Evaluation of a training workshop on the use of visual inspection with acetic acid in cervical cancer screening

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ABSTRACT

Objective: The Department of Health developed a program for Cervical Cancer Prevention and Control in the Philippines and this involves training of health care providers on Visual Inspection with Acetic Acid (VIA). The evaluation of this training program aims to determine the effectivity of the training workshop in increasing the knowledge and skills of healthcare providers in VIA and whether this would translate to practice in their workplaces.

Method: The first run of the training program was evaluated and the approach used was Kirkpatrick's model. Participants were asked to complete an evaluation questionnaire for Level 1 evaluation. A pre-test, post-test and performance checklist were accomplished for Level 2 evaluation. For Level 3 evaluation, randomly selected participants were interviewed via mobile phone. Data analysis involved descriptive methods and inferential statistics (T-test and McNemar test) for Level 2.

Results: Level 1 evaluation demonstrated a high over-all satisfaction rating from the participants ($\bar{x}$=4.59) and the training workshop was found to be relevant and useful to their practice. Level 2 evaluation showed a significant increase in the knowledge of the participants (P=.001) particularly in the core topics of cervical cancer epidemiology (P=.001) and VIA (P=.006). There was likewise a significant improvement in the performance of VIA from the first to the last patient encounter (P=.000). Level 3 evaluation showed that the participants interviewed have realized the importance of VIA

Conclusion: The training workshop was effective in increasing the knowledge base and clinical skills required of health care professionals who will provide cervical cancer screening services using visual inspection with acetic acid. As a direct effect of the increase in knowledge and skills, the participants have started to incorporate their new learnings into their practice.

Keywords: Visual Inspection with Acetic Acid, Kirkpatrick's model, Cervical Cancer screening, Cervical Cancer Prevention

INTRODUCTION

Cervical cancer ranks as the second most frequent cancer among Filipino women, next only to breast cancer. According to the latest WHO-ICO report, the Philippines has a population of 32.92 million women aged 15 years and older who are at risk of developing cervical cancer (de Sanjosé et al., 2012). Current estimates indicate that every year 6670 women are diagnosed with cervical cancer and 2832 die from the disease (Laudico, 2015). To put it in perspective, in the Philippines every 12 minutes a woman dies from cervical cancer. This is because there is no national screening program in place and screening is at best opportunistic. Only 9.3% of the population at risk has been screened (de Sanjosé et al., 2012). Furthermore, majority of women in the Philippines are diagnosed when the cancer is far advanced.

Visual Inspection with Acetic Acid (VIA) involves inserting a vaginal speculum and swabbing the cervix with 3% to 5% acetic acid solution before doing a cervical inspection (McIntosh et al., 2001; Sankaranarayanan and Wesley, 2001). Normal squamous epithelium is light pink in color and the columnar epithelium is red. CIN lesions will turn white for a few minutes after application of acetic acid. The effect of acetic acid is thought to depend on the amount of nuclear proteins and cytokeratins present in the cervical epithelium, which increases in CIN. VIA is a low-cost alternative to the Pap Smear. This can be done by trained health care professionals including nurses, midwives and barangay health workers.

The health care provider doing the test identifies one of the three categories for results: the test is positive with an acetowhite area present (VIA-positive), negative with no acetowhite areas (VIA-negative), or suspicious for cervical cancer. Careful training is needed to minimize the rate of false-positive results. A high false-positive rate with VIA could lead to overtreatment and unnecessary referral of women free of actual cervical abnormalities (Sankaranarayanan et al., 2001). The procedure itself does not require sophisticated equipment, it is low in cost, and results are immediately available. The Department of Health developed a program for Cervical Cancer Prevention and Control. The first step in this program involves training of health care providers on Visual Inspection with Acetic Acid (VIA). VIA is an alternative method of cervical cancer screening for low resource settings like the Philippines. The UP-PGH Section of Gynecologic Oncology was tasked by DOH to conduct the training of 120 healthcare providers at the Philippine General Hospital.

The VIA training workshop will run for 5 days with 20 Health Care Providers per run. Each run will have 10 board certified Gynecologic Oncologists as faculty preceptors and 10 Gynecologic Oncology Fellows as facilitators. The first part of the training workshop is the didactic phase on Day 1 which consists of 10 lectures. The second part the Hands-on practicum of trainees in the Philippine General Hospital which will take place on Days 2-5. The first run of the Training Workshop was evaluated.

RATIONALE AND PURPOSE OF THE EVALUATION

The Training Workshop will be conducted in 5-day modules once a month for 6 months for the first time at the Philippine General Hospital. Health care providers from different regions of the Philippines will be the learners. The design of the program is such that it is concise, comprehensive and short.

Developing effective training methods, is essential to the implementation of any health care program. Such training methods should be competency based, focused, practical, accessible, easy to understand, and feasible. The knowledge base and clinical skills required of a health care provider who will eventually provide cervical cancer screening services should be good. Training provided by government however is always time-constrained in low-resource settings, where funds for staff training are limited. It is critical that adequate learning is achieved to ensure that quality services are delivered to our women with both competence and confidence. It is essential that training is focused, comprehensive and effective. The evaluation of this training program will ultimately have an impact on cervical cancer prevention in the Philippines.

EVALUATION APPROACH

Kirkpatrick's four-level model was used for this evaluation. Kirkpatrick's model has a systematic, clear, and focused approach on program outcomes. More importantly, this model focuses on training program evaluation (Frye and Hemmer, 2012). The following information will be gained from the evaluation:

- Valuable, immediate feedback to evaluate didactics and skills workshop
- Determine how effective the trainers are and the 5 day module
- Provide quantitative information to establish standards of performance for future runs and programs

The evaluation method looked at learners' satisfaction with the training workshop, it tested knowledge gained and measured skills acquisition that will help in improving the subsequent runs of the training workshop. The extent of behavior change after attending the course was looked into as well. However due to time constraints, this was only after a month form the workshop. The evaluation method can be extended to look into the change in learner behaviors and ultimately, the impact of the training in the National Cervical Cancer Screening Program.

This is an external, formative evaluation. The results of the evaluation will be shared to the faculty of the UP-PGH Section of Gynecologic Oncology. The evaluation results will help the Section modify and improve the subsequent 5 runs of the Training Workshop. The report will also be shared with Department of Health for use in their Program of Training.

EVALUATION QUESTIONS

1. How did the health care providers react to the VIA training workshop?

2. What knowledge was gained with regard to cervical cancer, screening methods and VIA?

3. What skills were gained ?

4. Did the health care providers apply VIA screening in their respective communities?

EVALUATION PLAN/METHOD

Objectives	Data Gathered	Sources of Data	Tools/ Instruments
1. To measure the participants' satisfaction in the training workshop a. Attainment of objectives b. Relevance of content c. Appropriateness of learning methods d. Effectiveness of facilitators e. Appropriateness of training materials f. Organization of the course g. Practicability and usefulness h. Physical arrangements	The participants' satisfaction regarding the training was gathered via a questionnaire. The questionnaire has 14 items that were scored using a 5-point Likert scale (5 = excellent to 1 = poor). This evaluated the quality of course organization, training materials, scientific program, attainment of course objectives, and support staff. Three open-ended questions were also given for further comments.	Day 5 VIA Post-Training Survey Form	Data encoded and analyzed (descriptive statistics) using Microsoft Excel.
2. To measure what knowledge was gained with regard the following: a. cervical cancer epidemiology b. counselling c. infection control d. Visual inspection with acetic acid	The changes in participants' knowledge were studied with a 15-item instructor-administered test in which each correct response will be scored as 1. The tests will be given before and after the training program. The test instrument covers topics taught during the program. This includes: Cervical cancer epidemiology, Counselling, Infection Control and VIA testing.	VIA Pre-test/ Post Test Questionnaire	Data encoded using Microsoft Excel and analyzed utilizing SPSS software.
3. To measure the skills gained on the following aspects: a. Pre-procedure Counselling and preparation b. Performance of the VIA c. Post procedure counselling	Skills assessment were done using a 33 – item checklist. The preceptor checked whether each item was performed or not performed.	VIA Performance Evaluation Checklist	Data encoded using Microsoft Excel and analyzed using SPSS 15 software.
4. To assess the confidence of the 5. participants in applying the skills learned in their respective health care centers	8 out of 20 participants were randomly selected and interviewed via mobile phone on whether they have performed VIA in their respective Health centers. Their experience, ease of doing the procedure and confidence were asked.	Guided Telephone Interview	Data encoded using Microsoft Excel. The participants' answers to the questions were categorized by grouping similar comments.

METHODOLOGY

Level 1: Reaction

The participants were given survey forms prior to the start of the didactics on day 1. They were given another evaluation form on Day 5 after the hands-on proper. In the Post-Training Feedback, each participant was made to answer a questionnaire with 14 questions divided into three categories: Information prior to the Activity (1 question), Delivery of the Activity (10 questions), and Achievement of Course Objectives (3 questions). A 5-point Likert scale was utilized, with 1 as the lowest and 5 the highest to rate the participants' degree of agreement with the question presented. The answer of each participant per question were encoded into a table using MS Excel. The mean for each question were calculated, as well as the mean scores per category and for each criteria under delivery. The scores attained determined how the participants perceived and found satisfaction in the various aspects of the training course.

Three open-ended questions were also posed for the participants to answer pertaining to the least and most useful aspects of the activity and possible areas of improvement. These were tabulated. Similar answers were grouped together and the number of participants who gave similar answers were noted.

Level 2: Learning: Knowledge

A written exam was used as a Pre-test and Post-test. This is composed of 15 True or False questions divided into four topics of (A) Cervical Cancer Epidemiology, (B) Counselling, (C) Infection Control and (D) Visual Inspection with Acetic Acid.

The pre-test and post-test scores of each participant from each topic and the overall score were coded in MS Excel. The paired T-test was applied to determine any significant increase from the pre- and post-test mean scores (Barton and Peat, 2014). Statistical computations utilized IBM SPSS statistics subscription trial. An alpha (α) of 0.05 or 95% level of confidence was assumed for this study.

Level 2: Learning: Skills

Skills application is composed of 33 steps divided into 3 phases of Preparation and Counselling (A), Performing the VIA (B) and Infection control (C). Phase A is further subdivided into segments on Preparation of Instruments (A1), Counselling (A2), and Preparation of Patient (A3). The application was performed 8 times on 8 different patients in the course of 4 days. Participants were assessed on whether they performed each of the 33 steps satisfactorily and this was reflected in the evaluation sheet as "Performed/Not Performed".

Only the first and last application were included in the study. Each of the participant's performance in the first and last application were coded in MS Excel as: "0" for not performed and "1" for performed. McNemar's test was applied to determine if a statistical change in the proportions of "performed" and "not performed" has occurred between the first application and the last application of each of the 33 steps (Barton and Peat, 2014).

The first application and last application scores of each participant from each phase and segment (A1, A2, A3, B and C) and the overall score were coded in MS Excel. Score is defined as the total number of steps done correctly. The paired T-test was applied to determine any significant increase from the first application and last application mean scores (Barton and Peat, 2014). Statistical computations were utilized IBM SPSS statistics subscription trial. An alpha (α) of 0.05 or 95% level of confidence was assumed for this study.

Level 3: Behavior

Post Training Evaluation was done a month after the workshop. Eight randomly selected participants were chosen for a guided interview. They were contacted via mobile phone and were asked to answer 5 basic questions and give some comments. The evaluator took note of the answers and entered it into the evaluation form. The interviewees' answers were tabulated. Similar answers to the comments were grouped together and the number of participants who gave similar answers were noted.

EVALUATION RESULTS / DISCUSSION

There were 20 participants in the training. Among the 20 participants, 17 (85%) were female and 3 (15%) were male. All of them were sent by the Department of Health from various health centers in Quezon City. There were 11 were General Practitioners/Family Physicians (55%) and one (5%) Pediatrician which placed the total number of Physician attendees to 12 (60%). Eight (40%) were allied medical professionals (Nurse, Midwife, etc.). Only 19 out of the 20 participants were able to answer the questionnaire and workshop feedback. The demographics of the participants are shown in Table 1.

Among the respondents, one (5%) attended due to CME requirements, seven (35%) attended to obtain updates and for a refresher while six (30%) attended because they were required by their respective work institutions. Four (20%) respondents said that they attended for both the CME requirement and for updates. However, one respondent was unable to give an answer.

It is interesting to note that among the Physicians, 6 out of 12 (50%) attended because they were required from their places of practice. One (8%) attended for the

Table 1. Demographics of the participants

	Number of Participants	Percentage
GENDER		
• Males	3	15
• Females	17	85
PROFESSION		
• Physician	12	60
• Nurse/Midwife/Paramedical	18	40
AREA OF PRACTICE		
• Physician	20	100
• Nurse/Midwife/Paramedical	0	
REASON FOR ATTENDING		
• CME unit requirement	1	5
• Refresher course/update	7	35
• Work requirement	6	30
• CME requirement and refresher	4	20

CME units that can be obtained. Three (25%) said that it was for both the CME requirement and as a refresher. Two gave no reason for attending.

Among the Allied Health Professionals, 7 (88%) attended for the updates. One (12%) attended for the CME units that can be obtained and as a refresher. The division by subgroups is shown in Figure 1.

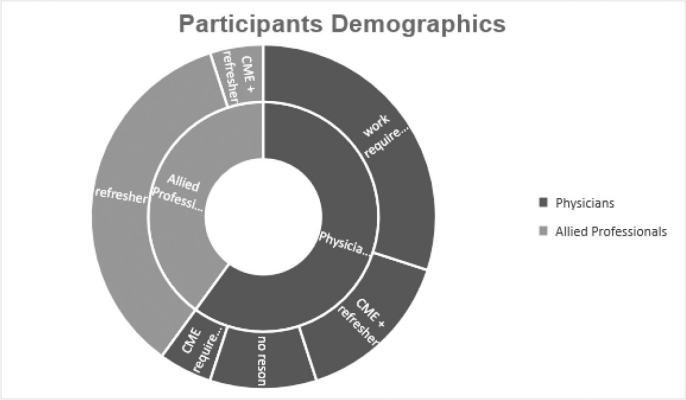

Figure 1. Demographics of the participants

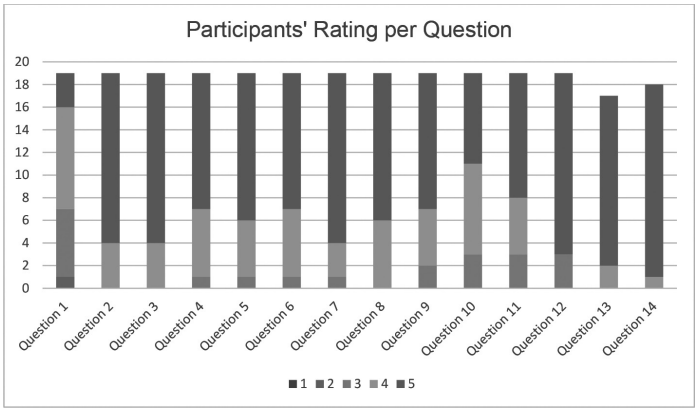

Figure 2. Participants Rating per Question

Level 1: Reaction

In the Post-Training Feedback, most participants rated the training high with 4 or 5 in most questions (Figure 2). Table 2 shows the means of each question, criteria and category. The answers to the three open-ended questions (Questions 15-17) are summarized in Table 3.

The highest mean score ($\bar{x}$ =4.94) was given to Question 14, detailing the usefulness of the VIA training to their place of practice. However, the lowest mean score ($\bar{x}$ =3.74) was given to Question 1, denoting that the participants were only moderately clarified about the training program prior to participating.

Overall, based on Category, the highest mean scores were given to Usefulness of the Activity ($\bar{x}$=4.84), seconded by Delivery of the Activity ($\bar{x}$=4.61) and last was Pre-Activity Information ($\bar{x}$ =3.74).

Although a mean of 3.74 can still be considered moderately high, the Pre-Activity Information mean was the lowest probably because no detailed orientation was given prior to the first day of the training. This implies that the organizers still need some improvement in the dissemination of information to the healthcare providers prior to the course itself. However, the VIA Training was largely deemed useful by all participants and the delivery of the course also showed that they were fairly satisfied.

Highest mean scores in the delivery were given to the Objectives of the course ($\bar{x}$=4.79) and the Facilitators/ Resource Persons ($\bar{x}$=4.74). This satisfaction was also reflected in Question No. 16 where the faculty was mentioned among the most useful aspects of the activity.

The Learning methods received a mean score of 4.58 showing above average satisfaction from the participants. Likewise, the practicum was mentioned by many (n=13) as the most useful aspect of the course, followed by the lectures (n=6).

Lowest mean scores were given to Organization

Table 2. Participants' Feedback (Questions 1-14)

	Mean per Question	Mean per Criteria under Delivery	Mean per Category
A. INFORMATION RECEIVED BEFORE THE TRAINING			3.74
1. Before participating in this activity, were you clear about the objectives, contents, methods?	3.74		
B. THE WAY THE ACTIVITY WAS DELIVERED			4.61
Objectives		4.79	
2. Having participated, are you now clear about the objectives of the activity?	4.79		
3. To what extent where the activity's objectives achieved?	4.79		
Content		4.61	
4. Given the activity's objectives, how appropriate were the activity's content?	4.58		
5. Given your level of prior learning and knowledge, how appropriate were the content?	4.63		
Methods		4.58	
6. Were the learning methods appropriate?	4.58		
Facilitators/Resource Persons		4.74	
7. How would you judge the resource persons' overall contribution?	4.74		
The Group of Participants		4.68	
8. Did the other participants with whom you attended the activity contribute to your learning?	4.68		
Training Materials		4.53	
9. Were the materials/media used during the activity appropriate?	4.53		
Organization		4.34	
10. Would you say the activity was well-organized?	4.26		
11. Would you call the secretariat efficient?	4.42		
C. USEFULLNESS OF THE ACTIVITY			4.84
12. Are you satisfied with the quality of the activity?	4.68		
13. How likely is it that you will apply some of what you have learned?	4.88		
14. How likely is it that your office/agency will benefit from your participation in the activity?	4.94		

Table 3. Participants' Feedback (Questions 15-17)

1. Which three aspects of the activity do you think were least useful?
   - Decking of patients/waiting time in practicum (n=3)
   - Successive lectures every 30 minutes (n=1)
   - Practicum without prior demo (n=1)
   - Space availability in practicum (n=1)

2. Which three aspects of the activity do you think were most useful?
   - Practicum (n=13)
   - Lectures (n=6)
   - Counselling of patients (n=4)
   - Use of pictures/flashcards (n=3)
   - Faculty mentorship (n=2)
   - AV presentations (n=2)
   - Identification of risk factors (n=1)
   - Completeness of the course (n=1)
   - Exams (n=1)

3. What would you suggest the facilitators/resource persons do to improve the overall quality of their contribution? (You may name someone in particular if you wish)
   - Less speakers for the first day/'slow down' (n=2)
   - Bigger venue for more participants (n=1)
   - Less waiting time in practicum (n=1)
   - Demo first prior to practicum (n=1)
   - Include speakers' lectures in the handouts (n=1)

($\bar{x}$=4.34) and Training Materials ($\bar{x}$=4.53). This was also reflected in Question No. 15 where the decking of the patients was mentioned as among the least useful aspects of the course. The method of decking patients used resulted in long waiting times for the participants. There were only examination beds and so the participants waited for their turn in examining their patients. This was also mentioned among the recommendations in Question No. 17. There was also a suggestion that there be spacing among the lectures in the first day for better learning. As for the training materials, it was suggested that copies of the speakers' lectures be included to improve the training handouts.

Among the two large categories of participants, the Overall Mean Score from the Physicians was 4.42, while that from the Allied Health Professionals was 4.83. This implies a greater satisfaction rate from the Allied Health Professionals than the Physicians. This may possibly be explained by the fact that most Allied Health Professionals claimed that they attended because they wanted to get updates on the topic while half of the Physicians attended only because they were required by their work institutions. This assumption is further supported by a comparison of the satisfaction ratings by motivation showing that those who attended as a requirement had an Overall Mean Score of 4.57 while the Overall Mean Score of those who attended for a refresher was 4.85.

Despite the differences though, all participants showed significant satisfaction from the course with an Overall Mean Score of 4.59 from all participants. Overall Mean Scores are shown in Figure 3.

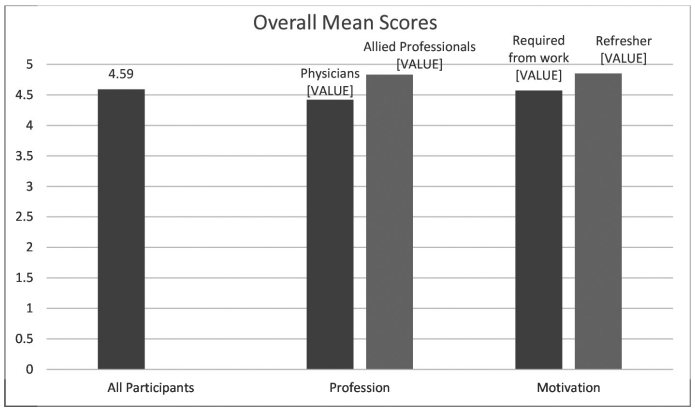

Figure 3. Over all Mean Scores

Level 2: Learning: Knowledge

A written exam was used as a Pre-test and Post-test. This is composed of 15 questions divided into four topics namely Parts A Cervical Cancer Epidemiology; B Counselling; C Infection Control and D Visual Inspection with Acetic Acid.

At baseline, the participants' knowledge measured by the Pre-Test showed a mean score of 11.25. This rose to 13.55 after the didactics session (d=-2.30). Table 4 shows the means of the Pre-Tests and Post-Tests.

Using the T-test to analyze the difference of mean scores (Table 5), there is a significant increase from pre-test to post-test (t=-3.84, P=.001). Categorized by topics, post-test mean scores of the subtopics on Cervical Cancer Epidemiology (t=-3.76, P=.001) and Visual Inspection with Acetic Acid (t=-3.11, P=.006) showed a statistically significant increase. This reflects an increase in knowledge in the core topics of Epidemiology and VIA after the didactics.

Counselling (t=.00, P=1.00) and Infection Control (t=1.00, P=.330) are topics that are already practiced by the participants in their workplaces thus explaining the already high mean scores on pre-test. It is noteworthy to mention that, though insignificant, there was a decrease in mean scores in Infection Control (C). This could mean that the lectures could have further confused the participants on the understanding of this topic. This confusion however, is not enough to cause a significant difference.

Analyzing the data further by dividing the participants into subgroups (Table 6), significant increase was noted in the topic on Cervical Cancer Epidemiology (t=-3.46, P=.005) for the Physicians and on the topic Visual Inspection with Acetic Acid (t=-3.21, P=.015) for the Allied Health Professionals (Table 7). Thus, the lectures in epidemiology mainly benefitted the doctors as it probably served as an update, while the lectures on VIA itself benefitted the allied professionals who were probably less acquainted in its theoretical aspects.

Another subgroup analysis contrasted those who were merely required to attend and those who were interested to have a refresher. Significant increase in mean score was noted in the topic Visual Inspection with Acetic Acid (t=-3.58, P=.012) for those who attended mainly for a refresher (Table 8). There was also a significant increase in overall mean score for the whole test (t=-3.12, P=.021). This closely reflects the results demonstrated by analysis of the Allied Health Professionals.

Those who came only because they were required to do so, had a significant increase in mean scores in the topic on Cervical Cancer Epidemiology (t=-2.82, P=.037), which similarly reflects the same results of the Physicians subgroup (Table 9). However, there was no significant increase in overall mean scores (t=-2.03, P=.099). This could mean an already fair knowledge base for this group of participants, and thus explaining why there was no compulsion to attend the course.

Level 2: Learning: Skills

Skills application is composed of 33 steps divided

Table 4. Pre-Test and Post-Test Statistics

		Mean	N	Std Deviation	Std Error Mean
Pair 1	A pre total	3.60	20	1.635	.366
	A post total	5.20	20	.616	.138
Pair 2	B pre total	2.65	20	.489	.109
	B post total	2.65	20	.587	.131
Pair 3	C pre total	1.95	20	.224	.050
	C post total	1.85	20	.366	.082
Pair 4	D pre total	3.05	20	1.146	.256
	D post total	3.85	20	.489	.109
Pair 5	Total pre	11.25	20	2.291	.512
	Total post	13.55	20	1.146	.256

Table 5. Pre-Test and Post-Test T-Test Analysis

		Mean	Std Dev	Std. Error Mean	Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A pre total - A post total	-1.600	1.903	.426	-2.491	-.709	-3.760	19	.001
Pair 2	B pre total - B post total	.000	.649	.145	-.304	.304	.000	19	1.000
Pair 3	C pre total - C post total	.100	.447	.100	-.109	.309	1.000	19	.330
Pair 4	D pre total - D post total	-.800	1.152	.258	-1.399	-.261	-3.107	19	.006
Pair 5	B pre total - B post total	-2.300	2.677	.599	-3.553	-1.047	-3.842	19	.001

Table 6. Pre-Test and Post-Test T-Test Analysis (Physicians)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A pre total - A post total	-2.000	2.000	.577	-3.271	-.729	-3.464	11	.005
Pair 2	B pre total - B post total	.000	.603	.174	-.383	.383	.000	11	1.000
Pair 3	C pre total - C post total	.083	.515	.149	-.244	.411	.561	11	.586
Pair 4	D pre total - D post total	-.583	1.240	.358	-1.371	.205	-1.629	11	.131
Pair 5	B pre total - B post total	-2.500	3.289	.949	-4.590	-.410	-2.633	11	.023

Table 7. Pre-Test and Post-Test T-Test Analysis (Allied Health Professionals)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A pre total - A post total	-1.000	1.690	.598	-2.413	.413	-1.673	7	.138
Pair 2	B pre total - B post total	.000	.756	.267	-.632	.632	.000	7	1.000
Pair 3	C pre total - C post total	.125	.354	.125	-.171	.421	1.000	7	.351
Pair 4	D pre total - D post total	-1.125	.991	.350	-1.954	-.296	-3.211	7	.015
Pair 5	B pre total - B post total	-2.000	1.512	.535	-3.264	-.736	-3.742	7	.007

Table 8. Pre-Test and Post-Test T-Test Analysis (Refresher Subgroup)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A pre total - A post total	-5.71	1.272	.481	-1.748	.605	-1.188	6	.280
Pair 2	B pre total - B post total	-.143	.690	.261	-.781	.495	-.548	6	.604
Pair 3	C pre total - C post total	.143	.378	.143	-.207	.492	1.000	6	.356
Pair 4	D pre total - D post total	-1.286	.951	.360	-2.165	-.406	-3.576	6	.012
Pair 5	B pre total - B post total	-1.857	1.574	.595	-3.312	-.402	-3.122	6	.021

Table 9. Pre-Test and Post-Test T-Test Analysis (Work Requirement Subgroup)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A pre total - A post total	-2.500	2.168	.885	-4.775	-.225	-2.825	5	.037
Pair 2	B pre total - B post total	-.167	.753	.307	-.957	.623	-.542	5	.611
Pair 3	C pre total - C post total	.167	.753	.307	-.623	.957	0.542	5	.611
Pair 4	D pre total - D post total	-1.000	1.549	.632	-2.626	.626	-1.581	5	.175
Pair 5	B pre total - B post total	-3.500	4.231	1.727	-7.940	.940	-2.026	5	.099

into 3 parts namely, A, Preparation and Counselling; B, Performing the VIA; and C Infection control. Part A is further subdivided into segments A1, A2, and A3. The application will be done 8 times on different patients in 4 days. Only the first and last applications were included in the evaluation.

At baseline, the mean number of steps done adequately by the participants was 27.95. This number rose to 32.15 by the end of the skills workshop (d= -4.20). Table 10 shows the means of the first and last skills applications.

Using McNemar Test and comparing the first skills application and the last skills application, there was a significant difference in the number of participants who performed the following steps correctly: A1.1 (P=.000), A1.2 (P=.008), B1 (P=.008) and B3 (P=.016). For steps A3.3, B7, B8, B10, C8, the McNemar test could not be performed because the variables were not dichotomous. All the participants were able to perform the said steps correctly the first time and the last time. For the rest of the steps, the differences were insignificant.

Despite only 4 steps out of 33 showing a significant difference on McNemar Test, the T-Test showed a significant increase in adequately performing all the steps by all the participants (t=-6.22, P=.000). Particularly, there was a significant increase in Preparation of Instruments (A1, t=-5.88, P=.000), Performing the VIA (B, t=-3.42, P=.003) and Infection Control (C, t=-2.81, P=.011). This difference draws attention to the importance of the learning transfer process in the 4-days hands-on, one on one workshop. (Table 16)

Steps in the phase C (Infection Control) showed no significant difference on McNemar test. However, the mean scores showed a significant increase on T-test. On further examination of the data, it was noted that there was a small number of participants who did not perform satisfactorily in the first skills application. This small number of participants had errors in their performance scattered among the 9 different steps in this phase, causing a small difference per step but this caused a large discrepancy in their phase C total scores as compared with the rest of the participants. In the last skills application, all participants performed all the steps in Phase C satisfactorily. Thus, this effected a significant difference in the Phase C mean scores.

Analyzing the data further by subgroups, the Physicians (Table 17) demonstrated a similar pattern of increase in Preparation of Instruments (A1, t=-3.32, P=.007), Performing the VIA (B, t=-3.55, P=.005) and Infection Control (C, t=-2.54, P=.027).

In contrast, the Allied Health Professionals (Table 18) only showed a significant increase in the phase on Preparation of Instruments (A1, t=-7.51, P=.000). Nevertheless, there was an overall significant increase in

Table 10. First and Last Skills Application Statistics

		Mean	N	Std Deviation	Std Error Mean
Pair 1	A1 first total	1.60	20	.821	.184
	A1 last total	2.75	20	.639	.143
Pair 2	A2 first total	5.65	20	.813	.182
	A2 last total	5.85	20	.366	.082
Pair 3	A3 first total	4.65	20	.671	.150
	A3 last total	4.80	20	.410	.092
Pair 4	B first total	8.25	20	1.773	.397
	B last total	9.75	20	.550	.123
Pair 5	C first total	7.95	20	1.669	.373
	C last total	9.00	20	.000	.000
Pair 6	Total pre	27.95	20	3.034	.679
	Total post	32.15	20	.933	.209

Table 16. First and Last Skills Application T-test Analysis

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A1 first total - A1 last total	-1.150	.875	.196	-1.560	-.740	-5.877	19	.000
Pair 2	A2 first total - A2 last total	-.200	.894	.200	-.619	.219	-1.000	19	.330
Pair 3	A3 first total - A3 last total	-.150	.745	.167	-.499	.199	-.900	19	.379
Pair 4	B first total - B last total	-1.500	1.960	.438	-2.417	-.583	-3.422	19	.003
Pair 5	C first total - C last total	-1.050	1.669	.373	-1.831	-.269	-2.813	19	.011
Pair 6	Total first - Total last	-4.200	3.019	.675	-5.613	-2.787	-6.221	19	.000

Table 17. First and Last Skills Application T-test Analysis (Physicians)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A1 first total - A1 last total	-1.000	1.044	.302	-1.664	-.336	-3.317	11	.007
Pair 2	A2 first total - A2 last total	-.333	1.073	.310	-1.015	.348	-1.076	11	.305
Pair 3	A3 first total - A3 last total	-.167	.835	.241	-.697	.364	-.692	11	.504
Pair 4	B first total - B last total	-2.000	1.954	.564	-3.242	-.758	-3.546	11	.005
Pair 5	C first total - C last total	-1.417	1.929	.557	-2.642	-.191	-2.545	11	.027
Pair 6	Total first - Total last	-5.167	2.980	.860	-7.060	-3.273	-6.007	11	.000

Table 18. First and Last Skills Application T-test Analysis (Allied Health Professionals)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A1 first total - A1 last total	-1.375	.518	.183	-1.808	-.942	-7.514	7	.000
Pair 2	A2 first total - A2 last total	.000	.535	.189	-.447	.447	.000	7	1.000
Pair 3	A3 first total - A3 last total	-.125	.641	.227	-.661	.411	-.552	7	.598
Pair 4	B first total - B last total	-.750	1.832	.648	-2.282	.782	-1.158	7	.285
Pair 5	C first total - C last total	-.500	1.069	.378	-1.394	.394	-1.323	7	.227
Pair 6	Total first - Total last	-2.750	2.605	.921	-4.928	-.572	-2.986	7	.020

both subgroups of Physicians (t=-6.01, P=.000) and Allied Health Professionals (t=-2.99, P=.020).

The allied professionals from the first application already had good scores in all phases. However, further improvement was still noted on Phase A1 which involved equipment preparation. Meanwhile, the physicians may have showed less interest at the start. But as the workshop progressed the interest increased which was reflected in the improvement of the scores. The significant increase in several phases also suggests that this subgroup benefitted further from the workshop.

Another subgroup analysis contrasted two subgroups who attended based on motivation (Tables 19-20). There was an overall significant increase in both the Refresher subgroup (t=-2.70, P=.035) and Work Requirement subgroup (t=-4.94, P=.004).

For those who attended mainly because they were required, there was a significant increase in Phase B (Performing the VIA) alone (t=-2.77, P=.040). Based on demographic data, this subgroup is made up of Physicians. The result is in contrast to the whole group of Physicians who showed significant increase in three different phases. In the latter part of our evaluation, it would surface that some of the physicians largely had administrative responsibilities in their places of work leaving some tasks in the VIA to their staff. These responsibilities largely include the preparatory and infection control phases of procedures. These physicians could have comprised this subgroup who attended due to work requirement. And thus, this information would explain why the increase was only in Phase B or the actual performance of the VIA.

For those who attended for a refresher, there was a significant increase in Preparation of Instruments (A1, t=-6.97, P=.000). The analysis results of this subgroup closely reflect the results demonstrated by analysis of the Allied Health Professionals. It is to be noted that this subgroup is composed also of Allied Health Professionals.

Level 3: Behavior

Evaluation of the third level was done a month after the workshop. Training participants may possess the knowledge, skills, and attitudes taught in the workshop, but still there is no guarantee of their application of what they learned once back to their facilities. Four doctors and four nurses were randomly picked. The results of the guided interview are shown in Table 21.

While all of the interviewees claimed that their workplaces have complete equipment for performing the VIA, only seven had already integrated it in their services. The one who has not offered VIA services is a nurse and cited lack of a trained doctor in her facility which, by policy of their facility, disallowed her to offer the service. Four interviewees said that they perform the procedure on an average of 5 patients or less per week, while three interviewees said they perform it on more than 5 patients per week since they started. When asked of their

Table 19. First and Last Skills Application T-test Analysis (Refresher Subgroup)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A1 first total - A1 last total	-1.286	.488	.184	-1.737	-.834	-6.971	6	.000
Pair 2	A2 first total - A2 last total	.000	.577	.218	-.534	.534	.000	6	1.000
Pair 3	A3 first total - A3 last total	-.143	.690	.261	-.781	.495	-.548	6	.604
Pair 4	B first total - B last total	-.858	1.952	.738	-2.662	.948	-1.162	6	.289
Pair 5	C first total - C last total	-.571	1.134	.429	-1.620	.477	-1.333	6	.231
Pair 6	Total first - Total last	-2.857	2.795	1.056	-5.442	-.273	-2.705	6	.035

Table 20. First and Last Skills Application T-test Analysis (Work Requirement Subgroup)

		Mean	Std Dev	Std. Error Mean	95% C I of the Difference		t	df	Sig (2-tailed)
					Lower	Upper			
Pair 1	A1 first total - A1 last total	-1.167	1.169	.477	-2.394	.060	-2.445	5	.058
Pair 2	A2 first total - A2 last total	-.667	1.506	.615	-2.247	.913	-1.085	5	.328
Pair 3	A3 first total - A3 last total	-.167	.983	.401	-1.198	.865	-.415	5	.695
Pair 4	B first total - B last total	-2.333	2.066	.843	-4.501	-.166	-2.767	5	.040
Pair 5	C first total - C last total	-1.667	1.966	.803	-3.730	.397	-2.076	5	.093
Pair 6	Total first - Total last	-6.167	3.061	1.249	-9.378	-2.955	-4.936	5	.004

Table 21. Post-Training Interview

	Participants Interviewed	Percentage
Participants Interviewed	8	
• GP/Family Med	4	50
• Nurse/Midwife	4	50
Integration of cervical cancer services in the unit		
• Yes	7	87.5
• No	1	12.5
Women screened per week		
• None yet	1	12.5
• 5 or less	4	50
• More than 5	3	37.5
Confidence Level (Scale of 1-5)		
• 5	5	62.5
• 4	3	37.5
• 3	0	
• 2	0	
• 1	0	
Provision of equipment		
• Yes	8	100
• No	0	
Comments • Would love to attend a refresher course again (1) • Have already high confidence in doing the procedure (1) • Confident in doing the procedure but only supervises the allied professionals (1) • Plans wide information dissemination in the areas they serve through lay lectures (3) • Need to convince more patients (2)		

Table 22. Interviewees' Confidence Level in Performing VIA

Descriptive Stattistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Confidence	8	4	5	4.63	.518
Valid N (listwise)	8				

confidence level in performing VIA, given a scale of 1-5, with 5 being the highest, the mean confidence level of the interviewees is 4.63 (Table 22).

Among the comments, three interviewees plan to do wide information dissemination of this service and two said that they need to convince more patients to undergo the procedure.

Although the post workshop assessments showed that the majority of the participants were considered capable of doing VIA independently, integrating and performing VIA in their health care facility were dependent on confounding factors such as provision of equipment by the government, approval of the persons of authority in each facility, the previous experience of the participants and the structure in each facility.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Level 1 evaluation demonstrated a high over-all satisfaction rating from the participants. The training workshop was found to be relevant and useful to their practice.

Level 2 evaluation showed a significant increase in the knowledge of the participants particularly in the core topics of cervical cancer epidemiology and VIA. There was likewise a significant improvement in the performance of VIA from the first to the last patient encounter.

Level 3 evaluation showed that the participants interviewed have realized the importance of VIA as a cervical screening method. They have started to offer the service in their health care centers and claim a high level of confidence in independently performing VIA.

Conclusions

The training workshop was effective in increasing the knowledge base and clinical skills required of health care professionals who will provide cervical cancer screening services using visual inspection with acetic acid. As a direct effect of the increase in knowledge and skills, the participants have started to incorporate their new learnings into their practice.

The 5-day module was effective as it was competency-based, focused, and had individualized learning. Moreover, the motivation of the participants had a significant impact on their satisfaction, increase in knowledge and skills performance.

Recommendations

The results of the study will be presented to the UP-PGH Section of Gynecologic Oncology.

Recommendations as gleaned from the study include improvement in dissemination of course information prior to the training and better organization of patients decking in the skills workshop and arrangement of lectures. As supported by the evaluation results, the focus on the core topics should be continued. Similarly, the interactive one-on-one facilitation of the performance of the skills with immediate feedback after each trainee-patient interaction should be continued. Furthermore, as some confounding factors are still to be resolved, long-term follow up and guidance should be done by the facilitators to monitor the implementation.

Given that there are 5 more runs of the training for this year, it can be recommended that a similar evaluation be executed. However, some improvements in the evaluation process may be carried out such as clearer instructions and better questionnaire structure in the Level 1 Evaluation. Participants should also be oriented before the training workshop regarding expectations and informed that they will be contacted for monitoring and feedback a month after the workshop.

This evaluation can be extended to look into the long-term, lasting changes of the training workshop to the participants in their respective healthcare facilities. These changes may include the increase in the number of women screened per facility, the percentage of women screened per locality and the change in the health-seeking behavior of the women in the community. These small changes if repeated across the country will consequently make an impact on the National Cervical Cancer Screening program of the Department of Health. ■

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