

Scale-Up, Performance and Quality in the Cervical Cancer Prevention Program in Thailand: Results from the Outcomes Research Study



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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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TABLE OF CONTENTS

ACKNOWLEDGMENTS	iii
ABBREVIATIONS AND ACRONYMS	iv
EXECUTIVE SUMMARY	1
BACKGROUND	2
Importance of Program Elements	2
Thailand SAFE Project	2
Scale-Up Efforts	3
Operations Research	4
METHODS	4
Sampling	5
Tools	6
Data Collection Protocol	7
RESULTS	7
1. Performance Standards	7
2. Supervisor and Provider Interviews	11
3. District Official Interviews	13
Coverage	14
CONCLUSION	19
REFERENCES	21

LIST OF EXHIBITS

Exhibit 1: Program Components for a Single Visit Approach to Cervical Cancer Prevention	2
Exhibit 2: District Sampling Process	5
Exhibit 3: Summary of Study Instruments Used	7
Exhibit 4: Performance Standards for VIA and Cryotherapy	8
Exhibit 5: Quality Assurance Methods Used, as Cited by Providers and Supervisors	11
Exhibit 6: Support to Staff Performance, as Cited by Supervisors and Providers	12
Exhibit 7: Feedback to Staff about Performance, as Cited by Supervisors	13
Exhibit 8: Utilization of VIA Co-Assessment Tools	13
Exhibit 9: Factors Affecting Performance, as Cited by District Officials	14
Exhibit 10: Number of Women Screened with VIA in Thailand (2000–2006), by Province	15
Exhibit 11: VIA Coverage in “Outcomes” Districts by Province, 2001–2006	16
Exhibit 12: VIA Coverage in “Outcomes” Districts, by Province and Year	16
Exhibit 13. VIA Coverage in Roi et Province between 2000 and 2006, by District.	17
Exhibit 14: Expected Coverage, Actual Coverage and Coverage Ratio as of December 2006.....	18

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ABBREVIATIONS AND ACRONYMS

ACCP	Alliance for Cervical Cancer Prevention
CECAP	Cervical Cancer Prevention Program
CPIS	Cervical Precancer Information System
IARC	International Agency for Research on Cancer
MOPH	Ministry of Public Health
RTCOCG	Royal Thai College of Obstetricians & Gynecologists
SAFE	Safety, Acceptability, Feasibility, and program Effort
SVA	Single visit approach
VIA	Visual inspection with acetic acid

EXECUTIVE SUMMARY

The Outcomes Research Study was conducted by JHPIEGO and partners to assess the maintenance of quality of cervical cancer prevention and treatment services in Thailand and Ghana—two countries where Cervical Cancer Prevention (CECAP) programs had been heavily supported externally—once that external support had been removed. Results from the Ghana study are presented separately. In Thailand, to obtain information about the level of provider performance and the ways in which quality had been maintained in the program, the study employed observations of providers delivering cervical cancer and prevention services (based on a detailed checklist), interviews with providers and their supervisors, and interviews with district-level health officials. The study also looked at coverage achieved in program districts.

Results from the Thailand study, presented in this report, show that a high level of quality of services was maintained, as measured by provider performance. Of the providers assessed, 61% achieved a score of 85% or better on cervical cancer screening through visual inspection with acetic acid (VIA); similarly, 75% of providers achieved a score of 82% or higher on cryotherapy for treatment of precancerous lesions. In 99% of the cases, the trained researcher agreed with the provider’s diagnosis of the cervix and case management decision.

Provider interviews revealed a high level of recognition among both providers (89%) and their supervisors (83%) of the importance of external supervision in maintaining quality of services. The use of peer assessments as a quality assurance measure was reported by 51% of providers. District manager interviews showed agreement on “enabling factors” (factors associated with quality of VIA and cryotherapy services) at the district level, with 87% of interviewees reporting that they “support the VIA program,” and 90% reporting that they find VIA to be cost-effective.

Scaling up VIA coverage to reach a large proportion of eligible women is one of the biggest challenges facing cervical cancer programs. Thailand, perhaps more than any other country in the world, has made tremendous strides toward this ambitious goal—significantly expanding coverage. The average coverage of eligible women reached with cervical cancer screening and treatment using VIA in the 49 participating districts was 26%, but coverage was as high as 45% in some districts. Moreover, six districts had either achieved 80% of their provincial policy coverage targets or were on track to meet 100% of their coverage targets.

Overall, the findings revealed a notably high level of achievement in the program, in terms of both provider performance and coverage reached. The findings suggest that not only has the quality of Thailand’s cervical cancer prevention program been sustained at the level achieved with external donor support, but the program has also been dramatically expanded since that support ended.

BACKGROUND

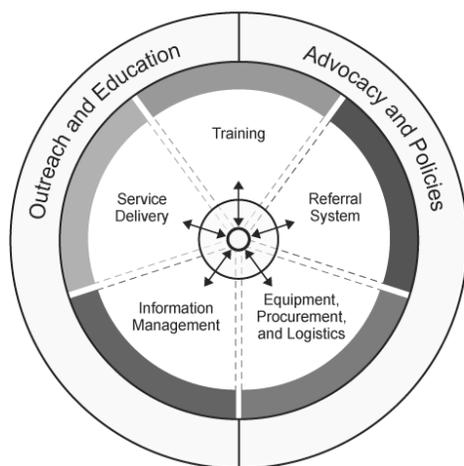
Cervical cancer is the second most common cancer among women globally. Each year, there are approximately 493,000 new cases of cervical cancer, nearly 80% of which occur among women living in developing countries. Approximately 274,000 women die of the disease each year, according to the most recent global statistics (Ferlay et al. 2004). Worldwide, cervical cancer remains a pervasive public health problem because access to cervical cancer screening and treatment of precancerous lesions is not widespread, especially in developing countries.

In Asia, cervical cancer is a significant public health concern. In Thailand, for example, cervical cancer has been the most prevalent women's cancer for many decades, with a prevalence rate of 15.6 women per 100,000 per year (Ferlay et al. 2001). The disease kills about 6,000 Thai women every year, with an age-standardized incidence ratio of 20.9 per 100,000 women-years (Chumworathayi et al. 2006).

Importance of Program Elements

It has been well established that a large percentage (at least 70%) of women must be screened in order to gain significant public health benefits from cervical cancer screening (Duncan 1997; Monsonego 1997). In England, for example, a significant decline in national mortality rates occurred only after 80% coverage was exceeded (Duncan 1997). The interval at which screening should be conducted is dependent on available resources and desired mortality reduction. One study showed

Exhibit 1: Program Components for a Single Visit Approach to Cervical Cancer Prevention



that screening 50% of women aged 35–64 every five years led to a 42% reduction in cumulative incidence of cervical cancer, while screening 80% of women every 10 years led to a reduction of 51% (Monsonego 1997).

The Cervical Cancer Prevention (CECAP) program in Thailand provides some of the best evidence in the world to date that a large-scale, high-quality program using the single visit approach (to screening and treatment) is feasible.

Experience from Thailand, as well as other countries, has underscored the importance of programmatic support in the successful integration of cervical cancer prevention and treatment services with other reproductive health services. **Exhibit 1** shows the components that must be in place to develop a successful screening program.

Thailand SAFE Project

In 1999, the Royal Thai College of Obstetricians & Gynecologists (RTCOCG) 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 Northeastern region, Roi Et province was selected because of its rural location

and the availability of a tertiary referral facility, and because the Pap-based cervical cancer screening services available in the area had not been programmatically successful.

The five-year SAFE project was funded by the Bill & Melinda Gates Foundation, through the Alliance for Cervical Cancer Prevention (ACCP). Its objective was to rigorously assess SAFE-related indicators concerning the single visit approach (SVA) to cervical cancer prevention—which 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. Since then, many other researchers have demonstrated the value of VIA in detecting cervical disease and concurred about the usefulness of this method in low-resources settings (Arbyn et al. 2005; Belinson et al. 2001; Denny et al. 2000; Gaffikin et al. 2003; RTCOG/JHPIEGO/CECAP 2003; Shastri et al. 2005).

Scale-Up Efforts

Following the SAFE project, the SVA using VIA was scaled up in Thailand. In 2003, the MOPH declared SVA to be part of the national cervical cancer prevention strategy alongside the Pap smear. The MOPH has implemented SVA in additional areas throughout Thailand, and VIA is now offered in more than 200 districts in 16 (of 75) provinces. SVA services are provided by nurses who work in family planning clinics at the district level (district hospitals as well as community outreach services). Training and supervision are carried out by national and regional teams composed of physicians and nurses who have been trained in the approach. These teams are responsible for ensuring the quality of services and collecting data to be entered into the national cervical precancer information system, which tracks the number of clients served and other relevant statistics.

Integration of the SVA with routine primary health care in Thailand began in 2002, and the government budget for this activity gradually increased over time—a major factor in the success of the country's CECAP program. This financial support makes it possible for provincial medical directors to have a choice between offering the Pap smear or VIA, based on which strategy best suits their situation. The usefulness of VIA through SVA has been demonstrated primarily in rural areas, where combining testing and immediate treatment in a single visit is particularly important to reduce loss to follow-up (RTCOG/JHPIEGO/CECAP Group 2003). In many provinces, a two-pronged approach is used, whereby Pap smears are used in urbanized areas and VIA is used in more remote districts.

National policy change was also critical to the success of the program. This change was achieved through continued advocacy with stakeholders during the demonstration project and initial scale-up phases. The publishing of SAFE project results in the *The Lancet* (RTCOG/JHPIEGO/CECAP Group 2003) positively influenced such efforts, bringing international recognition to the intervention. The current policy within the MOPH states that all eligible women between 35 and 60 years of age should be screened at five-year intervals with either a Pap smear or VIA. In addition, policies have been developed to allow nurses to perform VIA and cryotherapy, procedures that in many settings are performed only by physicians.

The Department of Health within the MOPH provides the programmatic, technical and financial support needed to train staff and implement the new screening services. Costs are shared among the national-, provincial- and district-level governments as part of the overall disease prevention budget. This national policy, and its operationalization at the provincial level, has been a key factor in the process of scaling up and sustaining cervical cancer prevention services throughout Thailand.

To address training needs in a sustainable manner, regional training teams and a 10-day training course were developed, and an external supervision system was established. Through the training, nurses learn not only about the clinical aspects of SVA, but also about supervision, peer assessments and the importance of data collection and monitoring. To maintain the equipment required for the program, regional cryotherapy unit repair teams were developed. Procurement is managed through the MOPH using local vendors.

Another factor in the success of scaling up the CECAP program in Thailand has been the introduction of the Cervical Precancer Information System (CPIS). This health management information system collects information from health facilities (aggregated by district and province) about provision of cervical cancer screening and prevention services. It also stores important data for screening efforts and disease rates at the district level, which allows policymakers and stakeholders to make appropriate decisions to combat cervical cancer.

Operations Research

Although numerous studies have reported on the effectiveness of VIA as well as its usefulness in low-resources settings, no research has been done to address the programmatic performance of VIA-based screening programs and how quality has been maintained in such programs.

Drawing on years of experience in CECAP programming, JHPIEGO recognizes that the two major challenges for implementing the SVA using VIA and cryotherapy in an unfunded environment are: 1) sustaining expansion of services and the ability to achieve adequate coverage of the population; and 2) ensuring that services are of the highest possible quality throughout the expansion process. Although services may be of high quality and program expansion supported during the funded period, programs must depend on local support and resources for long-term sustainability. Therefore, operations research on key programmatic components is critical to determining the likelihood of, and factors contributing to, long-term program success.

To address this need, JHPIEGO undertook the Outcomes Research Study in Thailand, as well as in Ghana, which had also undergone a SAFE study during the same time period (1999–2004). The overall goal of the study was to contribute to the evidence base on feasible, effective and sustainable secondary prevention of cervical cancer in developing countries. Specifically, the study aimed to assess the extent to which program quality and effort have been sustained after Gates funding ended in 2004. Findings from the Outcomes study are presented in this report. One of the most remarkable is simply the scale to which the SVA-based cervical cancer screening and treatment program has been rolled out in Thailand, as well as the coverage that the program has achieved.

METHODS

The study was designed to provide outcome measures of CECAP service delivery in Thailand by examining the cervical cancer screening coverage, quality of services and enabling factors at the district level. The following methods were employed, which reflect the three main arms of the study:

1. Observations of providers as they deliver VIA and cryotherapy services, using a checklist of desired performance standards

2. Interviews with cervical cancer prevention service providers and their supervisors regarding measures taken in the workplace to maintain quality of services
3. Interviews with district hospital directors and their counterparts for community outreach (district health officers) regarding attitudes toward cervical cancer prevention using the SVA

In addition, calculations of coverage were performed using Thailand’s CPIS database, which measures routine health information related to cervical cancer screening and treatment using the SVA. Developed in 2000, the CPIS is a modified version of the International Agency for Research on Cancer (IARC) Cancer Prevention Information database (Palanuwong 2007).

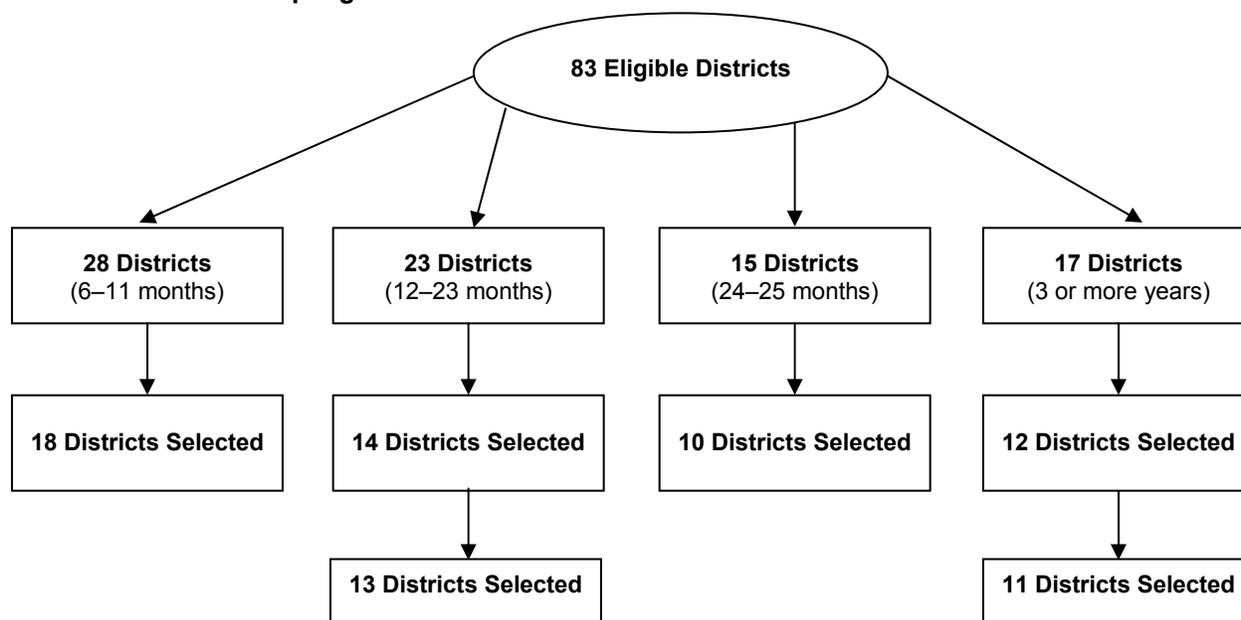
The study was conducted with ethical oversight from Western Institutional Review Board. This section further describes the methods used.

Sampling

Districts: Out of 83 eligible districts (in nine provinces), 54 were randomly selected to be included in the study. A district was eligible for inclusion in the study if VIA/cryotherapy services had been offered there for at least six months as of December 2005. This number of districts was targeted because it is the largest number that the study team could feasibly reach within the data collection period.

Exhibit 2 shows the district sampling process. First, all 83 districts were grouped according to the number of months elapsed since provider training. Length of time was chosen as a factor because it corresponds to the “generations” of service providers that have been trained in Thailand, which in turn relates to the type of training conducted. Then, districts within each group were randomly selected, proportionate to the total number in the pool. Two districts were later excluded from the sample because they were used as pre-test sites (i.e., relevant study data had already been collected from these sites for the purpose of refining the data collection tools); hence, the final sample contained 52 districts.

Exhibit 2: District Sampling Process



By the end of 2005, a total of 49 out of 52 districts had participated in the study. Of the remaining three, two were excluded because the district hospital had stopped providing VIA and one because the hospital director declined to participate.

Participants: Subjects of the study were nurses providing VIA/cryotherapy services in district hospitals or outreach sites, their immediate supervisors and key decision-makers in the selected districts. All nurses who provide these services in the participating facilities and who were present on the days of data collection were interviewed. More than one-third (37%, 113 of 308) of all trained nurses providing VIA in Thailand were included in the study by the end of 2005.

Informed consent was obtained from all providers prior to interviewing. This entailed the researchers describing the reasons for the study, and informing potential subjects of their right to choose not to participate, their right to end the interview at any time, the fact that their responses would be confidential, and the fact that their participation would not affect their job.

Tools

1. Performance Standards: To obtain measures of provider performance, trained clinical observers spent a full day at each site observing the client–provider interactions and marking, on detailed checklists, whether providers achieved all of the steps involved in correctly performing the task of either VIA or cryotherapy. The standards used to assess provider performance were based on nationally endorsed standards developed by Thai and international experts, and were the same as those used during training for the Thai providers as part of the SAFE study.

In the original study design, the intention was to observe each provider twice. Later, the design was modified such that each provider was observed only once. This was due to the realization that each VIA procedure observed could not be considered an independent event if performed by the same provider. Thus, in cases in which a provider had been observed twice, the second observation was dropped.¹

2. Supervisor and Provider Interviews: Supervisor and provider interviews were interviewer-administered questionnaires focusing on the types of mechanisms used to maintain quality of services in the health facilities where they worked. Interviewees were asked similar questions about the frequency and methods of quality control applied in their workplace.

3. District Manager Interviews: Interviews geared specifically to district managers were administered to both district hospital directors and district health officers. These self-evaluations included both open- and close-ended questions to assess various factors thought to be associated with quality of VIA and cryotherapy services at the district level, such as service delivery strategy, VIA coverage, cost of services, supplies and equipment, and district coordination.

Exhibit 3 provides a summary of the instruments used in the above activities.

¹ Of 112 providers observed, 74 were observed twice for VIA performance. Examination of the first and second observations using chi square test revealed no significant differences ($P < 0.05$) in any variables between the first and second observations. Based on this finding, we considered the first observation to be a fair representation of provider performance.

Exhibit 3: Summary of Study Instruments Used

Instrument	Method	Respondent Type	No. of Respondents
Performance Standards and Management Tools for VIA	Observation	Provider	113
Performance Standards and Management Tools for Cryotherapy	Observation	Provider	76
Supervisor Questionnaire	Interviewer-administered	Provider's immediate supervisor	51
Provider Questionnaire	Interviewer-administered	Provider	101
District Manager Self-Evaluation	Self-administered	District manager	99

Data Collection Protocol

Ten Thai research assistants responsible for data collection visited each service delivery site to conduct interviews, observe providers and collect service statistics for the districts or sites to which they were assigned. The research assistants were nurses trained in the original SAFE study, all of whom were highly proficient in the SVA. In preparation for the study, they had undergone additional training in research methods and were “certified” as competent at the end of training based on their scores on an exam.

Once completed, data collection forms were first sent to the study coordinator in Roi Et, who checked for errors and translated open-ended responses into English. Then, the questionnaires were sent to Bangkok, where they were reviewed again by the project director. For each questionnaire, one copy was retained in Thailand and the other was sent to JHPIEGO's Baltimore office, where data were entered into a SPSS database. All questionnaires were stored in locked cabinets. Service statistics were obtained from each district and sent to the CPIS, which stored aggregated data with no individual identifiers for reasons of confidentiality.

RESULTS

1. Performance Standards

The performance standards observations were conducted to assess the providers' competency in VIA and cryotherapy, according to both general standards (a group of one to four steps that make up a task) and specific criteria (individual and observable actions that make up each step)—as shown below in **Exhibit 4**. This allowed us to assess which aspects of the VIA or cryotherapy competencies were areas of strength or weakness for providers. Competency was defined as performing 85% of all skills correctly (i.e., at least 17 of the 20 selected performance standards). Providers were said to have achieved a standard only if they correctly completed all criteria within the standard.

Exhibit 4: Performance Standards for VIA and Cryotherapy

Performance Standard	Criteria	Percentage of Providers Achieving All Criteria	No. of Providers Observed
VIA			
Effective counseling skills	<ul style="list-style-type: none"> ▪ Greet the client with respect and kindness ▪ Listen actively to what the woman says ▪ Answer questions directly in a calm and reassuring manner ▪ Help the woman make own decision without suggesting what she should do 	90.3	113
Respectfulness of women's rights at all times	<ul style="list-style-type: none"> ▪ Tell her that the information she provided will not be shared with anyone not directly involved in her treatment without her permission ▪ If woman wants to involve anyone in decision-making, respect her wishes 	50.4	113
Assurance of client's privacy at all times	<ul style="list-style-type: none"> ▪ Use a separate area such as an office, closed treatment room, or curtained space ▪ Draw curtains around the treatment area whenever the woman is undressed, or turn the treatment table so that the woman's feet are not facing the doorway or public space ▪ Use drapes or plain cloth sheets to cover the woman's legs and body during examination 	93.8	113
Counseling prior to VIA test	<ul style="list-style-type: none"> ▪ Explain how the pelvic examination is done ▪ Explain how the VIA test and cryotherapy prevent cervical cancer ▪ If woman chooses to have a VIA test, ask her if she has any other questions about the VIA test 	79.3	111
Preparation for VIA test	<ul style="list-style-type: none"> ▪ Ask the woman to wash genital area and empty bladder ▪ Wash hands thoroughly with soap and water or alcohol handrub and dry with clean, dry cloth or air dry ▪ Put a new pair of examination gloves on both hands 	87.6	113
Pre-inspection for VIA test	<ul style="list-style-type: none"> ▪ Inspect external genitalia and check urethral opening for discharge ▪ Palpate Skene's and Bartholin's glands 	79.6	113
Inspection for VIA test	<ul style="list-style-type: none"> ▪ Insert speculum with care and adjust it so that the entire cervix can be seen ▪ Examine the cervix for cervicitis, ectopion, tumors, Nabothian cysts or ulcers 	100.0	113
Application of acetic acid	<ul style="list-style-type: none"> ▪ Apply dilute acetic acid using cotton balls ▪ Observe the cervix for 1 minute right after acetic acid application and record any changes ▪ Remove any remaining acetic acid from the cervix and vagina using fresh cotton balls 	93.8	113

Performance Standard	Criteria	Percentage of Providers Achieving All Criteria	No. of Providers Observed
VIA continued			
Post-VIA test infection prevention tasks	<ul style="list-style-type: none"> ▪ Remove gloves by turning inside out ▪ Dispose of gloves by placing in leakproof container or plastic bag ▪ Wash hands thoroughly with soap and water or using alcohol handrub and dry with clean, dry cloth or air dry 	92.0	112
Post-VIA counseling	<ul style="list-style-type: none"> ▪ Ask the woman to sit up, get down from the examining table and get dressed ▪ Tell the result ▪ Record the VIA result and other findings in the woman's health passport and logbook 	95.5	112
Post-test counseling (result-specific)	<p><u>For a negative result:</u></p> <ul style="list-style-type: none"> ▪ Discuss with the woman the results of the VIA test and what it means to her reproductive health ▪ Advise the woman to return for repeat test after 5 years ▪ Provide follow-up visit instructions <p><u>For a positive result:</u></p> <ul style="list-style-type: none"> ▪ Discuss with the woman the results of the VIA test and what it means to her reproductive health ▪ Encourage the woman to ask questions and discuss her condition ▪ If the woman is eligible for cryotherapy, ask the woman if she is pregnant ▪ Ask the woman to give her consent for treatment 	96.4	112
Documentation	<ul style="list-style-type: none"> ▪ Complete each required element in the VIA and/or cryotherapy record ▪ Document the cervical lesion findings on the cervical map ▪ Document recommended follow-up 	98.1	106
Cryotherapy			
Detailing information about the treatment options	<ul style="list-style-type: none"> ▪ Explain why the treatment is recommended and describe the procedure ▪ Describe the benefits and effectiveness of cryotherapy ▪ Explain the potential side effects and ensure that the woman understands ▪ Verify that the woman consents to the treatment 	82.9	76
Preparation for cryotherapy	<ul style="list-style-type: none"> ▪ Check that CO₂ tank is turned on and the gauge indicator is between 40 and 70 kg/cm² ▪ Prepare cryogun by inserting high-level disinfected (HLD) cryotip 	92.1	76

Performance Standard	Criteria	Percentage of Providers Achieving All Criteria	No. of Providers Observed
Cryotherapy continued			
Cryotherapy (Step 1)	<ul style="list-style-type: none"> ▪ Insert speculum with care and expose the entire cervix 	97.4	76
Cryotherapy (Step 2)	<ul style="list-style-type: none"> ▪ Check cryogun function by pressing freeze button for 1 second and then defrost button for 1 second ▪ Apply the cryotip to the cervix ▪ Freeze cervix for 3 minutes ▪ After 3 minutes, wait for the cryotip to defrost 	88.2	76
Cryotherapy (Step 3)	<ul style="list-style-type: none"> ▪ Wait 5 minutes and repeat the procedure ▪ Remove the speculum and place it in 0.5% chlorine solution for 10 minutes for decontamination 	97.4	76
Post-cryotherapy infection prevention tasks	<ul style="list-style-type: none"> ▪ Remove gloves by turning inside out ▪ Dispose gloves by placing in leakproof container or plastic bag ▪ Wash hands thoroughly with soap and water or using alcohol handrub 	86.8	76
Post-cryotherapy counseling*	<ul style="list-style-type: none"> ▪ Check to be sure woman is not having excessive cramping ▪ Advise the woman about post-treatment warning signs ▪ Discuss need for abstinence for 4 weeks or the use of condoms when sexual contact cannot be avoided ▪ Provide post-procedure care and follow-up instructions verbally and in writing 	Not observed	Not observed
Decontamination of instruments	<ul style="list-style-type: none"> ▪ Place instruments in decontamination bucket immediately after use ▪ Leave instruments in decontamination bucket for 10 minutes ▪ Move instruments into bucket of soapy water and scrub ▪ Use appropriate disinfectant to wipe down the main body of the cryogun ▪ Remove and disinfect the cryotip prior to storage 	90.8	76
Storage of HLD metal instruments	<ul style="list-style-type: none"> ▪ Immediately store instruments in HLD covered containers 	93.4	76

*“Post-cryotherapy counseling” was not observed due to a misprint in the data collection tool.

VIA Performance Standards: Trained researchers observed a total of 112 providers performing the 12 VIA performance standards presented above. Nearly two-thirds (61.1%) of all providers achieved a score of 85% or better on VIA performance standards, as recorded by the observer. The VIA performance standard with the lowest score was “Respectfulness of woman’s rights at all times,” which is basically a counseling standard focusing on assuring the client of confidentiality and allowing her to involve someone else in her decision-making—50.4% of providers achieved this standard. The standard with the second lowest score was “Counseling prior to VIA test,” which

includes explaining the pelvic exam, as well as how VIA and cryotherapy prevent cervical cancer, and asking the woman whether she has any questions. This standard was achieved by 79.3% of the providers.

Also, as part of the observation of VIA performance standards, researchers were asked whether cervical maps drawn by providers were correct and if they agreed with the providers' case management decisions. In most cases, observers confirmed the correctness of cervical maps (96.4%) and agreed with case management decisions (99.1%).

Cryotherapy Performance Standards: As shown in **Exhibit 4**, performance standards observations were conducted for cryotherapy as well. Fewer providers ($N = 76$) were observed performing all nine performance standards associated with this procedure because there are significantly fewer opportunities to perform cryotherapy compared to VIA (approximately 10% of VIA clients receive cryotherapy). Similar to findings for VIA performance, providers observed performing cryotherapy scored very well, with 81.6% achieving a score of 85% or greater in the areas of counseling, infection prevention and the cryotherapy procedure itself.

2. Supervisor and Provider Interviews

Questionnaires were administered to both supervisors ($N = 51$) and providers ($N = 101$) to assess methods of quality control applied in the workplace. **Exhibit 5** provides an overview of all of the methods cited. As shown, the most frequently mentioned quality assurance method, among both supervisors (83%) and providers (98%), was external assessment. This is consistent with the national program design, which includes regularly scheduled visits of external supervisors. Providers reported using peer assessments more frequently (51%) than their supervisors were aware of (35%).

As shown in **Exhibit 6**, a variety of means of supporting staff performance were mentioned by supervisors and providers. The most frequently cited by supervisors were developing/implementing facility action plans (75%), discussing/helping to resolve problems (71%) and ensuring that supplies and equipment are available or delivering supplies (73%). For providers, the top two means of supporting staff performance were developing/implementing facility action plans (60%) and discussing/helping to resolve problems (55%).

Exhibit 5: Quality Assurance Methods Used, as Cited by Providers and Supervisors

Method	Percentage Reported Using Method	
	Supervisors ($N = 48$)	Providers ($N = 98$)
External supervisor/trainer assesses quality	83	89
Immediate superior (respondent) assesses quality	29	22
Service providers do self-assessments of clinical practices	35	34
Service providers do peer assessments of each other's clinical practices	35	51
Immediate superior (respondent) and/or staff conducts client exit interviews, or has client suggestion/feedback box and/or notebook in client waiting area	10	22
Immediate superior (respondent) and/or staff reviews reports, client charts or services statistics (registers)	40	37

Exhibit 5: Quality Assurance Methods Used, as Cited by Providers and Supervisors – continued

Method	Percentage Reported Using Method	
	Supervisors (N = 48)	Providers (N = 98)
Immediate superior (respondent) and/or staff compares the performance of this facility to that of other facilities	25	27
Immediate superior (respondent) and/or staff gathers information on community perceptions about services	15	16
Immediate superior (respondent) and/or staff reviews supplies, logistics records and amount of stock available	17	20
Other	4	6

Exhibit 6: Support to Staff Performance, as Cited by Supervisors and Providers

Type of Support	Percentage Reported Using Method	
	Supervisors (N = 51)	Providers (N = 101)
Update them on new policies	31	14
Discuss/help resolve problems	71	55
Provide performance feedback	35	23
Provide coaching	4	2
Ensure that supplies and equipment are available/ deliver supplies	73	51
Provide technical updates	14	7
Help develop/implement facility action plans	75	60
Other	33	40

Almost all (50 of 51) supervisors had given either verbal (68%) or both written and verbal (32%) feedback to staff about their performance of cervical cancer prevention services. The feedback was based on a range of methods aimed at measuring provider performance (**Exhibit 7**)—most commonly informal observation of the providers (80%).

As a quality control mechanism to support performance, VIA and cryotherapy co-assessment tools are made available to providers in program facilities so that they can compare their diagnoses with those of a peer or supervisor. Providers were asked if they had ever observed each other using a co-assessment tool. As **Exhibit 8** shows, 42% of providers reported never using these tools to assess each other's performance, while 33% of supervisors (results not shown) reported that the quality of services was maintained through peer assessments of clinical practices—based on informal observations among providers rather than use of co-assessment tools.

Exhibit 7: Feedback to Staff about Performance, as Cited by Supervisors

Method Used	No. of Supervisors	Percentage (N = 50)
Clinical observation checklists for client–provider interaction and/or assessment/treatment	5	10
Informal observation of providers	40	80
Co-assessment of VIA testing and/or client management	8	16
Client suggestions	16	32
Case reviews (reviews client charts)	7	14
Other	11	22

Exhibit 8: Utilization of VIA Co-Assessment Tools

Frequency	Percentage of Providers (N = 101)	
	VIA Tools	Client Management
None or no response	42	43
At least twice a month	23	24
At least once a month	15	10
At least once every 3 months	15	19
At least once a year	4	4
Less than once a year	2	1

3. District Official Interviews

A total of 99 district-level officials from the 49 districts were interviewed. They included: 47 district hospital directors, who are responsible for implementation of CECAP services at their facilities; and 44 district health officers and eight other district managers, who are responsible for outreach services to the community. These officials were asked about factors associated with coverage and performance at the district level, which had been identified previously in an evaluation of scale up within Roi Et province (Kleine & Gaffikin 2004). A summary of their responses appears in **Exhibit 9**.

Overall, districts officials were well aware of district (79%) and provincial (88%) screening coverage targets. Fully 87% reported that they “supported the VIA program,” and 90% found VIA to be cost-effective. The questionnaire did show some areas that may need to be addressed programmatically. For example, only 38.6% of the district officials reported that there was a convenient mechanism for repairing cryotherapy units, and only 44.5 % felt that the coverage in their districts met their expectations.

Exhibit 9: Factors Affecting Performance, as Cited by District Officials

Question Asked	Percentage Agreed (N = 99)
Is the service delivery strategy to use hospital and mobile clinics?	83.6
Has the district got a 5-year goal of covering 80% of eligible women?	79.1
Has the coverage in district met your expectations?	44.5
Are there more than two VIA service providers in the district?	77.3
Is VIA cost-effective?	90.0
Are VIA supply stock-outs rare in the district?	85.4
Is there a convenient mechanism for repairing cryotherapy machines?	38.6
Does the district hospital coordinate with health centers to organize mobile clinics?	80.9
Does the district hospital coordinate with the district health management team to organize and promote services?	71.0
Has the province got a cervical cancer prevention policy?	88.0
Do you support VIA program?	87.0
Are the VIA program clients recruited through hospital and outreach posts?	90.0
Do women 15–49 years of age in the district know about VIA services?	67.1
Can the women access VIA services within 3 months?	80.9

We were not able to detect a relationship between the attitudes and knowledge of district officials and the coverage achieved by their district. In other words, there was no difference on this measurement between the lower- and higher-performing districts.

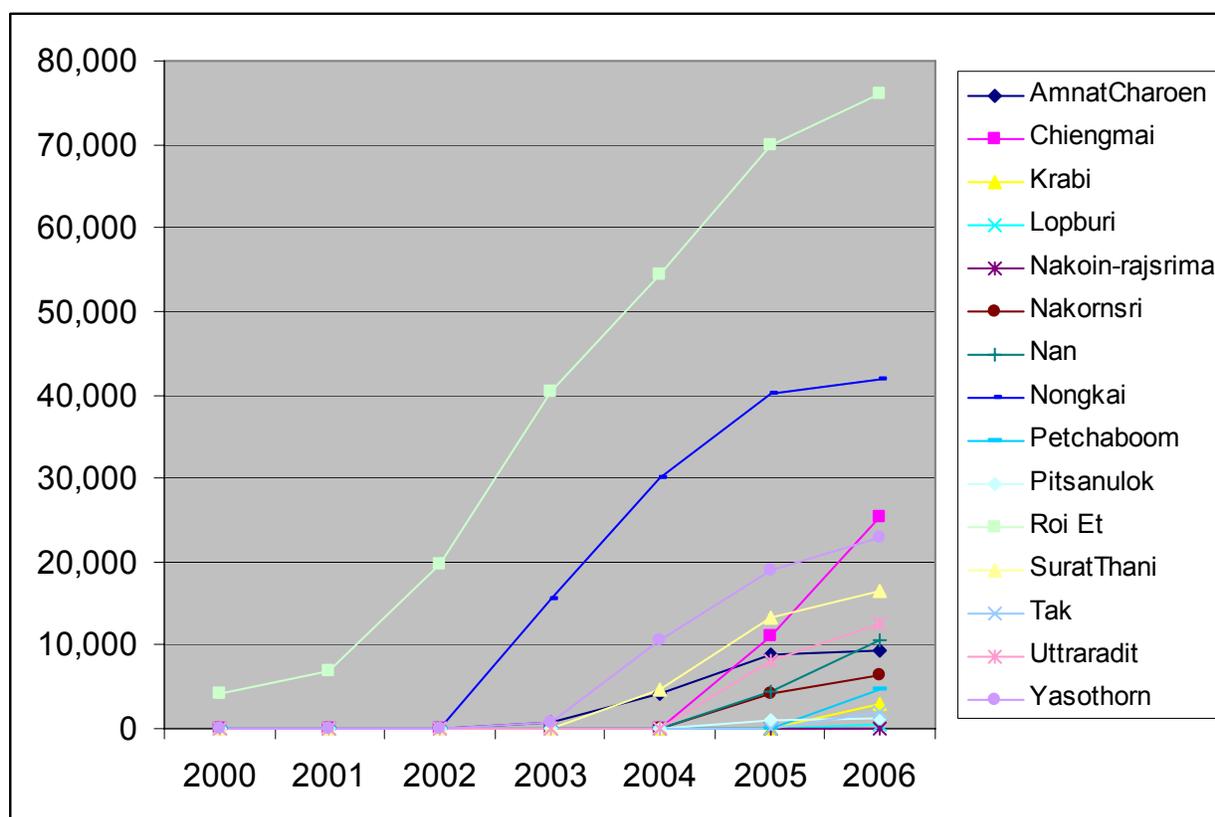
Coverage

Coverage achievements (meaning the percentage of eligible women in the district screened for cervical cancer using VIA) were evaluated in two different ways:

- Overall coverage, which is the number of new clients over the total number of eligible women in the district; and
- Coverage ratio, which is the ratio of actual coverage to desired coverage under the targets specified in Thai national policy.

Overall Coverage: Overall coverage is defined as the percentage of eligible women in the district screened with VIA by the end of December 2006. The overall coverage figures presented in **Exhibit 10** include districts and provinces that started VIA services at different times throughout the seven-year (2000–2006) period. However, a consistent trend in increasing number of women screened was seen for all of the provinces. At the end of 2006, 233,082 women had been screened at least once for VIA. The exhibit presents the accumulated number of women screened by province.

Exhibit 10: Number of Women Screened with VIA in Thailand (2000–2006), by Province



As shown in **Exhibit 11**, the coverage achieved in the different provinces varied substantially, ranging from 10.2% up to 44.8%. The overall average coverage from the 46 districts was 27.7%. This was not dramatically different from the 54 districts in the nine provinces that were not included in this study, which had an average coverage of 24.6%. As shown in **Exhibit 12**, from 2005 to 2006, VIA coverage increased in all provinces.

While variation in coverage did occur among districts in the same province, the trend was generally a steady increase in coverage. **Exhibit 13** shows coverage in the 10 “Outcomes” districts in Roi Et province between 2000 and 2006. Pon Sai, Suwannaphum and Srisomdet were the highest-performing districts in terms of overall coverage. All of the three districts had been providing services for at least 68 months since 2000.

Exhibit 11: VIA Coverage in “Outcomes” Districts by Province, 2001–2006*

Province	No. of Districts	No. of Women Screened	No. of Eligible Women	Coverage (%)
Amnat Charoen	3	3,636	23,024	15.8
Chiengmai	4	5,880	22,153	26.5
Nakornsri	5	4,639	45,685	10.2
Nongkai	7	23,151	51,699	44.8
Pitsanulok	1	1,364	4,287	31.8
Roi Et	9	29,752	75,032	39.7
Surat Thani	9	9,133	39,641	23.0
Uttaradit	3	3,975	22,215	17.9
Yasothon	5	10,840	28,834	37.6
Total	46	92,370	312,570	24.6

* Numerator = total number of new clients screened served by December 2006 (*Source*: CPIS); denominator = total number of eligible women at December 2006 (*Source*: Department of Provincial Administration, Thailand).

Exhibit 12: VIA Coverage in “Outcomes” Districts, by Province and Year

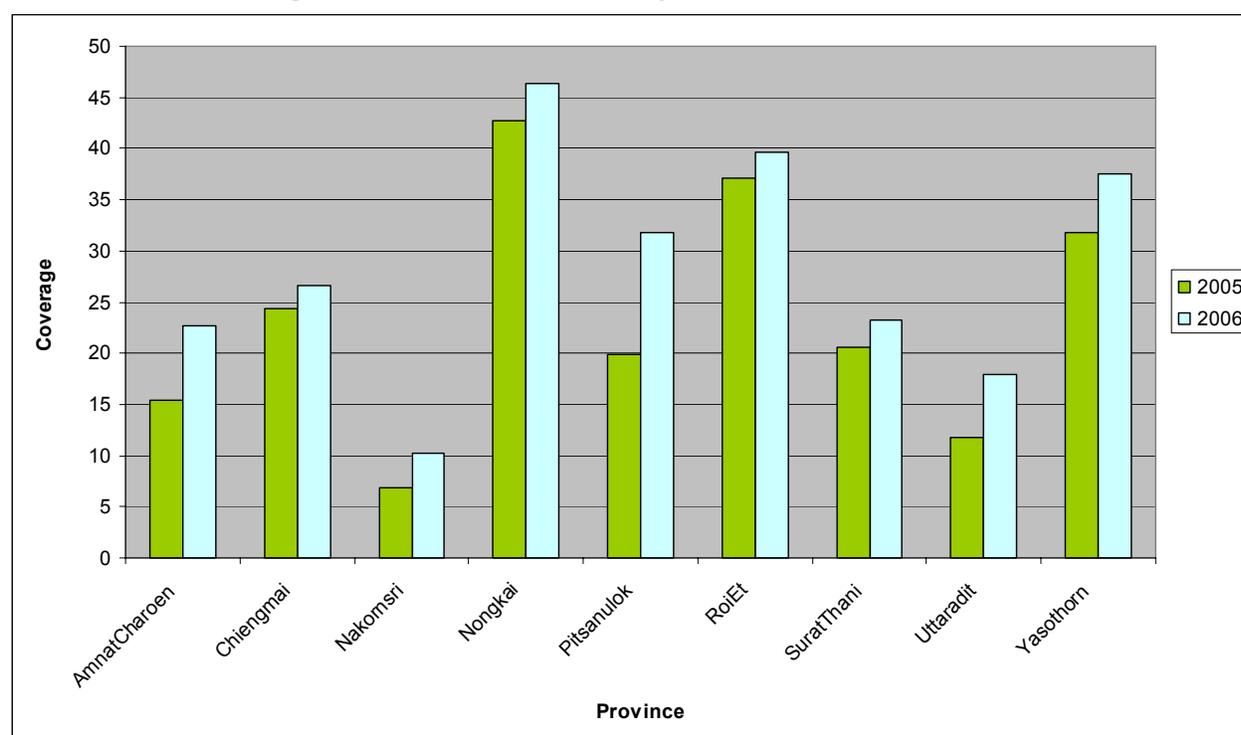
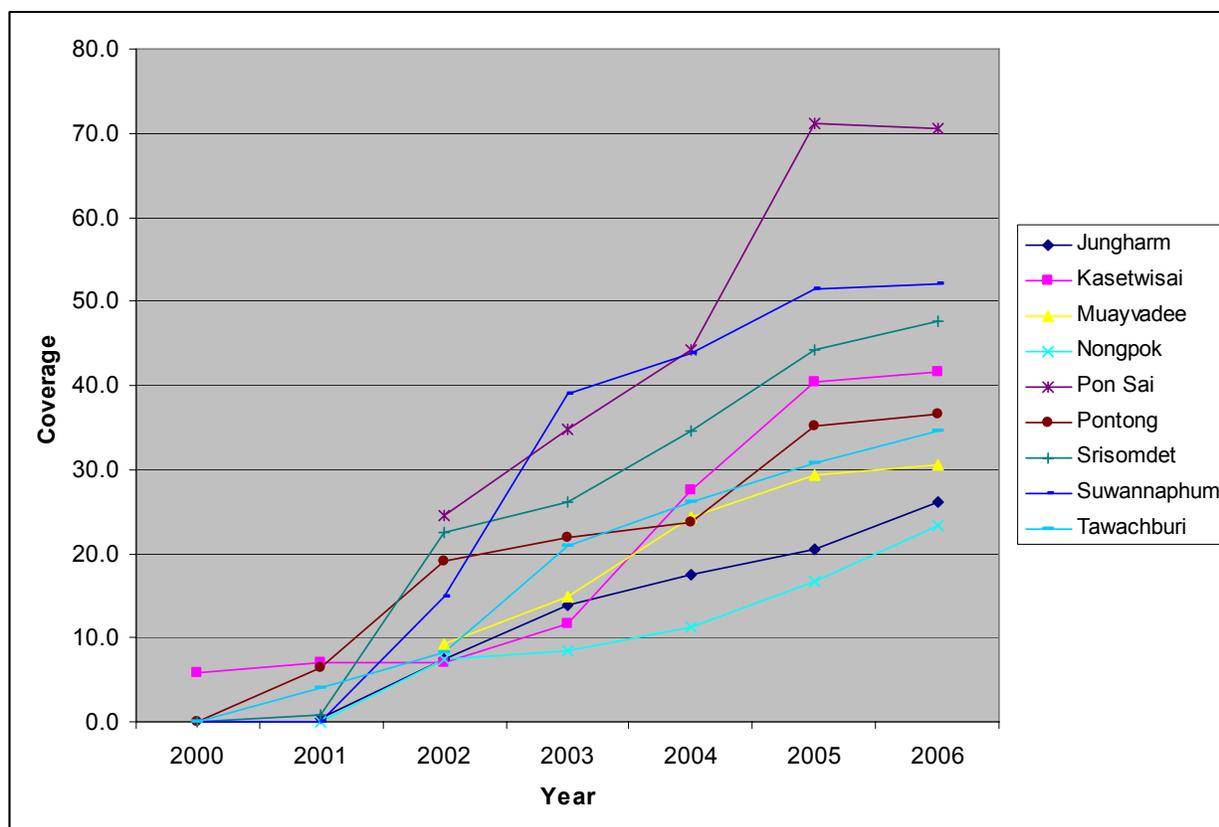


Exhibit 13: VIA Coverage in Roi Et Province between 2000 and 2006, by District



Coverage Ratio: In addition to assessing the cumulative coverage based on all eligible women, we looked at the ratio of how much had been accomplished in relation to the coverage targets set by the provincial policies. This figure, called the coverage ratio, is the ratio of actual to expected coverage. The stated policy was that 80% of eligible women should be screened over a period of five years, and districts were instructed to reach 30% coverage of eligible women in Year 1, an additional 20% in Year 2, and an additional 10% each in Years 3, 4 and 5 (30-20-10-10-10). This strategy is based on the fact that interest in a new program is higher in the beginning and, as time goes on, it becomes more difficult to recruit women. To calculate the coverage ratio, the expected coverage at one point in time is compared to the actual or achieved coverage.

Districts with a coverage ratio above 1.00 are progressing toward the provincial coverage target faster than expected. If this trend were to continue, the district would reach 80% or higher within five years. Conversely, districts with a coverage ratio lower than 1.00 would take longer than five years to reach 80% if they continued at the same pace.

Exhibit 14 below presents the expected coverage, actual coverage and coverage ratio for each of the 49 districts. The average coverage ratio for all of the 43 districts for which data are available was 0.55, with a range of 0.03 (Thung Song district, Nakornsri province) to 1.37 (Chaiva district, Surat Thani province). In summary, six districts were on target to reach 80% of the targeted coverage (including two districts in Nongkai, which reached 97%). Twenty-two districts had ratios between 0.4 and 0.8, 15 districts had ratios less than 0.4 and another six were missing coverage data. This means that the majority of districts were not achieving the coverage necessary to reach 80% in five years, according to the above strategy.

Exhibit 14: Expected Coverage, Actual Coverage and Coverage Ratio as of December 2006*

Province	District	Months	Expected Coverage (%)	Actual Coverage (%)	Ratio
Amnat Charoen	Muang	27	52.5	11.4	0.22
	Senangkhanikhorn	27	52.5	25.0	0.48
	Shanuman	27	52.5	20.2	0.38
Chiengmai	Chomtung	19	41.7	53.8	1.29
	Fang	19	41.7	3.3	0.08
	Mae Cham	19	41.7	29.3	0.70
	San Patong	19	41.7	1.7	0.04
Nakornsri	Cha Wang	17	38.3	13.8	0.36
	Na Bon	17	38.3	26.1	0.68
	Ron Phibun	17	38.3	7.4	0.19
	Tha Sala	17	38.3	16.8	0.44
	Thung Song	17	38.3	1.3	0.03
Nongkai	Bungkarn	45	67.5	40.0	0.59
	Fao Rai	39	62.5	N/A	N/A
	Pon Pisai	45	67.5	42.9	0.64
	Porncharoen	45	67.5	65.2	0.97
	Rattanawapi	39	62.5	N/A	N/A
	Sega	45	67.5	45.9	0.68
	Si Chiang Mai	39	62.5	45.0	0.72
	Si Wilai	39	62.5	60.4	0.97
	So Pisai	45	67.5	36.1	0.53
Pitsanulok	Wat Bose	20	43.3	31.8	0.73
Roi Et	Jungharn	60	80.0	26.2	0.33
	Kasetwisai	82	80.0	41.6	0.52
	Muayvadee	56	76.7	30.5	0.40
	Nongpok	63	80.0	23.4	0.29
	Pon Sai	56	76.7	70.5	0.92
	Pontong	63	80.0	36.7	0.46
	Srisomdet	60	80.0	47.7	0.60
	Suwannaphum	60	80.0	52.1	0.65
	Thawachburi	60	80.0	34.6	0.43

Exhibit 14: Expected Coverage, Actual Coverage and Coverage Ratio as of December 2006* – continued

Province	District	Months	Expected Coverage (%)	Actual Coverage (%)	Ratio
Surat Thani	Ban Na Doem	26	51.7	N/A	N/A
	Ban Na San	19	41.7	14.9	0.36
	Chai Buri	19	41.7	11.5	0.28
	Chaiya	20	43.3	59.2	1.37
	Don Sak	19	41.7	32.6	0.78
	Khian Sa	19	41.7	10.2	0.25
	Phrasaeng	26	51.7	18.8	0.36
	Tha Chang	26	51.7	N/A	N/A
	Wiang Sa	32	56.7	N/A	N/A
	Wiphawadi	19	41.7	N/A	N/A
Uttaradit	Muang	20	43.3	9.9	0.23
	Nam Pat	20	43.3	31.5	0.73
	Tron	20	43.3	28.7	0.66
Yasothon	Kham Khuaen Kaeo	33	57.5	24.8	0.43
	Khor Wang	33	57.5	41.2	0.72
	Ma Ha Chana Chai	33	57.5	44.4	0.77
	Pa Tio	40	63.3	54.5	0.86
	Thai Charoen	33	57.5	33.2	0.58
Average ratio of all districts with available data (43)					0.5511

* Numerator = actual overall coverage achieved by December 2006; denominator = expected coverage based on goal of 80% over five years.

CONCLUSION

The results presented in this report underscore how successfully Thailand has been able to sustain and expand programmatic outcomes achieved under the externally funded SAFE Demonstration Project. Some of the achievements that have been key in achieving these results follow:

- Thai national health policy stipulates that all eligible women should be screened for cervical cancer every five years.
- Thai national health insurance covers the costs for the national screening program.

- Quality of services is routinely monitored at most facilities, with an external supervision system established.
- Most district-level managers are supportive of the single visit approach.

Lessons learned include the importance of government involvement from the beginning of the program and of ongoing support from key stakeholders—including the government, as well as professional organizations and individuals at all levels of the health system. This buy-in has been critical to the successful adoption and scale-up of SVA as a complement to a cytology-based cervical cancer prevention program.

Thailand had been struggling to implement a successful cervical cancer prevention and treatment program for more than 30 years before the SVA was introduced and adopted as part of national policy. The results of the study demonstrate that the integration of SVA using VIA with routine health services in 49 districts was successful from a quality-of-services perspective. And the fact that the high level of quality in provider performance was maintained throughout rapid scale-up of services presents a strong case for implementing this approach in other low-resource setting areas.

Coverage achievements were also notable, with all program provinces seeing increasing numbers of eligible women being screened with VIA. Although the majority of districts were not achieving the coverage necessary to reach the goal of 80% in five years, according to the coverage strategy described above, these findings could suggest that the strategy is not feasible given the time and resources available for the program.

Overall, findings suggest that the quality of Thailand's cervical cancer prevention program has been sustained at the level achieved with external donor support, *while* the program was dramatically expanded after that support had ended. Thus, Thailand's program serves as a model for similar settings in countries where the SVA with VIA is being adopted or scaled up.

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