

Barriers and Facilitators for the Implementation of Geriatric Oncology Principles in Mexico: A Mixed-Methods Study

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PURPOSE There is limited information regarding the use of the geriatric assessment (GA) for older adults with cancer in developing countries. We aimed to describe geriatric oncology practice among Mexican oncology professionals and to identify barriers and facilitators for the implementation of GA into the routine care of older adults with cancer in Mexico.

METHODS We conducted an explanatory sequential mixed-methods study. We administered an online survey to cancer specialists in Mexico about the routine use of GA and barriers for its use. We then conducted online semistructured interviews with survey respondents selected by their use of GA, expanding on barriers and facilitators for performing GA. Descriptive statistical analyses were performed for quantitative data; qualitative data were analyzed inductively through thematic analysis. We developed joint displays to integrate quantitative/qualitative results.

RESULTS We obtained 196 survey responses: 37 physicians (18.9%) reported routinely performing a GA. Medical oncologists ($P = .002$) and physicians seeing ≤ 10 patients/day ($P = .010$) were more likely to use GA. The most frequent barriers for GA use were lack of qualified personnel (49%), limited knowledge (43.9%), and insufficient time (37.2%). In the interviews ($n = 22$), the limited availability of geriatricians was commonly mentioned. Respondents highlighted the lack of geriatric oncology knowledge among cancer specialists and geriatricians. Saturation of oncology services and a lack of effective referral pathways for GA were also common issues. Facilitators included availability of geriatricians, system/administrative facilitators, presence of a multidisciplinary team, and availability of geriatric oncology education.

CONCLUSION The routine use of geriatric oncology principles in Mexico is limited by the availability of qualified personnel and by insufficient knowledge. An educational intervention could improve the implementation of GA in cancer care.

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INTRODUCTION

Population aging represents a critical issue for global cancer care. In 2015, approximately 8.5% of worldwide population was age ≥ 65 years.¹ This number is expected to increase, mostly in low- and middle-income countries (LMIC).² Latin America is a widely heterogeneous region largely composed of LMIC, including Mexico. In 2010, approximately 7% of Mexicans were ≥ 65 years, with a projected 116% increase by 2030.³

Since most cancer cases are diagnosed in older adults (30%-63%),^{4,5} providing high-quality care for this population should be a global priority. Therefore, the ASCO⁶ and the International Society for Geriatric Oncology (SIOG),⁷ among other international associations, recommend performing a geriatric assessment (GA) in all older adults with cancer as standard of care. The GA is a

multidimensional evaluation that can identify impairments in function, comorbidities, falls, psychological status, cognition, and/or nutrition, which are not routinely detected during usual oncology consultations and which are associated with adverse outcomes. Information obtained through a GA can improve communication with patients and caregivers⁸ and mitigate treatment-associated toxicity.^{9,10}

Despite mounting evidence favoring its use, GA routine uptake is limited. In the United States, awareness of geriatric oncology guidelines is not widespread; some domains such as functional status and falls are more frequently evaluated, whereas other parameters such as mood and non-cancer-specific mortality risk are seldom assessed.^{11,12}

LMIC have a reduced capacity to provide high-quality geriatric oncology care partly because of

ASSOCIATED CONTENT

Data Supplement

Author affiliations and support information (if applicable) appear at the end of this article.

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CONTEXT

Key Objective

What barriers exist for the implementation of geriatric oncology care in Mexico?

Knowledge Generated

In a nationwide survey, 18.9% of the Mexican oncology specialists reported routinely performing a geriatric assessment (GA) when treating older adults with cancer; medical oncologists and physicians with a lower patient volume were more likely to use a GA. The most frequent barriers for the routine use of the GA were lack of qualified personnel, limited knowledge, and insufficient time to perform an assessment.

Relevance

Reported barriers for the implementation of the GA into routine care in oncology in Mexico can potentially be overcome by educational interventions aimed at both oncology and geriatrics specialists. Next steps should focus on improving knowledge and training existing personnel through educational initiatives in cooperation with local societies.

lack of personnel and infrastructure,¹³ but other barriers have not been extensively studied and may differ regionally. To address this, we aimed to describe the status of geriatric oncology knowledge and practice among Mexican oncology professionals and to identify barriers and facilitators for the implementation of GA into routine care of older adults with cancer in Mexico.

METHODS

This was an explanatory sequential mixed-methods study, involving collecting quantitative data first and then explaining those results with in-depth qualitative data (Fig 1).

Quantitative Data Collection

We administered a web-based survey to oncology specialists in Mexico (medical, radiation, surgical, and gynecologic oncologists), including questions about demographics, awareness of geriatric oncology principles, and the use of the GA and other geriatric oncology tools in everyday practice. Survey questions were selected through literature review^{11,12} and investigator consensus.

The survey was emailed to 1,240 members of the Mexican Society of Oncology (SMeO) between July and October 2020. Weekly reminders were sent, and respondents were provided incentives through a lottery. The survey was completed and managed through REDCap (Research Electronic Data Capture) electronic data capture tools hosted at *Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán* (INCMNSZ).¹⁴

Descriptive statistical analysis of survey data was performed using SPSS 21.0 (IBM Corp, Armonk, NY). Since the primary interest was to estimate the proportion of providers performing a GA, we undertook group comparisons of respondent characteristics for the following question: “*For patients ≥ 65 years, do you perform a multidimensional geriatric assessment using validated tools?*”

First Point of Integration

To select candidates for the qualitative phase, we used maximal variation sampling¹⁵ according to the answers to the question on performing a GA. We also selected participants according to the characteristics significantly associated with the use of GA. Interview candidates were invited via email.

Qualitative Data Collection

We developed a semistructured interview guide that was refined after analyzing survey data and piloted with medical oncology fellows. The final guide contained questions about usual care and physicians' decision-making process for older adults with cancer, challenges faced when caring for older patients, referral pathways for geriatric consultations, available personnel and infrastructure, reasons for performing/not performing a GA, ideal workflow for performing a GA in clinical practice, barriers and facilitators for this ideal workflow, and the process for acquiring geriatric oncology knowledge (Data Supplement). The interviewer could ask additional questions. The primary investigator (H.C.V.-A., a female medical oncologist with geriatric oncology research experience) performed semistructured online interviews via Zoom. We planned to interview at least 10 people who reported performing a GA and 10 who did not. Participants continued to be invited, and interviews conducted until thematic saturation was achieved. Consent was verbally obtained before starting each interview. Interviews were recorded, anonymized, and transcribed verbatim. Two investigators (H.C.V.-A. and L.M.B.G.) developed a codebook through open coding, and data were analyzed inductively using thematic analysis. To facilitate integration, themes were developed and elaborated on the basis of survey questions focused on barriers to GA implementation. Coding consistency was discussed regularly, with a third investigator consulted for discrepancies (E.-S.-P.-C.).

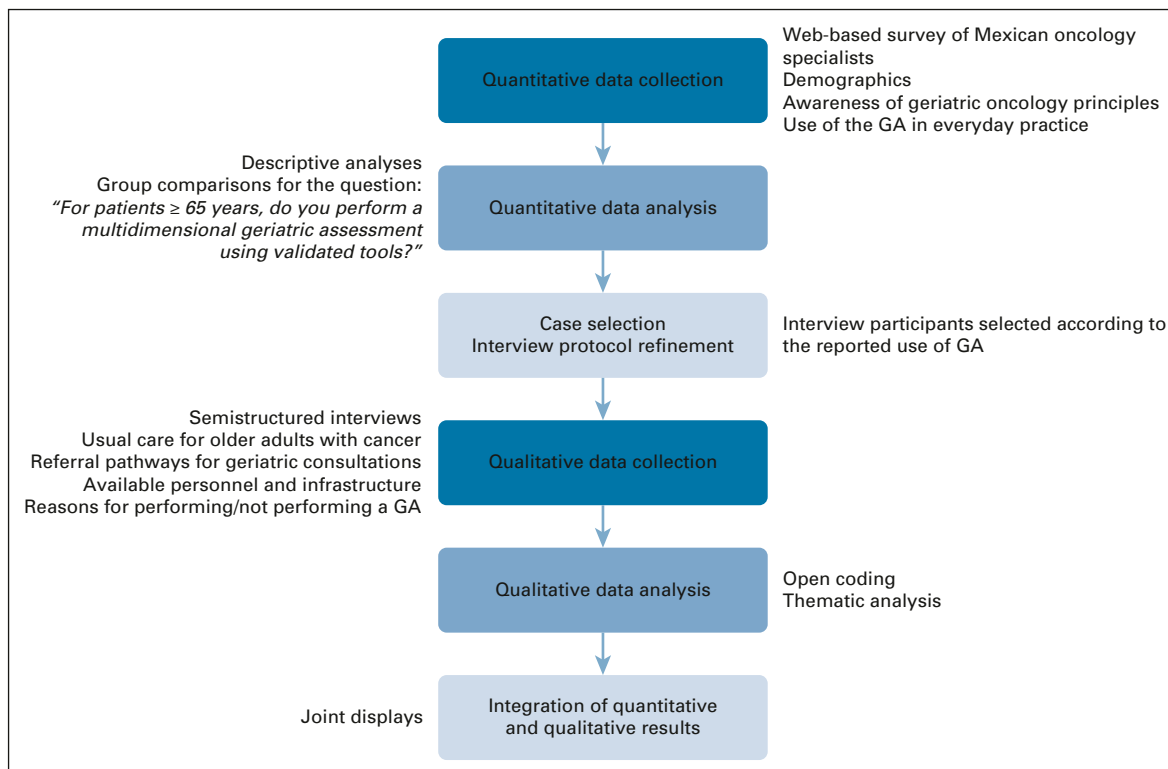


FIG 1. Explanatory sequential mixed-methods study design.

Themes were refined after discussion with other research team members.

Second Point of Integration

To explain survey results, we developed joint display tables¹⁶ to present the identified barriers according to the use of GA and the identified facilitators according to the reported barriers. Qualitative and mixed-methods analyses were performed using MAXQDA 2020 (VERBI Software, Berlin, Germany). This study was approved by INCMNSZ's institutional review board (GER-3358-2020-1).

RESULTS

Survey

The survey was emailed to 1,240 physicians. We obtained 196 valid survey responses (response rate 15.8%). Sixty-one percent of the respondents were male. Ninety-eight participants (50.0%) were surgical oncologists, 59 (30.1%) were medical oncologists, and 38 (19.4%) were radiation oncologists. The median respondent age was 42 years, and the median time in practice was 8 years. Forty percent worked in Mexico City; 34.2% had their primary practice at a public institution, 26.5% at a private institution, and 37.8% at both (Table 1). One hundred twenty-one respondents (61.7%) reported having a geriatrician available at their primary practice site, and 72 (36.7%) reported not having a geriatrician at their primary practice site but having one available for referrals.

Respondents saw patients a median of 5 days per week, with a median of 11-15 patients per day. The median proportion of patients age 65-79 years seen by respondents on a usual clinic day was 30%, with 10% of the patients age ≥ 80 years. Regarding the routine evaluation of GA domains, most reported assessing comorbidity and daily functioning most of the time/always. However, most respondents reported evaluating cognition, depression, and falls less commonly (Table 2).

Thirty-seven physicians (18.9%) reported performing a multidimensional GA using validated tools when treating older patients with cancer. Male respondents ($P = .026$), medical oncologists ($P = .002$), and those seeing ≤ 10 patients per day ($P = .010$) were more likely to report performing a GA (Table 3). Physicians who reported performing a GA were also younger than those who did not (median age 37 v 43 years, $P = .032$).

Most respondents reported using performance status (96.4%), comorbidities (93.4%), life expectancy (81.1%), age (74.5%), and patient preferences (70.4%) as parameters to guide treatment decision making. On the contrary, only 29.1% and 22.4% reported using toxicity calculators and GA as guidance for decision making. Regarding barriers for GA use in clinical practice, 37.2% reported lack of time, 49.0% lack of qualified personnel, 43.9% lack of knowledge on how to use GA tools, 8.7% a lack of impact of information provided by GA in their practice, 8.2% prohibitive cost, and 5.6% patient unwillingness to undergo

TABLE 1. Survey Respondent (N = 196) and Interview Participant Characteristics (n = 22)

Domain	Survey Respondents (N = 196)	Interview Participants (n = 22)
Sex, No. (%)		
Male	121 (61.7)	13 (59.1)
Female	72 (36.7)	9 (40.9)
Missing	3 (1.5)	0 (0)
Age in years, median (range)	42 (28-86)	37.5 (30-64)
Medical specialty, No. (%)		
Surgical oncology	84 (42.9)	5 (22.7)
Medical oncology	59 (30.1)	11 (50.0)
Radiation oncology	38 (19.4)	5 (22.7)
Gynecologic oncology	14 (7.1)	1 (4.5)
Missing	1 (0.5)	0 (0)
Time practicing specialty in years, median (range)	8 (0-54)	4.5 (0-34)
State of practice, No. (%)		
Mexico City	77 (39.3)	9 (40.9)
Nuevo León	16 (8.2)	4 (18.2)
Veracruz	14 (7.1)	0 (0)
State of Mexico	13 (6.6)	1 (4.5)
Chihuahua	10 (5.1)	0 (0)
Other states	65 (33.1)	8 (36.4)
Missing	1 (0.5)	0 (0)
Type of practice, No. (%)		
Public and private	75 (38.2)	11 (50.0)
Public only	67 (34.2)	2 (9.1)
Private only	52 (26.5)	9 (40.9)
Missing	2 (1.0)	0 (0)
Main practice at the academic center, No. (%)	82 (41.8)	8 (36.4)
Geriatrician available at the main practice site, No. (%)	121 (61.7)	18 (81.8)
Size of practice, No. (%)		
1-10 patients/day	95 (48.5)	12 (54.5)
≥ 11 patients/day	100 (51.0)	10 (45.5)
Missing	1 (0.5)	0 (0)
Performs geriatric assessment, No. (%)		
Yes	37 (18.9)	10 (45.5)
No	157 (80.1)	12 (54.5)
Missing	2 (1.0)	0 (0)

TABLE 2. Frequency of Evaluation of Geriatric Assessment Domains by Survey Respondents (N = 196)

Domain	Never (%)	Rarely (%)	Sometimes (%)	Most of the Time (%)	Always (%)
Cognition	6.1	14.3	25.0	23.5	30.6
Nutrition	1.5	7.7	23.0	35.7	31.6
Comorbidities	0	0	5.1	19.4	75.0
Falls	11.2	21.9	23.5	25.0	17.3
Daily function (activities of daily living)	1.0	5.6	19.9	27.0	45.9
Depression	6.1	17.9	32.1	29.6	13.3

TABLE 3. Characteristics Associated With the Reported Use of a GA When Treating Older Patients With Cancer

Characteristic	Use of GA, No. (%)	P
Location (n = 194)		.79
Mexico City	14/77 (18.1)	
Other locations	23/117 (19.7)	
Specialty (n = 194)		.002
Medical oncology	20/59 (33.9)	
Radiation oncology	4/38 (10.5)	
Surgical/gynecological oncology	13/97 (13.4)	
Practice size (n = 194)		.010
1-10 patients/day	25/94 (26.6)	
> 10 patients/day	12/100 (12)	
Geriatrician available (n = 193)		.49
Yes	12/72 (20.7)	
No	25/121 (16.7)	

Abbreviation: GA, geriatric assessment.

GA. Lack of knowledge as a barrier was reported by a larger proportion of respondents who reported not routinely performing GA (51.6 v 10.8%, $P < .001$). There were no other differences in reported barriers between those who reported performing GA and those who did not. Almost all respondents (95.9%) wanted to receive additional information and training in geriatric oncology.

Semistructured Interviews

We sampled survey respondents according to their use of GA, medical specialty, and size of practice. We also ensured that all interview participants practiced at different institutions. A total of 91 respondents were invited via email to be interviewed. Twenty-six respondents accepted the invitation, and ultimately we performed 22 interviews (Table 1). The most reported barriers to GA use (at least once) were unavailability of geriatricians (n = 15), lack of time (n = 12), system-related barriers (n = 10), lack of interest (n = 9), and the COVID-19 pandemic (n = 9). We related interview answers to our prior survey questions about barriers to deepen our understanding. On Table 4, we present illustrative quotes from physicians who reported routinely performing a GA versus those who did not.

Lack of Qualified Personnel as a Barrier

Physicians with private practice only may not have regular contact with geriatricians for referrals: “No one has visited me to say ‘hi, I’m a geriatrician and I would like to work with you.’” In some cases, geriatricians were not available in the respondent’s city or region. On the other hand, public practice sites with oncology specialists are usually second- or third-level hospitals, where geriatricians are available. However, in these settings, even if human and physical resources exist, access to a geriatrician is usually limited by patient volume: “At IMSS

[Mexican Social Security Institution], the service is available, but access is very difficult due to the number of patients.”

For physicians who reported geriatrician availability, an additional problem was the perception that geriatricians have insufficient oncological training, limiting their integration into multidisciplinary cancer care teams: “If a geriatrician is not officially familiar with this area of knowledge, it’s more difficult to have a conversation with them.”

Lack of Knowledge as a Barrier

Starting from fellowship, training in geriatric oncology is insufficient. One recently graduated interviewee said: “During fellowship, in my training, we didn’t cover a lot of specifics on older patients.” Knowledge deficiencies encompass not only the utilization of screening and assessment tools but also interpretation of information provided by GA: “...because [a tool] provides a number that says ‘the benefit is x,’ but what does that really mean?”, limiting the perceived usefulness of these assessments. Some participants perceive a general lack of interest in geriatric oncology and in the use of the GA, which may derive from limited inclusion of geriatric oncology principles in educational curricula.

Lack of Time as a Barrier

Overcrowding of oncology services is common in public institutions, limiting the inclusion of the GA into routine appointments: “Sometimes I’ve opened my life expectancy calculator to get a Suemoto index. I don’t do it always, it depends on the workload.” Another problem is the lack of effective referral pathways for GA: geriatricians may not be in the same practice site as the oncology physician, causing patients to spend excessive amounts of time or making it impossible to have a GA before starting treatment: “In institutions such as IMSS or ISSSTE, the patient requests an appointment and gets it three or four months later.”

Facilitators

The most common facilitators for GA reported at least once during interviews were availability of geriatricians (n = 19), system and administrative facilitators (n = 14), availability of a multidisciplinary team (n = 11), interest in geriatric oncology (n = 10), and patient factors (n = 10). In Table 5, we present quotes relating barriers and facilitators through a joint display, as well as potential strategies to use those facilitators as solutions.

DISCUSSION

In this mixed-methods study, 18.9% of the surveyed oncology specialists in Mexico reported using a GA when caring for older adults with cancer. Barriers for the routine implementation of the GA included lack of qualified personnel for performing GA, lack of knowledge on how to perform and interpret a GA, and perceived lack of time for performing these assessments. Availability of geriatricians,

TABLE 4. Barriers to the Implementation of Geriatric Oncology Principles

Barrier	Physicians Who Routinely Perform a GA Barrier Frequency in Survey, Illustrative Quotes, Interviewee Identification Number, and Type of Practice (in parentheses)	Physicians Who Do Not Routinely Perform a GA Barrier Frequency in Survey, Illustrative Quotes, Interviewee Identification Number, and Type of Practice (in parentheses)	P
Lack of qualified personnel Components: Contact with and availability of geriatrician Geriatrician education and training Personnel availability Multidisciplinary team availability	35.1% “It’s easier with that geriatrician, but he’s <i>one</i> geriatrician. So, it’s difficult for patients to have a consultation” (2, public) “I have the impression that geriatricians are not trained enough in geriatric oncology” (1, public) “I believe that if a geriatrician is not officially familiar with this area of knowledge, it’s a bit more difficult to have a conversation with them” (12, private) “There is a geriatrics service in this hospital, but to me it seems that it doesn’t function well since they have no contact with patients with cancer” (22, private) “I believe the main limitation is the lack of an established multidisciplinary team” (13, both)	52.2% “No one has visited me to say ‘hi, I’m a geriatrician and I would like to work with you’” (7, private) “At IMSS, the service is available, but access is very difficult due to the number of patients” (20, public) “To me it seems that as soon as there is [cancer] progression, geriatricians become unattached to these patients” (8, private) “Interviewer: Do you have personnel to perform a geriatric screening before your visit? Interviewee: No, that’s exactly the problem” (4, private) “I’ve never seen multidisciplinary management encouraged in [residency/fellowship] study plans” (16, both)	.06
Lack of knowledge Components: Oncology specialists’ training Interest in geriatric oncology	10.8% “I’ve done a couple of Mini-Mentals, but I prefer ... I mean, I don’t feel qualified to administer them, so I prefer that geriatricians do them” (1, public) “...because [a GA tool] provides a number that says “the benefit is x,” but what does that really mean?” (2, public) “During fellowship, in my training, we didn’t cover a lot of specifics on older patients” (13, both) “It is only a few of us who are interested in that, in the geriatric assessment” (12, private) “When I ask my colleagues, I’d say that very few or almost no one reads [about geriatric oncology]” (22, private)	51.6% “I don’t have enough practice with them [GA tools]” (3, private) “There hasn’t been anyone willing to train me” 7, private) “I am aware of the Mini-Mental. I don’t know how to administer it. I am aware of scales for evaluating function in older adults and I don’t know how to use them. So, what I use is the art of medicine. And that’s cool, but the evidence shows that it’s not ideal” (7, private)	< .001
Lack of time Components: Time Workload System	27.0% “Usually it’s two or three questions to the patient and the caregiver, how have they seen the patient, if they think he or she needs more time for some tasks, or if they are forgetting things. Then, it’s kind of a mixed interrogation, since I don’t have the time for a complete cognitive evaluation” (2, public) “It’s sort of complicated with older adults to tell them ‘look, I’m recommending chemotherapy, but I’ll send you to the geriatrician: schedule an appointment, go to the appointment ... and when the geriatrician sees you, schedule another appointment with me, and then I’ll tell you the appropriate treatment. I mean, I’m talking about ... what the patient thought would take one appointment, now it’s three” (15, both)	39.5% “These are things that if we take too long, or we don’t have a justification to do something new, we need to have the justification in order for it to work” (5, private) “Sometimes I’ve opened my life expectancy calculator to get a Suemoto index. I don’t do it always, it depends on the workload” (21, both) “And on institutions such as IMSS or ISSSTE, the patient requests an appointment and gets it three or four months later” (4, private)	.15

Abbreviations: GA, geriatric assessment; IMSS, Mexican Social Security Institute; ISSSTE, Social Security Institute for the Service of State Workers.

TABLE 5. Facilitators and Proposed Solutions to Improve the Use of Geriatric Oncology Principles

Barrier	Facilitators	Illustrative Quotes	Potential Solutions and Strategies to Bolster Facilitators
Lack of qualified personnel	<p>Contact with and availability of geriatrician</p> <p>Multidisciplinary team availability</p> <p>Availability of trained personnel</p> <p>Oncology specialists' training in geriatric oncology</p> <p>Geriatricians' training in geriatric oncology</p>	<p>"The good thing is, that geriatrician, I don't know where he came from but he had an observership in geriatric oncology, so he has the knowledge" (2, public)</p> <p>"The truth is, when you contact geriatricians and point them towards what you need to know, then that's when patients get a more objective assessment" (12, private)</p> <p>"At [private clinic], we have weekly sessions where we discuss cases and everything. And if [geriatricians] were present and discussed their evaluations, or asked us questions..." (15, both)</p> <p>"Well, in my usual practice, whenever I perform surgery on an older adult, I always co-manage them with a geriatrician" (17, private)</p> <p>"I think it would be an ideal study ... In our service, we have research interns, it would be ideal to rely on them" (19, both)</p> <p>"And the positive part is that they have geriatrics residents, so maybe we can ... She told me that she didn't have much knowledge on the G8 scale. And I said, 'well, if you say that your residents can apply these geriatric scales in patients and we can develop a research project, we're all happy to do it'" (21, both)</p>	<p>Identification of available human resources at each practice (including residents, fellows, research interns and paramedical personnel)</p> <p>Bidirectional training (between oncologists and geriatricians)</p> <p>Start training in geriatric oncology early during the physicians' career (inclusion in medical school and/or residency/fellowship curricula)</p> <p>Creation of a combined physician directory of geriatric oncology</p>
Lack of knowledge	<p>Oncology specialists' training in geriatric oncology</p> <p>Geriatricians' training in geriatric oncology</p> <p>Interest in geriatric oncology among providers</p>	<p>"In March, we will have medical oncology fellows. Then, we want them as well to have this philosophy, these skills on how to assess older adults and how to work together with the strongest service for them, which is geriatrics" (10, both)</p> <p>"I started using [the scales] in ... just after finishing my fellowship. We attended a talk on oncogeriatrics, and we were given ... tips, websites, scales, G8, all that. And that's why I started to do it since then. And I think it has impacted my practice" (10, both)</p> <p>"Talking with oncology fellows, I was surprised to find that some of them have a lot of interest precisely in geriatric oncology" (12, private)</p> <p>"I wasn't prone to seek out information on geriatric oncology. But there's one of my colleagues who did a geriatric oncology fellow. And after returning to [academic center] he implemented some ... there was a time when we were bombarded with information, and some of it stuck with us" (15, both)</p>	<p>Start training in geriatric oncology early during the physicians' career (inclusion in medical school and/or residency/fellowship curricula)</p> <p>Use existing infrastructure (eg, SMeO) for continuous medical education</p> <p>Implementation of focused training programs</p> <p>Practical workshop on use of geriatric assessment tools</p> <p>Benefits of the geriatric assessment on cancer specific outcomes</p>

(Continued on following page)

TABLE 5. Facilitators and Proposed Solutions to Improve the Use of Geriatric Oncology Principles (Continued)

Barrier	Facilitators	Illustrative Quotes	Potential Solutions and Strategies to Bolster Facilitators
Lack of time	Contact with and availability of geriatrician Personnel System Technology	<p>“Having access to predetermined scales and calculators in our platforms. For example, IMSS has a specific EMR for outpatient care” (2, public)</p> <p>“In the afternoon there are two geriatricians, and that’s good. If you ask them to see a patient, there’s no problem” (6, private)</p> <p>“A focused app would be ideal. Everything to do with oncology and geriatrics, and not having to search everywhere for the information” (9, both)</p> <p>“Before chemo, they have the geriatric assessment. Geriatricians come here to the oncology clinic, and patients practically don’t need to move around” (10, both)</p> <p>“I mean, it would be ideal if the assessment happened before surgery, but if that isn’t possible, at least that they receive geriatric care during their admission” (16, both)</p> <p>“Perhaps having a scheduled day for geriatric assessment, once a week. And discussing the cases with geriatricians so that they can have information about the patients who they’ll see the following week” (20, both)</p> <p>“As for me, I would have a meeting with geriatricians to establish what would be the criteria to select patients for their intervention, which patients would benefit the most from their assessment. That would be the first thing I’d establish with them” (21, both)</p>	<p>Using idle time within visits to provide geriatric assessments and interventions (waiting room, healthcare transitions, during chemotherapy infusions etc)</p> <p>Increasing available human resources</p> <p>Using screening tools to decrease service saturation—integrated to the electronic medical record when possible</p> <p>Developing care models with integration of the geriatrician on site (clinics)</p> <p>Developing culturally appropriate technology to facilitate access to geriatric screening and assessment tools</p>

Abbreviations: EMR, electronic medical record; IMSS, Mexican Social Security Institute; SMeO, Mexican Society of Oncology.

presence of a multidisciplinary team, and personal interest in geriatric oncology were common facilitators for those who have successfully implemented the GA in their practice.

The proportion of surveyed physicians who reported performing a GA resembled that reported in other studies, such as a survey of community oncologists in the United States (20%).¹² In our study, GA use was higher among some subgroups, such as medical oncologists (33%). Information regarding GA use in routine practice in LMIC, including Latin America, is very limited. A Brazilian survey among medical oncologists showed that awareness of geriatric oncology principles is widespread but insufficiently applied.¹⁷ In Mexico, currently there are no specific geriatric oncology guidelines, but it is commonplace to follow recommendations from international societies. However, although performing a GA for older patients with cancer is recommended by ASCO and SIOG, implementation of these recommendations is not widespread.¹¹

In our survey, we found that GA domains which may be perceived as part of a routine oncology evaluation, such as daily functioning and comorbidities, were more commonly evaluated than others. Oncologists may not feel comfortable or qualified enough to perform a cognitive assessment, for example, and some respondents mentioned that they preferred that a geriatrician or a neurologist undertook such assessments. Additionally, even short cognitive screening tools may be difficult to implement in busy practices, resulting in physicians attempting to do simpler screenings, such as only asking about memory and orientation, which may not be sensitive enough to detect patients who could benefit from a thorough cognitive evaluation.

The most common barriers identified in our survey are similar to those found in higher resource settings. For example, the main barriers to GA use in an Australian survey were lack of time, little contact with geriatricians, and low availability of referral services.¹⁸ In Spain, the main barriers were lack of time, low availability of geriatricians, and organizational barriers, such as high workloads.¹⁹ Another common concern across countries is the lack of focused training on geriatric oncology.²⁰⁻²²

Respondents highlighted the limited availability of geriatric oncology training as an important barrier, both for oncologists and geriatricians. Most oncology specialists in Mexico receive little or no training in geriatrics and consequently are insufficiently prepared to identify important issues that may affect cancer-related outcomes. This was also reflected in our survey through the less common evaluation of some GA domains.

Another barrier for the implementation of geriatric oncology is the lack of geriatricians, with only around 600 board-certified geriatricians in the country,²³ most of them in larger cities. It is remarkable that whereas some respondents mentioned that geriatrics residents or medical research fellows could perform the GA in

patients with cancer, no participants identified nurses or other allied health professionals for this role, as it happens in other countries.^{24,25} Physician assistants or nurse practitioners are not available in Mexico, and registered nurses specialized in oncology mainly focus on the management, administration, and follow-up of systemic and radiation therapy, thus limiting the participation of nursing professionals in clinical care. The lack of on-site personnel trained at performing GA can hamper interdisciplinary communication, timely referrals, and the development of multidisciplinary teams. Our group previously reported on our local geriatric oncology clinic experience, which works under a consultative model.²⁶ However, this model may not be adequate across all settings since the Mexican health care system is highly fragmented, and available personnel, workload, and resources differ greatly among public and private providers, and even between hospitals within the same public system.²⁷

This is the first study to report on barriers to the use of geriatric oncology principles in Latin America. Its strengths include the participation of multiple specialties in our survey and interviews, providing a wide view of current practices. A limitation for the generalizability of our results is the relatively low response rate of 15.8%. However, this is comparable with other similar surveys.¹⁹ It is also likely that our results were prone to a selection bias, with physicians more interested in geriatric oncology more likely to respond. Interestingly, this study has helped us reach potential champions for developing geriatric oncology initiatives in the country. Our survey showed that younger physicians were more likely to incorporate GA in their practice, and some interview participants mentioned that younger specialists, residents, and fellows are interested in the field of geriatric oncology, which also seems to be the case in other parts of the world. For example, a survey of Canadian radiation oncology residents found most of them agreed on the importance of integrating geriatric oncology training into their curriculum.²⁸

Using the information obtained from this study, we propose the following initial actions to improve the implementation of geriatric oncology principles in Mexico:

1. To mitigate the lack of qualified personnel, trainees in all areas of health care (residents, fellows, research interns, and paramedic personnel) need to receive training in geriatric oncology. Bidirectional training between oncologists and geriatricians can allow each specialist to improve interdisciplinary communication. Ideally, this should be incorporated into medical/nursing school, residency, and fellowship training programs, as recommended by global oncology curricula.²⁹
2. To improve knowledge, available educational infrastructure (such as that of universities or local oncology societies such as SMeO) could be used to provide online training and continuous medical education in geriatric

oncology. Short, focused training programs should emphasize the benefits of GA and GA-driven interventions on hard oncologic outcomes, such as decreasing toxicity and facilitating treatment completion,^{9,30,31} and include practical workshops on the use of GA tools. Fortunately, openness to such programs is high, with > 95% of the respondents expressing an interest in acquiring more geriatric oncology knowledge.

3. Lack of time might be the most complicated barrier to address because of the heterogeneity of the Mexican health care system. Using geriatric screening tools such as the G8 could help select patients who benefit the most from full GA and decrease service saturation.³² When possible, geriatric screening and other GA tools should be integrated to the electronic medical record. Using idle times during visits to perform GA might increase patient and physician acceptability. To achieve this, shared care models with integration of the geriatrician on the site (geriatric oncology-focused clinics) might be appropriate.

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DISCLAIMER

Any opinions, findings, and conclusions expressed in this material are those of the authors and do not necessarily reflect those of the American Society of Clinical Oncology or Conquer Cancer.

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In conclusion, the main barriers for the implementation of geriatric oncology principles into routine practice in Mexico include the lack of qualified personnel to administer a GA and a lack of knowledge. These barriers can potentially be overcome by educational interventions aimed at both oncology and geriatrics specialists. Our next steps will focus on improving knowledge and training existing personnel through educational initiatives in cooperation with SMeO. In subsequent years, the creation of national working groups and guidelines integrating geriatric oncology principles could help integrate GA into routine oncology practice. Increasing knowledge and interest in geriatric oncology could pave the way to facilitate communication with national key stakeholders for larger initiatives aimed at providing high-quality patient-centered care for all older adults with cancer in Mexico, and those initiatives could be easily transferred to other countries across the Latin American region.

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