JHPIEGO
An Affiliate of Johns Hopkins University
WORKING TO IMPROVE THE HEALTH OF WOMEN AND FAMILIES THROUGHOUT THE WORLD

Evaluation of Supply and Demand Factors Affecting Cervical Cancer Prevention Services in Roi Et Province, Thailand

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Funding from the
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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.

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PREFACE AND ACKNOWLEDGMENTS

This report describes factors affecting supply of and demand[1] for services in Roi Et Province, Thailand as demonstrated during the Access and Coverage Expansion (ACE) phase of a cervical cancer prevention initiative involving the use of a single visit approach (SVA). The ACE phase followed the Safety, Acceptability, Feasibility and Program Effort (SAFE) Demonstration Project for cervical cancer prevention, conducted in Roi Et Province, which involved the screening test of visual inspection with acetic acid coupled with the immediate offer of cryotherapy as the treatment modality. Results of the demonstration project are reported elsewhere (RTCOG / JHPIEGO Cervical Cancer Project Group 2003).

The Ministry of Public Health of Thailand collaborated with the Thailand Cervicare Project to carry out both the ACE and SAFE efforts, with technical and financial support from JHPIEGO (CECAP Office) with funding from the Bill and Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention.

This evaluation would not have been possible without the assistance and support of numerous individuals. Sincere appreciation is expressed to the Project Director, Project Manager, and other Cervicare Project staff in Thailand for arranging all necessary logistics; to Ministry of Public Health representatives at the national level who provided valuable insights and facilitated meetings with relevant officials; to Provincial Health Office staff who openly discussed their experiences with the initiative and arranged for transportation and meetings in the districts; to district hospital directors, nurse providers, and district health officers who not only participated for hours in interviews but also extended warm hospitality and arranged meetings with interviewees in sub-districts; and to health center staff members, village health volunteers, and women who generously shared their perspectives. Gratitude is also extended to JHPIEGO staff members who arranged travel, assisted with the evaluation framework and tools, and provided critical feedback on this report. Finally, we acknowledge the Bill and Melinda Gates Foundation for their generous support of cervical cancer prevention activities worldwide.

[1] Supply factors here are those that affect the delivery of services to women whereas demand services are those that affect women's motivation and ability to access services.

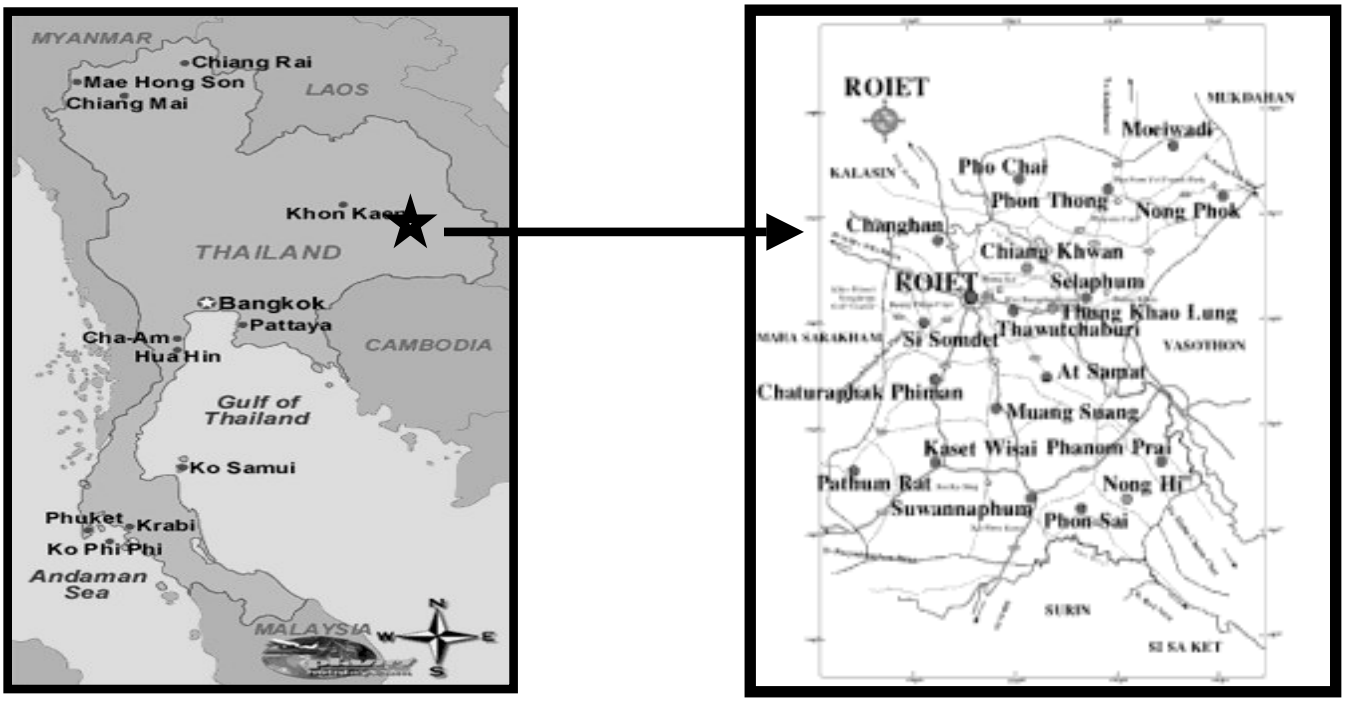
TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

ACCP	Alliance for Cervical Cancer Prevention
ACE	Access and Coverage Expansion
CECAP	Cervical Cancer Prevention Program
CTS	Clinical Training Skills
CUP	Contracting Unit for Primary Care
DHO	District Health Officer
DOPA	Department of Provincial Administration
ER	Emergency Room
IEC	Information, Education, and Communication
IPD	Inpatient Department
LR	Labor Room
MOPH	Ministry of Public Health
NCI	National Cancer Institute
OPD	Outpatient Department
OR	Operating Room
RTCOG	Royal Thai College of Obstetricians and Gynaecologists
SAFE	Safety, Acceptability, Feasibility and Program Effort
SCJ	Squamo-Columnar Junction
SVA	Single Visit Approach
VHV	Village Health Volunteer
VIA	Visual Inspection with Acetic Acid

MAP OF PROJECT SITE

Roi Et Province is located in the Northeast region of Thailand, 512 kilometers from Bangkok. The map on the left shows the country of Thailand, with a black star indicating the approximated location of Roi Et Province. The map on the right shows Roi Et Province in detail.



INTRODUCTION

SAFE PROJECT OVERVIEW

In 1999, the Royal Thai College of Obstetricians & Gynaecologists (RTCOG) and JHPIEGO, in partnership with the Thailand Ministry of Public Health (MOPH), implemented the Safety, Accessibility, Feasibility, and program Effort (SAFE) Demonstration Project in Roi Et Province, Thailand. Located in the Northeastern region, Roi Et Province was selected because: it is mostly rural; pap-based services there have not been programmatically successful; and, a tertiary referral facility is accessible (RTCOG/JHPIEGO, 2003).

The objective of that project was to rigorously assess SAFE-related indicators concerning the single visit approach (SVA) to cervical cancer prevention. In this project, the SVA combines visual inspection with acetic acid (VIA) and the offer of immediate treatment with cryotherapy when indicated, as an alternative to cytology-based cervical cancer prevention. 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 squamo-columnar junction (SCJ). If lesions meet all established criteria (e.g., occupy less than 75% of the cervix' 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. Prior to the SAFE Project, health officials in Thailand were unable to achieve more than 5% national coverage during any one year using the Pap smear as the primary cervical cancer screening method.

To implement the SAFE project, four districts in Roi Et province were selected as project sites, and two service delivery models were identified, mobile and static services. Between March 2000 and September 2001, 5999 women from the four pilot districts participated in the SAFE project. Of the 5999 women screened with VIA, 798 (13.3%) were test positive and 18 others were candidates for treatment based on an indeterminate result and the presence of one or more risk factors for cervical cancer. Of these women, 756 (12.6% of all women tested) were eligible and received cryotherapy (some received it immediately post-testing, some had treatment at a later date). Four women were identified with suspect cancer; of those, one had biopsy-confirmed cervical cancer. For those who received cryotherapy treatment, 629 (83.2%) returned for the first follow-up visit and 707 (93.5%) returned for the one-year follow-up visit. No major complications were reported, and only 2.2% of those treated returned with a problem that was considered a minor complication. Altogether, 99% of women were satisfied with their treatment experience (RTCOG/JHPIEGO Cervical Cancer Project Group, 2003).

ACCESS AND COVERAGE EXPANSION PHASE OVERVIEW

When the SAFE Project ended in September 2001, efforts in Roi Et Province transitioned from more research-oriented to more routine, integrated services. Having established the safety, acceptability and feasibility of the SVA during the SAFE Project phase, the Access and Coverage Expansion (ACE) phase was initiated. The ACE phase focused on increasing coverage—a key factor for ensuring morbidity and mortality reductions in the long-term. Concurrently, provincial health authorities established an official provincial target of 80% coverage of women aged 30–45 with SVA services within five years (of commencing service delivery). To achieve

this goal, nurses from the 13 districts in Roi Et Province not involved in the SAFE phase were trained in three cohorts (August 2001, December 2001, and April 2002). In addition, Atsamat district was selected as a focal area, where intensified efforts were directed to see whether targeted efforts could yield 80% coverage in a reduced time period.

This evaluation was scheduled after Atsamat District had been providing services for 18 months. By the time the evaluation commenced, over 40,000 women in all 17 districts had been tested for cervical (pre-) cancer as part of the SAFE or ACE phases of Roi Et Province's cervical cancer prevention project. At the time of evaluation, other provinces in Thailand had begun to consider the SVA as an option in addition to cytology-based testing.

EVALUATION OBJECTIVES

The general objective of the ACE evaluation was to examine factors affecting supply of and demand for SVA-based cervical cancer prevention services in Roi Et Province. Specific objectives of the evaluation were to:

- Assess service delivery strategies used by participating districts;
- Identify factors associated with successful implementation of the SVA approach, using coverage, productivity, and other measures of success; and
- Provide recommendations regarding future expansion of SVA-based cervical prevention services throughout Thailand.

It is hoped that evaluation findings will serve to improve cervical cancer prevention service delivery in a variety of settings. To this end, recommendations will be shared with program stakeholders in Thailand, partners of the Alliance for Cervical Cancer Prevention (ACCP), and other professionals engaging in cervical cancer prevention efforts worldwide.

METHODOLOGY

To assess factors affecting the supply of and demand for cervical cancer prevention services in Roi Et Province, both qualitative and quantitative data collection methods were used. Interviews were conducted with individuals at the national, provincial, district, and sub-district levels to explore issues related to access and coverage expansion (ACE). In Roi Et Province, a sample of 10 districts was selected in which qualitative evaluation visits were carried out. Monthly VIA and cryotherapy statistics for all 17 districts, routinely collected as a project activity, were analyzed in order to compare quantitative outcomes among all districts.

DISTRICT SELECTION

Due to time and budget constraints, it was not possible to visit all 17 districts in Roi Et Province. Therefore, 9 districts were initially selected for qualitative data collection. To increase the ability of the qualitative evaluation findings to represent all districts in the Roi Et province, the following factors were considered in the selection process:

- Reported size of female population aged 30–45 (Given the range of population sizes, categories were: Small [0–5,000], Medium [5001–9,000], and Large [9,001–20,000]). Women in the target age group represent approximately 10% of the total population (Census, 2000);
- Number of VIA tests performed;
- Length of time the district had implemented SVA services (estimated as the time since provider training); and
- Whether or not a mobile strategy[2] was used at the time of the evaluation.

Based on these criteria and data obtained from project documents and monthly progress reports available at the time of selection, the following 9 districts were selected for an evaluation site visit: Kasetwisai, Phanomphrai, Selaphum, Thawachburi, Atsamat, Jungharn, Srisomdet, Suwannaphum, Muayvadee. Data on these criteria for all 17 districts are outlined in **Table 1**. Districts are listed in the order in which they initiated VIA services.

[2] The "mobile strategy" involved trained nurses from the district hospital providing services in a lower level health facility, a health center, in the hospital's catchment area during one or mare days during the week.

TABLE 1. DISTRICT SELECTION CRITERIA

DISTRICT*	SIZE OF ELIGIBLE POP.**	NUMBER VIA TESTS BY APRIL 2003	MONTHS OF SERVICE	WAS MOBILE STRATEGY USED?
Kasetwisai	**Large**	**2741**	**38**	**YES**
Pathumrat	Medium	2661	38	YES
Chaturapakpiman	Large	3680	38	YES
Phanomphrai	**Large**	**4299**	**38**	**YES**
PonTong	Large	3013	20	YES
Selaphum	**Large**	**3789**	**20**	**YES**
Nongpok	Medium	1739	20	NO / Van
Thawachburi	**Medium**	**1363**	**20**	**NO**
Atsamat	**Medium**	**4353**	**17**	**YES**
Po Chai	Medium	1547	17	YES
Jungharn	**Medium**	**781**	**17**	**YES**
Srisomdet	**Small**	**1359**	**17**	**NO / Van**
Suwannaphum	**Large**	**3567**	**13**	**YES**
Muang Saung	Small	566	13	YES
Pon Sai	Small	887	13	NO / Van
Muayvadee	**Small**	**306**	**13**	**NO/ Van**
Muang	Large	872	13	YES

*Districts in bold were selected for qualitative evaluation visits
**Small = 0–5,000 women 30–45; Medium = 5,001–9,000 women 30–45; Large = 9,001–20,000 women 30–45

After the districts were selected, project staff suggested that the perceived level of support of the district hospital director should be included among the selection criteria. Because the director was reported to have been initially hesitant to support the project, Pon Tong district was added to the visit schedule.

SAMPLE OF INTERVIEWEES

In total, 78 in-depth interviews were conducted with 129 individuals representing national, provincial, district, and community level stakeholders.

Ten interviews were conducted with the following national and provincial level stakeholders:

- Two Ministry of Public Health Officials
- One Medical School Dean
- One Nursing Council Representative
- One National CECAP Project Staff
- One University Faculty Member and CECAP Trainer
- Three Provincial Medical Officers
- One Provincial Referral Physician

Representing district level interests, 31 interviews were conducted with 40 individuals in the following positions (in many cases, two or three nurse providers were interviewed together):

- Nine District Hospital Directors
- Four District Hospital Head Nurses (one was also a provider)
- Twenty Nurse Providers
- Eight District Health Officers

To explore community level influences, one health center was visited in each of the 10 selected districts. District health personnel identified the center to visit based on proximity, performance, and familiarity. The health center staff, in turn, summoned volunteers and women to be interviewed based on their availability and proximity to the health center. This may affect the extent to which these responses represent the experiences and attitudes of all communities. Thirty-seven interviews were conducted with 79 individuals (in small groups of 2 or 3 persons). The following respondents participated in the interviews:

- Fourteen Health Center Staff Members
- Twenty-Nine Village Health Volunteers
- Twenty-Three women who had had a VIA test
- Thirteen women who had not had a VIA test

A detailed list of respondents can be found in the **Appendix**.

INTERVIEW CONTENT

The interviews of 4 national stakeholders explored the following topics:

- Ranking of cervical cancer as a national health issue
- Knowledge of national policies and guidelines
- National support for the SVA initiative
- Expansion of services to additional provinces
- Implementation of SVA services

Interviews with provincial and district level individuals were conducted to collect information on the following topics:

- Specific strategy used for implementing SVA services
- Coordination of services among provincial, district, and sub-district levels
- Knowledge of national and provincial policies
- Opinion regarding the SVA as an alternative to pap-based services
- Perceived burden of the SVA initiative on financial and human resources
- Level of coverage of eligible population and perception of progress
- Expansion of SVA services to additional provinces
- Information, Education, and Communication (IEC) strategies to reach women

At the community level, interview content varied according to the specific stakeholder group, but open-ended question guides were used. Health center staff commented on service delivery strategies, organization of village health volunteers (VHVs), community outreach, and integration of SVA services into routine services. VHVs were asked to describe their role and responsibilities within the community, involvement in promotion of SVA services, knowledge of the causes and prevention of cervical cancer, and opinions about acceptability of the SVA among villagers. Women were asked about their knowledge of cervical cancer, personal experiences with VIA, perceived barriers to being tested, and ways to motivate others to be tested.

DATA COLLECTION AND ANALYSIS

Interviews were conducted over a three-week period, from 17 June to 7 July 2003. During the day-long visit to each district, district health staffs were interviewed at the district hospital in the morning and interviews were conducted at a district health center in the afternoon. Most interviews were conducted with the assistance of a translator, as the majority of stakeholders were not fluent in English. The interviewer posed questions, which were then translated into Thai or Isaan. The responses were then translated back into English, were recorded by hand and later typed into a word processing program.

Once the transcripts were typed, the qualitative data analysis software package "N6" (QSR, Australia) was used to code and analyze the text. Interview comments were assigned to one or more nodes, created to reflect the discussion topics that are listed above. After all interviews had been coded, text passages were grouped by topic and compared across types of interviewees and districts. Text passages from these groupings and comparisons were used to support the findings.

Quantitative data were collected for all 17 districts participating in the ACE phase of the project. Data collected included:

- Eligible population size,
- Number of VIA tests performed,
- Number of nurses trained, and
- Number of months offering services.

This information was transferred to spreadsheets and was used to calculate the outcome measures.

OUTCOME MEASURES

For the purpose of comparing performance across districts, a set of outcome measures was designed. These are listed in **Table 2**.

TABLE 2. PERFORMANCE OUTCOME MEASURES

OUTCOME MEASURE	NUMERATOR	DENOMINATOR
1. Overall Coverage (%)	Total Number of Women Tested with VIA	Total Number of Women 30–45*
2. Coverage in First 12 Months of Service (%)	Total Number of Women Tested with VIA during first 12 months of service	Total Number of Women 30–45*
3. Coverage in Last 12 Months of Service (%)	Total Number of Women Tested with VIA during past 12 months of service	Total Number of Women 30–45*
4. Ratio of Actual to Expected Coverage	Overall Coverage Achieved to Date	Expected Coverage (based on goal of 80% coverage over 5 years)
5. Number of VIA Tests, by provider	Total Number of Women Tested with VIA	Total Number of Providers
6. Average Number of Monthly VIA Tests, by provider	Total Number of Women Tested with VIA by Provider	Total Number of Months Providing Services**

* Based on estimates from the Department of Provincial Administration (DOPA)

** First month of service is defined as the first month of services in which three or more weeks of services were offered. For all except for SAFE Districts, this was the first month after training.

FINDINGS

The evaluation findings are organized within a supply and demand framework, conceptualized to distinguish issues impacting supply of cervical cancer prevention services from those affecting demand for services. All factors discussed in this section have a bearing on one or more of the outcome measures described previously.

FACTORS AFFECTING SUPPLY OF SERVICES

Supply factors determine the extent to which health systems are able to make SVA services available to women. In examining factors that affect supply, four main areas were considered: service delivery strategies, resources, policy, and advocacy and support.

SERVICE DELIVERY STRATEGIES

At the conclusion of the SAFE Project, during which SVA was introduced in 4 pilot districts, SVA services were implemented in 13 additional districts of Roi Et Province, constituting the ACE Phase. While the service delivery model of the SAFE Project included mobile teams that provided services in satellite health clinics, district hospital directors in the new districts introduced in the ACE phase determined the strategy that would best suit their needs. Consequently, a variety of strategies were employed during ACE. Described in detail below, these include:

- Static services exclusively (i.e. in the district hospital only),
- Active mobile teams (serving the majority of women who live more distal to the district hospital) in addition to static services,
- Mixed mobile and static approach whereby services are hospital-based and also provided at lower level health facilities;
- A "campaign"-based approach whereby mobile services are concentrated within a defined time period.

Many districts have employed more than one strategy, experimenting to find which is most effective in helping them reach their target coverage level.

Static-Exclusive Services

According to one project staff member, static services are more appropriate at the beginning of service delivery when the volume of women at the district hospital is relatively large:

> "For the first 20% of women, the static approach works. After this, you have to extend the effort via a mobile team or a car (for transporting women)."

At the time of the evaluation, 3 of 10 districts visited were offering exclusively static services: Muayvadee, Srisomdet, and Thawachburi. In all 3, transportation to the district hospital from sub-district health centers was offered to women. Muayvadee and Srisomdet both provided a vehicle belonging either to the district hospital or a health center staff member. Thawachburi reimbursed a driver from the village for services rendered.

In the case of Thawachburi, 1200–2000 baht ($30–$50 USD) was budgeted per clinic session for transportation costs. It was acknowledged that this is "more expensive than a mobile clinic," but the hospital director and providers in that district chose this strategy because, among other reasons, they wanted the nurses to stay in the hospital to carry out tasks other than VIA testing. One provider said:

> "If we go to the village, we lose time in which we could being doing other tasks."

Additionally, they wanted to be able to refer women with positive tests or abnormal symptoms more easily. Finally, a provider stated that the director developed the strategy that reimbursed a driver from the village because:

> "The hospital has only one driver—we solved the problem by paying the money to a car driver from the village. The [money paid for transportation] is part of the health promotion budget."

In the other two districts, Srisomdet and Muayvadee, mobile services had been provided in the past. The district health officer in Muayvadee, among the smallest districts in Roi Et Province, said:

> "Last year they sent a team to provide VIA testing at the health center, but this did not work because the target group number (attendance) was very low. We had to change the strategy."

On the same topic, a health center staff member from the same district said:

> "The mobile team came last year during May and June (2002), once a week. The schedule was okay but not practical. At first, there were many women who came but later there were only a few."

As the attempts to provide mobile services were unsuccessful, both districts opted to implement static-exclusive services as their service delivery strategy.

After meeting with providers and health center staff, the Muayvadee team decided that each of the five sub-districts should have an appointed day of the week on which women should be sent to the district hospital. One provider noted that since May 2003:

> "The health centers get women to come to the district hospital in a car we provide. We observed that when the district hospital provides transportation, the numbers increase."

Similarly, the hospital director stated:

> "At the beginning, we did not provide transportation so the number of women was low. When we started to provide transportation, the numbers increased."

Services were offered two days each week at the district hospital in Srisomdet, which had provided mobile services in the past. They created a schedule indicating the days women from each of the eight sub-districts should attend the clinic. A provider said:

> "We told staff at the health center that without the mobile clinic, they have to send women to the district hospital. Women come in the car of the health center staff and they do not have to pay for transportation."

She added that the health center staff members did not object to transporting women in a private vehicle because they "don't want SVA providers coming to their health center. They like this more than the mobile team strategy."

A project staff member also stated:

> "I don't care which strategy is used. I just care about increasing coverage. If the district has reliable transportation, it is okay to have static services."

Clearly if a district team is able to guarantee that a consistent number of women can be tested using a static service approach, it does not have to expend the resources necessary to support mobile teams. However, the data indicate that districts with active mobile teams have been able to achieve higher levels of coverage more quickly than those using a static service approach.

Split Static/Mobile Approach with Intensive Mobile Teams

All mobile team strategies used by the visited districts share some common elements. Mobile teams were organized from the district level. A schedule for health center clinic visits was developed by providers and sent to the sub-districts. The schedule was designed so that at least two nurses participated in each mobile clinic session. A budget was proposed including costs for transportation, materials, per diem allowances, and a vehicle and driver were identified. The above does not consider the efforts required by health center staff to recruit women, which is critical to the success of the mobile strategy and will be discussed in the subsequent section about service demand.

In addition to maintaining static services, the remaining 7 districts included in this evaluation offered some form of mobile services for varying lengths of time during the ACE phase. For the purpose of this evaluation, districts were considered to have "intensive mobile teams" if they provided three or more days of mobile services weekly. Under this definition, districts employing the intensive mobile strategy were: Atsamat, Phanomphrai, Pon Tong, and Suwannaphum.

Atsamat was selected as the focal ACE district because the district hospital director and providers were willing to participate in this intensive effort. Once they agreed to participate in the project they received additional funding to support their activities. One provider from this district said:

> "The number of mobile clinics needed depends on the size of the target group; we had one year to reach as close as possible to 80% of this target size. In one day we can screen a maximum of 40 clients (with two providers) so I calculated that we would need 144 weekdays and 60 Saturdays to reach our target."

Their strategy was to visit sub-districts until 80% coverage in those areas was reached. Once this goal was reached, mobile services were discontinued so that providers could focus on other communities.

One of the four SAFE districts, Phanomphrai, continued to provide mobile clinics in its sub-districts beyond the SAFE project. One provider said:

> "In 2002, we had mobile services all 12 months. We learned that not enough women were coming. This year, we had 6 months of mobile services. We will meet with the district health office to discuss our performance and then will set the schedule again."

This team adapted its strategy to local realities, such as the times of year when women work in the rice fields or outside of the district. Another innovative approach was to pilot intensive mobile clinics in 8 of the 23 health centers. This system was described by one of the providers:

> "After the SAFE phase, VIA testing was provided in every health center. However, in January 2003 the policy to reach 80% coverage was announced, so we changed our strategy. We developed a pilot project with 8 health centers. At the beginning, those health centers were visited more frequently by a mobile clinic than the rest. We expected to have 30 women per session. With a target of 300, we provided the mobile clinic for 10 days. The other 15 are not as active as these 8. If they feel the health center and target group are ready, they ask for SVA services (a mobile clinic)."

The head nurse felt:

> "It is an effective strategy to reach the target group. It helps the village and they save money."

Pon Tong had a mobile strategy similar to that of other districts. Two nurse providers and one nurse aide traveled to health centers 3 days a week. The district hospital director felt that "mobile services are critical." While their mobile clinics appeared to be operating effectively, this was not always the case. According to the head nurse:

> "At first, there was a problem with the mobile clinic. We had a plan but sometimes there were no women because the health center staff and the population were not interested."

This finding underscores the importance of coordination between the provider teams at the district level and the staff at the sub-district level responsible for recruitment.

In the large district of Suwannaphum, where services had been provided for the previous 13 months, the director stated:

> "For much of this year, we have had mobile clinics on weekends. We have about 60–80 women come per day."

Although they have changed their strategy since April 2002 when they first began delivering services, their most recent plan was to provide hospital-based services 2 days per working week and mobile services the remaining 3 days. As explained by a provider:

> "In January 2003 after monitoring statistics, we found some sub-districts had very low and others high coverage so we added two more days for mobile clinics (Saturday and Sunday). We stay in one sub-district continually for 5 days."

This strategy was recently discontinued due to the onset of the harvest season. The director asserted:

> "For the past 3 months, this strategy has been effective. We reached the same number of women in 3 months as in 9 months with normal services."

Mixed Static/Mobile Approach with Minimal Mobile Teams

The remaining districts selected for the evaluation, Jungharn, Kasetwisai, and Selaphum, offered both mobile and static services at the time of the evaluation, but because their mobile teams traveled to the sub-districts 2 or less times per week, they are considered to have "minimal mobile teams." One district hospital director in this group stated:

> "One mobile day per week is enough when health centers operate effectively" (i.e., staff members consistently recruit an adequate number of women).

Jungharn was providing mobile services 2 days per week. According to the district hospital director:

> "There are two models: one is screening in the district hospital and the other is the mobile team. When we started, the service setting was [at] the district hospital. We gave information to the women and had them come here. I evaluated the data and found that coverage was low. Now the mobile team goes out and the numbers have increased."

An explanation for not reaching higher coverage levels comes from the district health officer, who said:

> "Some villages are not covered at the target level because staff are not contacting women directly. At the beginning, the district hospital director did not understand. They only offered static services. Now with mobile services, they are able to test more women. The best strategy is mobile because it is more convenient. There has been a change in the director's support (for this strategy)."

After viewing the most recent coverage statistics during the evaluation, the district hospital director asked providers to increase their mobile schedule from 2 to 3 days per week in order to reach their objective of 30% coverage by the end of 2003. The director was also motivated by comparisons among the districts:

> "When [the provincial health director] shows the coverage for all of the districts, and I see that Jungharn is relatively low… I want to improve."

At the time of the evaluation, providers in the SAFE district of Kasetwisai were offering mobile clinics 3 days per week. However, up to the month prior, they had only one mobile day per week scheduled, thus the district was classified as having "minimal mobile teams." Static services were maintained at the district hospital throughout the week. According to a provider, the change was motivated by a desire to reach 80% coverage more quickly. Another provider explained:

> "In the district hospital, we provide VIA services every day, but most villagers think it is only available on Thursday. On that day, there are many women. On other days, women get referred from the doctor."

This comment suggests that the majority of women received VIA testing opportunistically. One project staff member opined that Selaphum was among the districts with the highest coverage due to a supportive director and dynamic promotion strategies. They had only 2 days of services per week one in the district hospital, and one via a mobile clinic and their service delivery strategy had changed over time. According to a provider:

> "Mobile services began in November 2002. Before this, health center staff picked up women and brought them to the district hospital. There was a special clinic on Saturdays, Tuesdays and Fridays at the district hospital. After this, we started the mobile service."

The district health officer also reported on this change:

> "At first, they sent out a van to pick up women and bring them to the hospital, but now we have mobile services. Since we could not provide services to many women, I suggested the mobile service in order to reach more. This increased the number of women tested."

Approaches used to recruit women are critical, particularly in districts where service days are limited.

Campaigns

To supplement their service delivery methods, 4 districts also launched 2 different types of "campaigns" (Muayvadee, Selaphum, Suwannaphum and Thawachburi). In this context, a campaign is considered to be a defined time frame during which VIA services were increased, in either the mobile or static setting. Some districts organized campaign days, intended to reach a large number of women in a single day. Other district teams referred to any period of heightened activity as "campaign time." For example, one provider reported:

> "Now we are in a campaign period, so there are more women. We want to reach the coverage target and rainy season has begun, so the number of women is low. By the end of 2003, we want to reach 50% coverage."

Many districts took advantage of the time of year between the planting and the harvest (January–June) to increase their mobile efforts or the number of days services were offered (campaign time) because women were more likely to be available.

One district, Selaphum, proved particularly adept at organizing campaign days. Providers submitted a request to the director for 10,000 Baht ($250 USD) to organize a campaign on August 12, the Queen's Birthday. Because this day is widely celebrated in Thailand and is regarded as a day of women, the providers wished to offer VIA as a part of the day's observance. They hoped to test 100 women among the four providers. In the past, they had held campaigns on that day, Valentine's Day, and Saturdays. The director said:

> "In August and September 2002, there was a 'campaign' on Saturdays in the three sub-districts close by. There was a lot of effort expended to reach the women. We had 100–150 women each time."

They concluded, "the campaign was effective in the sub-districts."

Data Monitoring and the Service Delivery Approach

Staff members in several districts discussed ways in which coverage statistics affected their service delivery strategy. All districts have implemented a number of different approaches since first offering services, largely in response to assessments of their own performance.

Some district team members focus on overall coverage data. For example, one director said:

> "When I saw our data and coverage was low I asked what happened and changed our strategy."

Another said:

> "It is a learning process. I monitor coverage percentage. If it is not close to the target, we modify the strategy."

In other cases, providers focus on coverage in individual sub-districts when deciding where to plan the mobile clinics.

Most district teams planned their strategy based on the level of coverage they wanted to achieve in a given time frame. While the overall target was to reach 80% coverage five years after initiating services, some aimed to meet it earlier and others set incremental goals. For example, one district has laid a clear plan for the next 4 years. By the end of year two, they have planned to reach 50% coverage, 60% by year three, 75% in year four, and finally 80% coverage in year five. Explaining the rationale for this plan, the director of the district said:

> "If we try to achieve the target in one year, the providers would have too much work. The target is to screen 2,000 women each year. Then, we will be on a cycle for 5-year follow up. It reduces the workload for the nurses. This approach is also for quality assurance, because they may miss cases if they test too many women."

Effect of Service Delivery Strategies on Productivity

To measure the impact of the 3 main service delivery strategies on overall provider productivity, the average number of tests performed monthly were calculated for the evaluated districts (10) using each strategy, as shown in **Table 3**. Clearly, a higher number of mobile days led to a higher number of VIA tests performed.

TABLE 3. AVERAGE NUMBER OF MONTHLY TESTS, BY SERVICE STRATEGY

STRATEGY	AVERAGE NUMBER OF MONTHLY TESTS*
Static-Exclusive	63
Mixed with minimal mobile teams	105
Mixed with intensive mobile teams	226

**Based on number of VIA tests reported by August 2003.*

Another way to measure the impact of various strategies is to compare the average coverage achieved by districts based on the strategy they employ, as shown in **Table 4**. While there is little difference in average coverage between districts providing static services exclusively and those that also offer minimal mobile services, it is evident that a strategy using intensive mobile teams leads to higher overall coverage.

TABLE 4. AVERAGE DISTRICT COVERAGE, BY SERVICE STRATEGY

STRATEGY	AVERAGE OVERALL COVERAGE*
Static-Exclusive	21.73%
Mixed with minimal mobile teams	22.46%
Mixed with intensive mobile teams	39.57%

**Coverage is calculated using DOPA data for eligible population and the August 2003 progress report for total women tested.*

Calculating Coverage: Data Sources

To calculate absolute coverage, which is an important measure of a district's progress towards the goal of testing 80% of the eligible population, an accurate count of the number of women tested (numerator) and a the total eligible population (denominator) are necessary. To calculate the total number of women tested, providers kept a log of their clients, which was then converted into monthly reports sent to provincial officials. Because this was the only source for this information, it was undisputed and considered to be reasonably accurate. However, determining the actual eligible population was more complex because several different sources exist in Thailand.

The three sources that were consulted for determining the eligible population size are: National Statistical Office census data, Department of Provincial Administration (DOPA) data, and local population surveys (Family Folder) conducted by community health workers. The Family Folder was not applied consistently across districts, and resulted in a smaller number of eligible women because it excluded those who were absent from a district for more than one year. Of the other two sources, the Roi Et Provincial Health Office preferred to employ DOPA data because it is used for health administration and planning purposes. Thus, data from the DOPA were used when calculating outcome measures in order to ensure consistency with project counterparts.

RESOURCES

A district's ability to provide SVA services was affected by the availability of and accessibility to resources. Within the context of this evaluation, the most critical resources are labor (providers),

money, and equipment. In this section, each of these resources will be described and impact on overall performance will be discussed.

Providers

All districts in Roi Et province had between 3 and 7 trained nurse providers, responsible for delivering SVA services. Providers were trained in one of 4 clinical courses between December 1999 and April 2002 (December 1999, August 2001, December 2001, and April 2002) [3]. For those districts with more than 3 trained providers, the first 2 or 3 nurses attended an early training session and the remaining nurses were trained in a later group. Provider performance, as measured by the average number of tests performed monthly, was affected by factors such as selection criteria, training and supervision, and job incentives, among others.

Selection Process

When districts were invited to train nurses as SVA providers, directors and head nurses usually managed the selection process. All providers were required to hold registered nurse licensure. Some head nurses stated that they asked for volunteers from their nursing staff. One said:

> "To choose providers, I asked for volunteers because if I selected them I thought they would be less motivated or successful. They all volunteered."

While SVA services were perceived to fall under the jurisdiction of the health promotion division, nurses were also recruited from other divisions: operating room (OR), inpatient department (IPD), outpatient department (OPD), labor room (LR), and emergency room (ER). One head nurse stated that she considered the responsibilities of each unit and preferred to send IPD nurses over the others because "the workload in the OPD is too heavy."

Another aspect of selection was nurse work ethic. A director stated that one "must select an active and quality VIA team." Another director expressed a similar sentiment when he said "we sent the active nurses." Others added:

> "We selected the nurse providers using the criteria of responsibility and seniority and having good relationships," and, "They should be active and responsible. It is a reward to be selected for this initiative."

Training

The training course has evolved since the SAFE demonstration project was implemented. During the SAFE project, JHPIEGO staff or consultants conducted all training courses. Once that project ended and services were expanded to other districts in the ACE phase, local staff was trained to conduct both training of nurses and training of trainers courses. To develop and sustain training capacity, the several past training courses were conducted entirely by Thai counterparts. While not yet implemented, it is a long-term objective of the project for VIA and cryotherapy training to be provided in nursing schools. On this topic, a national policymaker said:

[3] The December 1999 date corresponds to the training of providers for the SAFE project, the other three training dates correspond to the training completed for the ACE phase of the project.

> "The concept of cervical screening should be part of [pre-service] training. Only those nurses who will use the skill would be trained due to a shortage of trainers. These nurses in turn should become trainers."

While informants were generally not asked about the quality of the training sessions, a physician who offered his opinion said:

> "The clinical practice is very good. They trained at Khon Kaen Hospital and had one month of practice. Our team is better than I am in VIA. In Thailand, we will use nurses more (to provide VIA) because of a doctor shortage."

One provider observed that some changes had occurred in the training over time after speaking with her colleagues:

> "There was a difference between the first and the second [training course]. The second was more detailed in terms of clinical practice."

Since being trained, very few providers have left their originating districts, ensuring continuity of services and consistency within the team. In one case, providers in two different districts changed places but both resumed responsibilities for SVA services in their new districts, which indicates that skills in SVA service provision are applicable to any setting where the service is offered.

Number of Providers

In the context of service supply, an important factor contributing performance is the number of providers because more active providers facilitate more VIA tests. Several district-level staff members commented that "there are not enough providers" to satisfy client demand and meet the 80% coverage target. One district health officer suggested:

> "It would be good to have health center personnel trained."

More broadly speaking, a provincial health officer said:

> "The problem … is a lack of trainers. We need a lot of trainers to increase the number of providers."

National stakeholders and project staff shared this concern, noting that while training is critical, a national training center does not currently exist. One stakeholder suggested that it is the responsibility of the MOPH to provide training to nurses in the future.

Provider Confidence

Provider confidence was considered a factor that affected supply of services because lower confidence was thought to result in fewer tests performed. After training, provider confidence was bolstered by clinical supervision visits, when experienced staff visit the recently trained providers to assess their VIA and cryotherapy skills. Additionally, district hospital directors attended the final three days of provider training so that they could serve as consultants to the nurses when difficult cases were encountered. Despite these efforts, nurse confidence may

decrease over time if the volume of women is low and opportunities to practice their skills are limited. In Muayvadee, providers expressed that they were seeing predominantly negative cases—which they attributed to expired vinegar. So, they asked women to return for a second test in one to five years. After consultation with a supervisor, it was concluded that these results reflected a lack of self-confidence to diagnose an abnormal VIA. In that same district, providers had performed cryotherapy only three times in 13 –months with 306 women tested. This resulted in a VIA-positive rate of less than 1% in Muayvadee.

A provincial health official suggested that variation in provider confidence is reflected by differing cryotherapy treatment rates across districts, which range from 0.18% to 9.4% of the total number of women tested by VIA. He said:

> "Even after 10 days of training, [providers] may not be confident. Self-confidence is important. The rate of cryotherapy treatment in [one district] is lower because they can easily refer to the provincial hospital."

To address this, he suggested that a meeting be organized to review the issue of differing cryotherapy rates.

A lack of provider confidence could result in decreased coverage if nurses are less enthusiastic about promoting VIA testing and/or if women develop a negative perception of the VIA test based on their interaction with a hesitant nurse. During this evaluation, however, the impact of confidence on service delivery was not systematically measured.

Supervision

To assess the competence of nurse providers, an extensive supervision plan was established. After completing the training course and returning to their districts, nurses were supervised once every two weeks for the first two months of service provision, once every four weeks for the following four months, and once every eight weeks for the final six months of the first year. After the first year of providing service, supervision visits occurred once every two months. Experienced nurse providers, primarily those who participated in the SAFE project, served as clinical supervisors. Additionally, provincial and national supervisor teams consisting of project staff and MOPH staff periodically visited the providers. Most providers mentioned that they had received support in the form of supervisory visits, which increased their confidence and competence.

Division of Labor

During training, to improve efficiency and quality of services, providers were advised to work in teams of two—one providing health education and completing any associated paperwork and the other performing VIA and, when necessary, cryotherapy. Many providers reported that they organized their work in this fashion, often switching roles during the clinic session. One provider explained:

> "We have one room for VIA services, so when the group comes, one takes the clinical history and gives group education. We take turns testing and can discuss any problems."

In one district, 3 nurse providers work together in this manner:

> "We have two beds for exams, and we limit the number of women tested to 30. We work as a team. Two do the exam and one provides counseling and health education and then we rotate positions. We give a health education presentation to the women as a group. After testing, if we find any aceto-white lesions, we do individual counseling before offering cryotherapy."

Clearly, there were several ways in which tasks were divided amongst the providers. If providers worked in teams, then *two* providers were working for every *one* woman tested in a district (one provider counseled and the other performed the VIA test). In determining the outcomes relating to provider productivity, this division of labor had to be considered.

Workload

Because nurse providers are assigned to various units within their district hospitals, they had to be released from some routine duties to perform VIA and cryotherapy. According to a provincial health official:

> "Providers do VIA testing as well as their other jobs as OR scrub nurse, LR nurse, or ER nurse. They make their own schedule for providing services."

Their job as a VIA provider includes clinical service as well as some administrative tasks: budgeting, service scheduling, mobile team rotation, coordinating with health centers, and promoting activities. Almost all directors, providers, and head nurses interviewed said that the cervical cancer prevention initiative created an additional workload for nurses. Some expressed that this has produced a burden for the hospital because of nurse shortages and budgetary limitations.

Specifically, nurses had to be replaced when providing SVA services, particularly if they were part of a mobile team. In reference to this issue, one director said:

> "Routine nursing work is done by reserve nurses and we have to pay the reserve nurse. It is not a budgetary problem, but it is a limitation regarding nursing personnel. There is a heavy nurse workload. They work overtime."

Nurses also had responsibilities that took precedence over SVA services, such as preventing dengue outbreaks or complying with other provincial health mandates. Nursing staff is limited in the district hospitals, so providers are pulled in many directions and asked to complete a wide array of tasks during their workday.

Additionally, nurses had to be compensated for time away from the district hospital. In most districts, they received a compensation of approximately 108 baht ($2.50 USD) for each day of mobile services. As noted above, reserve nurses who replaced providers on their unit also had to be compensated. One director addressed this by providing funds for overtime:

> "There is an increased workload but we manage. If the demand increases, the head nurse also does overtime. If the cases are many, I can calculate the workload and consider nurses for overtime."

In many districts, providers were not able to participate with mobile teams because of specific roles they held in a unit of the district hospital. For example, in a district with 4 providers:

> "Two [providers] do the mobile clinic because two nurses work in the OR. The OR nurses never participate in the mobile clinic."

In another district:

> "The nurse from the ER always participates on the mobile team. Another always works on Fridays. There is one who never is part of the mobile team because she runs a postpartum clinic on Tuesdays."

Because some providers were limited in their ability to perform VIA due to time and schedule constraints, the number of women who could be tested within a given time frame was reduced. However, despite the fact that the SVA initiative created additional work for nurses, most district-level staff perceived SVA to be part of their routine services and integrated it as they would any other new health program.

Internal Motivation/External Incentives

Given the amount of work required to implement SVA services in a district, it was important that nurses remained motivated. Many expressed satisfaction with the intrinsic benefits of the service, in that it is "the right thing to do for the community," according to one provider. Others offered that the initiative is a part of their responsibilities and thus they were willing to dedicate themselves to it. Many received additional compensation for overtime and/or participating in mobile teams. In one district, the director offered a bonus for reaching 60% coverage by the end of 2003. Finally, some nurses mentioned the expansion of the nursing role in Thailand as a motivating factor. They considered the initiative to be an opportunity for professional growth for them individually and nursing in general. Overall, high morale was thought to motivate providers, which contributed to more intensive recruitment efforts.

Providers as Trainers and Supervisors

After completing the VIA and cryotherapy and clinical training skills (CTS) courses, and engaging in clinical practice to the point of proficiency, providers may become eligible to serve as trainers and/or supervisors. Those assuming roles of trainers and/or supervisors were selected based on their work performance and commitment to the SVA program objectives. Also considered were their usual work responsibilities, to ensure they would not be overburdened. At a VIA and cryotherapy course held in July 2003 for nurses from 6 additional Northeast provinces, several providers from the SAFE districts were asked to participate as trainers. This training was requested by the Medical Director of Region 7[4] as part of expansion of the SVA in Thailand.

According to key project staff, positive effects of this arrangement included: providers who became trainers were recognized for their strong performance, the providers received a professional growth opportunity, and when they returned to their home districts, they could

[4] Within the Ministry of Public Health system, there is management at regional as well as provincial levels. The Director of Region 7 requested that the SVA be implemented in the following provinces of the Northeast region of Thailand: Roi Et, Yasothorn, Ubol Ratchathani, Amnat Charoen, Mukdaharn, Srisaket, and Nakorn Panom.

motivate others on their provider teams. Potentially negative aspects include: others within the provider team might resent the new role the provider has as a trainer, a heavier workload could be created for colleagues when the trainers leaves their hospital duties for 10 day training sessions, total number of VIA tests may decrease, the provider's daily wages decrease while serving as a trainer, and when they returns to the district, other members of the team may shift more SVA responsibilities to them. Project staff expressed the concern that when providers leave their districts to serve as trainers, optimal productivity decreases. Ultimately, this is reflected in lower coverage relative to districts that do not send trainers.

Occupational Hazards

Unintended effects of implementing SVA services with a target objective of 80% coverage in 5 years include provider fatigue and physical irritation from exposure to vinegar. A provincial officer, in the context of service quality, expressed concerns about fatigue:

> "I want to slow down, because providers might get tired, and quality could be reduced."

When asked about reaching 80% coverage in one year in Atsamat, one provider said:

> "I have been very worried about this, because it has been so much work…we only get Sundays off to be with our family."

To prevent provider fatigue, some districts are advancing towards their coverage target incrementally. As a result, coverage was achieved more slowly than might be expected in the absence of the fatigue factor.

Nurses in two districts mentioned that they experience irritation of the eyes and nose from performing VIA. They attributed this to the vinegar and suspect poor ventilation of the examination room. It was unclear whether other providers shared this experience. This occurrence is a concern because it could lead to a reduction in the number of tests that could comfortably be performed.

Budget

With the expansion of SVA services from 4 pilot SAFE districts to all 17 districts in Roi Et Province, external financial support was limited to assistance with supervision, training, and information systems in order to promote self-sufficiency. The only exception was the focal district, Atsamat, which received additional budgetary support.

The recent health care reform in Thailand shifted budget management from the provincial to the district level. The management shift resulted in district hospital directors determining how health funds are allocated within their districts and the amount of funding dedicated to provision of SVA services. Among factors that determine supply of services, a district's budget may be among the most important.

Health Care Reform

In an effort to provide universal health coverage for all its citizens, the Thai government introduced a health care reform, also referred to as the "30 Baht Policy" (30 baht = US$0.75), in

mid-2001 to benefit 45 million of the 61 million Thai people who were not already covered by existing health insurance schemes. Operating on a capitation model, the government allocates 1202 Baht per person per year and divides the funds into several categories: 150 Baht for high cost, emergency, and accident care, 574 Baht for outpatient care, 303 Baht for in-patient care, and 175 Baht for prevention and promotion programs. A percentage of the total is reserved for administration and contingency funds. After removing 150 Baht per person for high cost, emergency, and accident care, the remaining 1052 Baht per person are sent to contracting units for primary care (CUPs) where funds are managed. District hospitals and health centers are considered CUPs.

Eligible persons receive a health card that they must use when seeking services. For each clinic visit, people are assessed a co-pay of 30 Baht (US$ 0.75). These funds are then revenue for the district hospital where services are provided. Clients who are older than 65, younger than 6 or in the village health volunteer program do not contribute the co-pay. Also, there are services that are free-of-charge because they are included in the promotion and prevention budget of 175 Baht per person. These include such activities as family planning, vaccines, and cervical cancer prevention services—whether the test is the Pap smear or VIA. This means that under this policy, all women can get a VIA test free of charge.

The effect of the health care reform was significant for the SVA initiative, and was repeatedly discussed by district hospital directors and provincial-level stakeholders. For example, a key provincial health officer cited this reform as the reason for his support of the SVA initiative:

> "I am supportive of this because of the 30 Baht policy. If women in a district get cancer, they must be referred to a hospital that costs more. It costs less to pay for prevention and promotion. The new information system project will help us know how many cases of cancer we have in Roi Et. It may be more expensive in the beginning (to provide testing for and treatment of precancer), but over time costs will be reduced. Start-up costs money, but after buying one cryotherapy unit, with maintenance it can be used for 5–10 years. Every district hospital now has 2 cryotherapy units. I explain to the district hospital directors that we save money through prevention efforts. In the first year, we will pay more because we will find more cases of cancer, but with VIA we have early detection (of lesions)."

Overall, the health care reform seems to have had a positive effect on districts' ability to finance and manage services. Some directors understood the connection between offering preventive care and reduced costs in the long-term. This is important because districts now must bear all health costs for their citizens, whether care is received at the district level or in tertiary care centers. One director said:

> "We use the curative budget of 1 million Baht for OPD and IPD. In the future, we think this prevention initiative will reduce the cost associated with cancers. With this system, we pay for any treatment of all people in our district. In the past, if someone went to Bangkok for treatment, they had to pay. Now the government gives each district 1,200 Baht per head. This includes our salary and everything. It also includes prevention and promotion activities."

Most directors stated that they could manage the SVA initiative "under the 30 Baht policy," mainly by using the promotion and prevention budget to fund equipment, materials, and mobile units. The only district for which this was not the case was Muayvadee:

> "It is a difficult situation for this district hospital. With the 30 Baht program, our budget is quite small with only 20,000 people in the district. There is a lot of work to do with this small amount of money, and a small staff."

While the Health Care Reform seems to have facilitated the expansion of cervical cancer prevention services in Roi Et Province, numerous activities compete for limited funds within the prevention and promotion budget. As long as the SVA initiative, linked to 80% coverage, continues to be prioritized by national, provincial, and district officials, lack of funding should not be an issue.

Perception of Expense

To explore the cost of the SVA service compared to other health programs, district hospital directors were asked to give an estimate of the monthly cost of offering SVA services. Most were unable to give a specific figure, but all reported that it was a low-cost activity. One director said:

> "For VIA testing, we do not spend much money—only for gasoline. We pay the per diem for the nurses on the mobile team. The budget is not a problem."

Another said that it is one of the least expensive health initiatives to run, and a few said that the cost is "the same as the pap smear." One provincial official offered that:

> "The VIA technique should cost less than the Pap smear. Districts do not have mobile teams for the Pap smear. Even with the mobile team, the cost is lower because vinegar and the procedure instruments are cheap. The Pap smear must be sent to a pathologist in Bangkok."

Implementation expenses could be categorized into three areas: human resources (providers), mobile clinics, and equipment and materials.

Provider Compensation

Several directors thought the largest expense in offering SVA services was labor. For all districts where mobile teams were active, most providers were compensated at least 108 Baht per day (some received 120 Baht). The provincial health office standardized this rate for the province as a whole to avoid inter-district discrepancies. Regardless, in one district at the time of evaluation, providers were receiving 120 Baht per diem and 500 Baht for Saturdays. In another district, weekend days worked were compensated at an hourly rate. According to a provider:

> "On weekend days, we calculate based on the workload, so it is 60–80 Baht per hour per person for 6 hours. This comes to between 360 and 480 Baht, but there are stipulations. To reimburse for 6 hours work, there should be at least 45 women tested. If fewer than 45 women get tested, providers are compensated for only 3 hours of work. It depends on the health center officer."

Even with per diem expenses, the hospital director of this district said:

> "Per woman, [VIA] is very low cost. It is very cost-effective."

Mobile Clinics

In addition to per diem, mobile clinics involve costs for vehicles, gasoline, drivers, assistants, health center staff incentives, and materials. In some districts, conflicts arose between providers and health center staff over the issue of payment. One district resolved this by providing 120 Baht per mobile clinic to the health center staff, but this was not standard practice throughout the province. No difficulties were mentioned in acquiring and supporting the other elements of the mobile clinics.

Equipment and Materials

Availability of equipment and materials partially determines the ability of providers to do their jobs effectively. The materials required to implement SVA services are minimal: a cryotherapy unit, carbon dioxide tanks, vinegar, a light source, specula, cotton, gloves, gowns, examination beds, and disinfectants. Most directors and providers at the district level expressed that supplies are obtained with relative ease from the supply center at the district hospital. According to one provider:

> "I get supplies from the hospital. They give me one dozen bottles of vinegar each month. I just tell the supply center what I need."

The major issues confronted by the teams involved acquiring and maintaining the cryotherapy unit and carbon dioxide tanks. At the beginning of the project, at least one cryotherapy unit had to be purchased by each district hospital. According to a provincial health official:

> "The cryotherapy unit is expensive. It cost 40,000 Baht ($1,000 USD) when purchased through JHPIEGO and 200,000 Baht ($5,000 USD) through a Thai company."

Another official said:

> "Resources are not a problem except for the cryotherapy unit at the start of service implementation. Maintenance costs are low."

However, maintenance of the cryotherapy unit had become a challenge in at least two districts, where providers reported broken equipment. One provider said:

> "We have two cryotherapy units, but one has been broken since May 27, 2003. We take the cryotherapy unit for mobile services. One nurse always stays at the hospital and if she identifies a positive case, we make an appointment for the woman to wait until the mobile team returns with the cryotherapy unit."

A provider in another district explained the implications of a broken unit:

> "We have had some problems. The cryotherapy machine is damaged so we have to borrow one from another hospital on different days. We have not been able to use the

unit since the beginning and provincial officials have not been able to solve this problem. We cannot provide continued services with a damaged machine. I don't know if we can buy a second machine."

At the time of the evaluation, it was quite difficult to have a unit repaired. To resolve this problem, a workshop was held in September 2003 to train technicians in the repair and maintenance of cryotherapy units.

Some districts had yet to replace their carbon dioxide tanks, as replacement was dependent on the number of cryotherapy procedures performed over time. Another districts ran into problems refilling the carbon dioxide tanks. One provider reported:

"There are no carbon dioxide refills available at the provincial health office. We have to buy them from Bangkok. We borrowed a tank from [another] district two times."

No other district teams reported problems refilling their carbon dioxide tanks.

POLICY

Policies have had a considerable affect on the provision of VIA and cryotherapy services in Roi Et province, particularly the way in which policy is communicated and understood at each administrative level. Most stakeholders interviewed perceived that the SVA initiative was endorsed by the MOPH, and therefore based their strategies to prevent cervical cancer upon this perception.

National Level Policy

Stakeholders at the national and provincial levels were aware that the Permanent Secretary of the MOPH issued a statement supporting the SVA with VIA and cryotherapy. A project staff member summarized his position as follows:

"[The Permanent Secretary's] decision is, where pap smears can be performed, they should go ahead. For places that can't do a standardized pap smear, VIA should be provided versus nothing. The decision (of what test to offer) depended on the MOPH before, but now the decision rests with district officials."

In other words, while VIA is not the national standard for cervical cancer prevention testing, any provincial director who would like to use this method in order to reach coverage targets, can now do so. Another stakeholder explained the effect of this decision:

"The Permanent Secretary gave his overall support. In one district this had an important effect. Before [this] Permanent Secretary, the policy on VIA was unclear. The District Hospital Director [in one district] did not want to offer this test. Then, [the Permanent Secretary] announced publicly that he supports VIA (changing the attitude of the director)."

There was support for VIA-based SVA services within the Department of Health, a division within the MOPH that is responsible for health promotion and reproductive health services. The National Cancer Institute (NCI), which supports Pap-based services, is housed in the

Department of Medical Services, also within the MOPH. The Department of Medical Services was reluctant to endorse VIA, maintaining that the Pap smear should be the standard for cervical cancer prevention screening. The NCI has been working to strengthen the national Pap smear program. The lack of a consistent statement from the two arms of the MOPH has delayed public recognition of the value of the SVA initiative. A provincial official emphasized the importance of a clear MOPH directive:

> "If the national policy were clear, then implementation of services would be easy. It is very important to have national support. We need the Minister of Public Health to endorse the initiative but have received differing messages from different departments."

A supportive statement from the MOPH was shared with lower administrative levels and partially drives current implementation efforts.

Provincial Level Policy

One project staff member said:

> "The most important opinion leaders are the Chief Provincial Medical Officers."

This opinion reflects the fact that these individuals now have the authority to determine which cervical cancer prevention strategy should be implemented in their provinces. While their decisions must reflect national policies, there is some degree of autonomy in how provinces implement their programs. In Roi Et Province, directors of the district hospitals were aware that it is provincial policy to achieve 80% coverage of women ages 30–45 with VIA within 5 years (the national objective is testing all women every 5 years), and that VIA services have been included within the district's performance evaluation framework. The Chief Provincial Medical Officer, who discussed each district's VIA coverage progress at monthly meetings, informed directors of this decision.

District Level Policy

Stakeholders at the district level expressed their understanding and acceptance of the province's policy to offer VIA and cryotherapy services to women in their communities. One district official asserted:

> "If it is provincial policy, then there is no problem. Operations are managed by the district health committee."

District health committees set policies to mirror provincial mandates. The director of Suwannaphum said:

> "We established a policy with our public health committee in May 2002. We said this is the policy for our district."

The same director was initially reluctant to adopt the policy to provide VIA-based SVA services because he has a cytologist in his laboratory and was able to process around 1000 pap smears annually for a population of women in the eligible age group (30–45) of over 13,000. He explained:

> "Last year, the [provincial director] supported a campaign saying we must screen 80% of the population 30–45 years of age for cervical cancer. We could not use the Pap smear (to achieve this coverage goal). We accepted the idea of using VIA and sent nurses to the training course. Once we accepted the coverage policy, we accepted VIA as the test."

A district health officer (DHO) indicated the effect of the (cervical cancer prevention) policy on health priorities in his area:

> "Cervical cancer screening is not that important in terms of our overall health program but the VIA project changed that. We became interested and now see the importance of VIA."

National and provincial policies directly relate to service delivery decisions and, in turn, coverage. Differences in people's understanding or acceptance of policy statements may exist, but this was not easily apparent from the evaluation interviews. While the direct impact of policy on differing coverage rates could not be measured, it was strongly suggested that the absence of such policy statements would result in much lower coverage with the SVA.

ADVOCACY AND SUPPORT

Over the past 3 years during which VIA and cryotherapy services have been offered in Roi Et Province, considerable support has been garnered for the SVA initiative as a result of advocacy efforts. This was evidenced by opinions voiced during interviews about perceptions of the importance of cervical cancer as a health issue in Thailand and the willingness of officials at national, provincial, and district levels to allocate resources towards expanding SVA-based services. Advocacy affects coverage by increasing a given district team's commitment to providing SVA services.

Perceptions of the Importance of Cervical Cancer

National policymakers and district hospital directors were asked to rank the importance of cervical cancer as a health issue in their area (be it a district or Thailand as a whole), on a scale of 1–4, with 1 being not at all important and 4 being very important. Most responses given were between 2 and 4; most interviewees gave a rank of 3. A national ministry official said:

> "I ranked this a 4, because the incidence of cervical cancer in Thailand in 2002 was high. Cancer is the first cause of death and cervical cancer is most common cancer in women. It is the first priority for health departments…prevention of cancer is a top priority for the government."

A provincial official gave this question a rank of 3:

> "After all the data had been analyzed, we found there are other, more severe diseases. The bigger problem in this area is liver cancer among men and women. At the national level, cervical cancer is the biggest problem among women."

Others at the provincial and district levels also considered cervical cancer to be somewhat, but not very, important. A district hospital director said:

> "Cervical cancer is a population health concern. I give it a middle-to-high ranking because I work in a primary care setting. I don't see advanced cases of cancer. The number of cases I see is an underestimate."

Another director, from a small district, was the only to give cervical cancer a low ranking:

> "It is a low priority because the number of patients is quite small."

Despite competing priorities, there was general consensus that cervical cancer is an important health issue in Thailand that must be addressed through prevention. However, there are competing priorities requiring some of the limited resources available for health services.

Project Advocacy Effort

Extensive efforts have been made on the part of project staff and others to gain the support of influential officials through such means as dissemination of results, invitations to key meetings, and study tours to the project site. The project director and other key project staff members were mentioned repeatedly when interviewees were asked how they learned of, or felt about, the project. Given the demanding schedules of project staff, many of whom hold appointments at universities and hospitals, maintain private clinics, and/or are geographically distanced from Roi Et province, their role in increasing levels of support for the project and for nurses providing VIA and cryotherapy using the SVA has been impressive. The climate of general acceptance of this initiative greatly enhances the likelihood of success, which could not be replicated in other settings without similar sustained and effective advocacy efforts.

National Level Advocacy and Support

Policymakers and officials at the national level confirmed the widespread support for the SVA using VIA and cryotherapy. The most supportive spokesperson was thought to be the Permanent Secretary of the MOPH. However, there did not seem to be consensus or a unifying message from the Department of Health and the Department of Medical Services (particularly the NCI) regarding the role or appropriateness of VIA as a screening option for cervical cancer prevention. It was suggested by one interviewee that:

> "Key people should come to see the program so they will understand."

Another challenge is the lack of recognition by Thailand's Medical Council of VIA as an optional method. One policymaker offered the opinion that:

> "The Medical Council has been reluctant to support nurses performing VIA because this skill overlaps with the job responsibilities of the doctors."

A representative from The Nursing Council expressed support for VIA and intends to incorporate this skill in the pre-service nursing curriculum, but some interviewees stressed that support of the Medical Council is most critical. Project staff was aware of the importance of the support of both the medical and nursing professional institutions and they continue to advocate with members of both councils. One technical advisory board member felt that the recent

publication of the results of the SAFE Project in a respected medical journal[5] would help to convince representatives of the Medical Council.

Provincial Level Advocacy and Support

The most important factor related to VIA coverage in Roi Et Province was the support of provincial officials regarding the use of SVA as an approach to achieve cervical cancer prevention coverage targets. As long as officials at the national level agreed that it was acceptable for the province to test an alternative approach, district level health staff took their cues from Roi Et provincial officials. However, one project staff member felt that coverage progress in Roi Et was hindered somewhat by the change in provincial administration part way through the project.

Support at the provincial level was demonstrated by the approval and allocation of resources by the Chief Provincial Medical Director. He has been only peripherally involved in project implementation decisions, and has delegated responsibilities to the deputy director who has been more directly involved in developing Roi Et as a training site to facilitate the expansion of VIA and cryotherapy by neighboring provinces. In addition to coordinating SVA services in Roi Et and managing a district hospital, the deputy director responded to the request from the Medical Director of Region 7 to play a role in SVA expansion.

An indicator of the province's commitment is the frequency with which VIA coverage rates are discussed at monthly meetings between the provincial and district directors. While this frequency was not quantified, some directors indicated that at some meetings the director shows graphs comparing progress in all of the districts and encourages those showing lower coverage to increase their efforts. Some district directors share this information with their providers to motivate the team. In Phanomphrai, for instance, providers proudly announced that theirs was the second highest coverage in the province, after Atsamat.

Given Thailand's system of decentralized health decision-making and planning, the positive findings of the SAFE Project and the recent statement by the Permanent Secretary supporting the province's right to choose which approach to use to achieve coverage targets, officials from other provinces now can incorporate SVA services knowing that they are operating within nationally accepted standards. During interviews with people at all government levels, it was apparent that confidence and willingness to roll out SVA services had increased knowing that the national government had explicitly expressed its support of the alternative approach.

District Level Advocacy and Support

From the perspective of service providers, it was critically important that district hospital directors be supportive of the SVA initiative. No specific measure was used to express degree of support, but all directors demonstrated their support of SVA services in one or more of the following ways: allocating financial and material resources to the program, holding regular meetings with providers, tracking progress towards coverage goals, engaging the district health officers, or offering per diem and/or overtime pay. Certain directors were perceived to be

[5] Royal Thai College of Obstetricians and Gynecologists (RTCOG)/JHPIEGO Cervical Cancer Prevention Group (2003). Safety, acceptability, and feasibility of a single-visit approach to cervical-cancer prevention in rural Thailand: a demonstration project. The Lancet. 8 March 2003: 361(9360): 814-20.

particularly supportive and others were felt to be more reluctant to embrace an alternative to cytology-based services. Many agreed that the role of the district hospital director contributes greatly to overall project success and that more effort should be invested in ensuring their support. A project staff member said:

> "We have done much [to motivate] service providers, but not enough to convince the [district hospital director] responsible for the project."

To address this, hospital directors/supervising doctors were invited to participate in the last three days of the provider training course. Regarding this recent change one trainer said:

> "It is still not enough time to fully motivate the director."

Another strategy was to invite trainers to speak with hospital staff after the nurses completed training and returned to their districts.

Other than motivation, a factor affecting the level of directors' support was health program prioritization. According to a project staff member:

> "The question is whether the district hospital director considers [cervical cancer prevention using] VIA a priority and communicates this to the staff. Since the control of dengue is a big problem in the area, they may focus on this."

When asked about the pressing health issues in their districts, directors rarely mentioned cervical cancer. Their responses included: infectious diseases, dengue hemorrhagic fever, liver cancer, diarrhea, respiratory tract infections, heart disease, and accidents. Because directors must respond to their supervisors regarding progress on indicators of all their health programs, and manage the expectations of numerous stakeholders, it follows that if a large emphasis is placed on cervical cancer prevention throughout the province, directors will respond by investing more effort towards this health problem. In the words of one director:

> "If the district hospital director agrees with the initiative and has enough supplies and transportation, it is simple."

Another individual whose support contributed to overall success at the district level is the DHO. Because this individual is responsible for oversight of the health centers throughout the district, s/he has the potential to strongly influence the delivery of SVA services at the sub-district level. One DHO said:

> "We inform the health center personnel about the policy and the project and ask them to survey the number in the target group and report back. Then we meet with the district hospital to develop an operation plan."

As a participant of the district health committee, the DHO plays a role in establishing district policy and intra-district cooperation. In terms of support, a project staff member said:

> "Personnel at the health center have a lot of health responsibilities in the community, so it depends on which health issue is prioritized by the district health officer."

Through interviews with DHOs, it was apparent their role was to translate policy into action. Therefore, their effect on the efforts of health center staff related more to the level of authority they are perceived to have over health centers and the magnitude and frequency of their monitoring and supervision activities. A financial incentive for health program performance was offered to motivate health center staff. Performance evaluations now include cervical cancer prevention coverage targets; this is partially assessed by the DHO during supervision visits.

In summary, the supply of cervical cancer prevention services is impacted first at the national level by advocacy efforts to inform and change policy. Once these policies are instated, provincial officials communicate program mandates to officials at the district level who then translate these into action with the assistance of their staff. Because of the autonomy of district hospital directors, resulting from the 30 baht health policy, they determine the service delivery strategy and extent of material and financial support for the program based on the provincial mandate and available resources. Psychological and emotional support from district hospital directors is critical, and is perceived by nurse providers when directors offer incentives, approve budgets and service plans, and inquire about progress in regular meetings. If providers are supported, their motivation level increases and they are able to achieve strong performance as measured by outcomes such as coverage and productivity.

FACTORS AFFECTING DEMAND FOR SERVICES

To fully understand district variation in VIA coverage levels, demand from clients for the SVA must be examined. Various approaches are used to supply services to clients, but without participation from the target population very little progress can be made towards coverage goals. Thus, provider teams and district staff employ a number of strategies to inform and educate women in their catchment areas about the importance and availability of services. The factors contributing to demand for services are:

- Client recruitment and outreach,
- Knowledge and attitudes about VIA and cryotherapy, and
- Accessibility to service delivery points.

RECRUITMENT AND OUTREACH

> "We know that women want to be screened, so the issue is just communicating that this service exists and is convenient and effective."

As explained by a project staff member, it is generally accepted that women do not need to be *convinced* to have a VIA test but rather *informed* that the service is available. This assumption is supported by the data, though some barriers, discussed later, continue to prevent women from seeking and receiving the VIA test. Nonetheless, many districts operate on the premise that they simply need to disseminate information about the date and time of the VIA clinic in order to ensure that women will attend. The methods employed to reach women will be discussed in this section.

Methods to Reach Women

The district teams used a number of different methods to encourage women to have a VIA test. Most districts followed a fairly standard set of procedures in developing their outreach efforts. One provider explained this process in her district:

> "After training, we held a meeting with health center staff and explained the importance of VIA. We asked them to find and inform the target population age 30–45. At first, we gave announcements by loudspeaker, visited schools, and used the radio. After that, we got names of all of the target population for the health center staff to contact them."

Interviews with district teams suggested it was standard practice to meet with the district health committee, develop an operational plan, inform health center staffs about the service and the plan, and ask that they contact the target population and deliver messages. The health center directors, in turn, mobilized the VHVs to assist with dissemination of this information. One health center director described this chain of activities:

> "At first, we planned to find the target group. Then, we had a meeting with staff about the importance of the VIA project. We planned to distribute information about the program in the villages. I met with health volunteers and had loudspeaker announcements in the village once a month. We have a name list of the target population and sent a letter directly to each person with the volunteers. If there was a problem, a staff member went directly to the village to talk to the population. We went one week before the mobile clinic came. We limited the target group to 40 women per clinic. We started with the closest villages and proceeded from there."

Specific recruitment methods did vary by district (**Table 5**). The choice to use a certain strategy depended on local resources, coordination between administrative levels, and the extent to which staff were motivated to reach the target population. The most commonly used recruitment methods were the loudspeaker, letters with or without brochures, home visits, and coordination with the village chief. A brief description of each technique follows.

TABLE 5. STANDARD RECRUITMENT METHODS REPORTED, BY DISTRICT

DISTRICT	LOUD-SPEAKER	LETTERS	BROCHURE	HOME VISITS		VILLAGE CHIEF	PHYSICIAN REFERRAL
				HC Staff	VHV		
Kasetwisai	X	X		X	X	X	X
Phanomphrai	X	X			X	X	
Pontong	X	X		X	X	X	
Selaphum					X		X
Thawachburi	X	X		X	X	X	
Atsamat	X	X	X	X	X		
Jungharn	X		X		X	X	X
Srisomdet	X		X		X		
Suwannaphum	X	X	X		X	X	
Muayvadee	X	X		X	X		

Loudspeakers

Virtually all villages have one or more loudspeaker posts stationed throughout the community, a medium that plays a very important role in health campaigns. Village chiefs and other local administrators have access to the loudspeaker for disseminating information to the population. All districts, except for one, reported use of the loudspeaker as a recruitment technique (it is likely that Selaphum used loudspeakers, but this was not mentioned during the interview), but the specific use of it varied slightly.

In some districts, general messages informed women about the availability of the VIA test and directed them to the local health center. Subsequent messages might have included information about the date and time of the next VIA clinic. Some health centers relayed a message the night before, or morning of, a mobile clinic to remind women to attend. Others read the names of women in the target group who had not been tested over the loudspeaker system (based on the name register used to track women). To determine the extent to which this method related to recruitment rates, frequency of messages would have to be calculated using a logbook. As this was not current practice, a qualitative assessment was used as a proxy in terms of how women reported learning about the VIA test.

Nearly all women interviewed, both those who had and had not received a VIA test, reported that they heard a message on the loudspeaker informing them about the service. Although this was a primary means of receiving communication, it did not appear to be sufficient as a recruitment mechanism and was often accompanied by additional strategies. This was apparent from women who reported that they learned of the service through messages heard over the loudspeaker, but ultimately went for testing after receiving another intervention.

Letters

Several district teams reported use of letters as a means of informing women about the availability of the VIA test. Generally, this was a form letter outlining the benefits of VIA,

procedures for the test, and treatment options. Staff members filled in names and clinic dates and then letters were delivered either by health center staff or village health volunteers (VHVs). In some areas, this method was implemented district-wide and was managed by the provider teams. In others, some sub-district staff members chose to use this strategy without guidance from the district. In one health center, the director created a letter with a detachable section on the bottom where women indicated whether or not they planned to have the VIA test. VHVs collected these responses and returned them to the health center. This information was used to plan for transportation to the district hospital or to conduct home visits if women indicated that they did not want to be tested. Women in five of the ten districts reported that they attended the clinic after receiving a letter from the health center. One health center director remarked:

> "The letter is the most important tool to encourage villagers because it shows the concern of the health officer."

No mention was made of the literacy rate of women living in rural Roi Et Province. If some women could not understand the letters, this was not apparent from the interviews.

Brochures

Brochures describing VIA and cryotherapy were developed by an officer at the national MOPH and distributed to all districts in Roi Et Province. In 4 of the 10 districts visited, use of the brochure was reported (though they may be used in other districts as well). In 2 of these districts, brochures were provided to the target population at their homes by attaching them to a letter or asking the VHVs to deliver them. In the other districts, the brochure was made available at the hospital and health centers. Women did not mention the brochure specifically when asked how they learned about cervical cancer or the VIA test. Thus, this resource may be most successfully used to support recruitment campaigns by providing additional information for those who are interested.

Home Visits

The most effective strategy used to inform and recruit women was considered to be home visits from health center staff members or VHVs. When women were approached directly by a representative from the health system, they appeared to have a greater tendency to take action by attending a clinic. One woman said:

> "The volunteer came to my door and told me that if I did not come, the health officer would come to my house."

A health center staff member in this village explained that two letters were sent to the client population and if they did not attend a clinic, the volunteer visited them at home. If they still did not come, the officer said, "I would go personally to talk to them."

Women were accustomed to visits from the VHV, but less so from health center staff. When asked how women responded to a health officer coming to their home, one officer said:

> "Some feel good because it shows that the health officer is concerned about her health. Some do not feel good and wonder why the health officer asks them to do something they are ashamed of."

Women who had a negative reaction to the visit might be more reluctant to seek a VIA test than those who felt they were cared for by the health center staff. Also, this reaction was probably dependent on the relationship and trust that already existed between the women and staff. Overall, home visits seemed to be an effective strategy for encouraging women to seek a VIA test although there was potential for negative reactions, to which staff and volunteers should be sensitive.

Coordination with Village Chiefs

Providers and health center staff often cited village chiefs, *puyabans*, as allies in rolling out health campaigns. Most often, puyabans were asked to deliver messages about the VIA clinics to the target population via the loudspeaker or during village meetings. It seemed that all messages to be delivered through the loudspeaker required approval from the village chief and he or someone close to him was responsible for broadcasting over this system. Given that staff mentioned the chief in 6 of the 10 districts visited, it was clear that it was important to work with this individual in order to reach the communities.

Unique Approaches

While most districts used the standard methods described above, there were some unique recruitment methods worth mention. These were implemented by the Selaphum provider team, perceived by external observers to be one of the most successful in the province in terms of their ability to recruit women to be VIA-tested. At one time, a noodle lunch was provided to women after their exams. Also, there was an ongoing program in which women received a coupon with a number on it, and when they sent other women for a VIA test, they got credit for the referral. The women with the most referrals received a framed certificate of acknowledgement from the hospital director. These are two examples of creative approaches that can be used to provide additional incentives to women, particularly in later stages of the program when recruitment becomes more difficult because the women who remain to be tested are those who are less eager to participate.

Role of Health Center Staff

The role of health center staff is critical at the juncture where supply and demand come together. When asked who was the most important link for program success, a district hospital director said:

> "The first is the staff from the health center because they are closer with the people in the village. When we started the project, I advised them to give this information to the target group. When the mobile team started, there was no time to give information—just screening—so the health center staff must do this."

Indeed, providers were responsible for organizing VIA clinics and performing the test and treatment, so they relied heavily on health center staffs to distribute information and recruit women. A provider said:

> "The health center officer will do the job of reaching [women], providers just give the service."

Health centers provide basic medical care, health promotion and prevention, and disease control activities. The predominant health issues at this level were reported to be dengue, leptospirosis, and diarrhea. Given these priorities, the staff was actively involved in campaigns orchestrated by the MOPH to reduce incidence and prevalence of these diseases. For all health promotion activities, they employed a similar strategy to that which has been described for the SVA program: inform the population through local media, mobilize the corps of VHVs, and track clients on a register to identify those who have and have not been reached.

VIA services were integrated into other routine services of the health centers. Some health center staff members commented:

> "It has not increased the workload because it is an activity of health promotion and prevention. It is a benefit for the villagers,"

and:

> "The VIA program does not interfere with other jobs because it is also the job of the health center staff."

As with other programs, the staff complied with a set of standards. To achieve the goals that were established for them by their managers at the district level, health center directors developed a local strategy to promote VIA and recruit clients. A health center director provided a thorough account of this process:

> "We had a meeting to learn about the project. I received a message about the target group and getting 30% coverage. Then, I campaigned. I met with my staff and gave one of the nurses responsibility for the program, then met with health volunteers. There are 400 in the target population. Each mobile clinic can screen 20–30 people per day. The mobile clinic comes two days in a row. I specify which village should come each time. My job is to make appointments with the target group. They are happy with the program because they get the result. Women are waiting for the service to come to the health center."

A health center director's ability to motivate women was impacted by such factors as length of time working at the health center, whether they lived in the village where the post is located, accountability to superiors, trust and rapport with villagers, and communication with VHVs. The stronger these elements were, the more successful the health officer appeared to be in recruitment efforts.

Sub-District VIA Coverage

All provider teams maintained records of coverage achieved by sub-districts, and most showed wide variation by sub-district. Provider teams used these data to inform their service delivery strategy and focus on sub-districts where coverage was relatively low. They also used these figures to generate competition between health centers. In one district, providers said:

> "We observed that at monthly meeting where performance is discussed, the health centers became more active and they ask for more mobile clinics."

When asked why some health centers demonstrated lower coverage than others, a provider offered this explanation:

> "It depends on the health center officer. The most effective ones distribute letters to the target group individuals. Less effective health centers use a meeting, which is not targeted."

Others suggested that health center officers should be stimulated to further motivate the client population. In some cases, the coverage was simply a reflection of population size or the number of times mobile clinics had been offered.

Health Center Monitoring

District health officers routinely monitor performance of health center staff. Generally, overall performance on all health program indicators is assessed with VIA included in the portfolio of activities upon which incentives are based. One district hospital director indicated that health centers could be penalized with a budget cut of 2,000 Baht if a case of dengue was reported in their sub-district. Conversely, they could be rewarded with a budget increase for achieving their goals. In another district, a supervisor said:

> "I met with the health center and asked them to recruit at least 20 clients. If a health center has less than this, it will be recorded. We have a system for rating health center performance: green is good, yellow is fair and red is unsatisfactory."

Presumably, a low rating should motivate a particular health center staff to increase its efforts in all areas, including VIA promotion.

Whatever their strategy to achieve desired coverage, all health centers involved the village health volunteers that are available to them as resources. Monthly meetings are held with volunteers, at which time information about current health center activities is disseminated. The role of the Village Health Volunteer (VHV) Program in the Thai health system, and in VIA promotion strategies, is further described below.

Role of Village Health Volunteers

Program Background

The VHV program was implemented in Thailand in 1977 as a national initiative of the MOPH. This program was conceived to create a network of village-level partners to assist the MOPH to meet its objectives. VHVs are selected by the health centers or elected by villagers and can serve as long as they are willing and able. Currently, there is a turnover of VHVs who were elected at the beginning of the program; younger community members are replacing them. New VHVs are supposed to participate in a 5-day training course that orients them to MOPH operations and their specific responsibilities. Each VHV is then responsible for 6–12 households, depending on the structure in their village. In Roi Et province there are over 20,000 VHVs in the network. To compensate them for their time and effort, VHVs and their families (children up to age 20) are never assessed a fee for service at a public health facility.

General Job Responsibilities

All respondents at the sub-district level were familiar with the VHV's job. The most commonly mentioned role of the VHV was elimination of mosquito larvae from household water tanks as part of the dengue prevention program. Other jobs that were mentioned were: village sanitation, diarrhea prevention, aerobic exercise, home cleanliness, and general community development. In one district, the VHVs reported that they assist with baby weighing and blood pressure and diabetes screenings, as well. In another, they teach women how to perform breast self-exams. With the introduction of SVA services in Roi Et province, VHVs have become integral to sub-district promotion and recruitment strategies.

Duties Related to SVA Program

VHVs reported being informed about the SVA program (known to them as VIA) by health center staff. They learned basic information about cervical cancer and the VIA test and were asked to communicate this to women within their areas of responsibility. Often, they were asked to enumerate the target group, which involved visiting homes and verifying whether women within the designated age range (30–45) were living in the village. Once all of the women were identified and a list of names was created, individual VHVs took responsibility for ensuring that women in their assigned areas received the VIA test. The primary means of encouraging women to go to the VIA clinic was by visiting them personally at their homes to discuss the importance of the test. A VHV explained:

> "The health officer and staff invited us to a meeting. If the women did not come, I contacted them directly. All the women in my village have come for screening, except one woman who moved. We help the health center list the target group, and we give information. If there is a mobile clinic, I talk to them again. I tell them if they have a positive test they can get immediate treatment. Nobody refused the test. I explain the severity of cervical cancer."

Clearly, the network of VHVs has facilitated management of the target population for provider teams who have no contact with women living in villages distant from the district hospital.

Knowledge and Experience

VHVs received very little technical information about cervical cancer and VIA. This may be, according to a health center director, because:

> "The volunteers do not understand fully. When we give information, VIA is integrated into other topics. There are technical terms but it is difficult for them to understand."

When asked what kind of education volunteers should ideally receive about VIA, a provider said:

> "They should learn the definition of cervical cancer, the cause, risk factors, how to prevent it, the treatment method, and the benefit of early detection."

However, she could not verify whether VHVs actually receive this information because she was not directly responsible for them. She also said that when she encountered VHVs as VIA clients, she encouraged them to tell other women about their own experiences.

Most VHVs who were interviewed had a very basic knowledge of cervical cancer and VIA, only slightly greater than that of clients. They were not expected to provide health education to community members. Rather, they focused on disseminating logistical details about service availability. Because it was most effective for them to share personal experiences with VIA, female VHVs were encouraged to be tested before other women in their villages. Many of them said they felt they should be role models for others in their communities by having the test. One said,

> "The health center talks to the volunteers to have the test first before telling others about it. People would ask why volunteers had not been screened yet, if they had not."

This strategy has been used in most districts as a means to motivate women.

Information, Education, and Communication (IEC)

If women choose not to attend a VIA clinic, VHVs were often asked to visit them and encourage them to attend a future clinic. It was at this time when VHVs employed basic IEC messages to motivate or convince women to be tested. Some of the messages used, according to VHVs, were:

> "You should go to have screening for cervical cancer because it is difficult to cure. When you go, you are there with only one nurse. It is easy to have the test. You should think about if you are ashamed and don't have screening. You could get cervical cancer."

> "If you get cervical cancer, you will lose a lot of money, like 100,000 baht. If you are afraid to lose a lot of money, you must screen because it is simple and easy and you will have the immediate result."

> "I tell them the provider is friendly and they will observe carefully inside the body. If they find something abnormal, in the afternoon they will give treatment."

Given that many VHVs spoke from experience, it was slightly more challenging for male VHVs to engage women in conversations about cervical cancer prevention. In a sub-district of Atsamat, a health center director said:

> "There are 47 [volunteers] who are men (out of a total of 87 volunteers). They can give information to women with a letter or a notice from the health center. It is more difficult for men, but not too much."

Incentives

Other than access to free health care, considered a significant incentive, VHVs do not receive additional compensation for their work. However, when asked why they are motivated to devote their time and energy to serving their communities, they listed a number of intrinsic benefits such as: increased knowledge, honor from community, and rewards on annual volunteer recognition day. Some simply enjoy the opportunity to help others in their villages. In some areas, there are contests between villages for cleanliness or participation in certain activities. If a village wins, its VHVs are also recognized so they may be motivated to earn this prize. For VIA, providers in one district held a competition among the VHVs for those who could refer the highest number of clients. Whatever the incentive, it is important to continually

motivate VHVs, who play an invaluable role in the success of the SVA program in Roi Et province.

KNOWLEDGE AND ATTITUDES ABOUT CERVICAL CANCER AND THE SINGLE-VISIT APPROACH

A woman's decision to get a VIA test may be affected by her level of knowledge about the disease the test is designed to detect, her perception of risk of acquiring the disease, her attitude about the test itself and treatment, if deemed eligible. To document knowledge and attitudes about cervical cancer and the SVA, women who had and had not been tested were interviewed at health centers. These interviews also discussed attitudes regarding barriers to and motivations for getting VIA tested. Similar information was obtained for a qualitative evaluation of the acceptability and feasibility of the SVA (Corneli et al, 2003).

Knowledge of Cervical Cancer

What is cervical cancer?

Women gave a wide variety of responses when asked to describe cervical cancer. Seventeen interviews were conducted with 36 women, and many gave more than one explanation. Many women associated cervical cancer with white discharge, lower abdominal pain, and heavy bleedings. Various gynecological problems manifest with similar symptoms (discharge, pain), and it is likely that some women were not able to differentiate well among them.

When asked where they learned about cervical cancer, nearly all reported receiving information from the health center and/or the VHV. However, the forum in which that communication occurred was unclear.

What causes cervical cancer?

Women similarly gave a wide range of responses when asked about the cause of cervical cancer. The most common responses were "poor hygiene," "many sexual partners," and "infection." These responses were likely influenced by communication with the health center officer, VHVs, and from hearing messages through the mass media. Many women mentioned the relationship between cervical cancer and a husband having many sexual partners. One woman said:

> "Men who have multiple sex partners may infect their wives."

Another woman knew someone who had tested positive whose husband was working in Bangkok, and said:

> "The woman's health status is affected by the male's behavior. In rural areas, when we get married, we all live in the same community and there is no chance of women having multiple partners. This is different from the urban areas."

This comment supports the belief held by most women interviewed that they were at low risk for cervical cancer because they and their husbands were monogamous.

How can cervical cancer be prevented?

Women knew that cervical cancer is preventable and most mentioned that a "frequent body examination" is key. They also responded with answers such as the "body and genitals should be cleaned," "one should not have sex with multiple partners," "condoms should be used," and "early treatment." These women recognized the importance of caring for themselves and their bodies. One woman said:

> "I love my life, so I must see the doctor and not die prematurely. If I know I am healthy, I am happy. If I know I have a disease, I feel sad."

Responses to these questions suggest that women interviewed had a basic level of knowledge about the cause of cervical cancer and how to prevent it, although misinformation did exist.

Barriers to VIA Testing

Comparable to the findings of the SAFE qualitative evaluation, the most common reason given by interviewees at all administrative levels for women's reluctance to have a VIA test was **shyness (embarrassed)**. A provincial officer said:

> "The nature of Thai women is to hide and not expose their bodies, especially when the doctor is male, because they are shy."

This was such a common sentiment among interviewees that it was considered by some stakeholders to be a key reason for the lower coverage in several districts. Related to this barrier was that of the **presence of local staff**. Some women mentioned that they preferred to be tested by someone coming from outside their community. A volunteer said:

> "Women are very shy, especially if they know the nurse provider."

To reduce this barrier, several health center staff members said that they left the exam room during mobile VIA clinics. Barriers that were mentioned by interviewees are listed in **Table 6**.

TABLE 6. BARRIERS TO VIA TESTING AMONG INTERVIEWEES

• Feeling embarrassed	• Presence of local staff
• No symptoms	• Fear of other disease
• Fear of cervical cancer	• Having had a pap smear
• Lack of time	• Menstruation
• Fear of pain	• Have few sexual partners

Most efforts to promote VIA testing have focused on helping women overcome their shyness. Volunteers and women who were already tested said they encourage women to have a VIA test by telling them they should not be embarrassed. According to one woman:

> "We can tell them not to be embarrassed or ashamed because getting examined is normal. If you get tested, you will feel good knowing the result. I can share my experience."

Another barrier to testing identified during the interviews, also consistent with the SAFE evaluation results, was women's perception that they are **symptom-free thus healthy**. One woman stated:

> "Women think they have no health problems and therefore no need to come for testing."

In response to this, one VHV said:

> "Even if women don't have any symptoms, they should be tested, especially those who have never had an exam."

Several women reported that they knew of women who had tested positive, despite having no symptoms. This experience was apparently one factor that motivated them to get a VIA test themselves. While some women knew that cervical cancer might exist without symptoms, it is important to clarify this message when encouraging women to be tested.

A related issue is the perception that a woman does not need testing if she or her husband has **few sexual partners**. While these women may be at lower risk, they are not without risk and high levels of morbidity and mortality reduction are likely only if the majority of women get tested. This is another important message that needs to be communicated.

Mentioned less frequently by the women interviewed, but an important barrier, was **time**. Several women who had never been tested claimed they were "too busy" or that at the time of the clinic, they were not available—either because of business outside of the district or work in the rice fields. In districts where mobile clinics were not part of the service delivery strategy, time constraints were more of an issue. When asked whether women had to wait long to get tested, those who had attended a mobile clinic were more likely to report that they had not spent much time at the health center.

Another perceived barrier was **having had a Pap smear**. Both women and health officials reported that they thought an obstacle to getting a VIA test is that some women may have had a Pap smear at a private clinic. One provider said:

> "Women are embarrassed to be examined by local staff. Some therefore go to a private clinic or to another region to be tested even though they know they have to pay themselves."

That is, regardless of the additional cost, some women prefer to seek care where they are anonymous and do not feel so uncomfortable having a gynecological exam. Reported previous Pap smear rates were around 50% among the SAFE phase participants, but it is unknown how accurately women responded to this question when the project nurses were taking their clinical history.

Other barriers mentioned less frequently were "fear of pain" from the procedure, "fear of the exam results", "lack of concern" about their health, and "menstruating" on VIA clinic days. To successfully motivate women to get tested, providers and decision-makers must be aware of these barriers, whether perceived or real, and identify potential ways to overcome them.

Motivations for Seeking a VIA Test

Women were motivated to seek a VIA test for several different reasons: concern for their health, awareness of test positive cases or deaths due to cervical cancer, and contact with women who had expressed satisfaction with the service. Providers and health center staff were aware of these reasons and they tried to modify their strategies accordingly. Commonly mentioned motivations are listed in **Table 7**.

TABLE 7. MOTIVATIONS TO SEEK VIA TESTING AMONG INTERVIEWEES

- Being concerned about one's health
- Knowing someone who was test-positive
- Personal communication with a woman who had a satisfactory VIA test experience
- Personal contact with a health center staff member of village health volunteer

Many interviewees expressed that **women are concerned about their health** and bodies so they were willing to be tested. One health official expressed:

> "If a woman is concerned about her health, she will come to the clinic. If not, then she won't."

Indeed, many districts teams relied on the assumption that women were concerned about their health and therefore needed little motivation to participate in health programs. One VHV explained:

> "People are interested in messages about VIA because they are concerned about their health. It is easy to motivate them."

Health officials and project staff members reported that they thought **knowing someone who was test positive** was a strong motivating factor for women to be tested. One provider said:

> "A factor promoting high coverage is when villagers learn from project staff that there was a cancer patient who came to get tested and was then referred to the hospital. This results in high recruitment (coverage) in that village."

A health center staff member commented that promoting VIA was not difficult because many of the women knew of cases of breast or cervical cancer in the past and were interested in preventing these diseases. A VHV remarked that people are "afraid of cancer" when there are cancer cases in the village.

None of the women interviewed mentioned that they knew of a specific person who was stricken by or died from cervical cancer, but several said other women—particularly those who had received cryotherapy—had encouraged them to get tested. Hearing other women talk about **being satisfied with VIA** and cryotherapy was a powerful motivating factor. When asked why she had come to the clinic to be tested, one woman said:

> "At first, I was ambivalent and did not want to come but my neighbor encouraged me. The idea is to try to talk to other women and tell them about your experience."

A woman who had not yet been tested reported:

> "Most villagers have been tested. Only a few have not. Those want to wait and see. They will follow after the others go."

As mentioned previously, **personal contact** with a health center staff member or VHV was instrumental in motivating women to seek testing.

Providers and other health officials were aware word-of-mouth promotion was key to a successful recruitment. Therefore, they strived to ensure quality services so that other women would be referred. In one district, the provider team planned to assemble a panel of experienced women who could talk about their experiences with VIA and answer questions of other interested women. Women reported a number of different reasons for seeking a VIA test. More often than not, a combination of factors affected their decision to be tested.

Testing Experience

Women responded very positively to questions about their VIA testing experience. Almost all of those interviewed commented that it was "good" and they had "no complaints" about the test itself or the examination process. Most women focused on the fact that they had received immediate results about the condition of their cervix, feeling this was a benefit of the test. As explained by one respondent:

> "It is a very helpful test because we know the result quickly and therefore we are not anxious about having health problems. It is good for people who have lesions because they get treatment immediately after an abnormal [lesion] is found."

Others also commented on the anxiety they experienced while waiting for the results of a Pap smear. For example, one woman said:

> "We were all satisfied with the VIA service. We knew the results immediately. The Pap smear takes time and we worry while waiting [for the results]."

Women associated VIA with a reduced level of anxiety as compared to the Pap smear.

Another woman discussed the manner in which the VIA trained-provider approached her, which put her at ease:

> "The way the providers approach us is good. They look at our faces and talk to us and we feel less embarrassed."

They also appreciated that the nurses took time to explain the procedure to them before initiating the exam.

Some women noted that an unrelated gynecological condition, such as a polyp or cervicitis, was detected during testing, and that they had been referred to Roi Et Provincial Hospital for further examination. These women expressed that it was good to know about their general gynecological health status.

Overall, the women interviewed seemed to have had positive experiences, and were willing to share their impressions with others in their villages. This exchange of information has served as an important means of promotion. According to one woman:

> "[Once you have been tested yourself] you can explain about your experience and educate women to convince them. You can tell them about the benefits of the test, and that the ones who had cryotherapy had no complications."

Providers have relied on word-of-mouth recruitment, as explained by one nurse:

> "We provide education to change attitudes and hope that the woman can inform others and convince them to come."

ACCESSIBILITY OF SVA SERVICES

In the context of this report, accessibility is defined broadly in terms of any physical barriers that can prevent women from reaching services. In Roi Et Province, accessibility is limited by the following factors: seasonal planting and harvesting, migration, transportation, and overcrowding/service hours.

Seasonal Planting and Harvesting

Seasonal planting and harvesting periods posed a barrier to seeking and the delivery of SVA services. While women may have desired testing, they may have been prohibited by their work demands. It was widely known that rice is routinely planted in June and July, and harvesting occurs in November and December. A provincial official said:

> "We should plan for women to be screened before they go to plant rice. They are only available about 7–8 months of the year."

Virtually all district officials recognized the effect of the planting and harvesting seasons on their coverage rates, and many discontinued mobile clinics during this time period due to the reduced number of women seeking services. When explaining their service delivery strategy, a team of providers indicated:

> "During 2002, the mobile team visited each health center twice (throughout the year). We did not have mobile services in July, August, November or December however because women are planting and harvesting then. During that time, we offered daily services at the district hospital."

A few women also expressed that one reason they thought their neighbors had not yet been tested was because they were "in the rice fields." Clearly, this is an important consideration when planning SVA services.

Migration

In Roi Et Province, there has been significant migration during extended periods of the year. Therefore, some women were not able to take advantage of health services available to them in their place of "usual residence." A project staff member explained:

> "Coverage depends on seasonal changes and emigration out of the community. The Northeast is the poorest region in Thailand. After the harvest, some people move to Bangkok for 5–8 months to work in sugarcane fields, to be taxi drivers or laborers."

Women generally travel to find a job for themselves, or to accompany their husbands who are seeking occasional labor. This has made it difficult to calculate the denominator of eligible women and coverage rates. For example, a health center director calculated that 18% of the target group in his area worked outside of the province for part of the year. In another district, the director said:

> "Many villagers—a high percentage—migrate for work. They however are included in the target population size which makes the coverage rate lower."

It was clear that this situation not only reduced access to services, but also created challenges for program planning.

Many of the women interviewed who had not had a VIA test had recently returned to their village from Bangkok or abroad, where they had traveled for their work or that of their husbands. They were not aware VIA services were available and that they had missed opportunities to attend mobile clinics, if offered, at their local health centers. In some areas, this was addressed by having VHVs talk to relatives of women who were away from the village to determine when they would return so that they could be informed about available SVA services.

Transportation

Access to affordable transportation can affect a woman's ability to seek SVA services. District officials recognized this potential barrier and made efforts to organize mobile clinics or transport for the woman to the service delivery point, or both. Consequently, transportation was one of the most expensive aspects of the service—for both district teams and the women. Districts paid for vehicles, drivers, and gasoline out of their annual operating budget or else women covered the costs of their own transportation.

Women living in villages closer to a hospital in another district were at a disadvantage under the health care reform because they were required to receive their health care services where they were considered residents. According to one health center director:

> "Considering the geographic area, the far villages in the district are closer to the neighboring district. They could go there in the past but now, because of the 30 baht policy, they are told to come here."

This could affect some women's decision to seek a VIA test.

Most women interviewed lived near their health center. Thus, they reported that it was not at all difficult to reach the health center for VIA services if and when a mobile clinic was scheduled. Their experiences and opinions are not representative of women living in villages further away, for whom lack of transportation might be a formidable barrier. Many health centers have tried to reach these women by sending a vehicle to bring them to the clinic. Another option, suggested by an interviewee was:

"If a woman lives far from the health center, there should be a mobile clinic in the village."

In one district, the health center director reported that she convinced the provider team to offer a clinic in a communal building in order to make VIA accessible to her population.

In districts where mobile services have been offered, only a few women interviewed said they would go to the district hospital for testing if necessary, and these women lived in villages that were relatively close to the facility. It was clear that mobile clinics were the preferred means of receiving SVA services, although women for whom this was not an option did not voice complaints about transportation being provided by the district health service.

The issue of transportation became more complex for women referred to Roi Et Provincial Hospital for follow-up testing. In some districts, a hospital vehicle was provided for women 's appointments, but the majority traveled by public bus or motorcycle. While many reported that it was "far" to Roi Et Hospital, none said the distance would prevent them from getting their health services.

Access to (and affordability of) transportation is related to coverage with SVA services. For example, one health center staff member stated:

"If we could get financial support for transportation, there would be better coverage."

Most districts, however, made an effort to ensure that no woman was deprived the opportunity to get tested because of transportation difficulties.

Overcrowding / Service Hours

Less frequently mentioned as an issue, but worth noting, was overcrowding of clinics. This occurred more often at the beginning of the project, when many women were interested in being tested. In some cases, women were sent away because the providers were unable to accommodate them due to the high demand. Health center directors were then instructed to limit the number of women invited to a clinic to 20 or 30 per session to avoid discouraging women who were sent away. Some women interviewed suggested that mobile clinics should be offered in their village more frequently to allow more women to receive SVA services.

In summary, demand for cervical cancer prevention services was most impacted by personal contact between women and health center officers or VHVs who provided information about the VIA test and encouraged those who are reluctant to be tested. Because women were motivated by logistical, rather than technical, details, VHVs played an important role in completing this communication link. Health center officers contributed to district-wide performance on outcomes by actively engaging their staff and volunteers in recruitment of women, and providing a locale for mobile clinics. The DHO, who supervises the sub-district health system and evaluates performance, facilitated coordination between the health center officer and district provider team to ensure provision of SVA services. Thus, demand generation relied heavily upon the existing network of health professionals, para-professionals, and VHVs.

OUTCOME MEASURES

In this section, performance as measured by the six outcome indicators introduced in the methods section will be compared across districts. No one indicator measures success better than another but together they provide an idea of the relative performance of the 17 districts. These measures highlight how some enabling and limiting factors have a larger effect than others. The purpose is to help identify factors that might be controllable so in the future, districts can modify their programming to minimize limiting factors and maximize those that enhance the ability to increase coverage.

For each indicator using eligible population as the denominator, the data are from the Department of Provincial Administration (DOPA), reported on March 31, 2003 for Fiscal Year 2002 (October 2001–September 2002). The eligible population is defined as the number of women aged 30–45 living in each district during the time period measured in each outcome.

In all figures shown, Atsamat is indicated with a black bar, the four SAFE districts are indicated with white bars, and all others are shown in gray.

MEASURE 1: OVERALL COVERAGE

Numerator = Total Number of Women Tested with VIA
Denominator = Total Number of Eligible Women (30–45)

Overall coverage is defined as the percentage of eligible women (ages 30–45) tested with VIA by the end of the ACE project (through August 2003). This measure does not take into consideration differences in population size or length of time offering services. A district of larger population size will have a lower coverage rate than a smaller district that has tested the same number of women.

Figure 1: Percentage VIA Coverage by August 2003
Roi-et Province

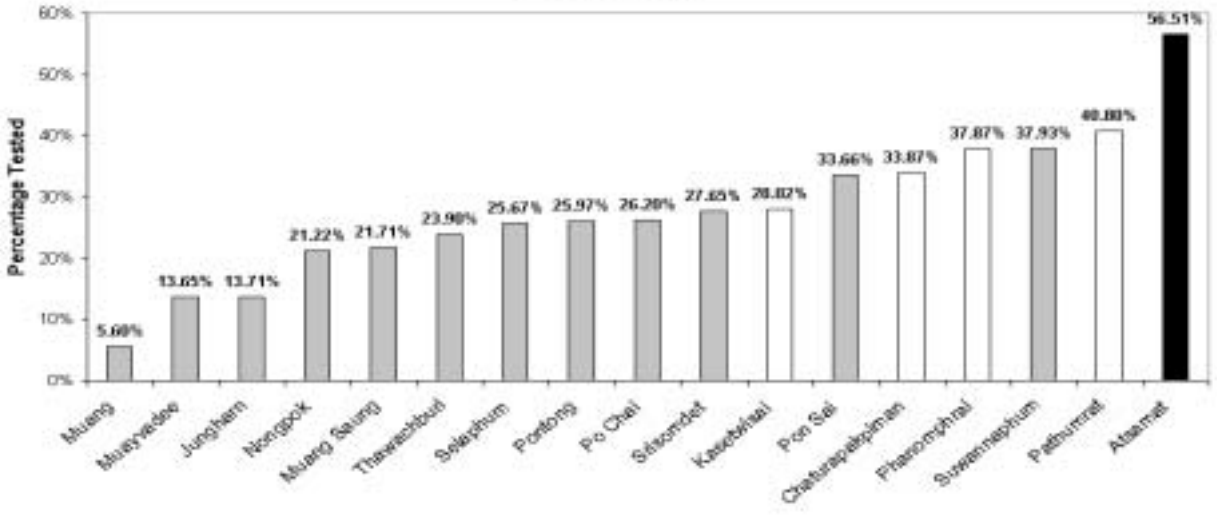


Figure 1 shows five districts as high performers in terms of overall coverage: Atsamat, Phanomphrai, Pathumrat, Suwannaphum, and Chaturapakpiman. Three of these five districts participated in the SAFE Pilot Project and have been providing services for a long time—43

months (Chaturapakpiman, Phanomphrai and Pathumrat). The factor of time confers an advantage on these three districts over the other districts. Another of the high performers is Atsamat, the focal ACE district (black bar), which received additional support over the past 13 months (since July 2002). Financial assistance allowed the district to maintain a very active service delivery strategy, defined as mixed intensive mobile, which has been shown to be the most effective in reaching higher numbers of women. Supplementary supervision visits occurred in Atsamat to closely monitor the service delivery process; this motivating factor contributed to the rapid increase in coverage. Also, Atsamat district has a mid-sized population, which allows for higher coverage to be achieved more quickly than in larger districts.

The strong performance of the Suwannaphum team can be attributed to other factors. It is a large district that joined the project as part of the last training cohort (17 months of service). These two factors put it at a relative disadvantage. Its remarkably high coverage, then, can be to exceptional support from the district hospital director, a very active service delivery strategy (mixed/intensive mobile strategy), and committed nurse providers and DHO. The district hospital director has demonstrated his support by allocating significant resources to the program which allow the nurses to conduct 5 mobile clinics weekly and offering financial incentives to both nurses *and* health center staffs for high productivity. The nurse providers' commitment is apparent in their approach to the program. They continuously adjust their strategy to optimize the number of women they are able to reach—their strategy has changed multiple times since services began in April 2002. Finally, the DHO lends support by ensuring strong coordination with health centers for the organization of mobile clinics.

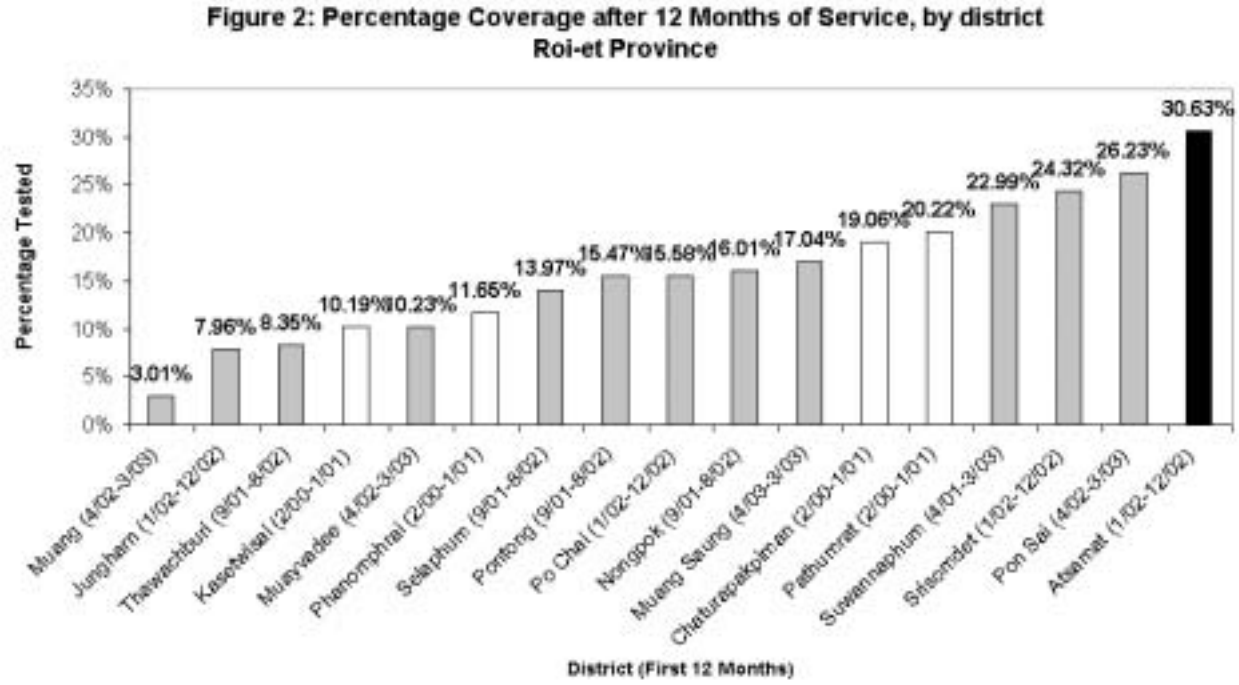
The districts with lower overall coverage are Muang, Muayvadee, and Jungharn. Muang is at a severe disadvantage when compared to the other districts because its target population size exceeds 20,000 and it contains Roi Et City where women have greater access to Pap smear testing at private clinics. Also, the district started offering VIA testing with the last cohort, trained in April 2002. Muayvadee also joined the program in the last cohort, but it is a small district of fewer than 3,000 eligible women. Qualitative data suggest its lower overall coverage rate may be due to difficulties recruiting women, competing priorities for a small budget (budget available is relative to total population size), and/or underestimated VIA tested estimates (due to a failure to submit monthly reports).

The relatively low level of coverage achieved in Jungharn presents a conundrum because it has offered services for 21 months, has a medium population size, mobile teams twice weekly, dedicated static services, and high cooperation between providers and the district health committee. Factors that could contribute to its performance are a newly transferred district hospital director who is just familiarizing himself with the new staff (he was transferred from one of the SAFE pilot districts), and providers who expressed difficulty visualizing the SCJ, leading them to provide Pap smears to many women versus VIA, which could logically result in lower VIA numbers.

According to these data, factors that appear to most contribute to high overall coverage are: absolute target population size, length of time offering services, support of district hospital director, and commitment of resources (whether internal or external to the district).

MEASURE 2: COVERAGE ACHIEVED IN FIRST 12 MONTHS

Numerator = Total Number of Women Tested with VIA during first 12 months of service
Denominator = Total Number of Eligible Women (30–45) during first 12 months of service (averaged over time period)



To minimize the effect of the amount of time providing services, the next two measures involve 12-month time frames. As with the first measure, these do not consider differences in eligible population size. Measure 2 compares coverage achieved after the first 12 months of service, when motivation among providers tends to be highest and women easiest to recruit.

As **Figure 2** shows, the high performers that emerge are: Atsamat, Pon Sai, and Srisomdet. Atsamat likely ranks high here because it was the focus of intensive support during seven of its first twelve months (services were initiated in December 2001 and it became the focal ACE district in July 2002). With the influx of support, mobile clinic days were increased, including Saturdays during some months. As discussed earlier, there is a direct connection between coverage and number of mobile clinic days. Pon Sai and Srisomdet are small districts with around 3,000 and 5,000 eligible women, respectively. Standardizing the time frame to 12 months and having smaller population sizes allows them to reach high coverage faster than others expending the same effort. Srisomdet also had an active district hospital director when it joined the program, and mobile services were a part of the strategy until early 2003. Of note, despite the support provided to the SAFE districts during seven of their first 12 months of service (the SAFE Project lasted 7 months), none appear in the top 3 performers for this measure; and, only Pathumrat, the smallest of the SAFE districts, ranks in the top 5. This strongly suggests that factors other than external funding and technical support contribute to strong performance on this indicator. In addition, the fact that SAFE districts had a maximum target of 20 women per day during the SAFE phase, for quality control reasons, which other districts may not have adhered to, may have limited their ability to achieve higher coverage rates during that time.

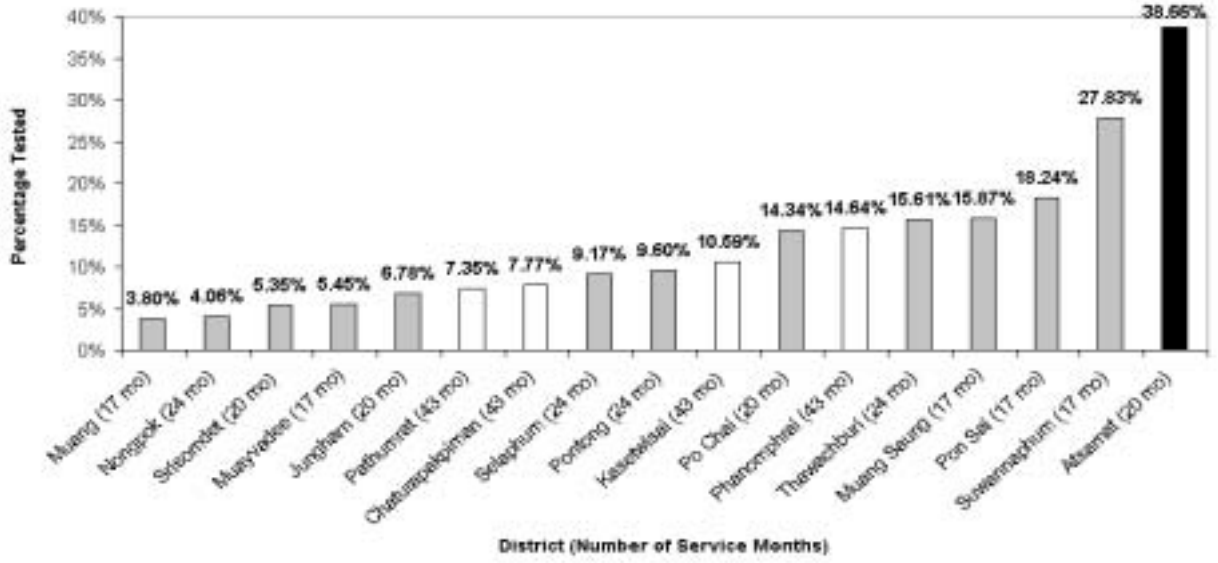
Two of the three districts at the low end of the graph are the same as in Measure 1: Muang and Jungharn. Again, Muang's disadvantage is its enormous eligible population, as it is the district that encompasses Roi Et City. In addition to this, it is understood that demand for VIA is lower in urban settings because the Pap smear is more accessible than in rural areas. The third district on the low end is Thawachburi. The main factor that could explain its lower relative performance in the first 12 months is that it offered services exclusively at the district hospital and did not begin organizing transportation for women to the hospital until recently. Because its target population size is medium-large at 8,500 it is more difficult to make significant progress on coverage levels within 12 months without testing a large number of women.

MEASURE 3: COVERAGE IN LAST 12 MONTHS (SEPTEMBER 2002–AUGUST 2003)

Numerator = Total Number of Women Tested with VIA from September 2002–August 2003
Denominator = Total Number of Eligible Women (30–45) over time period of September 2002–August 2003

Assessing coverage over the last 12 months of the project provides a different perspective of performance. This measure clearly advantages those districts trained in later cohorts because their initial push to promote VIA services falls within the time frame reflected on this measure. This measure likely puts at a disadvantage those districts that have been offering services for a longer time period, if momentum diminishes substantially over time. It is possibly that for this reason three of the SAFE districts show less than 11% coverage during this time period. **Figure 3** clearly demonstrates the effect of support provided to Atsamat, which tested around 40% of its eligible population in this 12 month time period. Suwannaphum also exhibits strong performance on this measure, for the same reasons discussed above in the context of overall coverage (this time frame includes 12 of the 17 months during which Suwannaphum has been a part of the project, as noted on the graph).

Figure 3: Coverage in Last 12 Months: September 2002 - August 2003
Roi-et Province, Thailand



Two interesting cases are Nongpok and Srisomdet, because both show stronger performance in the first twelve months of service but lag behind in the last twelve months. Neither are large

districts, so the decreased coverage rate for the last 12 months may be attributable to a drop in the number of women tested. In the case of Srisomdet, this can be explained by discontinuation of mobile services that occurred around May 2003, the time a new district hospital director was appointed. Qualitative data collected in Srisomdet suggest that the director was reluctant to support provider per diem compensation for mobile teams due to internal staff conflicts. Nongpok was not visited for this evaluation, so the cause of its reduced momentum is unknown.

Regardless of local contingencies, it is clear that it may be difficult to maintain momentum to offer services. That is, the efforts required to continually recruit women at target daily numbers may require more financial and/or physical resources than are routinely available. Once VIA services become integrated into routine services—as is occurring throughout Roi Et Province—fewer women may end up being tested on a daily basis because nurses have a variety of responsibilities.

MEASURE 4: RATIO OF ACTUAL TO EXPECTED COVERAGE

Numerator = Actual Overall Coverage Achieved by August 2003
Denominator = Expected Coverage Based on Goal of 80% over 5 Years

The ratio of actual to expected coverage reflects performance relative to the official provincial VIA coverage policy of achieving 80% coverage within 5 years. Assuming the strategy were to achieve constant progress towards 80%, annual coverage targets would be 16%, or 1.33% coverage per month, regardless of population size. In reality, however, districts are instructed to aim to achieve 30% coverage in the first year (2.5% monthly), 20% in the second year (1.67% monthly) and 10% in each of the remaining three years (0.83% monthly).

Figure 4: Ratio of Actual to "Expected" Coverage, August 2003
Roi-et Province, Thailand

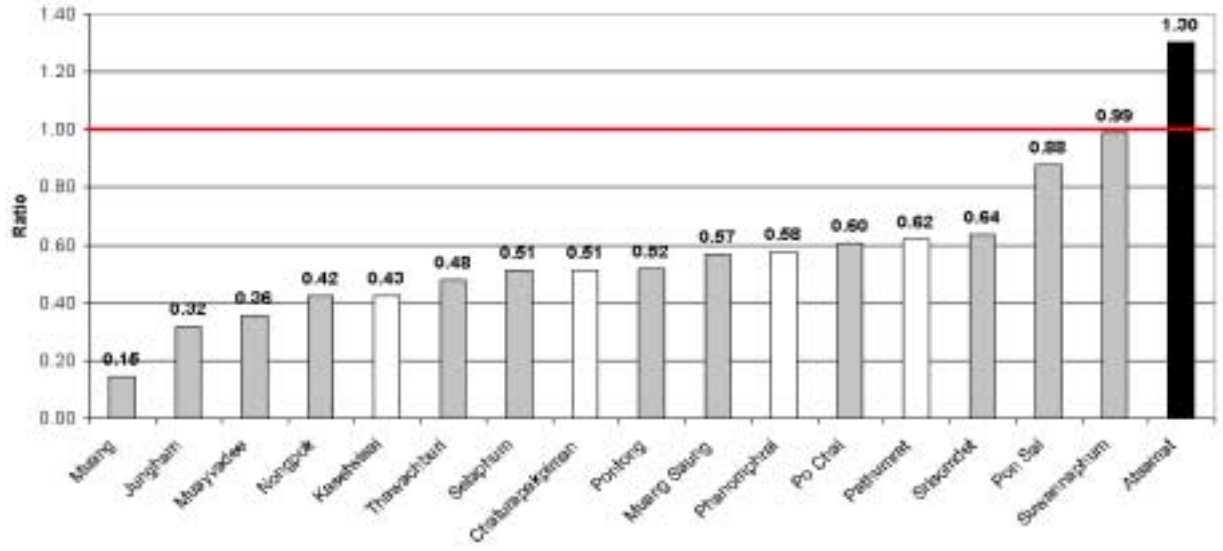


Figure 4 shows how each district was performing as of August 2003 relative to provincial "expected" performance, defined here as cumulative coverage over the number of months they had provided services, assuming the target coverage rates described above. This measure does not account for differences in population denominator size, but does reveal which districts are performing to provincial "expectations" and which are not. Districts with larger population

sizes logically will have a harder time, and require more effort and resources to reach their target levels than districts with smaller population sizes because this strategy dictates that all districts reach the same percentage coverage (80%) in the same amount of time (5 years). According to provincial recommendations, a district should achieve approximately 38.33% coverage after 17 months of offering services (2.5% X 12 months + 1.67% X 5 months). Atsamat had offered services for 17 months as of August 2003 and achieved 56.51% coverage. Its ratio of actual to expected coverage, then, is 56.51 / 38.33, or 1.30. This means that this district is progressing towards the provincial coverage target at a rate 1.30 times faster than "expected"; and, if it continues at the same rate of progress, will reach 80% in just under four years.

Those districts with ratios below 1.00 will theoretically take more than five years to reach 80% coverage if they continue at the same pace or slower. For example, Chaturapakpiman, a SAFE District, has a ratio of 0.51 meaning it has achieved only 1/2 of the coverage expected in 43 months of service. At this rate, it will take approximately 9.8 years to test 80% of the eligible population. **Table 8** provides the Expected and Actual Coverage for each of the 17 districts.

TABLE 8. EXPECTED COVERAGE (BASED ON MODEL), ACTUAL COVERAGE (AUGUST 2003), AND RATIO

DISTRICT	MONTHS	EXPECTED	ACTUAL	RATIO
Atsamat	20	43.33	56.51	1.30
Suwannaphum	17	38.33	37.93	0.99
Pon Sai	17	38.33	33.66	0.88
Srisomdet	20	43.33	27.65	0.64
Pathumrat	43	65.83	40.8	0.62
Po Chai	20	43.33	26.2	0.60
Phanomphrai	43	65.83	37.87	0.58
Muang Saung	17	38.33	21.71	0.57
Pontong	24	50	25.97	0.52
Selaphum	24	50	25.67	0.51
Chaturapakpiman	43	65.83	33.87	0.51
Thawachburi	24	50	23.9	0.48
Kasetwisai	43	65.83	28.02	0.43
Nongpok	24	50	21.22	0.42
Muayvadee	17	38.33	13.65	0.36
Jungharn	20	43.33	13.71	0.32
Muang	17	38.33	5.6	0.15

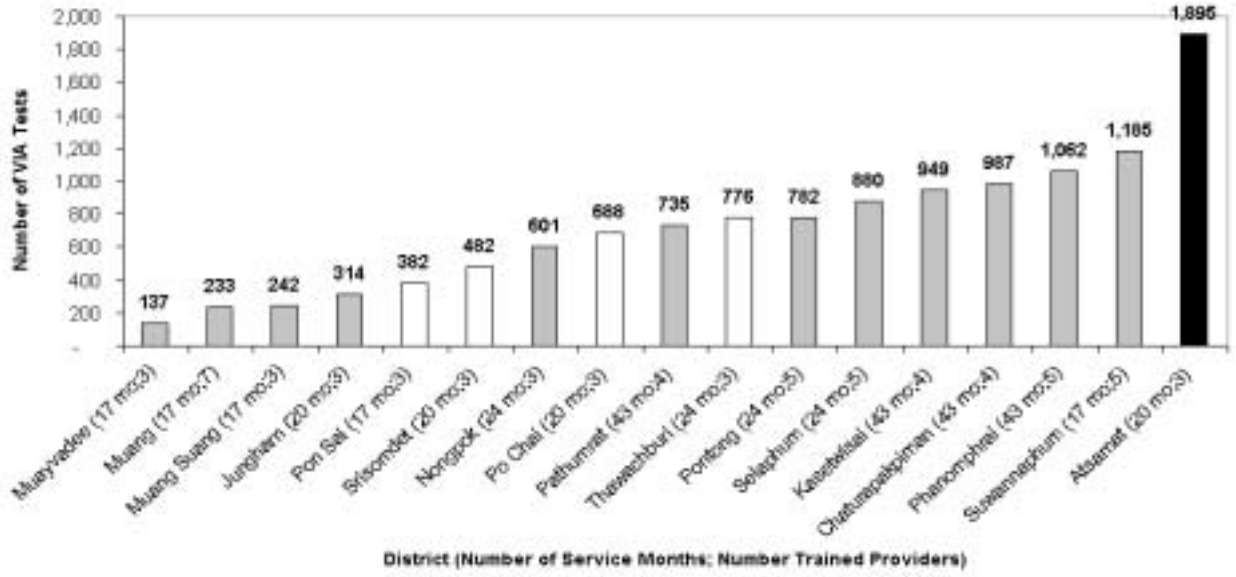
As of August 2003, only Atsamat and Suwannaphum were progressing at a rate that would result in 80% population coverage within 5 years of offering services. This is an important observation, especially given that momentum in many districts is slowing down rather than gaining speed. Whether or not a district is achieving expected coverage depends upon a myriad of factors, including number of mobile days, director support, number of providers trained, and available resources. Districts with larger population sizes must plan for additional resources to reach the same level of coverage as smaller districts.

MEASURE 5: TOTAL NUMBER OF WOMEN TESTED WITH VIA BY PROVIDER

Numerator = Total Number of Women VIA-Tested by August 200, per district
Denominator = Total Number of Providers Trained, per district

Provider productivity is defined here as the number of tests each trained provider has performed within a given time period (beginning of service through August 2003). Although training for providers in a given district was staggered over time, the total number of providers trained by the evaluation period was used for this measure. These measures, unlike those regarding coverage, do not involve population size. This serves to minimize the disadvantage conferred by having large district population sizes (and vice versa). **Figure 5** shows the number of VIA tests performed by each trained provider since services were initiated in each district. This does not control for length of time offering services, so it favors SAFE districts (white bars) that started services earliest on as well as those in early training cohorts. Thus, one would expect the highest total number of women tested with VIA by provider to be in SAFE districts, yet Atsamat (black bar) and Suwannaphum still rank highest on this measure. The case of Atsamat has already been explained. A high priority was placed on providing SVA services and there was a continual deployment of mobile teams so the 3 providers have been remarkably productive in this focal district. In Suwannaphum, there are more providers (5) than in most other districts, thus the total number of tests is spread out over more workers.

Figure 5: Total Number of Women VIA-Tested by Provider, by August 2003
Roi-et Province



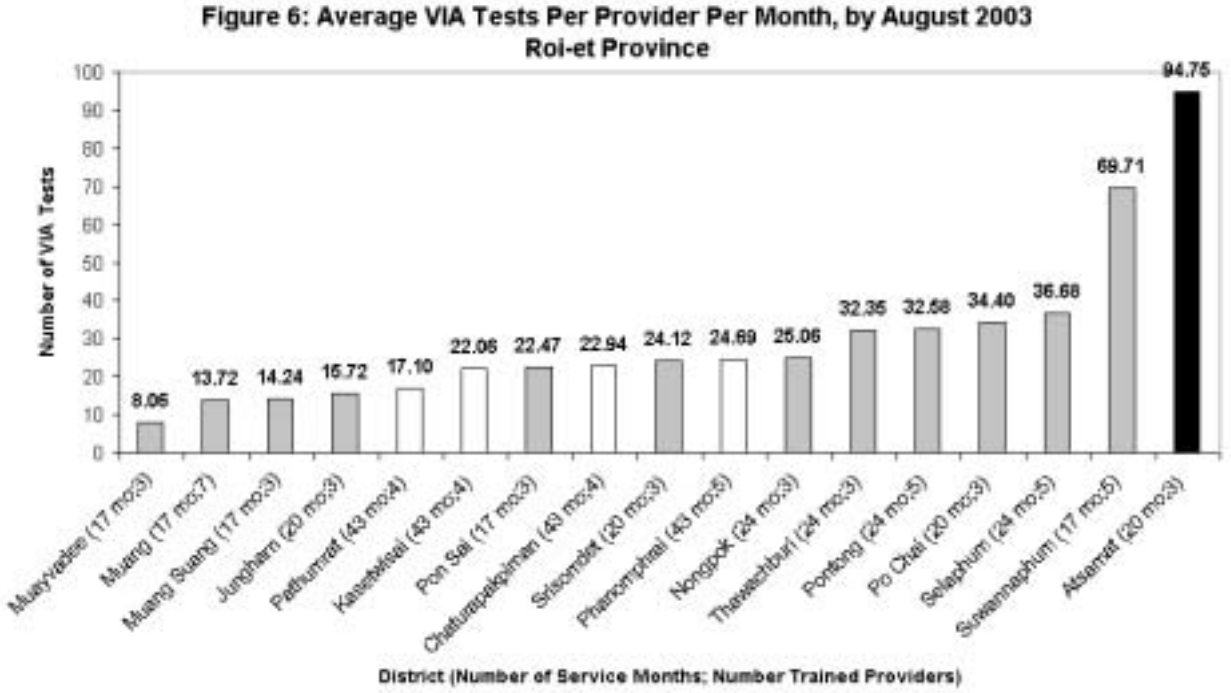
The districts with lower provider productivity had a later start, began with fewer providers and then added more later, and/or experienced low clinic attendance on a regular basis. Low clinic attendance is related to few mobile clinic days, poor recruitment and/or poor coordination with health center staff. In addition to these challenges, a district such as Muayvadee has a smaller population from which to draw women to be tested by VIA. So, the number of tests per provider may be lower because of reduced client flow.

As discussed earlier, in the field, most districts operate with provider teams of 2 nurses each. This means that while most districts have 3 or 5 trained nurses, a maximum of 2 or 4 nurses are likely to be working at any given time. The availability of an additional provider, therefore, may not result in more tests being provided daily, though if the provider serves as relief for the others, productivity may be maximized in the long run.

MEASURE 6: AVERAGE NUMBER OF MONTHLY VIA TESTS BY PROVIDER

Numerator = Total number of Women VIA-Tested, per provider)
Denominator = Number of Months Services Were Offered, by August 2003

By examining the average number of monthly VIA tests per provider, time is no longer a differentiating factor. This measure better standardizes performance in terms of provider productivity across all districts. In **Figure 6**, the SAFE districts are no longer advantaged as they are with the previous measure, both Atsamat and Suwannaphum still rank highest, and the same set of districts demonstrates lower performance. The difference between this and the previous measure graphs clearly show the effect of number of days providing service on district rankings. Reasons for high rates of monthly tests by provider are, again, number of clinic days, number of provider teams, coordination between health center staff and VHVs to recruit women, and support from district administrators.



Atsamat, highest on this measure, is advantaged because of the substantial resources afforded to it as the ACE focal district. Districts with lower rankings show between 8 and 15 tests per month per provider can be attributed to low recruitment and the factors affecting recruitment (both supply and demand factors). The Muayvadee team, lowest on this measure, had not submitted a monthly update for 5 months prior to June 2003, meaning that either no tests were performed during that time period or that they were not recorded in the province-level database—the source for all numerator data used in evaluation calculations. If the latter, then the rankings for this district are inaccurate for all measures but this cannot be verified without examining daily logbooks maintained at the health centers within the district.

If one assumed that 20 women could be tested on any given clinic day—a hypothetical measure of maximum productivity could be calculated. If providers were offering 5 clinic days per week, or 20 days per month, under maximum productivity they could test a total of 400 women per month. With 3 providers, this translates to 133 women per provider; with 4 providers, 100 women per provider; and with 5 trained providers, 80 women per provider per month. None of the districts, however, offered 5 clinic days per week. In many cases, they operated no more than 3 days per week. Assuming 3 clinic days per week and 20 women per clinic per day, the maximum number of monthly tests per district falls to 240 (or 80 tests per provider with 3 trained providers, 60 tests per provider with 4, and 48 tests per provider with 5).

Only 2 districts showed an average, over the ACE Project period, of more than 50 tests per provider per month, Atsamat and Suwannaphum (94.75 and 69.71, respectively). Atsamat had 3 trained providers and offered services on average 16 days/month. Suwannaphum had 5 providers and on average offered services 16 (average of 4 days per week) days per month. This means that providers in these 2 districts were testing on average 16–20 women per day. With a maximum of 2 provider teams operating per day (limited by 2 cryotherapy units), this number decreases to an average of 8–10 women tested per provider team per day. These values are crude averages provided for illustrative purposes, and must be considered cautiously, as the number of days services were offered in a district fluctuated dramatically over time, as did the number of available trained providers (some providers were trained at later dates in the same district).

In summary, the outcome measures graphs show overall performance, as measured in this evaluation by coverage and productivity. Clearly, the number and type of service days (mobile versus static) influence performance as well as the success of recruitment efforts. Our qualitative assessment revealed that the number of days services are offered is affected by the level of support given to the SVA initiative by the district hospital director and head nurse, and their ability to allocate staff to cover providers' responsibilities outside of VIA. The type of service day (mobile versus static) is also affected by the degree of director support in terms of allocating resources for mobile teams and the level of coordination between the providers and the health centers to recruit women for mobile clinics. How many women end up attending the clinic depends upon the recruitment strategy used—whether health center staff and VHVs have been involved—their accessibility to the service delivery point (transportation), and to a lesser degree, the attitudes of women regarding the service.

While there is no singular recipe for district success, these results suggest that when the following elements exist, high productivity and ultimately, high coverage, will likely follow:

- Strong policy statement from provincial administration;
- Establishment of specific coverage target (within a defined timeframe);
- Support from district administration; perception that meeting SVA coverage target is a high priority;
- Service days on most days of the week;
- Three or more mobile days per week OR strong coordination with health centers to bring women to the hospital from more distant areas;
- Active health center staff using targeted recruitment strategy; and
- Strong information system so that accurate performance measures can be calculated and used to modify district strategies, as appropriate, and motivate districts to maintain momentum.

DISCUSSION AND CONCLUSIONS

The experience of Roi Et Province in the ACE Phase of the cervical cancer prevention program shows how various combinations of factors can lead to a range of outcomes. The autonomy of district administrators to implement the SVA initiative created a situation in which numerous approaches were applied with inputs of varying intensity. By comparing outcomes across districts and analyzing qualitative information, it was possible to distill out factors that seemed to most impact supply of and demand for cervical cancer prevention services.

Supply of services was created when providers are trained and clinics are opened, but these two factors alone are not enough to ensure success. It is clear that the mechanisms of policy and support are crucial, as is the type of service delivery strategy selected by each district. Roi Et Province employed its existing mechanisms for supervision, evaluation and monitoring. Variation in performance across districts was due to the relative strength of support and coordination resulting from communication about provincial policies related to SVA provision.

Demand for services was generated when women learned about the existence of the services, and when and where they could attend clinics. Variation in performance across districts was determined mainly by how effectively the networks of health centers and VHVs were employed and whether mobile clinics were included in the service delivery strategy.

Given that the common objective of all 17 districts in Roi Et Province was to achieve 80% coverage of the target population within five years, it was reasonable to judge performance based on this and related outcomes. **Table 9** displays enabling and limiting factors impacting performance of districts in terms of coverage achieved in the amount of time services had been offered at the time of the evaluation. Those districts possessing a majority of the enabling factors tended to fare better than those burdened by limiting factors. Thus, to enhance overall performance, districts should aim to increase enablers and decrease limiters, however possible.

As Thai health officials seek to expand the SVA with VIA and cryotherapy to other provinces throughout the country, they should ensure that factors enhancing success are present, or can be introduced, before establishing these new sites. Since many of the factors can be impacted through project interventions, this bodes well for the future of SVA in Thailand and the likelihood of reaching coverage high enough to measurably reduce morbidity and mortality from cervical cancer. Roi Et Province, with its strengths and challenges, has provided an exceptional example that the MOPH can now apply, as appropriate, in other settings.

TABLE 9. ENABLING AND LIMITING FACTORS IMPACTING PERFORMANCE

CATEGORY	ENABLING	LIMITING
Service Delivery Strategy	• Mobile teams 3 or more days per week • Targeted testing	• Static services • Opportunistic testing
Providers	• Financial incentives	• Low provider to population ratio
Budget	• Health Care Reform (prevention and promotion) • Director perceives program to be inexpensive	• Health Care Reform (fund management not standardized across districts) • Smaller budget in smaller districts
Equipment and Materials	• Supplies readily available at hospitals	• Limited cryotherapy units • Damaged cryotherapy units • Limited exam rooms and beds
Coordination	• Existence of District Health System • Physical infrastructure	• Failure to communicate with stakeholders within District Health System
Policy	• Endorsement from Permanent Secretary of MOPH • Creation of provincial and district policy	• Lack of consensus between two arms of MOPH
Advocacy / Support	• Active Project Director • Supportive and informed Provincial Medical officer • Active District Hospital Director	• Inactive health center staff
Recruitment	• Village Health Volunteer program • Access to loudspeaker • Home Visits • Satisfied clients	• Uninvolved health center staff
Knowledge and Attitudes	• Trust in health professionals • Positive experiences/satisfaction	• Fear of result • Embarrassment
Accessibility	• Affordable and convenient transportation • Use of district vehicle to transport women	• Seasonal agricultural duties • Labor migration • Lack of transportation

STRENGTHS AND CHALLENGES

SUPPLY

SERVICE DELIVERY STRATEGIES

Strengths

- Numerous strategies were represented across districts, resulting in a rich set of experiences from which to learn.
- Districts were evaluating their performance after implementing a strategy and then adjusting accordingly.
- There was a common goal of achieving 80% coverage within five years, which resulted in active service delivery.
- In almost all districts, district hospital directors were aware of coverage goals and were involved in the process of establishing and monitoring strategies.

Challenges

- Repeated changes in service delivery strategies caused confusion for clients, thus requiring more effort to accurately communicate service days and times.
- In some districts, coverage remained low despite efforts of provider teams to offer SVA services, suggesting that demand factors played an important role.
- There was a strong emphasis on quantitative data when comparing performance within the province (i.e. at meetings of the district hospital directors), neglecting other factors that may be present in the districts.

RESOURCES

Strengths

- Providers were adequately trained and supervised, to establish and maintain competence.
- Providers expressed a sense of pride and ownership in their role of serving women through the SVA program.
- Providers received recognition and compensation for participating in the SVA program.
- Training nurses to perform VIA and cryotherapy has expanded the role of nursing in Thailand.
- The Health Care Reform has granted more fiscal autonomy to district hospital directors than under the past management system.
- Promotion and prevention have been emphasized within the health care reform, with funds earmarked specifically for this purpose.
- Many directors understood the social and financial importance of prevention.
- All stakeholders perceived the SVA program as inexpensive relative to other initiatives, and either as expensive as or less expensive than the Pap smear program.
- Funds were available to motivate providers with per diem for mobile visits.

Challenges

- Providers faced multiple tasks and competing priorities in their jobs at the district hospitals.
- Many districts faced staff shortages, including the number of providers trained.
- Some provider lacked confidence in VIA and cryotherapy skills.

- The unintended effects of fatigue and irritation posed a challenge for sustained quality performance.
- Small districts struggled to provide the standard mandate of services, causing the SVA program to suffer.
- There was wide variation in how and how many funds were allocated to SVA services across districts, resulting in various levels of activity and effectiveness. Some directors appeared to dedicate more funds than others from the promotion and prevention budget.
- The cryotherapy unit was perceived as a major expense and, if not subsidized by JHPIEGO or the government, could be inaccessible.
- Repair and maintenance of cryotherapy equipment has presented a challenge in some districts.

COORDINATION

Strengths

- A logical administrative framework of health services exists, facilitating communication flow.
- Administrators at all levels were receptive to their superiors and complied with directives, in most cases.
- Monitoring and supervision processes were well established to ensure completion of work plans.
- Frequent meetings of district health committees facilitate strategic planning of VIA and other services.
- The same protocol for implementation of other health promotion programs was used for the SVA, reducing confusion and eliminating the need to develop a separate system.

Challenges

- A formal system of communication between national and provincial levels did not exist.
- Methods of coordination were not standardized across districts, presenting some challenges for supervision at the provincial level.
- In some cases, health centers within a district exhibit varying levels of compliance with directives, and providers did not have the time or authority to ensure that tasks are completed.

POLICY

Strengths

- The Permanent Secretary of the MOPH has clearly stated that the SVA should be considered an alternative technique for cervical cancer prevention in regions of Thailand where adequate coverage with Pap smear cannot be achieved.
- Stakeholders at all levels knew, understood, and accepted the SVA as an alternative to other cervical cancer prevention strategies, and integrated it into standard services.

Challenges

- The Department of Health and the Department of Medical Services had conflicting recommendations about cervical cancer prevention screening in Thailand, which has caused confusion among some stakeholders.
- The Minister of Public Health has not spoken publicly in favor of the SVA in Thailand.

- When the Permanent Secretary is reappointed in two years, national policy guidelines may change if the new Permanent Secretary is not supportive of VIA.

ADVOCACY

Strengths

- Project representatives have successful advocated on behalf of VIA and cryotherapy in Thailand, and have gained support at all levels.
- The Permanent Secretary of the MOPH has vocalized support for the SVA program.
- Provincial officials expressed support and monitored program activities during monthly district meetings. They also provided resources and technical assistance.
- Roi Et Province has been supporting other provinces that are implementing the SVA.

Challenges

- The program has been dependent on its project director as a key figure to make inroads with important stakeholders and organizations.
- Conflicts persist within departments of the MOPH, which may be a cause for key organizations, such as the Medical Council, to withhold support of the SVA.

DEMAND

RECRUITMENT

Strengths

- There was an established network of active VHVs that was mobilized to identify and inform women about SVA services.
- Interviewees said that most women were willing to have the VIA test and only needed to be informed about the times and locations of clinics.
- Health center staffs had experience implementing health promotion programs, and developed effective systems for message dissemination and recruitment.
- In most cases, health center staff members were at their clinics for many years (low turnover) and developed strong and trusting relationships with villagers.
- Most women responded positively to the motivation techniques employed by health center staff and VHVs, evidenced by their attendance at clinics.

Challenges

- Health centers generally received no additional compensation or funding for their efforts to promote the SVA program.
- Sub-district health centers within a district did not consistently promote the SVA.
- VHVs were provided with insufficient information about cervical cancer and VIA, preventing them from being more active promoters.
- Relatively little support was provided for health communications campaigns about the SVA. While many provider teams employed similar techniques across districts, there were few standard procedures and materials.

KNOWLEDGE AND ATTITUDES

Strengths

- Women appeared to be willing to seek VIA tests even in the absence of accurate information about cervical cancer.
- Women were motivated to attend clinics with little effort from health officials.
- Women who had had the VIA test were more knowledgeable about cervical cancer than those who had not, meaning that they were learning through the exam process.

Challenges

- Villagers and VHVs were misinformed about various aspects of cervical cancer.
- One of the strong motivating factors for test seeking was the illness or death of a woman from cervical cancer, a condition that cannot be replicated and also creates fear.

ACCESSIBILITY

Strengths

- Provider teams developed their programs to reduce accessibility barriers.
- Few women perceived that services were inaccessible to them.
- Transportation was provided in all districts, to varying extents.

Challenges

- Provider teams had difficulty meeting their coverage goals in light of unavoidable migration to other provinces.
- The seasonal responsibilities of rice farmers demanded careful planning to ensure that women were reached at convenient times during the year.
- Provision of transportation was expensive, and is unsustainable in the long term.

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APPENDIX

INTERVIEWS CONDUCTED, BY ADMINISTRATIVE LEVEL

LEVEL	TYPE	INTERVIEWS	PARTICIPANTS
National	Ministry of Health Official	2	2
	Parliament Representative	1	1
	University Faculty	2	2
	Project Staff	1	1
Provincial	Provincial Health Director	3	3
	Referral Physician	1	1
District	Hospital Director	9	9
	Head Nurse	4	4 (1 also provider)
	Nurse Provider	10	20
	District Health Officer	8	8
Sub-District	Health Center Officer	10	14
	Village Health Volunteer	10	29
Village	Women—VIA	9	23 (1 also VHV)
	Women—non-VIA	8	13
TOTAL		**78**	**128**

INTERVIEWS CONDUCTED, BY DISTRICT

DISTRICT	STAKEHOLDER TYPE	NUMBER INTERVIEWED
Atsamat	Hospital Director	1
	Head Nurse	1 (also provider)
	Nurse Provider	3
	District Health Officer	0
	Health Center Officer	1
	Village Health Volunteer	3
	Women—VIA Test	2
	Women—No VIA Test	1
Jungharn	Hospital Director	1
	Head Nurse	0
	Nurse Provider	2
	District Health Officer	2
	Health Center Officer	1
	Village Health Volunteer	7
	Women—VIA Test	2
	Women—No VIA Test	1
Kasetwisai	Hospital Director	1
	Head Nurse	0
	Nurse Provider	1
	District Health Officer	2
	Health Center Officer	1
	Village Health Volunteer	2
	Women—VIA Test	0
	Women—No VIA Test	0
Muayvadee	Hospital Director	1
	Head Nurse	0
	Nurse Provider	3
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	2
	Women—VIA Test	2
	Women—No VIA Test	2

INTERVIEWS CONDUCTED, BY DISTRICT, CONTINUED

DISTRICT	STAKEHOLDER TYPE	NUMBER INTERVIEWED
Phanomphrai	Hospital Director	0
	Head Nurse	1
	Nurse Provider	2
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	3
	Women—VIA Test	3
	Women—No VIA Test	3
Pon Tong	Hospital Director	1
	Head Nurse	0
	Nurse Provider	2
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	2
	Women—VIA Test	2
	Women—No VIA Test	1
Selaphum	Hospital Director	1
	Head Nurse	1
	Nurse Provider	2
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	3
	Women—VIA Test	4
	Women—No VIA Test	3
Srisomdet	Hospital Director	1
	Head Nurse	1 (also provider)
	Nurse Provider	1 (also head nurse)
	District Health Officer	0
	Health Center Officer	4
	Village Health Volunteer	4
	Women—VIA Test	3
	Women—No VIA Test	0

INTERVIEWS CONDUCTED, BY DISTRICT, CONTINUED

DISTRICT	STAKEHOLDER TYPE	NUMBER INTERVIEWED
Suwannaphum	Hospital Director	1
	Head Nurse	0
	Nurse Provider	1
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	2
	Women—VIA Test	3
	Women—No VIA Test	1
Thawachburi	Hospital Director	1
	Head Nurse	0
	Nurse Provider	3
	District Health Officer	1
	Health Center Officer	1
	Village Health Volunteer	1 (also VIA client)
	Women—VIA Test	2
	Women—No VIA Test	1
TOTAL		**118**