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Caring for older patients with cancer during the COVID-19 pandemic: A Young International Society of Geriatric Oncology (SIOG) global perspective

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ABSTRACT

The ongoing coronavirus disease 2019 (COVID-19) pandemic has affected millions of people in over 180 territories, causing a significant impact on healthcare systems globally. Older adults, as well as people living with cancer, appear to be particularly vulnerable to COVID-19 related morbidity and mortality, which means that older adults with cancer are an especially high-risk population. This has led to significant changes in the way geriatric oncologists provide care to older patients, including the implementation of novel methods for clinical visits, interruptions or delays in procedures, and modification of therapeutic strategies, both in the curative and palliative settings. In this manuscript, we provide a global overview of the perspectives of geriatric oncology providers from countries across Europe, America, and Asia, regarding the adaptive strategies utilized to continue providing high quality care for older patients with cancer during the COVID-19 pandemic. Through these perspectives, we attempt to show that, although each country and setting has specific issues, we all face similar challenges when providing care for our older patients with cancer during these difficult times.

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1. Introduction

As the coronavirus disease 2019 (COVID-19) pandemic escalates, the geriatric oncology community is committed to provide patients the best possible care. Infection prevention and workload rationalization have been tackled globally, with multiple guidelines drafted in order to provide guidance to healthcare providers (Table 1). Older patients with cancer are particularly vulnerable, and the risk of neglecting

them during this pandemic may be particularly high. The aims of this report are gathering perspectives from Young International Society of Geriatric Oncology (SIOG) members regarding specific actions taken to care for older adults with cancer in countries with differing numbers of COVID-19 cases and public health strategies (Fig. 1), and discussing the impact of COVID-19 on the treatment of older patients with cancer across these settings.

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2. COVID-19, cancer, and aging

As of April 22, 2020, the World Health Organization reported 2,475,723 COVID-19 cases and 169,151 deaths across all continents, with America as the current epicenter [1]. Preliminary epidemiological studies reported a higher case-fatality rate among older adults and those with underlying comorbidities. Despite the lack of data on the impact of COVID-19 on patients with cancer (particularly among the oldest old), it is likely they would be at a higher risk of infection, and have a worse prognosis due to disease-related vulnerability [2]. Furthermore, the disruption of cancer care caused by lockdowns to contain the spread of the virus may further worsen this situation [3].

Older adults represent an important share of patients with cancer worldwide. In 2018, 6.6 million new cancer cases were diagnosed in persons aged ≥ 70 globally [4]. Even during “normal” times, older adults with cancer have a worse prognosis than younger patients, particularly in the first months following diagnosis [5]. It is therefore expected that COVID-19 will have dramatic direct (i.e. among those infected) and indirect consequences (i.e. through the disruption health care services) for older patients with cancer. It is likely these consequences will vary greatly across territories based on country-level resources, population aging, and cancer incidence among older adults (Table 2, Fig. 2). Therefore, collecting COVID-19 data stratified by age groups throughout the cancer care continuum, from screening to palliative care, is of the utmost importance.

3. Italy

In Italy, the epicenter of the COVID-19 outbreak was the northern region of Lombardy. In an attempt to contain the pandemic, the Italian government imposed a lockdown that rapidly involved the whole country. Even in regions like Tuscany, which are not in the epicenter of the contagion, lockdowns had a huge impact on the activity of oncology departments. In centers where systemic treatment and radiation are prescribed, oncologists have had to act on both fronts. Every patient receiving systemic treatments is triaged by phone before accessing day hospitals, while outpatient visits are limited to new patients or patients reporting worsening symptoms or radiological progression. Whenever feasible, oral chemotherapy is preferred, with drugs directly delivered to the patients' home by courier. All necessary laboratory work-up is carried out at centers close to the patients' homes, and assessed remotely by medical staff. Among older patients, especially those lacking a caregiver (which is very common during lockdown), this process can be difficult and prone to errors (e.g. difficulties in sending e-mails with attachments). In cases where there is trouble complying with this process, patients are called up for an in-person visit. From a radiotherapy perspective, institutions have followed published international recommendations [6,7]. Generally, hypofractionated regimens are preferred when considered equivalent to standard treatments, and when concerns regarding an increased risk of toxicity are not present. In general, most institutions have continued to treat older patients in the same fashion, since hypofractionation was already in practice before the pandemic.

4. United Kingdom (UK)

In the UK, healthcare system response has included cohorting patients with respiratory symptoms or confirmed COVID-19 in selected wards, suspending non-essential activities, limiting visitors, and promoting telemedicine. Provision of personal protective equipment (PPE) has been expanded to all clinical areas, intensive care unit (ICU) capacity has been increased, and temporary hospitals have been set up [8]. Importantly, frailty assessment of older patients using the Clinical Frailty Scale (CFS) has been included as a criterion for ICU admission in COVID-19 national guidelines [9].

The outbreak has had major impacts on cancer management. Cancer services are being coordinated by specialist “Cancer Hubs” to free capacity in hospitals focusing on COVID-19 [10]. In order to reduce risks and limit visits, telephone consultations are encouraged, non-essential surgical procedures are being deferred [11], radiotherapy schedules are being adapted (e.g., hypofractionation), and systemic treatments are being shortened or postponed to reduce toxicity. Whilst there are no hard rules on treatment, and different centers maintain different levels of capacity, treatment selection is challenging across the board, particularly for frail older patients. The National Institute for Health and Care Excellence issued specific recommendations on the use of systemic anticancer agents [12]. For example, recommendations for breast oncologists include suspending adjuvant bisphosphonates to limit visits, reducing the duration of adjuvant trastuzumab from twelve to six months [13], giving neoadjuvant anti-HER2 antibodies without chemotherapy, and switching intravenous taxanes to capecitabine for metastatic disease.

Cancer research is mostly on hold, most clinical trials are interrupted, and research units are operating with minimal staff. Importantly, the UK Coronavirus Cancer Monitoring Project (<https://ukcoronaviruscancermonitoring.com/>) is collecting, analyzing, and disseminating data from UK cancer centers in real time, including information on age and comorbidities (but not geriatric assessment [GA] variables) [14].

5. The Netherlands

In the Netherlands, the southern region has had the most COVID-19 cases and, consequently, hospitals are dealing with large numbers of patients. In the first weeks of the epidemic, a national coordination center was installed in Rotterdam in order to register and distribute patients among hospitals nationwide. As a consequence, there have been few problems in terms of hospital and ICU bed capacity.

The Netherlands Society for Medical Oncology (NVMO) drafted a guideline that can be used to decide which oncological treatments could (or should) be adapted. This guideline, which is not yet published, can be used to aid in decision-making and care prioritization. For instance, the guideline advises delaying systemic treatments with marginal benefits, as well as contacting patients using telemedicine instead of in-person visits. Oncologists are advised to withhold therapies when possible, and the guideline provides detailed tumor-specific advice regarding which treatments may be delayed.

There has been an ongoing debate about extensive life support for older patients in ICUs, especially if patients have comorbid diseases such as cancer [15]. Generally, older patients with many comorbid diseases or poor performance status are advised against invasive life support measures. The frailty status of the patient (usually measured with the CFS), combined with the patients' preferences, plays a crucial role in decision making, and this is even more so during the current pandemic.

6. Germany

COVID-19 hotspots in Germany include the south and North Rhine-Westphalia [16]. The latter had many cases due to carnival festivities in February, which facilitated contagion. Although hospitals in epicenters have dealt with increased numbers of critical patients, hospital and ICU capacities are still not exhausted. Many hospitals have increased ICU capacity to prepare for a surge such as that experienced in Italy. In parallel, most rehabilitation measures, elective surgeries, and routine appointments were cancelled to avoid nosocomial outbreaks.

In daily oncology practice, many in-person appointments for chronic lymphocytic leukemia, myeloproliferative diseases, or survivorship-checkups are performed as telehealth/telephone consultations. Whenever outpatient bloodwork is required, patients are guided to the nearest hospital or general practitioners. Accompanying caregivers or

Table 1

Local guidelines available at each of the selected countries and territories.

Country/ Territory	Country-level COVID-19 and cancer guidance	Link
Italy United Kingdom	Italian Young Oncologists Perspective, ESMO Open National Health Service (NHS)	https://esmoopen.bmj.com/content/5/2/e000759.long https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/specialty-guide-acute-treatment-cancer-23-march-2020.pdf https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/04/C0239-Specialty-guide-Essential-Cancer-surgery-and-coronavirus-v1-70420.pdf
The Netherlands Germany	Dutch Association for Medical Oncology (NVMO) German Society for Hematology and Oncology (DGHO)	https://www.nvmo.org/dossier-covid-19/handvat-covid-19-oncologie/ (in Dutch) https://www.onkopedia.com/de/de/onkopedia/guidelines/covid19-overview (In German)
Denmark	N/A	N/A
Spain	Spanish Society of Medical Oncology (SEOM)	https://seom.org/recomendaciones-sobre-covid-19 (In Spanish)
Hong Kong	N/A	N/A
United States	American Society of Clinical Oncology (ASCO) American Society of Hematology (ASH) National Comprehensive Cancer Network (NCCN) Society of Gynecologic Oncology (SGO)	https://www.asco.org/asco-coronavirus-information https://www.hematology.org/covid-19 https://www.nccn.org/covid-19/ https://www.sgo.org/clinical-practice/management/covid-19-resources-for-health-care-practitioners/
Canada	Cancer and Aging Research Group (CARG, contains older adult-specific recommendations) British Columbia Alberta Ontario	https://www.geriatriconcology.net/article/S1879-4068(20)30210-1/pdf http://www.bccancer.bc.ca/health-professionals-site/Documents/BC_Cancer_PandemicClinicalManagementGuidelines.pdf http://www.cpsa.ca/wp-content/uploads/2020/03/AP_COVID-19-Virtual-Care.pdf https://www.accc-cancer.org/docs/documents/cancer-program-fundamentals/oh-cco-pandemic-planning-clinical-guideline_final_2020-03-10.pdf
Mexico	N/A	N/A

visitors are not allowed in hospitals, with few exceptions. This is a major challenge for older patients, as they often need support from their caregivers to manage appointments. Many doctors have tackled this problem through frequent telephonic contact with caregivers. For essential inpatient procedures (e.g. treatment of acute leukemia), hospital admissions are conducted with extreme precautions (e.g. COVID-19 testing prior to admission). In heavily affected areas, semi-elective therapies such as autologous stem-cell transplantations (SCT) in myeloma patients are postponed.

The German Society of Hematology and Oncology has published recommendations on COVID-19 and various tumors [17]. These guidelines provide detailed suggestions on how to prioritize care, and on assessing risks across tumor types, but does not include information specifically tailored for older adults.

7. Denmark

Denmark was among the first European countries where institutions with non-essential functions were locked down to stop COVID-19 [18]. At the Region Hospital of West Jutland, a significant structural reorganization has occurred, including the creation of a COVID-19 unit, the implementation of mobile screening stations, and expansion of ICU and oxygen capacity. Nurses and physicians from all clinical departments have received specific training and have mandatory shifts at the COVID-19 unit. At the division of medical oncology, patients must arrive precisely at the appointment hour and avoid waiting areas and overcrowding. Family members are not allowed in clinic, but participation is allowed by telephone during visits. The number of in-person visits has decreased, with about 90% of assessments and all follow-up visits performed via telemedicine, applying disease-specific patient-reported outcome measures integrated in the electronic medical record. Blood sampling and imaging are performed at the hospital closest to patients' home.

In the colorectal and ovarian cancer clinics, for example, some implemented modifications include monitoring chemotherapy via telemedicine (particularly for patients on capecitabine), reducing treatment duration for patients with colon cancer from six to three months [19],

considering observation or capecitabine monotherapy +/- bevacizumab for patients with advanced colon cancer [20], and utilizing telemedicine follow-up for patients with ovarian cancer on maintenance poly ADP ribose polymerase (PARP) inhibitors.

From the research perspective, most oncological clinical trials (including those targeted towards older adults) have stopped recruiting, but ongoing treatment may be continued if considered safe by the principal investigator.

8. Spain

In Spain, >80% of COVID-19 related deaths have occurred in patients aged ≥ 70 years [21]. This situation has led to the suspension of non-essential hospital activity nationwide, with changes to essential activities implemented to ensure care continuity while minimizing contagion risks. The number of visits and length of hospital stays have been minimized, and spaces have been restructured in order to ensure compliance with social distancing among patients and healthcare workers.

Tumor boards are held virtually, and medical visits have been restricted to those that require patient presence, performing as many as possible by telephone or videoconference. At *Consortio Hospitalario Provincial de Castellón*, the geriatric oncology clinic has temporarily closed, resulting in a decline in the number of GAs performed, despite the fact that it is probably in these moments when including information from the GA in decision-making would be most relevant.

Treatments have been modified following national and international recommendations, including prioritization of oral treatments, temporary interruption or delays in chemotherapy, and use of hypofractionated radiotherapy schedules [22–24]. Delaying planned cancer surgeries to ensure ICU availability for patients with COVID-19 has been one of the major factors to consider when designing treatment plans. In hospitalized patients, social isolation is a major source of distress for patients, families and providers, especially in patients receiving palliative care. In those with COVID-19, restricted access to family members has resulted in reduced quality of life and increased distress, which has been partially ameliorated by the use of electronic devices and the implication of healthcare providers.

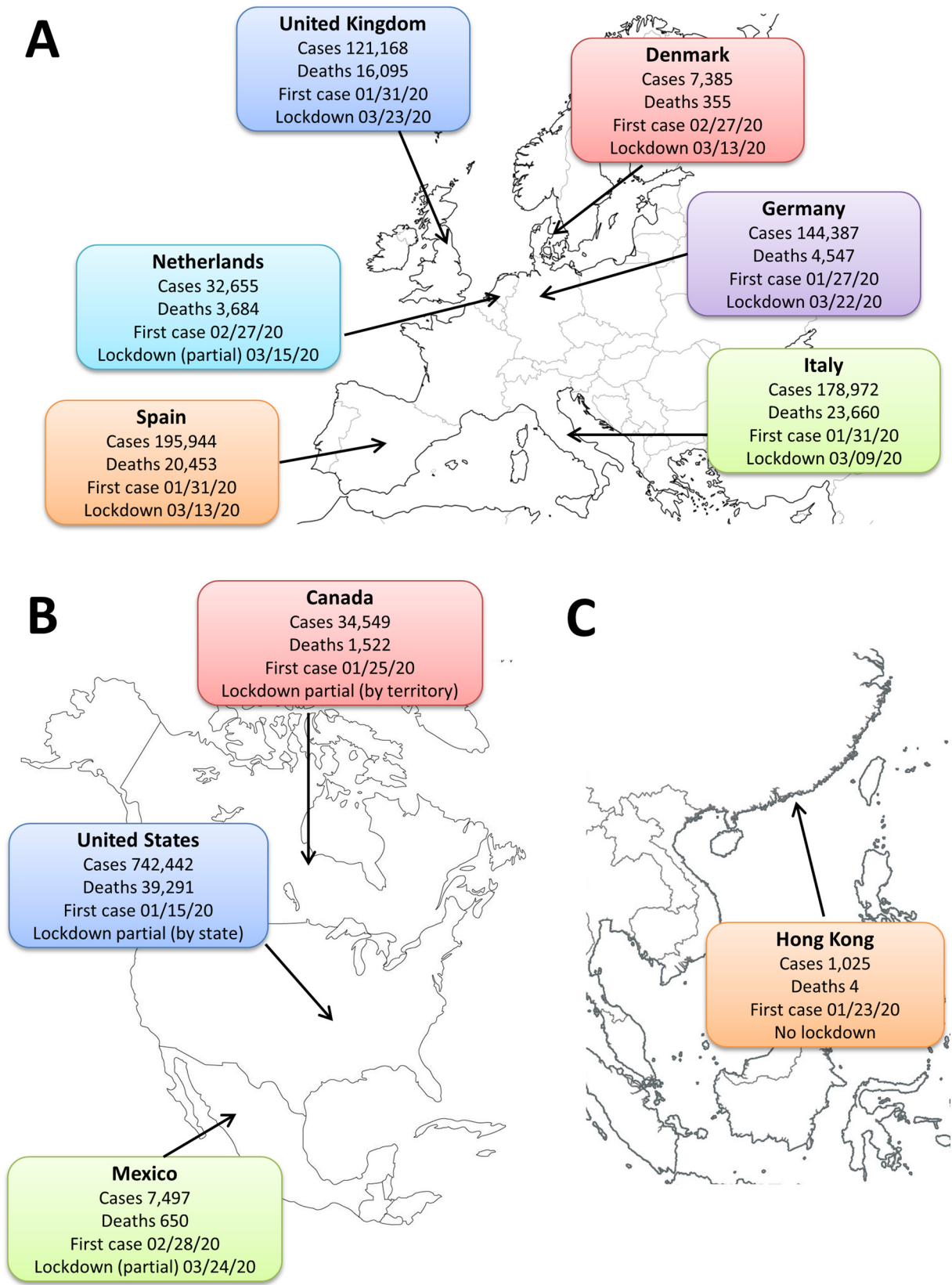


Fig. 1. COVID-19 data, including incidence, mortality, and government response, for selected countries and territories in Europe (A), North America (B) and Asia (C). Data current as of April 19, 2020, 1:00 PM GMT-5:00. Obtained from the Johns Hopkins University Coronavirus Resource Center at <https://coronavirus.jhu.edu/map.html> [34].

Table 2
Cancer and aging epidemiological figures in selected countries and territories.

Country/Territory	Population aged ≥ 65, (% of the total population)	Population aged ≥ 65, (total, millions)	Proportion of cancer cases diagnosed in people aged ≥ 65 (%)
Italy	23%	13.74	66.1%
United Kingdom	18%	12.22	68.1%
The Netherlands	19%	3.30	64.3%
Germany	21%	17.79	65.9%
Denmark	20%	1.14	65.8%
Spain	19%	9.06	61.8%
Hong Kong	17%	1.25	N/A
United States	16%	51.64	62.2%
Canada	17%	6.38	63.1%
Mexico	7%	9.11	41.4%

9. Hong Kong

The 2003 SARS outbreak had significant impact on the lives of the Hong Kong people, and many were already used to wearing surgical masks when sick. After the COVID-19 epidemic started, the government and medical professionals quickly called on the public to wear masks when going out, increase hand-washing, use hand sanitizer, work from home, and practice social distancing.

Several measures have been implemented to protect vulnerable patients, including advocating for the use of systemic oral therapies. However, necessary curative or palliative treatments are not being delayed. As an example, adjuvant oral tegafur/gimeracil/oteracil (S-1) is currently preferred to oxaliplatin-capecitabine combination in older patients with gastric cancer, and doublet chemotherapy rather than triplets are being used for metastatic gastric cancer. Follow-up appointments have been postponed, while patients on long-term therapy (e.g. adjuvant endocrine therapy) can get medications from outside pharmacies after registering using an e-Health system.

Likewise, curative radiotherapy continues to be utilized at standard dose and fractionation, with hypofractionation reserved for palliative treatments such as uncomplicated bone metastases. Due to PPE shortage, some elective surgeries were suspended. However, surgery is still

performed, with management of cancer with complications (such as colon cancer with obstruction) prioritized over other types of tumors. Interdisciplinary meetings are held every week to determine the weekly operation list.

“Emergency Response Level” is raised in all Hong Kong hospitals, and no visitors are allowed. This represents a serious problem for older patients who require caregiver support. Delirium is a common issue, and video calls have been utilized to provide caregivers with an opportunity to show their support and care to the patients.

10. United States (US)

Our experience with the COVID-19 pandemic in the US has led to a reexamination of our societal norms and healthcare system. For our citizens, there is a conflict between individual freedoms and social responsibility in adhering to recommendations to self-isolate. For our patients, there is a tension between autonomy and allocation of dwindling resources. This tension is particularly uncomfortable for many of us who are accustomed to practicing in a healthcare system with abundance, indeed many say an excess [25], of treatments and capacity. For our older patients with cancer, the pandemic adds an additional specter to the stress—both aging and cancer intersect as risk factors for poor outcomes associated with COVID-19 [26,27].

As geriatricians and geriatric oncologists, we are trained to deal with uncertainty in a “data-free” zone [28]. Many healthcare encounters have shifted from in-person to virtual visits, which can be challenging for older patients with sensory or cognitive impairment. Decisions regarding treatments pose a special challenge. Surgery can provide curative treatment, but poses a risk of functional decline; we now must additionally consider the risk of COVID-19 contagion. For systemic therapies, we are in some cases delaying treatments to minimize healthcare system contact. However, whether and when to restart therapy is difficult to discern, and one must balance risks and benefits during the evolving pandemic. This balance is even more challenging for patients diagnosed with COVID-19. There are many questions in these cases, such as, “Are negative test results needed before resuming treatment?” and “What is the protocol for restarting cancer treatment in patients with COVID-19 infection?” In order to answer these and other relevant questions, the Cancer and Aging Research Group has drafted recommendations

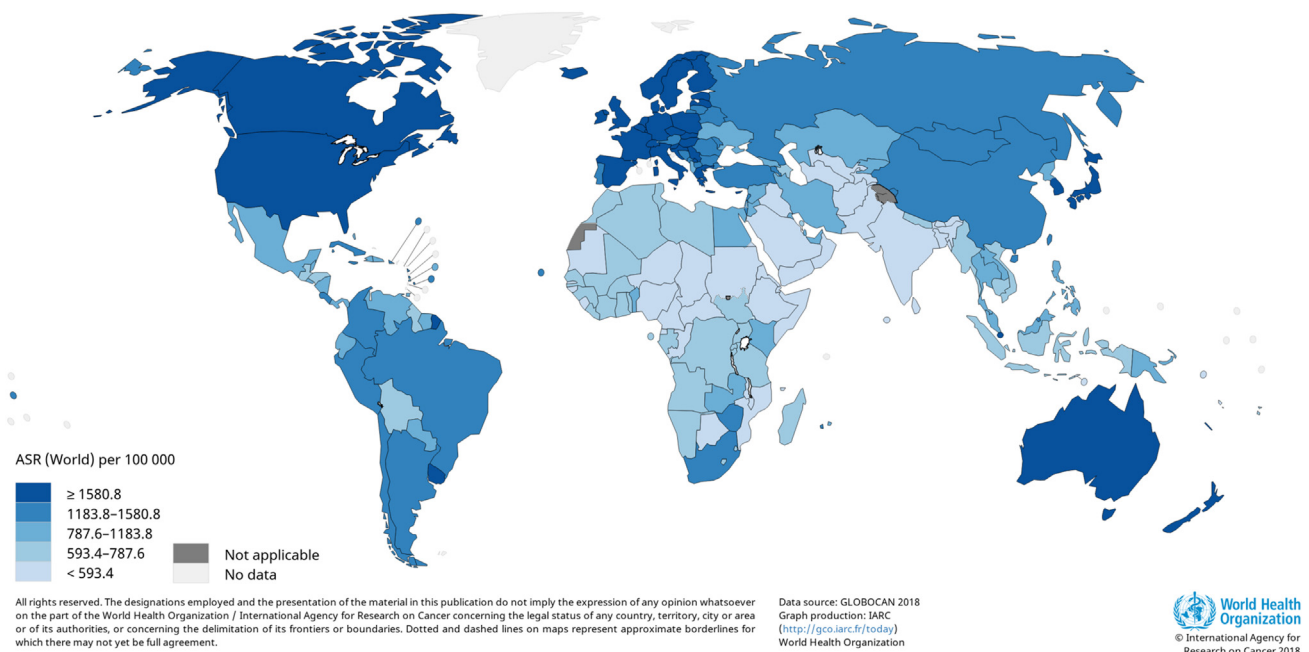


Fig. 2. Estimated worldwide age-standardized incidence rates for the year 2018, all cancers, both sexes, aged ≥65 [4].

for the clinical care of older adults with cancer in the US during the pandemic [29].

Institutional review boards at US centers have placed temporary halts on many research activities involving human subjects, including many cancer clinical trials. National organizations, such as the National Comprehensive Cancer Network and the American Society of Clinical Oncology, are actively compiling guidelines to help clinicians and researchers as data emerges during the pandemic (Table 2) [22,24].

11. Canada

In Canada, the impact of COVID-19 on cancer care has been variable across provinces. Mandated lock-down of non-essential services was nationwide and started in mid-March. Many of the in-person oncology visits for follow up have been transitioned over to virtual visits. Various other measures, such as screening patients/healthcare providers prior to hospital entry, outpatient blood work at laboratories close by home, and couriering of medications including orally-administered chemotherapy pills have been instituted. For physicians, there have been wide scale changes, many of which are reflected by a fear of PPE shortage. Many palliative and maintenance chemotherapy options have been deferred or delayed across both solid and hematological malignancies. Hematological malignancies have seen additional changes brought by COVID-19, including cryopreservation of harvest donor cells for allogeneic SCT prior to myeloablative therapy and cancellation of non-curative autologous SCT. Blood bank shortages and conservation strategies across the board have also impacted care delivery for older adults with cancer.

Overall, the impact of COVID-19 on patient care in Canada continues to evolve. While this is a challenging time for Canadian patients and healthcare providers, it is also a time for innovation and for consideration of alternative models of healthcare delivery, which may allow us to meet future healthcare challenges.

12. Mexico

The response to COVID-19 in Mexico has been shaped by existing resource limitations. Hospital bed availability is below that of developed countries, with 1.4 beds per 1000 inhabitants, and this is also true for ICU capacity [30]. Furthermore, the healthcare system cannot undertake widespread testing, thus limiting it to patients with symptoms warranting hospitalization. Academic centers have been converted into COVID-19 hospitals, damaging the availability of oncology services, since many COVID-19 hospitals were also those providing comprehensive cancer care. Currently, new cancer cases are being channeled to a handful of hospitals, causing a severe backlog which might lead to a surge in advanced disease once the pandemic subsides.

No formal oncology guidance has been issued, so each hospital has adapted according to their capabilities. The geriatric oncology clinic at *Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubiran* [31] (a Mexico City public hospital converted into a COVID-19 center), has suspended multidisciplinary interventions, with oncology visits (virtual and in-person) continuing only for patients on active treatment. Since few Mexican older adults own a computer, smartphones with freeware cross-platform video messaging services such as WhatsApp, have been used for telehealth visits [32]. Treatment modifications, such as preferring oral agents, reducing the number of cycles, and stopping chemotherapy in cases with marginal benefits, have been undertaken to reduce the risk of contagion. Unfortunately, many older patients might also be forced to stop treatment due to financial reasons, since lock-downs have decimated the income of families with no healthcare coverage who pay out-of-pocket for cancer care.

An important aspect to follow will be how population aging (with low- and middle-income countries [LMIC] having a lower proportion of older adults) will influence the impact of COVID-19 on healthcare [33]. However, it is foreseeable that the care of older adults with cancer

living in LMIC will be impacted even more than for those living in high-income countries with robust healthcare systems.

13. Conclusion

The COVID-19 pandemic is impacting everyone worldwide, modifying every aspect of our lives. Geriatric oncology has not been an exception, and we all have been forced to adjust the way in which we practice. Through this perspective, we attempt to show that, although each country and setting has specific issues, we all face similar challenges when providing care for our older patients with cancer. Likewise, the lack of data regarding the treatment of older adults with cancer during this pandemic highlights the need to study the effect of COVID-19 on this patient population, as well as its effect on age-related disparities. Additionally, while local guidelines may be available, we must not forget the importance of strong patient-physician communication, and the relevance of considering patient preferences regarding treatments. Only through our shared experiences and collaboration will we be able to generate high-quality evidence to ensure older patients with cancer receive appropriate care during this pandemic, and to create the frameworks and tools necessary to face future global challenges as a community.

Author Contributions

Conception and design: Desideri, Pilleron, Soto-Perez-de-Celis.

Data collection: All authors.

Analysis and interpretation of data: All authors.

Manuscript writing: All authors.

Approval of final article: All authors.

Declaration of Competing Interest

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