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Improve the Quality and Coverage of the National Cervical Cancer Screening Programme by Exploring Healthcare Workers' Perceptions of the New HPV/DNA Test in a District of Sri Lanka: A Qualitative Study

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Abstract

Background: The sensitivity of the HPV/DNA test is high (89%). The objective of the study was to explore healthcare workers' perception on new HPV/DNA test.

Method: A cross-sectional qualitative study design was used. Ten Key Informant Interviews (KII) and four Focus Group Discussions (FGD) were conducted. Eight Public Health Midwives were selected from the Medical Officer of Health areas in Kalutara district for one FGD session. A convenience sampling technique was used. Acceptability of the test was assessed individually among participants. A Triangulation of KII and FGD data was done. Thematic analysis was conducted.

Results: Healthcare workers expressed high acceptability (n = 41, 97.6%) for HPV/DNA test due to its high sensitivity. Unsatisfactory smears, reporting delay and low sensitivity, were stated as disadvantages of the pap smear screening method. The majority stated the convenience of HPV/DNA vaginal specimens (n=22, 52.4%) to improve the coverage of the programme. Not feeling ill was the commonest barrier to the HPV/DNA screening as indicated by healthcare workers.

Conclusions: There is a high acceptability for the HPV/DNA test among healthcare workers. In addition, the vaginal HPV/DNA tests can be used to increase the coverage of the programme.

Keywords: Cervical Cancer, Screening, Conventional Cytology, Sensitivity, HPV/DNA Test, Healthcare Workers, Acceptability

Background

Cervical cancer is the 3rd leading cause of cancer in females in Sri Lanka according to the incidence among 35-64-years-old females. Annually, around 1114 new cases of cervical cancers are diagnosed [1] and around 690 women have died from the disease [2].

As in some other cancers, cervical cancer is also preceded by a precursor stage called cervical pre-cancer lesion. According to the histology used for the diagnosis, there are 3 types of pre-cancer stages prior to the invasive cervical carcinoma: Cervical Intraepithelial Neoplasia (CIN) stages 1, II, & III [3]. All cervical cancers are virtually associated with the persistent cervico-vaginal HPV infection [4]. Moreover, if cervical cancer is detected early and treated appropriately, it can still be cured [5].

Even after 20 years of existence of the pap smear screening programme, there is no marked reduction in the incidence, morbidity and mortality of cervical cancer in Sri Lanka due to the poor sensitivity (53%) [6] and low coverage of the programme (61.6%) [7], while the recommended target coverage for the programme by the World health Organization is 80% [8]. Conventional cytology has a long lag period on average of 6-8 weeks between smear taking and report delivery [9, 10].

HPV/DNA screening methods are based on the detection of high-risk HPV/DNA in vaginal or cervical smears [2]. HPV/DNA screening can be used as a primary screening method. In primary screening, only HPV/DNA positive women with 'Atypical Cells of Undetermined Significance (ASC-US) cytology (i.e. HPV/DNA test with cytology triage) need to be referred for colposcopy. Hence, there is a marked reduction in the number of referral for colposcopies [11]. The average sensitivity and specificity of the HPV/DNA test in 35-year age cohort women is 89% and 90%, respectively [3].

There is a significant association between the level of knowledge of the characteristics of cervical cancer and the screening modalities [12]. A vast majority of the Public Health Midwives (PHMM) had an above-average overall knowledge of cervical cancer screening with pap smear and conventional cytology [13]. The objective of the study was to explore healthcare workers' perception on the new HPV/DNA test in the Kalutara district of Sri Lanka.

Justification

This component of the dissertation was designed as a part to determine the suitability of a new screening test as a primary cervical cancer screening method (i.e. HPV/DNA test) in Sri Lanka. Based on the findings of this dissertation and the HPV/DNA pilot project in Kalutara district, the HPV/DNA test was incorporated as a primary cervical cancer screening method into the National Cervical Cancer Screening programme of Sri Lanka in 2021.

Methodology

A cross-sectional qualitative study design was used. Two qualitative data collection techniques were used for the study: Key Informant Interviews (KII) and Focus Group Discussions (FGD).

Key Informant Interviews were the first qualitative data collection method and ten KIIs were carried out in December 2018 to answer the research questions. Key Informants were selected by convenience sampling technique from categories involved in a cervical cancer screening programme in the Kalutara district such as Medical Officers/Doctors of Maternal and Child Health (MOMCH), MOH doctors, Public Health Nursing Sisters (PHNSS), and Cytoscreeners/Medical Laboratory Technologists.

Focus Group Discussions (FGDs) were the next qualitative data collection method and four FGDs were conducted in January 2019 to answer the research questions. Eight PHMM were selected by convenience sampling technique for one FGD session. Primary Health care field workers called Public Health Midwives were selected for each FGD from health divisions called MOH areas in the Kalutara district according to their seniority and the representation of the mixture of urban and rural communities. Some socio-demographic characteristics of all participants (KII and FGDs) were recorded.

A conceptual framework for both KII and FGD was developed based on the literature [14, 15] A moderator guide to facilitate the KIIs (supplementary file 1) and FGDs (supplementary file 2) was developed for this study with the assistance of experts. The key component of the conceptual framework was six appropriate questions as mentioned below;

- What do you know about cervical cancer?
- How can we screen for cervical cancer?
- Your knowledge of the coverage of National Cervical Cancer Screening programme?
- Your idea of the new HPV/DNA test as a cervical cancer screening method in Sri Lanka?
- Do you agree with the summary?
- Do you want to add something more?

A properly ventilated and lighted place was selected to conduct the interviews and sessions in the venue selected. The first author, who had undergone advanced training in conducting FGDs, was the moderator of the KIIs and face-to-face FGDs. The KIIs and FGDs were conducted until the saturation point was reached, where no new information, themes, or insights emerge, making further data collection redundant. Saturation point was decided by the first author. Ten such interviews with KIs and four FGDs were conducted. One science graduate was recruited as an assistant moderator to give background support. Non-verbal messages were taken to note. The approximate time duration for the KII and FGD session will be 30minutes and 1 hour, respectively. All ten KIIs and four FGDs were audio-recorded with the permission of the participants. The information collected at each interview was summarized at the end of each interview to the participant to get the feedback. Acceptability of the HPV/DNA test was assessed individually. Trustworthiness of the information was maintained.

Audiotapes were transcribed verbatim by the first author on the day of the interview. The first author coded the data. Descriptive codes were modified to identify broad themes and categories. These steps were followed up in all four FGDs and an amalgamated list of codes were developed with KIIs under a broad theme. A triangulation methodology was used to improve the quality of the information. The broad thematic analysis was made by the manual content. In the last summary, results were prepared.

Results

Among the total of 42 healthcare workers, 10 have participated in KIIs (MOOMCH, MOOH, PHNSS and Cytoscreeners) and 32 PHM have participated in four FGD sessions. Among them majority were Sinhalese (n=41, 97.6%), Buddhist (n=39, n=92.9%), and over 40 years of age (n=31, n=73.8%). Fourteen (n=33.3%) had >20 years of service in the field **(Table 1)**.

Table 1: Distribution of participants of KIIs and FGDs according to the type of healthcare worker, age, religion, race, and service in the field in completed years

Characteristics of participant	Number of staff (n=42)	Percentage %
Type of Healthcare worker		
MOMCH	02	4.8
MOH	03	7.1
PHNS	03	7.1
Cyto-screener	02	4.8
PHM	32	76.2
Age in completed years		
>40	31	73.8
≤40	11	26.2
Religion		
Buddhist	39	92.9
Catholic	03	7.2
Race		
Sinhalese	41	97.6
Tamil	01	2.4
Service in the field in completed years		
> 20	14	33.3
≤5-20	28	66.6

Following the 10 KIIs and four FGD sessions altogether six major themes were identified (Table 2) and results of the study component are presented under the following six thematic areas;

Table 2: Main themes & codes emerged from qualitative data collection techniques regarding the healthcare workers' acceptability, relevance, simplicity and barriers for new HPV/DNA test in a district of Sri Lanka: A cross -sectional qualitative study

Broad thematic areas	Main codes emerged (number of instances)
Cervical cancer incidence, morbidity and mortality	Incidence (20), Morbidity (20), Healthy mother(18), Progression of pre-cancers (14), Deaths from cancers (12)
Perception of cervical cancer modalities in Sri Lanka	Sensitivity (28), Cytology (15), Long term convenience of HPV/DNA (15), Technology (12), Unsatisfactory smears (8), Reporting delay (8), Liquid-based cytology (3)
Coverage of the National Cervical Cancer Screening programme	Community awareness (24), Supervision(18), Mobile clinics(18), Social level (15), Job (14), Family issues (9), Education level (7)
Healthcare workers acceptance of 'the new HPV/DNA test for cervical cancer screening	Coverage (28), Provider collected (24), Clinic non-attendees (22), Convenient (22), Sensitivity (18), Health staff workload (12), Home (8), Privacy (6), Self-collected (5)
Needs identified in the new HPV/DNA screening test implementation	Special staff training (26), Supervision (23), Colposcopy facilities (5), Insurance (4), TV advertisement (3)
Barriers to the new HPV/DNA screening test implementation	Not feeling ill (12), Fear of findings (10), Fear of pain (8), Cultural beliefs (4)

1. Cervical cancer incidence, morbidity and mortality

Most study participants claimed that cervical cancer incidence and associated mortality is still high in Sri Lanka. One participant particularly stated her field experience. This was expressed in this way:

> "*I too worked in the field >10 years now…In my area…One mother was diagnosed at a late stage of cervical cancer…she was never screened for cervical cancer [pap test]…She died at a very young age…..I exactly can't remember her age… "I am sure, below 50 years…."*

Some healthcare workers expressed their experience on the morbidity due to cervical cancer, and the treatment cost of cervical cancer is very high. One Informant from the medical field stated his perception as follows:

> *"Before coming to preventive health…….I worked at the curative health sector…I've seen how women are suffering from cervical cancers,…the treatment cost is also very much."*

2. Perception of the cervical cancer screening modalities in Sri Lanka

Some discussants mentioned that the sensitivity of the conventional pap smear is low, Therefore higher chance of missing cervical pre-cancer lesions This was captured this way:

> *'The biggest disadvantage of conventional cytology in the National Cervical Cancer Screening programme at present is missing cervical precancer lesions…[suboptimal sensitivity]. Only 20% of cells are smeared on the glass slide…taken by a spatula…all other cells are wasted…Therefore, conventional cytology alone can miss cervical lesions…very much."*

The lack of proper technology by health staff was an issue mentioned by some participants with conventional cytology. A participant had this to say:

> *"I am in real trouble with unsatisfactory smears… I informed them several times to relevant MOH."*

The reporting delay of the conventional cytology was another issue, as stated by a few participants. One participant expressed this way:

> *"There is a lag period of receiving conventional cytology reports…some times more than 4-weeks period…it is very risky for the women who need immediate treatment."*

Some participants were mentioned about the PCR based machine, screened high sensitivity HPV/DNA test. This was captured in this way:

> *"Sensitivity and the accuracy of the HPV/DNA test are very high to detect cervical lesions…and also the report is very quick…"HPV/DNA negatives are re-screened only after 10 years….routine follow-up period is long."*

Another cyto-screener expressed the advantages and the disadvantages of the Liquid based Cytology, which is usually accompany the HPV/DNA test. This was captured in this Way:

> *"HPV/DNA screening is usually …based on Liquid Based Cytology……..The remains of the container can be used for that…[in thinprep solution]. In Liquid Based Cytology, cells are centrifuged…Its sensitivity is high, in comparison with conventional cytology…. The major problem with Liquid Based Cytology…is….It's more expensive, than conventional cytology test…."*

3. Coverage of the National Cervical Cancer Screening Programme

Most of the participants knew that the coverage of the National Cervical Cancer Screening programme in Sri Lanka is poor due to various reasons. A participant admitted in her words:

> *"I find it very difficult to cater with women with high social levels and educated …In my MOH area, most of the women are engaging with a job…It is hard to catch them and get to a clinic….many others…catering for family issues...Our coverage is...around 50% in 2017…"*

Some expressed conducting mobile clinics and supervision of primary healthcare worker activities are very important to improve the coverage of hard-to-reach populations by the following quote:

> *"Mobile clinics at work places are…very important to cover…working mothers…Conducting mobile clinics*

in schools are also versatile,…Supervision of the PHMM work is very important by higher officials to see their approaches to the target cohort of women"

4. Healthcare workers' acceptance of the new HPV/DNA test for cervical cancer screening

There was marked acceptability among healthcare workers (n = 41, 97.62%) for HPV/DNA screening tests to be incorporated into the National Cervical Cancer Screening Programme in Sri Lanka due to its high sensitivity in detecting cervical lesions. One healthcare worker expressed this way:

"In my MOH area, several women were positive for HPV/DNA test… Its detection rate is very high [sensitivity]…Therefore hardly missing cervical lesions…Then the Women were informed ……to repeat the clinic visits for a pap test following a HPV/DNA test…"

Some of the healthcare workers mentioned the necessity of repeated clinic visits in HPV/DNA test screen positive follow-up (supplementary material-3). This was captured this way:

"In my MOH area, 3 women were referred to a pap test…They were positive for HPV/DNA test…Clients were happy to exclude the pathology…They have already done the pap test,… awaiting a report…."

The majority of healthcare workers mentioned vaginal specimens (supplementary material-4) can be effectively used to improve the coverage of the National Cervical Cancer Screening programme in Sri Lanka. A healthcare worker shared her experience this way:

"The background behind poor coverage is…poor clinic attendance…It's a must for pap test, cervical HPV/DNA test…by a Medical officer…a Sister…It is being doing under the speculum examination…Cusco's speculum needs to insert at clinic setting…prior to the specimen collection…Vaginal HPV/DNA specimen collection is doing …without a speculum examination…It can be collected by even a public health midwife…or else…self-collected…It is the best method to improve the coverage of the programme…"

Some cytoscreeners have mentioned that the work burden of the cytoscreeners and Histopathologists will be markedly reduced by implementing the HPV/DNA test in the National Cervical Cancer Screening programme. One said:

"If this test is being implemented…The need for pap is reducing…Only HPV/DNA positives are subjected to pap tests….Workload of cyto-screeners, Histopathologists will be markedly reduced…..I personally believe this HPV/DNA test is worthwhile to incorporate….into the National Cervical Cancer screening programme in Sri Lanka..."

5. Needs identified in the new HPV/DNA screening test implementation

The majority of discussants mentioned the importance of advocacy and community awareness to improve National Cervical Cancer screening programme coverage with HPV/DNA test. This was captured this way:

"I think the most important is to increase community awareness...,the procedure of specimen collection needs to explain…. Informative leaflets, posters… hand bills can be used in that."

Most of the participants mentioned updating the existing knowledge and skills of the health staff is a must to improve the quality of the programme with HPV/DNA test. This was presented this way:

"Updated knowledge, the new technique, correct technology, refresher course of training under expertise are must, to improve the quality of the National Cervical Cancer Screening programme with HPV/DNA test…."

Few discussants noted the limited colposcopy facilities in the district. One said:

"One patient has to visit twice for a colposcopy procedure… [machine was under repair]. She did it in the private sector……The whole Kalutara district has only one colposcopy centre……Only one colposcopic centre for the district….at Kethumathie Maternity Hospital, Panadura….It's a combined clinic with a large number of clients…To travel Family Health Bureau colposcopy clinic in Colombo district, women are reluctant…due to long distance… "

6. Barriers to the new HPV/DNA screening test implementation

Some discussants stated that the main barrier to cervical cancer screening was fear of pain. This was presented this way:

"Some women who had undergone HPV/DNA test…give the wrong information….on speculum insertion...[very painful]. The procedure is very similar to the cervical pap smear collection…. Seems to be a very unpleasant experience. Fear of pain…. in the procedure." in my PHM area…"

Some healthcare workers expressed that cervical cancer screening is not a priority task according to women, as they don't feel ill. One Sister indicated her experience this way:

"Women are reluctant to attend clinics…It's because they don't feel ill…..They are so fond of their routine work…….rather than attending clinics….some are afraid of finding illness….They are fear …" Certain amount of cultural……religious believes also have negative impact…in my MOH area….."

Discussion

The overall acceptability among healthcare workers for HPV/DNA was 97.6%, and the majority expressed the convenience of HPV/DNA vaginal specimens (n=22, 52.4%) as a cervical cancer screening tool to improve the coverage of the programme. To improve the coverage and quality, community awareness, community mobilization,

and supervision of ongoing activities by supervisory staff were mentioned as important measures. Some healthcare workers mentioned the high unsatisfactory smear rate and reporting delay of pap smears were issues of the programme. Commonest barriers for the HPV/DNA test as a cervical cancer screening method were reluctance to attend clinics, fear of finding illness and associated pain as stated by some healthcare workers. Increase the number of colposcopy centers in the district to support the HPV/DNA screen-positive follow-up was indicated by a few healthcare workers.

At present, HPV/DNA screening is used as a cervical cancer screening method in some developed countries, and its acceptance rate is high among the healthcare workers [3, 16]. Vaginal specimens tested with affordable HPV/DNA tests can increase the rate of screening in resource- constrained settings and well accepted by healthcare workers [17].

A cross-sectional study carried out among community healthcare workers in India to assess the knowledge, attitude, and practice of cervical cancer screening had also reported similar results [11] to this study. Accordingly, the coverage of the programme will be directly associated with the knowledge of the community and their health-seeking-behavior.

A descriptive cross-sectional study carried out among PHMM attached to all MOH divisions in the Galle district of Sri Lanka reported similar results [12] to the present study with high rates of unsatisfactory pap smears. This clearly indicates the necessity of the direction of technological improvement/updates of the health staff of Sri Lanka, who involves in pap smear taking at WWCs in HPV/DNA screen positive follow-up. An external review carried out by Basu, 2012 [9] in the National cervical Cancer Screening programme also reported similar pattern of pap smear reporting lag period, on average of 6-8 weeks between smear taking and report delivery.

A mixed-method research synthesis conducted in 2018 in Canada [18] gives a similar pattern of barriers for the cervical cancer screening programme with reluctance to attend for screening, not feeling ill, fear of findings and associated pain. A cross-sectional survey among 219 female healthcare workers including PHMM (68.9%) from 6 districts in Sri Lanka was also given similar results [14].

The majority of them were concerned about the affordability of the HPV/DNA test in thin prep cell collection media. Further, they highlighted the additional cost required for the Liquid-Based cyto-screening, which is ideal for HPV/DNA in triage, compared to conventional cytology, though its detection rate of lesions is high [19]. Despite the affordability, an HPV/DNA screening test was highly acceptable among healthcare workers in the district to improve the detection rate of cervical lesions, reduce the work burden of some categories of healthcare workers and the convenience for the target women due to lengthy screening intervals.

Though the acceptability was high among healthcare workers for the vaginal HPV/DNA specimen collection method, it should be limited to clinic non-attendees only as from WWCs many other services are provided to women. The literacy rate of women may vary, therefore, rather than self-collection, PHMM collected vaginal specimens is preferred to the Sri Lankan setting to improve the coverage of the programme. The limited number of colposcopic centres in the district was an issues to the follow-up of screen-positive women in the district, therefore colposcopic facilities need to be strengthened in the district.

To overcome the problems associated with the present cervical cancer screening programme, HPV/DNA test should be initiated by introducing more educational programmes for workers and encouraging them to practice screening campaigns.

Limitations

This study was restricted to one district out of 25 districts in Sri Lanka due to logistic constraints. The population characteristics and the public health infrastructure of the district favoured the generalizability of the research findings to the whole country of Sri Lanka.

Conclusions

Healthcare workers in the Kalutara district are highly accepted (97.6%) of the HPV/DNA new screening test for quality improvement and the vaginal HPV/DNA screening test to increase the coverage of the National Cervical Cancer Screening programme.

Abbreviations

ASCUS: Atypical Squamous Cells of Undetermined Significance
CIN: Cervical Intraepithelial Neoplasia
FGD: Focus Group Discussions
KII: Key Informant Interview
MOH: Medical Officer of Health
MOMCH: Medical Officer of Maternal and Child Health
PCR: Polymerase Chain Reaction
PHM: Public Health Midwife
PHNS: Public Health Nursing SisterWWC: Well Woman Clinic

Declarations

1. Ethical approval

Ethical clearance was obtained from the Ethics Review Committee (ERC), National Institute of Health Science (NIHS), Kalutara Sri Lanka (Ref. number NIHS/ERC/18/06R). This research was conducted in accordance with the declaration of Helsinki.

2. Consent to participate

Informed written consent was obtained from each of the selected participants during the study.

3. Consent for publication

Not applicable.

4. Availability of data

The datasets used to analyze this study are available at the corresponding author on reasonable request.

5. Availability of funds

Self funded.

6. Conflicts of interest

There are no conflicts of interests.

7. Author contribution statement

KCMP participated in the design of the study, was the moderator of FGD sessions and KIIs, performed the broad thematic analysis, and drafted the version of the manuscript. HTCSA and NM participated in the design of the study.

HTCSA has supervised the descriptive codes, and performed broad thematic analysis, and interpreted data. All three authors read and approved the final manuscript.

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Key Informant Interviews (KII)-Interviewers Guide

The objective of the KII

- To explore the perception of cervical cancer screening programme in Sri Lanka among health care workers/service providers in Kalutara district.

Introduction

Introduce yourself. Welcome the participant and show your gratitude for his/her participation

……
……
……
……
……

This interview is held to gather your views and perceptions on the cervical cancer screening programme in Sri Lanka and its strengths and weaknesses.

Communicate objectives with participants and provide information sheets to them.

"I would like to obtain your permission to take notes during discussion to ensure none of your ideas or points are missed. Confidentiality of participants will be ensured by not including any identification details and the information gathered will be kept in a confidential manner. The approximate time duration will be thirty minutes.

Questions for healthcare workers

An interviewer should attempt to cover all the listed questions. But it is not strictly necessary, questions do not have to be asked in the stated order. Treat questions as a means to initiate and continue the flow of conversation in the correct direction. Initiate the conversation by asking for a round of self-introduction.

Initiate the conversation by asking for a round of self-introduction:

1. What do you understand about methods of cervical cancer screening?
2. Is it important? If so why?
3. What do you think about the cervical cancer screening programme in Sri Lanka?
4. What are the existing problems in the cervical cancer screening programme in Sri Lanka?
5. What is the turning point towards achieving good coverage in future?
6. What are the strengths of the present cervical cancer screening programme in Sri Lanka?
7. What are the weaknesses of the present cervical cancer screening programme in Sri Lanka?
8. What do you think about HPV/DNA screening test as a cervical cancer screening method?
9. What do you understand HPV/DNA vaginal specimen collection, as a cervical cancer screening method?
10. What are your suggestions to improve the cervical cancer screening programme in Sri Lanka?
11. Was this an appropriate summary?
12. Did you forget something?

If no more information is being produced, end the interview. Summarize the data collected to the participant. Ask her/him if all information has been stated and whether there is any more information to be added.

At the end, thank all participants for his/her valuable ideas and time.

Focus Group Discussion-Moderator Guide

Objectives of the Focus Group discussion

- To explore the perception of the cervical cancer screening programme in Sri Lanka among PHMM from different sectors in Kalutara district.
- To explore the perception of cervical cancer screening programme in Sri Lanka among PHMM from different service duration in field in Kalutara district.

Introduction

Introduce the moderator and note-taker. Welcome the participant and show your gratitude for his/her participation

……
……
……
……
……

This interview is held to gather your views and perceptions on the cervical cancer screening programme in Sri Lanka, its strengths and weaknesses.

Communicate objectives with participants and provide information sheets to them.

"I would like to obtain your permission to take down notes, while during the discussion and record the session using an audio recorder to make sure none of your ideas or points are missed.

Participation in the discussion is voluntary. Confidentiality of participants will be ensured by not including any identification details and the information gathered will be kept secret. Audio tapes will be erased after completion of notes. The approximate time duration will be one hour.

Refreshments are available for all participants at the end of the discussion. Bathroom facilities are available at the…… You may go to the bathroom even during the middle of the discussion.

Ground rules for the discussion:

- There is no right for wrong answer to questions. Everyone's ideas are important.
- This is an inter-reactive session. All participants should contribute to the discussion. Do not wait till you are called up.
- Participants should feel free to disagree with each other.
- Let one person speak at a time.

Questions for Public Health Midwives

The facilitator should attempt to cover all listed questions. But it is not strictly necessary. Questions do not have to be asked in the stated order. Treat the questions as a means to initiate and continue the flow of conversation in the correct direction.

Initiate the conversation by asking for a round of self-introduction:

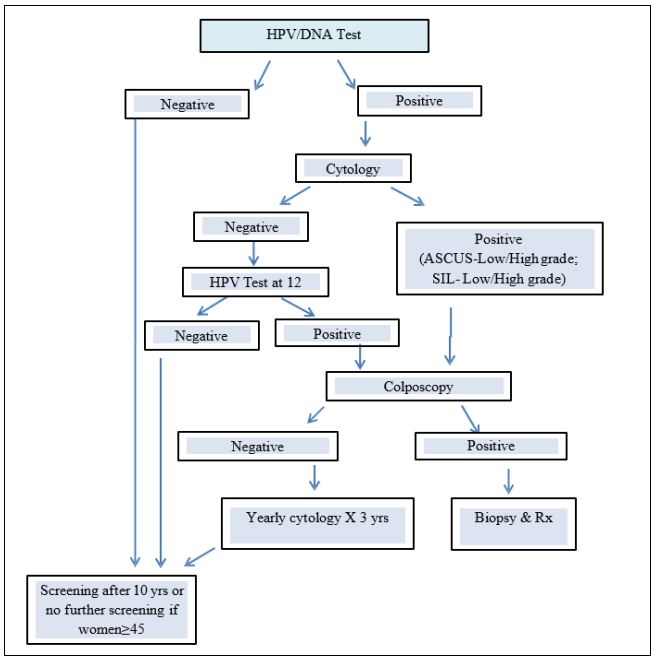
1. What do you understand about methods of cervical cancer screening?
2. Is it important? If so why?
3. What do you think about the cervical cancer screening programme in Sri Lanka?
4. What are the existing problems in the cervical cancer screening programme in Sri Lanka?
5. What is the turning point towards achieving good coverage in future?
6. What are the strengths of the present cervical cancer screening programme in Sri Lanka?
7. What are the weaknesses of the present cervical cancer screening programme in Sri Lanka?
8. What do you think about HPV/DNA screening test as a cervical cancer screening method?
9. What do you understand HPV/DNA vaginal specimen collection, as a cervical cancer screening method?
10. What are your suggestions to improve the cervical cancer screening programme in Sri Lanka?
11. Was this an appropriate summary?
12. Did you forget something?

If no more information is being produced, end the interview. Ask the note taker to summarize the data collected to the participants. Ask participants if all information has been stated and whether there is any more information to be added.

At the end, thank all participants for his/her valuable ideas and time.

Provide refreshments.

Algorithm of Asia Oceania Guidelines for the Implementation of Programmes for Cervical Cancer Prevention and Control for HPV/ DNA Screen Positive Follow-up by Hextan *et al.* (2011) [16]



Guideline for HPV/DNA Vaginal Specimen Collection

1. Client should lay on the bed at lithotomy position same the way laid on to the pap smear collection.
2. Insert broom-like device deep into the vagina, until it meet resistance
3. Gently collect vaginal smear from the upper vagina using the broom- like device, by rotating 5 times in a clockwise direction.
4. Gently remove the broom-like device and place in the provided container with cell collection media/thin-prep solution.
5. Push the broom-like device against the bottom of the vial 10 times forcing the bristles to bend apart. Swirl the broom vigorously after pushing.
6. Tighten the vial cap until the black torque line passes the black line on the vial.
7. Barcode container with accurate identification number/WWC register number and indicating "V" to identify vaginal specimen (Identification number should be similar with the same client's cervical specimen number).
8. Transport to the laboratory at room temperature in a provided regiform box with ice packs as soon as possible. In delay of transport, specimens to be sorted at the bottom level of a normal refrigerator (2c°-8c⁰).