

Training General Practitioners in Oncology: A Needs Assessment Survey From Nepal

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PURPOSE Nepal lacks enough cancer care providers to address the growing burden of cancer in the country. One way of addressing this issue is to train general practitioners (GPs) in oncology (GPOs) so that they can task-share and task-shift oncology care. However, limited information is available regarding the current level of oncology expertise of Nepali GPs and whether they perceive a need for, and have an interest in, such a GPO training program if available in Nepal.

METHODS A survey was distributed to GPs in Nepal to collect data on current oncology training and clinical practice and evaluate levels of interest and need for a GPO training program. The survey was distributed electronically from February to July 2021.

RESULTS The survey obtained 71 individual responses from GPs in Nepal. The majority of respondents were male (87%), and most worked as consultants or senior consultants (63%). Only 6% of respondents had a mandatory oncology rotation during their GP training, and only 15% indicated that their GP training had adequately prepared them to care for patients with cancer. Ninety-six percent of respondents perceived a need for a GPO training program in Nepal, with 94% indicating an interest in enrolling in such a program and 71% indicating that they were very interested.

CONCLUSION The findings indicate an urgent need for and an encouraging interest in establishing a GPO training program in Nepal. These findings will be used to guide the development and implementation of this type of program.

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INTRODUCTION

Nepal is a low-income country situated between India and China, with a significant cancer burden.¹ It is estimated that almost 20,000 patients receive a new diagnosis of cancer and almost 15,000 patients die of cancer in Nepal every year.² This amounts to 10% of total deaths in Nepal.³ However, adequate resources to address this growing cancer burden are lacking. In a previous report, the lack of trained cancer care providers was recognized as one of the most prominent challenges to providing high-quality cancer care in Nepal.⁴

Residency training programs in radiation oncology, medical oncology, and clinical hematology are available at only one institution in the country, and each program produces only two new specialists per year. In 2018, 35 radiation oncologists, 27 medical oncologists, and 10 pediatric oncologists served a population of more than 30 million, many of whom were trained outside the country.⁴ By contrast, in

Canada, 600 medical oncologists serve a population of 38 million.⁵ Furthermore, the majority medical oncologists in Nepal are concentrated either in the capital city of Kathmandu or in the metropolitan city Bharatpur, which has a public cancer center.⁴ This limited and geographically concentrated workforce not only puts a tremendous strain on cancer care providers to meet the needs of a growing cancer population but also leads to significant inequities in access to cancer care for rural populations. This also increases the cost of treatment for patients in rural areas because of the extra cost of commute and accommodation.

Having a skilled and appropriately proportioned cancer workforce has been shown to be vital for cancer diagnosis and treatment.⁶ With few specialists and only four cancer centers with radiation therapy facilities, many regions in Nepal are left without direct access to care.⁷ Furthermore, the inaccessibility of cancer services for the majority of population leads to delays in patient diagnoses, increases the risk of diagnosis with

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CONTEXT

Key Objective

Does training general practitioners in oncology (GPOs) help address the growing burden of cancer in Nepal?

Knowledge Generated

A survey of 71 general practitioners from Nepal revealed that only 15% of them felt adequately prepared to care for patients with cancer and 94% expressed interest in enrolling in a GPO training program, if available.

Relevance

There seems to be an important need and interest in launching a GPO training program in Nepal.

advanced disease, and adds to the burden on the health care system while decreasing the likelihood of patients receiving curative treatment. Although there is a clear need for more oncologists in Nepal, oncology specialization training is extremely resource- and time-intensive, with oncology subspecialty training taking an average of 5-6 years.⁸

A workforce shortage of cancer specialists is not a problem unique to Nepal and other low-income countries. Even in high-income countries such as Canada, there is a lack of medical oncologists available to provide care for people with cancer outside of large centers. General Practitioner (GP) in Oncology (GPO) programs have been developed in high-income countries like Canada to overcome these shortages. These programs offer oncology training for GPs, enabling these providers to deliver essential cancer services to their local (often remote) communities under task-shifting models or share the responsibilities of oncologists in large cancer centers.⁹ These training programs provide primary care physicians essential skills related to cancer care, such as clinical supervision of systemic therapy and pain and symptom management. These efforts have been shown to have meaningful value.⁸

Implementing such a GPO training program in Nepal may be an effective strategy to improve the quality and quantity of cancer care provided. However, there are limited data on the number and scope of GPO programs in low-income countries. A scoping review published in 2021 explored published and gray literature on existing GPO training programs and found few formal training curricula, most of which concentrated on high-income countries and have varying modalities and durations of delivery of curricula.¹⁰ This gap in the literature emphasizes the need for greater investigation of developing GPO programs in low- and middle-income settings. Thus, as a critical first step of the plan to develop and implement a GPO curriculum in Nepal, we conducted a survey of GPs in Nepal to explore their clinical experience with people with cancer and to assess their interest and perceived need for a national GPO program.

METHODS

The aim of this study was to explore the status of oncology training and exposure during the residency program of GP

training in Nepal, understand their level of comfort in managing oncology cases, identify the need for a GPO training program in Nepal on the basis of the perceptions of practicing GPs, and gauge their interest in participating in such a program if available, with the ultimate goal of establishing the feasibility and desirability of a national GPO program in Nepal.

To achieve these objectives, we conducted a survey of GPs working in Nepal. The survey captured the following domains of oncology training and experience including the methods of education and training they received on caring for patients with cancer and their perceptions on the importance of teaching various aspects of cancer care in general practice: (1) availability of oncology rotations, (2) formal evaluation during oncology training, (3) levels of perceived learning in various oncology rotations, and (4) perceived need for and interest in a GPO training program in Nepal. Respondents were also asked about their current scope of practice and the kind of oncology-related resource available to Nepali GPs. Demographic information of the respondents was also collected. Finally, respondents were introduced to the concept of GPOs and were asked if they felt that such a training program was needed in the context of Nepal and whether they would be interested in joining such a GPO training program when available. The full survey questionnaire can be accessed online.¹¹

The cross-sectional survey was opened on February 10, 2021, and remained active until July 16, 2021. The survey was digitized and distributed using the Research Electronic Data Capture (REDCap) electronic data capture tools hosted at Queen's University located in Kingston, Ontario, Canada. REDCap is a secure, web-based software platform designed to support data capture for research studies.¹² Survey links were anonymously distributed to GPs of Nepal through various channels. Because of the unavailability of an e-mail address database for GPs in Nepal, a combination of methods was used to distribute the survey, including direct networks of the coauthors and social media platforms such as Twitter and the Facebook group page of GPs of Nepal.

Responses were recorded, and data were summarized in REDCap. Summary data from REDCap were then exported

TABLE 1. Demographics and Needs Assessment of Survey Respondents Among the General Practitioners of Nepal

Variable	Frequency	Percentage
Total	71	100.0
Sex		
Male	62	87.3
Female	9	12.7
Others	0	0.0
Age, years		
< 25	0	0.0
25-34	19	26.8
35-44	44	62.0
45-54	6	8.5
55-64	2	2.8
≥ 65	0	0.0
Years in practice		
1-5	40	56.3
6-10	20	28.2
11-15	4	5.6
16-20	2	2.8
> 20	5	7.0
Location of current practice		
Metropolitan city	33	46.5
Submetropolitan city	5	7.0
Municipality	31	43.7
VDC	2	2.8
Current position		
Medical officer	4	5.6
Resident	2	2.8
Consultant	34	48.6
Senior consultant	11	15.7
Lecturer	12	17.1
Assistant professor	6	8.6
Associate professor	3	4.3
Professor	3	4.3
Private practice without title	8	11.4
Status of your institution		
Public/government	29	40.8
Private	17	23.9
Both public and private	6	8.5
Medical college	18	25.4
INGO	1	1.4
Preferred work location after completing GPO training		
Public/government hospital	25	35.2
Private hospital	5	7.0
Both public and private hospitals	26	36.6
Medical college	13	18.3
Private clinics	1	1.4
INGO	1	1.4

Abbreviations: GPO, general practitioner in oncology; INGO, International Nongovernmental Organization; VDC, Village Development Committee.

TABLE 2. Oncology Experience During GP Residency (N = 71)

Question	Frequency	Percentage
Was there a mandatory oncology clinical rotation/block during your MD GP training?		
Yes	4	5.6
No	64	90.1
Elective oncology rotation available, but not mandatory. I did not participate		
Elective oncology rotation available, but not mandatory. I participated	3	4.2
What oncology rotations were available during your MD GP training?		
Surgical oncology	3	42.9
Medical oncology	6	85.7
Radiation oncology	1	14.3
Gynecologic oncology	3	42.9
Hemato-oncology	4	57.1
Was there a formal evaluation of your oncology training as part of a final or graduation examination?		
Yes	2	28.6
No	5	71.4
Did your residency training adequately prepare you to care for patients with cancer?		
Disagree	18	25.4
Somewhat disagree	19	26.8
Neutral	23	32.4
Somewhat agree	9	12.7
Agree	2	2.8
Describe your clinical interaction with patients with cancer during your training		
All inpatient	10	14.3
Mostly inpatient	27	38.6
Equal amounts of inpatient and outpatient	20	28.6
Mostly outpatient	10	14.3
All outpatient	3	4.3

Abbreviation: GP, general practitioner.

to Microsoft Excel for analysis. The frequencies of categorical data were tabulated and visualized using graphs and charts. No statistical comparisons were made.

RESULTS

We received 71 individual survey responses from GPs in Nepal. We were unable to calculate the response rate because we were unsure how many actively practicing GPs received the invitation to participate. For context, the total number of GPs registered in Nepal was around 470 at the time of our survey; however, the status of retired or

TABLE 3. Ranking of GPO Oncology Training and Skills and Knowledge Most Needed

Question	Categories	Average Rank
In which rotation during your GP residency, did you learn the most about caring for patients with cancer? (1 = best learning, 7 = least learning; lower rank is better)	Radiation oncology	2.7
	Medical oncology	3.3
	Others	3.6
	Emergency department	4.0
	Surgery	4.2
	Medicine	4.3
	Pediatrics	4.3
	Gynecology	4.6
What are the commonest tumor types you see in your current practice? (1 = commonest, 5 = least common; lower rank = commoner)	Lung	2.0
	Breast	2.4
	GI	3.0
	Hematologic malignancies	3.0
	GU	3.1
	Gynecologic	3.1
	Skin	3.3
	Others	3.8
	Head and neck	3.9
What procedural skills do you think a GPO in Nepal should be responsible for? (1 = most important skill, 5 = least important skill; lower score = more important)	Screening test	1.1
	Follow-ups	1.1
	Cervical cancer screening	1.1
	Providing palliative care	1.1
	Cancer-related symptom management	1.2
	FNAC	1.4
	Providing chemotherapy	1.5
	Performing bone marrow biopsy	1.5
	Colposcopy	1.6
	LEEP	2.0
	Others	2.8
What clinical or communication skills do you think a GPO in Nepal should be responsible for? (1 = most important skill, 5 = least important skill; lower score = more important)	Pain management	1.1
	Approach to patient with increased risk of cancer	1.1
	Approach to diagnosis	1.1
	Providing end-of-life palliative care	1.1
	Symptom management	1.1
	Breaking bad news	1.2
	Managing common treatment side effects	1.3
	Post-treatment surveillance for recurrence	1.3
	Management of long-term complications from treatment	1.4
	Treating common cancers	1.6
	Approach to staging cancer	1.7
	Others	3.0

(Continued in next column)

TABLE 3. Ranking of GPO Oncology Training and Skills and Knowledge Most Needed (Continued)

Question	Categories	Average Rank
What knowledge domains do you think a GPO in Nepal should be responsible for? (1 = most important domain, 5 = least important domain; lower score = more important)	Screening for common cancers	1.1
	Symptom management protocols for common symptoms and side effects of cancer treatment	1.2
	Oncology emergencies	1.2
	Presenting symptoms of common cancers	1.2
	Role of nutrition and diet	1.4
	Epidemiology of common cancers	1.4
	Prognosis of common cancers	1.4
	Treatment protocols for common cancers	1.4
	Knowledge of hereditary cancers and when to refer for genetic assessment	1.6
	Others	4.1

Abbreviations: FNAC, fine needle aspiration cytology; GP, general practitioner; GPO, general practitioner in oncology; GU, genitourinary; LEEP, Loop electrosurgical excision procedure.

deceased members might not have been updated. Since 2015, there were 171 new GPs registered to the GP Association of Nepal (on the basis of internal data from GP Association of Nepal, made available by coauthor N.T.).

Demographic responses were recorded from 71 GPs (Table 1), a majority of whom were male (62, 87%). This is consistent with the distribution of Nepal GPs where females are under-represented (22% of all GPs). Most of the respondents were between age 35 and 44 years (62%), with only 10% over age 44 years and no respondents over age 65 years. The majority of respondents had been practicing for fewer than 5 years (40, 56%). Only two respondents were working in government-designated village areas (also known as rural municipality or *gaun palika*; population < 10,000), with the remainder working in metropolitan (population of ≥ 500,000), submetropolitan (population of ≥ 200,000), or municipality cities (population of ≥ 10,000).¹³ Most of the GPs were providing service in either public hospitals (n = 29, 41%) or medical colleges (n = 18, 25%). The GPs in our survey primarily worked as consultants or senior consultants (n = 45, 63%).

Oncology Experience During GP Training

Mandatory oncology training. When asked about their oncology training, only four participants (6%) indicated that they had a mandatory oncology rotation during their GP training and three others indicated that elective rotations

TABLE 4. Effectiveness of Cancer Education Modalities

Educational Method	No. Who Experienced the Method	% of Respondents Who Found the Method Very/Somewhat Effective
Self-directed online/web-based learning	42	83
Small group learning	29	86
Clinics with GPs	27	63
Didactic lectures from GPs	25	68
Clinics with oncologists	17	59
Didactic lectures from oncologists	9	100
Other learning	4	100

Abbreviation: GP, general practitioner.

were available (Table 2). Only one respondent participated in a radiation oncology rotation. Two GPs indicated that they were formally evaluated on their oncology training.

Training on caring for patients with cancer. Only 11 (15%) respondents indicated that their GP training adequately prepared them for caring patients with cancer, and 37 (52%) indicated that they were not prepared (Table 2). Most GPs (53%) had cared for patients with cancer in primarily an inpatient setting during their residency, and 33 GPs (47%) indicated that they had some outpatient exposure to patients with cancer. Participants indicated

that they learned the most about caring for patients with cancer in radiation or medical oncology departments and the least while rotating in gynecology departments (Table 3).

Mode of delivery of education. Regarding the mode of delivery of education, the most common method of oncology education during the GP residency program was self-directed online learning, followed by small-group learning and in-clinic and didactic teachings from faculty GPs. Self-directed learning and small-group learning were deemed the most effective modalities (Table 4).

Current Scope of Practice and Access to Oncology-Related Services

All respondents who answered the current scope of practice questionnaire (n = 70, 100%) indicated that they saw between one and five patients with cancer per day. Lung cancer followed by breast cancer were the most common cancer types seen in clinic (Table 3). The three most common oncology services provided by the GPs in Nepal were cervical cancer screening (67%), palliative care (63%), and other screening services (56%). Thirty-six percent provided follow-up care for patients with cancer (Fig 1), whereas only 9% of GPs were involved in providing chemotherapy.

Since Nepal is divided into 14 administrative zones, the availability of certain services within the same zone indicates less travel time for patients. Most respondents indicated that pathology services were available either in their own institution (38 of 69, 55%) or within the same zone (11 of 69, 16%; Fig 2). Approximately half of the

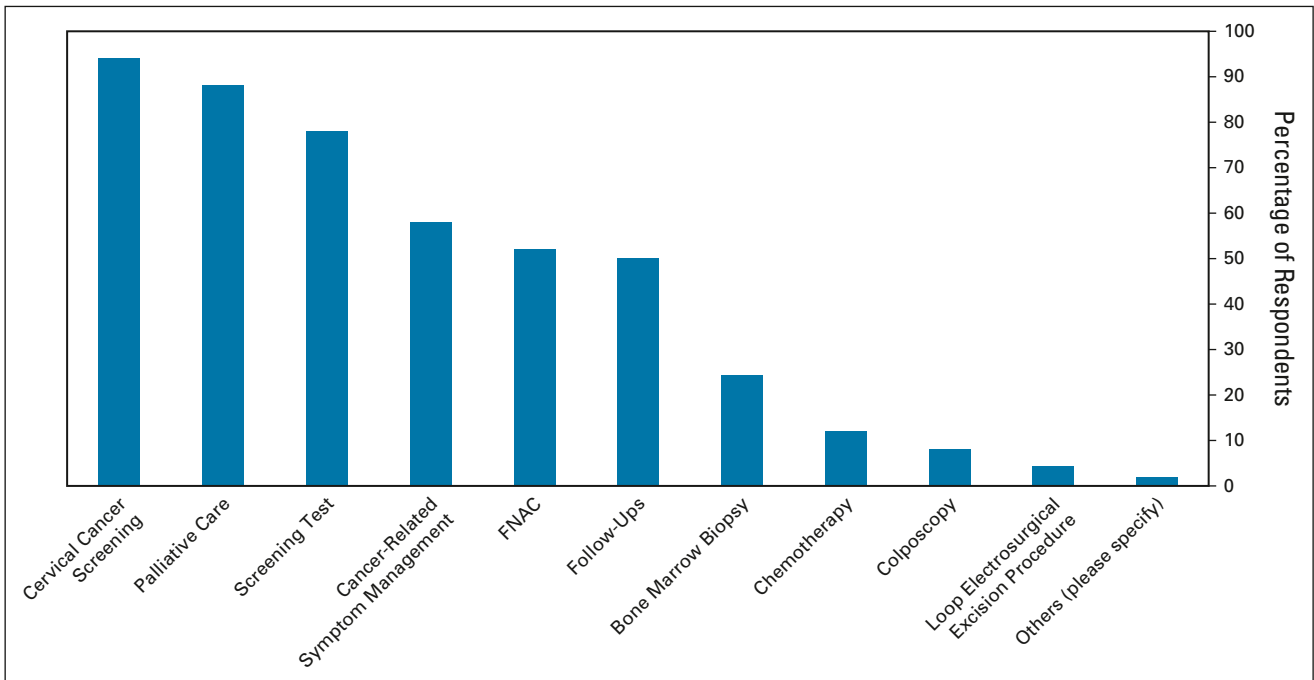


FIG 1. Range of services currently being provided by the general practitioners of Nepal for patients with cancer. FNAC, fine needle aspiration cytology.

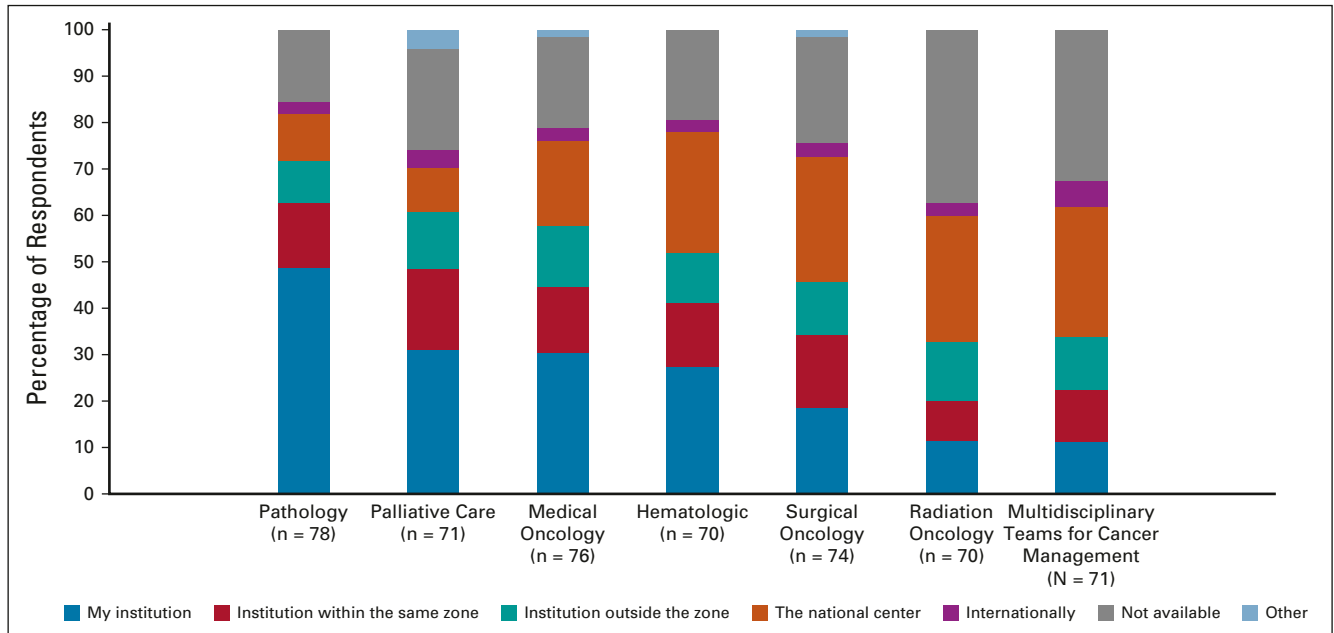


FIG 2. Availability of (geographic access to) different oncology services and facilities at various health care levels in Nepal.

respondents indicated that they could access palliative care (n = 36, 52%) and medical oncology (n = 34, 49%) at the same institution or within the same zone. The least accessible services within the same institution or the zone were multidisciplinary teams for cancer management (n = 16, 23%) and radiation oncology (n = 14, 20%).

Interests and Needs Assessment for Future GPO Training Programs

Interest in future GPO training programs. Of the 71 GPs who responded to this section of the questionnaire, 68 (96%) indicated that a GPO training program was needed in Nepal. Sixty-six (94%) respondents indicated interest in a

GPO program if available in Nepal, with 50 (71%) very interested (Table 5).

Needs for future GPO training programs. The skills that respondents considered would be most important to them as GPOs included cervical cancer screening, other cancer screening, providing palliative care, providing follow-up care, managing cancer-related symptoms, performing fine needle aspiration cytology, providing chemotherapy, and performing bone marrow biopsy. Regarding clinical or communication skills, respondents rated pain management, approach to a patient with increased risk of cancer, approach to diagnosis, providing end-of-life palliative care, symptom management, and breaking bad news as the most important skills. In terms of knowledge domains, screening for common cancers, presenting symptoms of common cancers, symptom management protocols for common symptoms and side effects of cancer treatment, and oncology emergencies were considered important (Table 3). The majority of respondents (51, 72%) indicated a desire to work in public hospitals (solely or in addition to private hospitals) after completing a GPO training program (Table 1).

TABLE 5. Needs Assessment for the GPO Oncology Training Program

Question	No. of Respondents	Percentage of Respondents
Perceived need for a GPO training program in Nepal?		
Yes	68	95.8
No	1	1.4
Unsure	2	2.8
Willingness to participate in a GPO training program in Nepal, if opportunities available		
Very interested	50	71.4
Somewhat interested	16	22.9
Neutral	2	2.9
Somewhat not interested	0	0.0
Not interested	2	2.9

Abbreviation: GPO, general practitioner in oncology.

DISCUSSION

Our survey of 73 GPs in Nepal found that although the GPs identified significant gaps in their clinical training in oncology, they saw a major need for a GPO training program in the country and that they would be very interested in joining if it were available. The survey also provided information on their current scope of practice and specific educational needs for a GPO program, which are essential for planning such a program. These findings may also be valuable for other low- and middle-income countries who are interested

in developing task shifting models to develop their oncology workforce.

The majority of respondents stated that their GP residency training did not adequately prepare them to care for patients with cancer. This is consistent with findings in a Canadian study that found that 86% of family medicine residents thought that the oncology training they received in their training program was inadequate.¹⁴ In our survey, fewer than 10% had formal, mandatory, or elective experiences in oncology during their training, which is explained by the fact that oncology is a relatively new specialist discipline in Nepal and a limited number of hospitals have an oncology department. Furthermore, oncology is thought of as a subspecialty that GPs do not need to spend substantial time on. This is despite the fact that cancer is one of the leading causes of morbidity and mortality in the country. Indeed, the respondents in our survey have indicated that there is a significant need for these training and education since they see patients with cancer regularly in clinical practice. These gaps in clinical training and practice highlight the need for more cancer training and education opportunities.

To mitigate the challenges of a limited workforce, task shifting models have been implemented across a myriad of medical professions. The World Health Organization defines task shifting as “a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer qualifications.”¹⁵ Notable successes with task shifting have been achieved in many resource-limited settings, where various health care tasks, which would traditionally be the responsibility of specialists, have been delegated to community health workers and nonspecialist physicians.¹⁵ Implementing such a task-shifting GPO training program may be an effective strategy to enhance cancer clinical competencies of GPs and improve access to cancer care for patients in Nepal. The results presented here indicate significant support for this type of program, with more than 70% of respondents claiming to be very interested in this type of program. The survey also gathered valuable data regarding preferential modes of content delivery, which will be useful when designing future training programs. For example, although only 24.3% of respondents received training in clinic with oncologist, those who did indicated that it was an effective method of learning how to care for patients with cancer. In addition, one important focus of the respondents was the support for self-directed online learning, highlighting the potential for future collaboration with a high-income country for online training.

Our survey also provides important information about the major needs of the GPs offering oncology services in Nepal. The most pressing need seems to be the provision of screening services and follow-up care and not necessarily delivery of chemotherapy. Managing cancer symptoms and treatment side effects, including pain management, and breaking bad news were also

highlighted as important components of the GPO training. A GPO training curriculum for Nepal should incorporate this feedback for acceptance and uptake by the Nepali GP community. A collaborative initiative between Queen’s Global Oncology Program and Karnali Academy of Health Sciences, Nepal, is currently planning such a curriculum.

The results of this survey must be interpreted in light of some limitations. First, the survey sample size (N = 71) is relatively small. However, considering that the total GP workforce in Nepal is at most 470, this is the most comprehensive survey exploring Nepali GPs experience and interest in oncology training to our knowledge. In addition, our sample under-represents female GPs who are reported to constitute 22% of all GPs in Nepal, yet only represent 13% of the sample presented. The sample also only included two respondents working in village areas. This under-representation from rural regions may affect our results, including clinical services provided and numbers of patients seen daily. However, it is important to note that municipalities exist in both rural and urban areas, so the representation of respondents from rural areas may be greater than what is reported here, depending on how respondents classified their work environment. This is because the classifications of municipalities do not take access to health care into account, so that even those classified as municipality may actually belong to a rural area of Nepal. However, in the absence of a database of GPs in the country with e-mail addresses, systematic sampling was not feasible. A larger sample might have provided different results, and the perspectives reported in this study may reflect a younger GP group recruited via personal e-mail and social media. Most of our respondents (90%) were age < 40 years and < 10 years into practice, and representation from more senior physicians was low. However, we consider this to be the strength of the survey because the outcome of this assessment would be more relevant for younger physicians seeking additional training to become a GPO. Finally, the survey was conducted during the severe acute respiratory syndrome coronavirus 2 pandemic when physicians were overburdened with both clinical load and surveys. The pandemic might have also caused a reduction in the average number of patients that GPs were seeing at the time of data collection. Pandemic-related restrictions or patient hesitancy might have also skewed the kinds of services that GPs were currently providing at the time of survey response. It will be important to continue to conduct research on these clinical patterns to determine their validity.

In conclusion, the findings presented here demonstrate an urgent need for and an encouraging interest in establishing a GPO training program in Nepal. Our findings will inform the development of curriculum to ensure that the training program incorporates the expectations and needs of local clinicians. The data collected in our study could also inform initiatives in other low- and middle-income countries seeking to implement similar GPO training programs.

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