term would likely not be achieved.

REFERENCES

de Wolf CJM. 1997. Organization and results of cervical cancer screening in Europe over the past 20 years, in *New Developments in Cervical Cancer Screening and Prevention.* Franco E and J Monsonego (eds). Blackwell Science: Oxford: pp. 209–219.

Dzokoto V. 2003. *The Cervical Cancer Prevention Programme in Ghana*. Report to Rotary International.

Ga District Health Management Team. 2003. Amasaman Health Centre Statistics.

Gaffikin L et al. 2004. *Safety, Acceptability, and Feasibility of a Single Visit Approach to Cervical Cancer Prevention: Results from a Demonstration Project in Ghana*. JHPIEGO: Baltimore, MD.

Ghana Statistical Service. 2002. *2000 Population and Housing Census*.

IARCPress. 2001. GLOBOCAN 2000: Cancer Incidence, Mortality, and Prevalence Worldwide, Version 1.0. IARC CancerBase No. 5.

Korle Bu Hospital Department of Pathology, Chairman. Personal communication.

PATH. 2000. Preventing Cervical Cancer in Low-Resource Settings. *Outlook* 18(1).

Pisani P. 1998. International Agency for Research on Cancer. Personal communication.

University of Zimbabwe/JHPIEGO Cervical Cancer Prevention Program. 1999. Visual inspection with acetic acid for cervical cancer screening: Test qualities in a primary care setting. *Lancet* 353: 869–873.
(University of Zimbabwe: ZM Chirenje, T Chipato, J Kasule, E Ngwalle, S Rusakaniko, and R Makunike/JHPIEGO Corporation: L Gaffikin, P Blumenthal, J McGrath, and H Sanghvi.)

APPENDIX A. GROUPING OF VILLAGES IN AMASAMAN SUB-DISTRICT

VILLAGE →	LOCALITY	VILLAGE →	LOCALITY
ABC junction	New Achimota	Gonse	Mayera
Abehease Odumase	Odumase	Gyaaman Pokuase	Pokuase
Abensu	Pokuase	Isada	Sarpeiman
Abobokodji	Pokuase	John Teye	Ofankor
ACP	Pokuase	Kaidebi	Ayikai Doblo
Afenyakodzi Pokuase	Pokuase	Kingsby	New Achimota
Agric Bungalo	Pokuase	Kwadwoashong	Ayikai Doblo
Alahaji Tabora	New Achimota-Alhaji	Lominava	New Achimota
Alogboshie	New Achimota	Mecedonia	Sarpeiman
Amehiakorpe	Amehia Zvamekope	Memhyiakorpe (Pobi Korpe)	Kpobikope
Amentia	Ofankor	Muss	Ofankor
Asafua	Ofankor	Newsite	Ofankor
Ayigbetown	Amasaman	Okofio	Samsam Caanan
Azumah korpe	Pokuase	Otanten	Sam Sam
Banaman	Amasaman	Parakua Estate	Dome
Brodo-Akrua (pokuase)	Pokuase	Parakuo	Dome
Burkina	Taifa	Petaki village	Gatsi Kope
CFC	Dome	S O Theatre	New Achimota
Conca Wall	Dome	Samsam Odumase	Odumase
Cronse	Mayera	Soldier camp	Amasaman
Dunyokorpe	Mayera	Spot M	Ofankor
Faase	Sarpeiman	St. John	Taifa
Fafraha	Ayikai Doblo	Vida Oware	Ofankor
Fan Milk	Ofankor	Vorkordzi	Pokuase
Fetus Pokuase	Pokuase	Zongo	Pokuase
Gokukorpe	Israel	Zongo	Amasaman

APPENDIX B. LOCALITY-SPECIFIC COVERAGE

By percentage coverage overall, and before versus during outreach

LOCALITY	ELIGIBLE POPULATION			NUMBER WOMEN TESTED			COVERAGE		
	Overall	Before	During	Overall	Before	During	Overall	Before	During
Samsam (Odarteiman)	47	46	48	45	43	2	96.19%	92.77%	4.15%
Agbom	5	5	5	4	1	3	83.37%	21.04%	60.62%
Havorkope	9	9	9	7	6	1	78.56%	67.96%	10.88%
Fise	85	85	88	61	46	15	71.48%	54.40%	17.04%
Kpobikope	78	77	81	53	23	30	67.83%	29.71%	37.22%
Amasaman	678	672	700	377	308	69	55.57%	45.82%	9.86%
Ahiabu	4	4	4	2	2	0	48.63%	49.08%	0.00%
Oduman	87	86	89	40	1	39	46.13%	1.16%	43.61%
Gatsi Kope	28	28	29	13	13	0	45.70%	46.13%	0.00%
Nsakina	136	134	140	48	3	45	35.37%	2.23%	32.15%
Achiaman	89	88	92	31	16	15	34.79%	18.12%	16.32%
Mayera	139	138	144	45	32	13	32.30%	23.18%	9.05%
Amanfrom	27	27	28	8	7	1	29.55%	26.09%	3.58%
Oyansana	40	40	42	10	9	1	24.83%	22.56%	2.41%
Opa	100	99	103	24	13	11	23.98%	13.11%	10.66%
Ayawaso	29	29	30	7	4	3	23.75%	13.70%	9.87%
Pokuase	1,861	1,843	1,919	435	359	76	23.38%	19.47%	3.96%
Shikpontele	27	26	27	6	5	1	22.59%	19.00%	3.65%
Afiaman	510	505	526	95	66	29	18.64%	13.07%	5.52%
Amamole	98	97	101	18	1	17	18.46%	1.04%	16.90%
Obeyeyie	93	92	96	17	8	9	18.34%	8.71%	9.41%
Adusu Quarters	17	17	17	3	1	2	17.68%	5.95%	11.43%
Abehenase	52	51	53	9	5	4	17.39%	9.75%	7.49%
Sarpeiman	221	219	227	37	25	12	16.78%	11.44%	5.28%
Katapor	151	150	156	25	25	0	16.54%	16.69%	0.00%
Samsam Canaan	46	46	48	7	7	0	15.13%	15.27%	0.00%
Atoman	34	34	35	5	2	3	14.66%	5.92%	8.53%
Mantsi (Manchie)	85	84	87	12	4	8	14.18%	4.77%	9.16%
Otamina Gonse	21	21	22	3	3	0	14.12%	14.25%	0.00%
Onyaaben (Paul Kope)	22	22	22	3	3	0	13.78%	13.91%	0.00%
Dzevekope	8	8	9	1	0	1	11.91%	0.00%	11.55%

LOCALITY	ELIGIBLE POPULATION			NUMBER WOMEN TESTED			COVERAGE		
	Overall	Before	During	Overall	Before	During	Overall	Before	During
Ayikai Doblo	155	154	160	18	7	11	11.61%	4.56%	6.88%
Kpobiman	192	190	198	22	11	11	11.45%	5.78%	5.55%
Kuntunse	227	225	234	25	24	1	11.02%	10.68%	0.43%
Mpewuhuasem	72	72	75	7	7	0	9.66%	9.75%	0.00%
Odumase	22	22	23	2	1	1	9.05%	4.57%	4.39%
Kotoku Niistruman	137	136	141	12	7	5	8.75%	5.15%	3.54%
Asofan	264	262	273	23	9	14	8.70%	3.44%	5.14%
Kwashiekumahman	69	68	71	6	5	1	8.69%	7.31%	1.40%
Medie	570	565	588	49	31	18	8.59%	5.49%	3.06%
Ofankor	2,772	2,747	2,859	217	104	113	7.83%	3.79%	3.95%
Osondompey	32	31	33	2	2	0	6.34%	6.40%	0.00%
Adusa	80	80	83	5	3	2	6.22%	3.77%	2.41%
Mile 7	1,250	1,238	1,289	76	41	35	6.08%	3.31%	2.72%
Dedeiman	84	83	86	5	5	0	5.98%	6.03%	0.00%
Tantra Hill	1,379	1,366	1,422	66	33	33	4.79%	2.42%	2.32%
New Achimota	1,535	1,521	1,583	70	46	24	4.56%	3.03%	1.52%
Taifa	4,480	4,439	4,621	192	138	54	4.29%	3.11%	1.17%
Dome	5,075	5,029	5,235	200	129	71	3.94%	2.57%	1.36%
Manhean	140	139	145	5	0	5	3.57%	0.00%	3.46%
Adjen Kotoku	338	335	349	12	7	5	3.55%	2.09%	1.43%
Oduntia	30	30	31	1	1	0	3.33%	3.37%	0.00%
Ashaladza	84	83	87	2	1	1	2.38%	1.20%	1.15%
Kwarteiman	86	85	88	2	1	1	2.33%	1.18%	1.13%
Akotoshie 2	43	42	44	1	1	0	2.33%	2.36%	0.00%
Israel	897	888	925	20	7	13	2.23%	0.79%	1.41%
Hebron	51	51	53	1	1	0	1.95%	1.96%	0.00%
Sampaman	61	61	63	1	0	1	1.63%	0.00%	1.58%
Alhaji	1,117	1,107	1,152	18	5	13	1.61%	0.45%	1.13%
Ablekuma	1,112	1,102	1,147	15	5	10	1.35%	0.45%	0.87%
Okushiebiade	91	90	93	1	1	0	1.10%	1.11%	0.00%
Tabora	1,504	1,490	1,551	13	3	10	0.86%	0.20%	0.64%
Domeabra	153	152	158	1	1	0	0.65%	0.66%	0.00%
Chantan	2,328	2,306	2,401	15	3	12	0.64%	0.13%	0.50%
Afuaman	163	162	168	1	0	1	0.61%	0.00%	0.59%

APPENDIX C. COVERAGE IN OTHER LOCALITIES OF GA DISTRICT

By percentage coverage overall, and before versus during outreach

LOCALITY	ELIGIBLE POPULATION			NUMBER WOMEN TESTED			COVERAGE		
	Overall	Before	During	Overall	Before	During	Overall	Before	During
Asuom	13	12	13	2	2	0	15.99%	16.14%	0.00%
Ashonman	124	123	128	15	10	5	12.07%	8.12%	3.90%
Pantang	116	115	119	6	6	0	5.19%	5.24%	0.00%
Kwabenya	662	656	683	33	26	7	4.99%	3.97%	1.03%
Atomic Energy	254	252	262	9	6	3	3.54%	2.38%	1.15%
Abokobi	188	186	194	6	6	0	3.20%	3.23%	0.00%
Obom	202	200	208	3	3	0	1.48%	1.50%	0.00%
Adenta West	2152	2,132	2,220	20	14	6	0.93%	0.66%	0.27%
Madina	13,143	13,022	13,555	113	109	4	0.86%	0.84%	0.03%
Danfa	149	148	154	1	1	0	0.67%	0.68%	0.00%
Ashonman Estate	795	788	820	4	4	0	0.50%	0.51%	0.00%
Hatso	1,215	1,204	1,254	6	5	1	0.49%	0.42%	0.08%
Santa Maria	1,846	1,829	1,904	7	6	1	0.38%	0.33%	0.05%
Kwashiebu	1,224	1,213	1,262	4	4	0	0.33%	0.33%	0.00%
Agbogba	1,068	1,059	1,102	3	3	0	0.28%	0.28%	0.00%
Sowutuom	2,145	2,126	2,213	5	5	0	0.23%	0.24%	0.00%
Awoshie	3,408	3,377	3,515	6	5	1	0.18%	0.15%	0.03%
Mc-Carthy Hill	694	687	716	1	1	0	0.14%	0.15%	0.00%
Gbawe	4,968	4,922	5,123	6	4	2	0.12%	0.08%	0.04%
Weija	833	825	859	1	0	1	0.12%	0.00%	0.12%
Anyaa	2,697	2,672	2,781	3	1	2	0.11%	0.04%	0.07%
Mallam	1,226	1,214	1,264	1	0	1	0.08%	0.00%	0.08%

APPENDIX D. FACTORS AFFECTING COVERAGE

FACTORS AFFECTING COVERAGE

Coverage of any population with a given public health intervention is affected by numerous factors. This evaluation did not specifically assess factor(s) which **most** affected the level of coverage achieved in Amasaman Sub-District, but did identify potential factors that should be considered.

NUMBER OF PROVIDERS

Clearly, the number of trained VIA and cryotherapy providers affects the number of women who can be tested in a given time period. When more providers are working, more human resources are dedicated to testing. In the case of Amasaman Health Centre, 3 trained providers were available to offer services but due to rotating vacation schedules, there were less than 3 trained providers present during many months. This limited the number of women who could be tested, but increasing providers would be inefficient without increasing available supplies.

NUMBER OF PROVIDER DAYS

The number of days during which providers offer services also affects the number of women who can be tested. The nurses at Amasaman Health Centre have multiple job responsibilities so they could dedicate no more than 3 days weekly to VIA assessments and cryotherapy treatments. An increase in the number of days might mean reallocating other staff to cover their additional responsibilities.

NUMBER OF VIA TESTS PERFORMED DAILY

For quality control purposes, nurses limit their maximum number of VIA tests to 20 per day. If all 3 nurses are working, this means that each nurse assesses approximately 7 women. If this number were increased, coverage would increase—service quality should not be compromised.

SUPPLIES AND EQUIPMENT

Adequate supplies and equipment must be available to accommodate all women tested. Providers are limited by the number of exam rooms and beds available, the number of specula, amount of vinegar, number of cryotherapy units, allocation of CO2 gas tanks, etc. If the amount of supplies increased, and nurse providers could accommodate more women, then overall coverage would increase.

VIA-POSITIVE RATE

Another factor that can affect coverage is the VIA-positive rate, because cryotherapy treatment demands more time than VIA tests. A maximum of 20 women tested per day was based on the assumption that 10% of women would be VIA-positive and require treatment. If this were the

case, then an average of 2 cryotherapy treatments would be performed daily. If this number were higher, than the overall number of VIA tests might need to decrease. In Amasaman Sub-District, though, the VIA-positive rate has consistently been lower than 10%, which means potentially more than 20 women could be VIA-tested daily without compromising quality.

SUPPORT FROM SUPERVISORS

Support is a factor because it is related to how many resources are allocated—both human and physical. If supervisors are not supportive of SVA services, nurses might not be able to perform at their optimal level. Conversely, supportive supervisors better ensure adequate supplies and equipment are available, and nurses are released to perform their VIA-related tasks.

NUMBER OF WOMEN SEEKING VIA TESTS

It is only when more women are tested that coverage can increase. Thus, mechanisms to ensure adequate demand for services are important. This factor can be directly influenced by the knowledge and attitudes of women and men in the target population with respect to the cervical cancer prevention program. One main objective of the outreach effort in Amasaman was to increase the knowledge and awareness levels of this population to encourage them to seek VIA testing.

ACCESS TO SERVICES

Another factor that can affect coverage is the extent to which services are accessible to women. If women have difficulties reaching the service delivery point because of transportation or financial barriers, they are unlikely to be tested. For this reason, mobile clinics are often effective in increasing coverage, as is the strategy of providing transportation for women from their homes to the service delivery point.