



## Original Article

# Evaluation And Strategy to Strengthen the Implementation of Early Detection of Cervical Cancer Using the IVA Test Method

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### ABSTRACT

**Background:** The cervical cancer poses a significant global health threat with a noteworthy prevalence rate. Early detection through Acetic Acid Visual Inspection (IVA) has proven effective in reducing mortality rates and improving patient prognosis. However, the implementation of this early detection method still faces challenges. This study aims to evaluate the implementation of VIA in the province of Jambi and devise improvement strategies.

**Methods:** A mixed-method approach was carried out, combining quantitative analysis through the assessment of Primary Health Centers (Puskesmas) and qualitative analysis through interviews with stakeholders..

**Results:** The evaluation of IVA implementation reveals positive assessments in input (54.8% excellent, 37% good) and process (72.6% excellent, 27.4% good). There was variations in output were observed with 58.9% excellent, 21.9% good, 13.7% fair, and 5.5% unsatisfactory. However, improvements were still needed in input quality and program implementation to enhance overall output results.

**Conclusion:** It is recommended to increase regional monitoring efforts, cooperation and partnerships, participation of community leaders, mass outreach and campaigns, increased budget allocation and supervision.

### INTRODUCTION

Cervical cancer (cervical cancer) is a serious problem in the world because it is a common type of cancer in women with a high mortality rate. Approximately 6.5% of new cancer cases worldwide were related to

cervical cancer, causing approximately 338,000 deaths each year. In Indonesia, the prevalence of cervical cancer was ranked second at 24.4 per 100,000 women per year with an average death of 14.4 per 100,000 women, or around 9% of total cancer deaths<sup>1</sup>.

In Jambi Province, the prevalence of cervical cancer in 2018, reached 0.6% of 977 female sufferers aged 30-50 years, and more than 70% of sufferers came in advanced stages<sup>2</sup>.

The government has formulated a National Action Plan (RAN) for Cancer 2022-2024 to reduce the incidence and deaths from cervical cancer, which focuses, among other things, on early detection efforts, in addition to health promotion, HPV immunization, and treatment within 90 days after diagnosis<sup>3</sup>.

WHO recommends screening for cervical cancer for every sexually active woman. The success of cancer prevention programs depends on the effectiveness of screening and early treatment with the main method, namely Acetic Acid Visual Inspection (IVA) because it is easy, cost-efficient, and effective in the early stages of detection<sup>4</sup>. The use of IVA in various countries, including Indonesia, faces problems such as limited access, low public awareness, and lack of training for officers so the scope of early detection of IVA was still low. The government is trying to achieve a minimum of 70% elimination of cervical cancer by 2030<sup>3</sup>.

Early detection methods, such as the Acetic Acid Visual Inspection (IVA) test, are crucial for reducing cervical cancer mortality and improving patient outcomes.

Coverage of early detection of cervical cancer using the IVA method in Jambi Province in 2022 will only reach 7.3%, below the target of 45%. Women's low interest in IVA is due to low awareness, embarrassment, and discomfort<sup>5</sup>. There were only 436 officers trained from 207 public health centers (Puskesmas) to screen for cervical cancer using IVA, which shows a low officer ratio. This problem often arises due to the movement or absence of officers. Another obstacle is facilities and infrastructure, especially cryotherapy due to damaged equipment and difficult gas supplies<sup>5</sup>. Cervical cancer screening programs have been implemented throughout Indonesia, but coverage was still low and varies between provinces. Factors such as the number of health centers with IVA screening services,

the number of general practitioners, total providers, non-communicable disease posts, and budget availability influence the implementation of early detection screening for cervical cancer<sup>6</sup>. Tuller, et al. (2019) evaluating a cervical cancer screening program in rural areas of Tanzania found that service availability, education, costs, and family support influenced IVA screening participation<sup>7</sup>. Therefore, evaluation efforts and strategies to strengthen cervical cancer screening are needed for the prevention and early treatment of cervical cancer disease.

Despite the proven efficacy of the IVA test, challenges persist in its widespread adoption and consistent application, particularly in areas like the province of Jambi. Understanding the barriers to effective IVA implementation can inform strategies to enhance early detection efforts and improve cervical cancer prognosis. This study aims to evaluate the current state of IVA test implementation in Jambi and propose actionable strategies for its improvement.

## **METHOD**

The research design was a descriptive-analytical combination method (Mixed Method), namely a quantitative method with a sequential explanatory approach followed by a qualitative method to strengthen the results of the research,<sup>(8)</sup> carried out in 4 districts in Jambi Province. A quantitative approach to assessing the implementation and achievements of the early cervical cancer screening program includes input aspect (policies, infrastructure, human resources (HR), and budget), process (advocacy, socialization, implementation, and monitoring-evaluation) and output (achievements, motivation, lesion discovery, and case finding). This study involved 73 midwives at 73 community health centers and 382 women aged 30-50 years who were selected using stratified random sampling. A qualitative approach through in-depth interviews with 24 informants consisting of 8 Health Service staff, 8 Community Health Center staff, and 8 women aged 30-50 years

according to whether or not IVA had been carried out. Quantitative data analysis uses a univariate approach to observe the distribution and percentage of research variables in each district. Qualitative data analysis includes data reduction, display, conclusions, and verification. This study has received ethical approval from the University of Indonesia Maju Jakarta.

**RESULT**

**Characteristics of respondents and informants**

Research respondents included health workers (Midwives) and women aged 30-50 years with a description of the characteristics as presented in Table 1. The study results found that the majority of health worker respondents were 40-50 years old (49.3%), had a D-IV Midwifery education (50.7%), and had worked 3-10 years (72.6%)

which shows a mature understanding and experience in implementing early cervical cancer detection programs. Of the female respondents aged 30-50 years, it was found that the majority were 30-40 years old (77.7%), had a college education (52.8%), and worked as ASN (51.3%). The characteristics of the health service informants were 8 people, the majority were women (7 people), aged ≤ 40 years (6 people), had a bachelor's degree (7 people), and served for < 3 years (6 people). There were 8 Community Health Center informants, the majority of whom were women (5 people), aged > 40 years (5 people), had a bachelor's degree (7 people), and had been in charge for > 3 years (6 people). Furthermore, there were 8 female informants aged 30-50 years, the majority were > 35 years old (6 people) and had a high school education (5 people).

Table 1. Respondent Characteristics

Characteristics	Frequency (n)	Percentage (%)
<b>Healthcare Respondents (n= 73)</b>		
<b>Age</b>		
< 40 Years	32	43,8
40-50 Years	36	49,3
> 50 Years	5	6,8
<b>Education</b>		
D III in Midwifery	17	23,3
D IV in Midwifery	37	50,7
Professional Midwife	19	26
<b>Duration of Employment</b>		
< 3 Years	15	20,5
3-10 Years	53	72,6
>.10 Years	5	6,8
<b>Female Respondents Aged 30-50 Years (n= 382)</b>		
<b>Age</b>		
30-40 Years	297	77,7
41-50 Years	85	22,3
<b>Education</b>		
< High School Graduate (SLTA)	82	21,5
High School Graduate (SLTA)	98	25,7
Higher Education	202	52,8
<b>Occupation</b>		
Housewife	171	44,7

Entrepreneur	12	3,1
Civil Servant (ASN)	196	51,3
Farmer	3	0,8

### Evaluation of the Implementation and Achievement of Cervical Cancer Early Screening Program

Results of the research on the evaluation of the implementation of cervical cancer early screening programs are viewed through the components of input, process, and output. In the input aspect, the evaluation results show that the majority of respondents gave positive responses to indicators such as the availability of adequate examination tools and materials (90.4%), while the least positive response was related to budget sufficiency (47.9%). In the process aspect, respondents' assessment indicates that the most positive response was related to the socialization of the cervical cancer early detection program

(100%). In comparison, the least positive response was related to the skills of the personnel (67.1%). Moving on to the output aspect, respondents' assessment of the implementation of cervical cancer early screening programs with the most positive response was clear planning of the cervical cancer early detection program (91.8%). In comparison, the least positive response was related to the achievement of target goals and the level of community participation (24.7%). This can be seen in Table 2.

The results of the analysis of the implementation evaluation of the cervical cancer early screening program based on each component can be explained in the following Table 3.

**Table 2.** Description of the Evaluation of the Implementation of Cervical Cancer Early Screening Program

Component/Criteria	Indicator	Frequency (n)	Percentage (%)
<b>Aspect: Input</b>			
<b>Policy</b>	Support from local government policy	63	86,3
	Availability of guidelines and procedures	64	87,7
<b>Facilities</b>	Adequate examination tools and materials	66	90,4
	Facility support	42	57,5
<b>Human resources</b>	Trained personnel	48	65,8
	Quality of training	46	63,0
<b>Budget</b>	Budget availability	41	56,2
	Budget sufficiency	35	47,9
<b>Aspect: Process</b>			
<b>Advocacy</b>	Cross-program coordination	70	95,9
	Collaboration with external parties	68	93,2
<b>Socialization</b>	Community socialization	73	100,0
	Community response	43	58,9
<b>Implementation</b>	Implementation according to procedures	73	100,0
	Skills of personnel	49	67,1
<b>Monitoring and evaluation</b>	Monitoring of results	72	98,6
	Implementation evaluation	67	91,8
<b>Aspect: Output</b>			
<b>Achievement</b>	Achievement of target goals	18	24,7
	Level of community participation	18	24,7

<b>Motivation</b>	Quality of service	46	63,0
	Effectiveness of education	64	87,7
<b>Lesion discovery</b>	Accuracy of detection results	33	45,2
<b>Case discovery</b>	Clear program planning	67	91,8
	Stakeholder support	57	78,1

Table 3. Evaluation of the Implementation and Achievement of Cervical Cancer Early Screening Program

Component	Category	Frequency (n)	Percentage (%)
<b>Input</b>	Very Good	40	54,8
	Good	27	37,0
	Adequate	3	4,1
	Insufficient	3	4,1
<b>Process</b>	Very Good	53	72,6
	Good	20	27,4
<b>Output</b>	Very Good	43	58,9
	Good	16	21,9
	Adequate	10	13,7
	Insufficient	4	5,5

Table 3 above indicates that the implementation of the cervical cancer early detection program using the IVA method in most health centers in the Jambi Province received assessments for the input component as "Very Good" (54.8%), with only a small percentage assessed as "Insufficient" (4.1%). For the process component, the majority of health centers rated it as "Very Good" (72.6%), with no assessments categorized as "Insufficient." In terms of the output component, a significant portion of health centers evaluated it as "Very Good" (58.9%), while a small percentage was assessed as "Insufficient" (5.5%).

The results above are supported by in-depth interview findings with informants, indicating that the input component of the cervical cancer early detection program using the IVA method in Jambi Province, was assessed as good. Policies, trained personnel, facilities, and equipment were deemed satisfactory. Funding from the Health Department supports free IVA examinations. Some challenges, such as financing and awareness campaigns, are currently being addressed.

*"The program follows the policies of the Provincial Health Office (Dinkes Provinsi) and the Ministry of Health (Kemenkes),*

*with training conducted in 2016 and 2019, and equipment provided by the Provincial Health Office. IVA examinations are offered for free because they are not covered by BPJS (National Health Insurance Program) (1a; 1d).*

*"The policy has been implemented, personnel has been trained, and the equipment is available. Infrastructure and facilities are fulfilled. Socialization has been conducted" (2b; 2c).*

*"The policy and healthcare personnel are already good, but attention is needed regarding future financing and budgeting" (2d)*

Furthermore, the interview results with informants indicate that, in general, the implementation process of cervical cancer early detection has been carried out. However, there was a discrepancy between the information and the understanding of the community regarding IVA examinations due to inadequate socialization, leading to some individuals perceiving it as taboo, feeling embarrassed, and lacking support from their spouses.

The role of community figures is considered crucial in increasing interest in the early detection of cervical cancer through examinations. The implementation of IVA

examinations at health centers also faces challenges related to long distances and reluctance among the target population to undergo examinations. Counseling activities were conducted at health centers to enhance motivation for IVA examinations. Monitoring and evaluation efforts for the implementation of the cervical cancer detection program are regularly performed.

*"Even though advocacy and socialization have been conducted, the community is reluctant to undergo examinations due to the taboo and embarrassment. Involvement of community figures, such as village heads, sub-district heads, and district heads, is important... counseling for IVA examinations is also conducted at the health center" (1h).*

*"Advocacy is carried out, but the community is reluctant due to the taboo. The participation of community figures is important" (2f).*

*"Socialization has been conducted, but sometimes examinations are hindered by distance and the reluctance of the target population. However, monitoring and evaluation are still carried out" (3a; 3g).*

*"I have never undergone an IVA examination because I feel uncomfortable and embarrassed. My husband supports me to undergo the examination, but I am not ready yet" (3d; 3f)*

The results of interviews with informants regarding the output component found that the number of IVA examinations continues to increase, although it has not yet reached the desired target. The motivation of the community is also growing, considering the serious risks faced by individuals affected by cervical cancer.

*"The number of IVA examinations continues to increase, and this can be verified in the available data."*

*"There has been an addition to the coverage of IVA examinations, although it is not significant..." "The coverage of IVA has increased because the motivation of the community is also higher, considering the risk of death due to this cancer, and it*

*is also driven by socialization and advocacy."*

## DISCUSSION

### Input Aspects

The majority of health centers provide positive assessments of the IVA program policy, indicating consistency and strong support from the government. The regional policy regarding the IVA program in the Jambi Province aligns with central regulations, demonstrating consistency and commitment to program implementation<sup>9</sup>. A robust policy serves as a stable foundation for the early detection of cervical cancer, aligning with theories of public health policy<sup>10</sup>.

The research results indicate that cervical cancer screening is carried out by trained midwives and general practitioners. All health centers have met the human resources requirements, with a minimum of 1 trained and certified midwife and 1 trained and certified general practitioner for IVA<sup>11</sup>. A shortage of personnel can hinder implementation, especially when they are also responsible for other programs<sup>12,13</sup>. Therefore, when there is a staff mutation, the Health Department undertakes efforts to recruit new personnel.

Previous studies have revealed that the personnel at health centers for breast and cervical cancer examinations are sufficient, although some have not yet met the requirements for the IVA program<sup>14</sup>. The success of the IVA program depends on skilled human resources, which likely enhances the program's achievements<sup>11</sup>. The results of this study indicate that most screening facilities for cervical cancer early detection in health centers are adequate and managed by the Health Department. However, there are still reported shortages of cryotherapy. The availability of facilities and infrastructure is crucial for the success of the program, as the absence of such resources can hinder the implementation of the IVA method for early detection of cervical cancer<sup>15,16</sup>. The budget for the cervical

cancer early detection program at health centers comes from the Regional Budget (APBD), Health Insurance, and other sources, supported by the Health Department, indicating a high level of government commitment. However, challenges related to the budget for cryotherapy were found, requiring consideration to explore sustainable funding sources<sup>11</sup>.

This condition indicates the presence of financing challenges that need to be considered for the sustainability of the cervical cancer early detection program using the IVA method<sup>12</sup>.

### **Process Aspects**

Advocacy efforts have been undertaken by health centers and the Health Department, involving stakeholders who play roles in decision-making and have influence. These include the governor, regent, sub-district head, village head, chairperson of the PKK (Family Welfare Movement), Dharma Wanita, NGOs, and other parties. The aim is to enhance the understanding, awareness, and willingness of the community to undergo cervical cancer examinations<sup>17</sup>. Nevertheless, some members of the community still feel embarrassed, consider it taboo, and lack support from their husbands to undergo IVA examinations. This requires an improvement in socialization efforts involving community figures. Structured and scheduled socialization efforts are crucial, involving cadres and community figures to convey effective information regarding IVA examinations. The awareness of cervical cancer early detection is perceived to be insufficient due to the multitude of other programs that need to be executed, limiting the dissemination of information about the IVA program in the community<sup>18,12</sup>.

Societalization and information dissemination to the Family Welfare Movement (PKK), cadres, and other sectors are expected to be drivers for the community to undergo early detection of cervical cancer<sup>19</sup>. The implementation of IVA

examinations in the community by health centers varies due to challenges, especially distance, and the reluctance of the target population to be examined. At health centers, patients undergo counseling before and after IVA examinations. Pre-examination counseling involves a history questionnaire, process information, and result explanation, while post-examination counseling includes result explanation, motivation, referral for positive cases, and advice for follow-up visits. Program supervision is conducted routinely to monitor progress, and service quality, and identify potential challenges. Evaluation is carried out by the Health Department through supervision used to make program improvements<sup>11</sup>.

General supervision that is not specific to the IVA program, along with a lack of feedback, has led to various issues and challenges, such as absenteeism during coordination meetings at health centers and a shortage of trained personnel for IVA<sup>20</sup>. Monitoring and evaluation of the IVA program are conducted routinely every month through data monitoring, analysis, and the development of improvement plans for program sustainability<sup>4</sup>. Supervision from superiors, especially through direct observation, enhances the implementation of the IVA program.

### **Output Aspects**

Although this study indicates an improvement in the output of the cervical cancer early detection program, the achievement of IVA examinations was still low, indicating suboptimal community participation. Previous research suggests that examination targets have not been met due to an imbalance between the number of targets and healthcare personnel, as well as divided focus with other programs. The lack of incentives also affects the motivation of program implementers<sup>16</sup>.

Research findings by Endriyani et al. indicate that the lack of participants undergoing IVA examinations is due to feelings of embarrassment, fear of results,

not experiencing cervical cancer symptoms, and feeling that they do not yet need it<sup>21</sup>. Sulistiowati's research reveals that respondents' reasons for not undergoing IVA examinations include feeling uncomfortable, embarrassed, afraid, or not providing clear reasons, as well as absent on the examination day<sup>22,23</sup>.

The IVA program aims to increase monthly coverage and involves evaluation with four indicators. Although coverage and motivation have increased, the discovery of precancerous lesions remains low. The evaluation focuses on improving detection and community comfort. The Jambi community is aware of cervical cancer early detection, and there is a need to maintain and enhance it through education and socialization.

## CONCLUSION

Implementation of the IVA program in the Jambi Province has a strong foundation

based on the assessment of input, process, and output, as evidenced by sound policies, trained human resources, adequate facilities and infrastructure, and financial support from the local government, albeit limited. Advocacy and socialization efforts need to be intensified to enhance early detection coverage and the discovery of precancerous lesions. Therefore, regional monitoring efforts, program collaboration, community leader participation, socialization, mass campaigns, service improvement partnerships, increased budget allocations, and oversight are highly supportive in achieving optimal cervical cancer early detection coverage in the Jambi Province.

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