



# American Society of Clinical Oncology (ASCO) Cervical Cancer Prevention Program: A Hands-On Training Course in Nepal

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Cervical cancer is the leading cause of death among women in Nepal. The American Society of Clinical Oncology (ASCO) and The University of Texas MD Anderson Cancer Center collaborated with international and local experts to hold a cervical cancer prevention course in Nepal in November 2019. The course included didactic lectures and a hands-on workshop. The didactic lectures included the epidemiology of cervical cancer globally and locally, cervical cancer screening guidelines, human papillomavirus vaccination, colposcopy and visual inspection with acetic acid (VIA), cervical dysplasia, and cervical cancer treatment. The hands-on workshop consisted of four stations: (1) VIA; (2) colposcopy, cervical biopsy, and endocervical curettage; (3) thermal ablation; and (4) loop electrosurgical excision procedure (LEEP). A train-the-trainer model short course was held by the international faculty to assist six local faculty to become familiar with the instruments, procedures, and models used in the hands-on training stations. Forty-two people (84% gynecologist, 8% radiation oncologist, and 8% other) attended the course. Following the course, the international faculty visited the regional hospitals for additional educational activities. Increased knowledge in cervical cancer screening guidelines and ability in performing VIA, colposcopy and cervical biopsy, thermal ablation, and LEEP were reported by 89%, 84%, 84%, 87%, and 84% of participants, respectively, from the postcourse on-site evaluations. From the 6-month follow-up survey, all respondents reported that they had made practice changes based on what they learned in the course and had implemented or tried to implement the cervical cancer screening guidelines presented at the course. In conclusion, the course evaluations suggested an improvement in participants' ability to perform cervical cancer screening and diagnostic procedures and reported the changes in practices after training.

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## INTRODUCTION

There is significant inequity in the cervical cancer burden between high-income countries (HICs) and low- and middle-income countries (LMICs). The cervical cancer incidence is highest in Africa, Latin America, and Asia.<sup>1</sup> In 2018, approximately 570,000 new cervical cancer cases and 311,000 cervical cancer-related deaths occurred worldwide. Approximately 84% of these cervical cases and 88% of the deaths occurred in LMICs.<sup>2</sup> Cervical cancer screening programs have led to a significant reduction in cervical cancer incidence and mortality in HICs. By contrast, the cervical cancer burden remains unchanged in LMICs because of a lack of effective organized screening programs. The WHO recognizing cervical cancer as a public health problem has outlined a global strategy for its elimination. The 2030 90-70-90 goals include the following: (1) 90% of girls complete human papillomavirus (HPV) vaccination by age 15, (2) 70% of women undergo cervical cancer screening with a high performance test at 35 and 45 years of age,

and (3) 90% of women with preinvasive or invasive cervical lesions undergo treatment.<sup>3</sup>

In Nepal, the age-adjusted incidence rate of cervical cancer is 21.5 per 100,000 population with 2,942 new cases and 1,928 deaths.<sup>1</sup> Cervical cancer remains the most common cancer among Nepalese women. Most patients with cervical cancer (80.9%) in Nepal present with an advanced stage of the disease.<sup>4,5</sup> Nepal's national guidelines for cervical cancer screening developed in 2010 recommend screening with visual inspection with acetic acid (VIA) every 5 years for women in the age range of 30-60 years. The goal was to achieve a 50% screening rate of the target population by 2015.<sup>6</sup> However, because of challenges with implementation, the screening program has not gained momentum and the coverage is still unsatisfactorily low. Cervical cancer screening programs in Nepal are often associated with various challenges relating to education, geography, socioeconomic, cultural, family, and ethical issues apart from resources.<sup>7</sup> Great efforts and commitments are

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## CONTEXT

### Key Objective

Cervical cancer remains the most common cancer among women in Nepal. There are a limited number of skilled providers who can manage cervical preinvasive lesions.

### Knowledge Generated

The American Society of Clinical Oncology facilitated experts in cervical cancer prevention both internationally and locally to hold a hands-on training course. The hands-on training course suggested an improvement in participants' ability to perform cervical cancer screening and diagnostic procedures.

### Relevance

Training of healthcare providers on cancer screening, diagnosis, and treatment techniques is essential and needed in low- and middle-income countries.

required to meet the target of 70% cervical cancer screening coverage. The achievement of the 90-70-90 targets for Nepal is a big challenge. There are a limited number of skilled providers who can manage cervical preinvasive lesions, and it will be a challenge to meet the WHO goal of treating 90% of women with precancerous or cancerous lesions. Moreover, limited access to cervical screening, few treatment centers, and a lack of trained doctors to provide oncology services are considerable barriers to meet the cervical cancer elimination goals.

### Multidisciplinary Cervical Cancer Prevention Course

The American Society of Clinical Oncology (ASCO) facilitated and supported experts in cervical cancer prevention both internationally and locally to hold a training course, which included didactic lectures and a hands-on training workshop. The international course faculty were from the Department of Gynecologic Oncology at The University of Texas MD Anderson Cancer Center (MD Anderson) and the Department of Bioengineering at Rice University. The faculty from Nepal included gynecologic oncologists, gynecologists, and radiation oncologists from the National Academy of Medical Sciences (NAMS), Bir Hospital, Civil Service Hospital, and Bhaktapur Cancer Hospital. The course was planned and developed jointly by ASCO with input from the international and Nepalese faculty. During the preparation period, all course faculty met several times by teleconference and in-person at the 2019 ASCO meeting. The didactic lectures and hands-on workshop content were developed to meet the local needs of the participants in Nepal.

### Structure and Content of the Course

The training curriculum was adapted from the guidelines of the American Society for Colposcopy and Cervical Pathology (ASCCP) and the ASCO resource-stratified guidelines.<sup>8-10</sup> The curriculum considered local resources and was adapted for the country's standards of care. The course included didactic lectures and hands-on training using low-cost simulation models developed by Rice

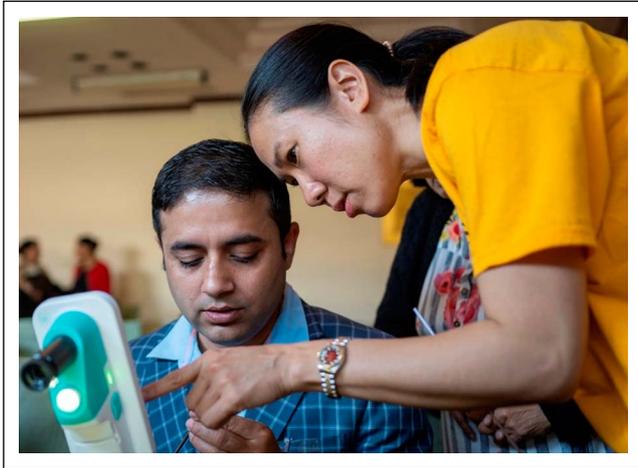
University known as the Low-cost Universal Cervical Cancer Instructional Apparatus (LUCIA).<sup>11</sup> The topics of didactic lectures included the epidemiology and burden of cervical cancer globally and locally, cervical cancer screening guidelines, HPV vaccination, colposcopy and VIA, cervical dysplasia and management, and an overview of cervical cancer treatment. The lecture content was made available to all participants. The course was 2 days in length and was at no cost to the participants.

The course was designed to meet learning objectives for the attendees including the following: (1) understanding cervical cancer screening guidelines; (2) providing cervical cancer screening services: VIA, colposcopy, cervical biopsy, and endocervical curettage (ECC); and (3) providing treatment for precancerous cervical lesions: thermal ablation and loop electrosurgical excision procedure (LEEP). The list of didactic lectures is shown in [Table 1](#).

The hands-on workshop consisted of four stations, each with a duration of 50 minutes: (1) VIA; (2) colposcopy, cervical biopsy, and ECC ([Fig 1](#)); (3) thermal ablation ([Fig 2](#)); and (4) LEEP ([Fig 3](#)). The participants rotated through each of the stations and were able to practice the procedures with supportive supervision from the local and international faculty.

### Train-the-Trainer

Before the hands-on portion of the training, a short train-the-trainer course was held by the international faculty to help the local faculty practice and become familiar with the instruments, procedures, and models used in the hands-on station. Six local faculty performed all procedures using each station's model with the help from the international faculty until they felt comfortable and developed the expertise to be able to teach. The local and international faculty worked together to teach and mentor the participants during the hands-on portion of the course. Following the course, Rice University donated ten LUCIA training models used in the course for the trainers to provide further cervical cancer prevention training and education in Nepal.



**FIG 1.** Colposcopy, cervical biopsy, and endocervical curettage station.

### Educational Activities

Following the training course, the international faculty visited the regional hospitals for a multidisciplinary gynecologic oncology tumor board, small group residency training on thermal ablation and LEEP, and VIA images training for nurses.

### Evaluation

A postcourse evaluation was conducted by the ASCO staff on-site immediately following the course and through an online survey 6 months after the course's conclusion. The on-site evaluation used a retrospective pre- and post-self-evaluation design. The respondents were asked to rate each objective's understanding or ability before and after the training using a 5-point scale from poor (1) to excellent (5). According to the objectives, the participants were asked to complete self-evaluation of five questionnaires: (1) understanding cervical cancer screening guidelines; (2) ability to perform VIA; (3) ability to perform colposcopy, cervical biopsy, and ECC; (4) ability to perform thermal ablation; and (5) ability to perform LEEP.



**FIG 2.** Thermal ablation station.

## RESULTS

### Course Participants

Forty-two participants attended the course. Of these, 37 completed the evaluation. The majority (84%) of participants were gynecologists or gynecologic oncologists (Table 2). On average, participants had 7.7 years of experience in their current profession. Half of the participants had spent more than 50% of their practice time with patients with cancer.

### Evaluation Results

The evaluation results for each educational objective are summarized in Table 3. The course appeared to have successfully met the educational objectives, with more than 80% of respondents reporting an increase for each objective. In addition, 95% of participants agreed that the content and level of details for the lecture section were appropriate and applicable to their practice. Overall, respondents appeared to be satisfied with the course.

Ninety-seven percent of respondents indicated that they intended to make practice changes based on what they learned in the course. The reported intended changes were related to screening patients for cervical cancer regarding guidelines, improved counseling for patients against unnecessary hysterectomies, and treating invasive cervical cancer. Some respondents stated that they would like to learn more about co-testing (cytology and HPV testing), including the indications and reasons for the different methods of screening and treatment of cervical cancer.

### Follow-Up Evaluation

Six months after the course, a follow-up survey to assess the course's long-term outcomes was sent to 29 of the 42 participants for whom a valid email address was available. Participants were asked whether they have made practice changes based on their participation in the course, including whether they have incorporated the screening and treatment procedures on which instruction was provided.

Of the 29 email recipients, 18 (62%) responded. All respondents reported that they had implemented or tried to implement the cervical cancer screening guidelines presented at the course. All respondents also reported that they had made practice changes based on what they learned in the course. These changes included improvements to cervical cancer screening and changes to treatment, such as start performing the procedures that learned from the course. Regarding the training procedures, percentages of respondents reporting using skills on VIA, colposcopy, thermal ablation, and LEEP were 88.9%, 88.9%, 50.0%, and 72.2%, respectively. Two respondents started doing VIA, and the other two respondents started performing colposcopy. On the treatment aspect, a respondent started doing LEEP and another one started doing thermal ablation.



**FIG 3.** Loop electrosurgical excision procedure (LEEP) station.

The reasons for the respondents who did not use any of the skills presented at the course were unavailable or non-functioning instruments or machines, the team members' preference to perform another procedure, no eligible patients during the last 6 months, and busy dealing with COVID-19.

**DISCUSSION**

A lack of skilled providers and limited health personnel capacity contribute to barriers for cervical cancer control in LMICs.<sup>12</sup> In Nepal, clinical capacity is an issue at all levels. There are approximately 20 gynecologic oncologists and 35 radiation oncologists in the country, which is a limited number for a population of 30 million spread over an area of 147,516 square kilometers.<sup>13</sup> The number of gynecologists or other healthcare providers who can manage cervical preinvasive lesions is not clearly known. Training of healthcare providers, including nurses and primary care providers, on cancer screening, diagnosis, and treatment techniques in Nepal and other LMICs is essential.

The course evaluation demonstrated that the ASCO cervical cancer prevention course increased participants' ability to perform procedures for screening and managing women with cervical precancerous lesions. The follow-up evaluation also demonstrated changes in practice as well as

**TABLE 2.** Course Participants' Specialty

| Profession             | No. (%)   |
|------------------------|-----------|
| Gynecologist           | 18 (48.7) |
| Gynecologic oncologist | 10 (27.0) |
| Fellow or resident     | 3 (8.1)   |
| Radiation oncologist   | 3 (8.1)   |
| Medical officer        | 1 (2.7)   |
| Surgical oncologist    | 1 (2.7)   |
| No response            | 1 (2.7)   |
| Total                  | 37 (100)  |

participants starting to perform procedures. This suggests that the training course helped to build local capacity for cervical cancer screening, diagnosis, and treatment in the country.

One of the participants' intended changes from the post-course evaluation was to improve counseling for patients against unnecessary hysterectomy. Previously, some practices such as colposcopy and LEEP practiced in residency training and cancer hospitals were not available in community facilities. This limitation, along with the problem of patient follow-up, often leaves the gynecologists with the traditional option of hysterectomy, which results in over-treatment for dysplasia and under-treatment for unrecognized cervical cancer.

The evaluations had some limitations. There were a small number of respondents to the online 6-month assessments. The short duration of the follow-up time and it occurring during the COVID-19 pandemic made it difficult to assess outcomes.

The percentage of respondents reporting using skills on thermal ablation was lower than other procedures from the follow-up survey. One reason could be that thermal ablation is a new treatment modality in Nepal compared with cryotherapy. In recent years, the Nepal government has incorporated thermal ablation in the national cervical cancer prevention program. However, thermal ablation is not available yet in most hospitals and health centers, but available only in cancer centers and few training sites.

Our hands-on training course included the efforts of international partnerships and multiple local groups. Partnerships at the local and international levels are a critical foundation for the success of any training course. Practical training courses for enhancing knowledge and skill capacity require collaboration from many sectors and ongoing support to build sustainable programs. Long-term collaboration with international organizations such as ASCO and the International Gynecologic Cancer Society (IGCS) provided enormous benefits to Nepal's oncology education and training. For example, ASCO has been providing grants for international professional development for several

**TABLE 1.** Didactic Lecture Topics

|  |
|--|
| Overview of cervical cancer prevention and treatment globally                |
| WHO cervical cancer elimination initiative                                   |
| Cervical cancer in Nepal   |
| Cervical cancer screening and treatment guidelines (WHO and ASCO guidelines) |
| Nepal guidelines for cervical cancer screening                               |
| HPV vaccination  |
| VIA and colposcopy   |
| Review of cervical images (VIA and colposcopy)                               |
| Low-grade and high-grade cervical dysplasia                                  |
| Treatment: ablation therapies and LEEP                                       |

Abbreviations: HPV, human papillomavirus; VIA, visual inspection with acetic acid; LEEP, loop electrosurgical excision procedure.

**TABLE 3.** Evaluation Results on Each Educational Objective

| Objective   | Mean Before | Mean After | Mean Change | Percent Reporting an Increase |
|---|-------------|------------|-------------|-------------------------------|
| Understanding cervical cancer screening guidelines      | 2.9         | 4.1        | 1.2         | 89.2                          |
| Ability to perform VIA                                  | 3.2         | 4.1        | 1.2         | 83.8                          |
| Ability to perform colposcopy, cervical biopsy, and ECC | 2.8         | 4.0        | 1.2         | 83.8                          |
| Ability to perform thermal ablation                     | 2.4         | 4.0        | 1.5         | 86.5                          |
| Ability to perform LEEP                                 | 2.6         | 3.8        | 1.2         | 83.8                          |

Abbreviations: ECC, endocervical curettage; VIA, visual inspection with acetic acid; LEEP, loop electrosurgical excision procedure.

years.<sup>14</sup> In addition, Nepal is one of the training sites for the IGCS Gynecologic Oncology Global Curriculum and Mentorship Program, which is designed for regions that do not have formal training in gynecologic oncology.<sup>15</sup> There are two fellows currently in training in this program. Combined learning processes together between developed and developing countries can potentially generate effective solutions for global health systems.<sup>16</sup>

Nepal has adopted the Single Visit Approach (SVA), which is cervical screening by VIA and treatment of the positive lesion by ablation therapy on the same day. The SVA or See and Treat approach is appropriate for a resource-constrained country like Nepal as it requires minimal infrastructure and is delivered by non-physician providers.<sup>13</sup> The train-the-trainer model of the course is suitable for the sustainable education program. Having

more trained providers who can serve as trainers increases the country's sustainability of training capability.<sup>17</sup> The country could benefit by expanding education and skill training to more providers. A follow-up course was planned for December 2020 but has been postponed because of the COVID-19 pandemic. The authors are therefore planning an interim virtual course until in-person training can resume.

In conclusion, the ASCO cervical cancer prevention course with hands-on training suggested an improvement in participants' ability to perform cervical cancer screening and diagnostic procedures. The participants also reported the changes in practices after the training. However, long-term partnerships and ongoing learning are necessary to build sustainable capabilities and skills in local providers.

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## AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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Open Payments is a public database containing information reported by companies about payments made to US-licensed physicians ([Open Payments](http://Open Payments)).

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