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## Perspectives from the Cancer and Aging Research Group: Caring for the vulnerable older patient with cancer and their caregivers during the COVID-19 crisis in the United States

Supriya Mohile<sup>a,\*</sup>, Clark Dumontier<sup>b</sup>, Hira Mian<sup>c</sup>, Kah Poh Loh<sup>a</sup>, Grant R. Williams<sup>d</sup>, Tanya M. Wildes<sup>e</sup>, Kevin Boyd<sup>a</sup>, Erika Ramsdale<sup>a</sup>, Sonia Pyne<sup>a</sup>, Allison Magnuson<sup>a</sup>, William Tew<sup>h</sup>, Heidi D. Klepin<sup>f</sup>, William Dale<sup>g</sup>, Armin Shahrokni<sup>h</sup>

<sup>a</sup> University of Rochester Medical Center, Rochester, NY, United States of America

<sup>b</sup> Brigham and Women's Hospital, Marcus Institute for Aging Research, Boston, MA, United States of America

<sup>c</sup> McMaster University, ON, Canada

<sup>d</sup> University of Alabama at Birmingham, Birmingham, AL, United States of America

<sup>e</sup> Washington University School of Medicine, St Louis, MO, United States of America

<sup>f</sup> Wake Forest Baptist Comprehensive Cancer Center, Winston Salem, NC, United States of America

<sup>g</sup> City of Hope National Cancer Center, Duarte, CA, United States of America

<sup>h</sup> Memorial Sloan Kettering Cancer Center, New York, NY, United States of America

### 1. Introduction

In December 2019, a cluster of patients was admitted with the diagnosis of pneumonia of unknown etiology in Wuhan, China [1]. The number of cases rapidly increased to 7734 in Wuhan and new cases were found in other countries such as Taiwan and Thailand by January 30, 2020 [2]. On the same day, the World Health Organization declared the outbreak as a Public Health Emergency of International Concern. By April 11, 2020, more than 1.5 million people were diagnosed with coronavirus disease 2019 (COVID-19) and over 90,000 died [3]. As of April 2020, the United States, with over 500,000 confirmed cases and close to 20,000 deaths [3], has surpassed Italy in overall death toll and currently has the largest number of cases. The novel severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has achieved pandemic spread, due to its rapid human-to-human transmission and lack of immunity within the world's population [4]. While high-quality studies with large samples are lacking [5], current data suggest that cancer is a risk factor for poor outcomes. Zhang et al. reported that of 28 patients at 3 hospitals in Wuhan with cancer and COVID-19, about 30% were thought to have acquired the infection in the hospital, and patients who received cancer treatment in the prior 14 days had a 4 times higher risk of having a poor outcome (e.g., intensive care, mechanical ventilation, or death) [6]. In the largest sample to date, Dai et al. found that patients with cancer hospitalized for COVID-19 ( $n = 105$ ) had close to 3 times higher odds of mortality than those without cancer ( $n = 233$ ) [7]. Older patients and those with comorbidities are at risk for poor outcomes [8], and that older patients with cancer are an extremely vulnerable group.

In recent weeks, several published reports [9–12] have outlined practical approaches to modifying care delivery for patients with cancer. These reports, as well as our collective interaction and communication as a health care field, are necessary to inform preparations in areas not yet experiencing a surge in COVID-19 cases. As Pietrantonio and Garassino reflect based on their experience in Italy, “In this time of fear and anger, the most important thing is sharing.” [13] The Cancer and Aging Research Group (CARG) [14] serves as a forum for clinicians and researchers to discuss care delivery for older patients with cancer and their caregivers. CARG members developed these practical recommendations for patients, caregivers, and healthcare professionals to inform care delivery for older patients with cancer during the COVID-19 crisis. Because so little high-quality evidence is available and because older patients with cancer are at high risk of mortality if infected, this perspective primarily focuses on prevention.

### 2. Aging and COVID-19

While the majority of COVID-19 infections occur in younger patients, the mortality rate is significantly higher in older patients. The average age of Italians who died from COVID-19 was 80 years [8] and the majority of patients had an underlying disease such as diabetes, cardiovascular diseases, or were former smokers (mean number of comorbidities was 2.7). However, in China, 86.6% of the 72,314 COVID-19 cases were patients aged 30 to 79 [15]. At the time of this writing, the beginning of April 2020, more than 100,000 people in New York City have been infected with the COVID-19. The median age of patients with infection was 48. While only 9% of patients were aged 75 and older, almost half of deaths happened in this age group [16]. A significantly higher number of younger adults are infected with the virus, while the mortality rate is much higher in older adults and those with underlying diseases. Fig. 1 summarizes mortality data based on age, disability, and comorbidities in 2249 critically ill patients with COVID-19 reported by the United

\* Corresponding author at: Departments of Medicine and Urgery, University of Rochester Medical Center, 601 Elmwood Ave, Box 704, Rochester, NY 14642, United States of America.

E-mail address: [supriya\\_mohile@urmc.rochester.edu](mailto:supriya_mohile@urmc.rochester.edu) (S. Mohile).

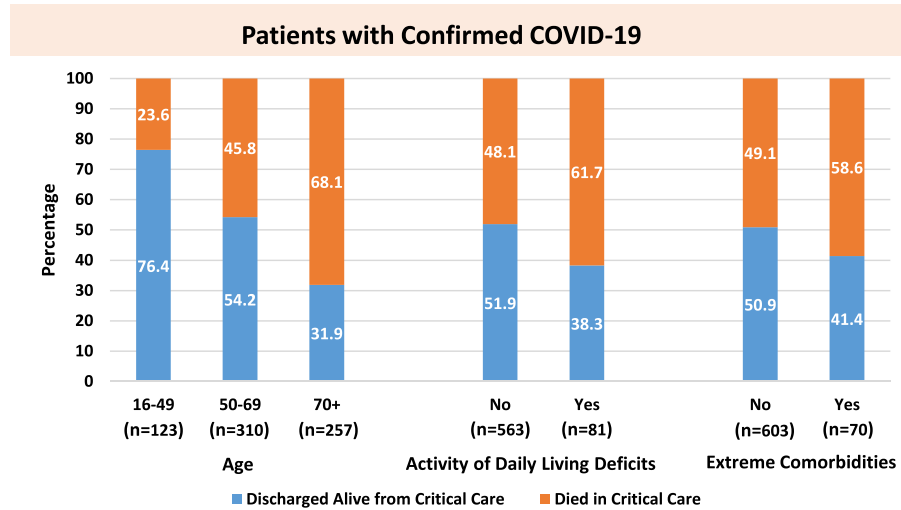


Fig. 1. Critical care outcomes by patient subgroup.

Kingdom's Intensive Care National Audit and Research Center accessed on April 4, 2020 (<http://www.icnarc.org>).

### 3. Prevention and Minimizing Exposures in Health Care

#### 3.1. Physical Distancing Recommendations

In order to limit the spread of the virus, individuals should adhere to several prevention strategies. Everyone should currently follow “physical distancing” recommendations, as many individuals may have asymptomatic or mild infections which can expose patients and their families to COVID-19. The term “social distancing” has been used widely, but we prefer the term “physical distancing”. Social distancing can lead to social isolation, which is a significant concern for older adults, and it associated with mortality [17]. It is especially concerning for older adults with functional, emotional, and cognitive deficits [18].

Minimizing time spent outside the home and forgoing any non-essential trips is critically important to decreasing exposure. Alternative methods for obtaining groceries, such as delivery service or with the help of family and friends, should be considered. Clinicians should guide patients on planning ahead for medications and lengthen the time needed for refills. If required to go out in public either for essentials or for appointments, one should maintain a distance of at least 2 m (6 ft) from others. Older patients with cancer and their families/caregivers should wash their hands often with soap and water for at least 20 s since soap is effective for mitigating the virus, particularly after being in a public area, and they should avoid touching their eyes, nose, and mouth. Health care professionals should discuss “physical distancing” and other needs with older patients and their families; recommendations for these discussions are given in Table 1.

#### 3.2. Personal Protective Equipment Recommendations

Personal protective equipment (PPE) is an important tool to protect people at risk of contracting COVID-19, including patients, their families, and health care workers. A patient infected with COVID-19, if not quarantined, will transmit on average to 2–3 other people and can spread the illness to other people for days before showing any symptoms [19]. COVID-19 is communicable up to several days before symptoms emerge, spread by both droplets from the mouth or nose via coughing, sneezing, or discharge [20]. Asymptomatic transmission is common [21]. Workplaces with high density of staff, such as hospitals,

increase risk of exposure; in these settings, all persons should be assumed to be infected with COVID-19 unless proven otherwise, in order to protect vulnerable individuals such as older patients with cancer and their caregivers. Use of PPE has been limited by its availability. Health care workers must be involved in the decision-making processes, including in the development of local recommendations for PPE, so that PPE is prioritized to protect individuals most at risk.

Standard contact precautions against droplets protect health care professionals from COVID-19 in the routine care of symptomatic and asymptomatic patients. Contact precautions include a standard surgical mask, gown, and gloves. In addition to contact precautions, airborne precautions protect healthcare workers who are directly performing aerosol generating procedures. Airborne precautions include an N95 mask or a power/controlled air purified respirator (PAPR/CAPR), which are capable of filtering aerosols, and eye protection (eye goggles, face shield). Procedures reported to present an increased risk of transmission from aerosol generation include tracheal intubation, non-invasive ventilation, tracheotomy, and manual ventilation before intubation [20]. Cardiopulmonary resuscitation (CPR) is also known to cause the generation of aerosols. Furthermore, coronavirus may stay airborne for up to 3 h after aerosol generation [19]. In order to conserve limited supplies of respirators, non-critical staff may leave the procedure room and return after proper air turnover has occurred.

Universal masking policies are consistent with the premise that all persons must be presumed to be infected with COVID-19. Masks protect people from the spread of droplets transmitted from other persons, and may also prevent spread by providing a barrier from touching the nose and mouth. Universal masking recommendations ensure that all persons in the hospital setting, whether staff or visitors, are protected from droplet spread from each other by a mask, at minimum. As recommended by the Centers for Disease Control as of April 3, 2020 [22], people who must go out into the community should wear a “cloth mask covering.”

#### 3.3. Practice Recommendations

During the pandemic, all non-essential visits to the clinic should be minimized or discontinued. Routine surveillance visits and any follow-up visits for older patients not on active treatment should be delayed or spaced out to a greater interval if feasible. If an in-person evaluation is absolutely necessary, follow-up appointments should be coordinated across the cancer disciplines (surgeon, medical oncologist, and radiation

**Table 1**  
Planning with older adults and caregivers.

Prevention and protection planning
<ul style="list-style-type: none"> <li>• Discuss physical distancing and PPE               <ul style="list-style-type: none"> <li>– Minimize travel outside home</li> <li>– No or limited visitors to the home, including family</li> <li>– Cloth masks when around any visitors</li> <li>– Avoid contact with anyone who is ill or exposed to someone who is ill</li> </ul> </li> <li>• Promote social engagement               <ul style="list-style-type: none"> <li>– Continue and renew relationships with friends and family through phone calls or video chats</li> <li>– Connect patients with volunteers providing social calls to check-in</li> </ul> </li> <li>• Promote education               <ul style="list-style-type: none"> <li>– Resist “scammers” for online promotions for PPE, unproven treatments, investments</li> <li>– Provide reliable news sources</li> <li>– Provide information on next steps if patient and caregiver develop exposures or symptoms of coronavirus</li> </ul> </li> </ul>
Medical planning
<ul style="list-style-type: none"> <li>• Communicate changes in medical visits               <ul style="list-style-type: none"> <li>– Discuss timing of visits, changes in treatment plans and their possible impact, need for equipment for telephone or telehealth visits</li> </ul> </li> <li>• Ensure patients and caregivers have necessary supplies               <ul style="list-style-type: none"> <li>– Equipment for medical monitoring: thermometers and home equipment for blood pressure monitoring, glucometer, pulse oximeter (if appropriate)</li> <li>– Supplies for medical monitoring: test strips for glucometer, alcohol swabs and needles for injectables, pads for incontinence</li> <li>– Equipment needed for hearing (batteries, aids), sight (glasses, contact lenses), and equipment for physical mobility (walkers, canes)</li> </ul> </li> <li>– Secure prescriptions for longer time (e.g., 3 month refills vs 1 month refill) and purchase necessary over the counter medications; consider grocery and pharmacy delivery</li> </ul>
Advance care planning
<ul style="list-style-type: none"> <li>• Ask about care preferences, including identifying a health care proxy and end of life preferences</li> <li>• Discuss care plans if patient or caregiver becomes ill               <ul style="list-style-type: none"> <li>– Plans for who will help</li> <li>– Plans for obtaining vital care and supplies</li> <li>– Identify community resources</li> </ul> </li> <li>• Collect documents               <ul style="list-style-type: none"> <li>– Care plan documents that include medical conditions, allergies, contact information for health care proxy and caregivers, medications, insurance information, and documentation of health care proxy and advanced planning including “do not resuscitate” (if appropriate)</li> </ul> </li> </ul>

\*Adapted from “How older adults and caregivers can weather the coronavirus pandemic” by Mariana Gonzalez and Rachel Miller for the Philadelphia Enquirer, April 4, 2020.

oncologist) so that visits are minimized. Telephone or video visits in lieu of traditional clinic visits can avoid unnecessary exposure to the virus while continuing the therapeutic relationship and ongoing cancer management. Many centers in heavily-impacted areas are only allowing patients to come to in-person visits if they require a treatment or procedure. Visitors are restricted in most centers, although exceptions may need to be made for patients who require a companion for communication or for physical or cognitive disability. Rapid changes to care delivery are made in collaboration with information technology and electronic medical record support staff. Successful implementation and requires coordination and education for older adults and their caregivers, who may be less familiar with digital platforms used in telemedicine.

In older patients who are receiving or considering intravenous cancer therapies, there are additional considerations during this pandemic.

For example, Memorial Sloan Kettering Cancer Center (MSKCC) developed policies for intravenous cancer therapies given the pervasive spread of the virus in the New York City area. These policies propose that therapies (especially cytotoxic chemotherapies), with median overall survival benefits of 2 months or less should be avoided during the pandemic, particularly in frail older adults, as the harms likely outweigh the benefits. For adjuvant therapies with incremental benefits, these potential benefits must now be weighed against the risk of infection incurred by coming for treatment visits. Oral therapies are favored when clinically appropriate. For older patients currently on adjuvant therapies, shorter durations of treatments are suggested when longer duration has demonstrated minimal incremental benefit. Furthermore, lengthening treatment interval where clinically safe should be considered; pharmacy colleagues can guide safety and interval considerations based on existing data. In older patients with stable and/or low-volume stage IV disease, a treatment holiday of 4–8 weeks should be considered, particularly during the weeks anticipated to be the peak of infections for

**Table 2**  
Practice Considerations for the Older Patient with Cancer in the Context of COVID-19.

During this pandemic, specific considerations for the older adult patient include:
<ul style="list-style-type: none"> <li>• COVID-related risks to our older patients when traveling for treatment</li> <li>• Consider how COVID risk competes with cancer progression risk (e.g., which is the greater risk for the patient at a particular time)</li> <li>• Consider how risks related to cancer treatment and other comorbidities that are more common in older adults enhance COVID risk</li> </ul>
When considering above, potential ways to mitigate risk may include:
<ul style="list-style-type: none"> <li>• Consider oral therapy treatment options when possible, to minimize the need for infusion visits; continue to conduct toxicity checks via tele-visits or home visit (if possible) to reduce in-person office visits</li> <li>• Address miscellaneous aspects of care, such as lab monitoring, etc. Are there ways to minimize/modify approach to counteract this?               <ul style="list-style-type: none"> <li>o <i>Examples:</i> Might patients be eligible for home draw labs to minimize need to go out to lab draw station? Can lab draws intervals be adjusted? Can laboratories arrange for scheduled times (rather than walk-in) to reduce exposures? Can interval between port flush be extended?</li> </ul> </li> <li>• Re-consider data on cancer treatment benefit in the context of risks of COVID-19 exposure for older adults               <ul style="list-style-type: none"> <li>o <i>Example:</i> In adjuvant her-2 positive breast cancer, historically one year of her-2 directed therapy has been given. Recent studies have suggested 6 months of treatment may be non-inferior, although the field has not yet transitioned to 6 months as standard. However, risks of COVID-19 exposure may alter interpretation of risks/benefits of &gt;6 months of therapy depending on the individual clinical scenario.</li> </ul> </li> <li>• For patients on single agent, particularly antibody therapies, consider increasing interval between treatments if feasible</li> <li>• For older, frail patients with low-volume and stable metastatic disease, consider treatment breaks and monitoring symptoms closely.</li> </ul>
With our shift in care delivery to tele-visits and societal social distancing, some important thoughts for our older adult population include:
<ul style="list-style-type: none"> <li>• Social distancing may be especially isolating for older adults living alone; important to emphasize social connectedness for these patients.               <ul style="list-style-type: none"> <li>o <i>Example:</i> Social support system may be physically separated to minimize COVID risk but still very involved; offer to three-way call to include children/friends/other supports during tele-health visits. Inquire during visits about access to food, medications, socialization, and mental health.</li> </ul> </li> <li>• Consider comorbidities when conducting tele-health visits:               <ul style="list-style-type: none"> <li>o <i>Example:</i> For older adults with hearing impairment, check in more regularly on ability to hear and comprehension during the tele-health call and provide written information by email or patient portals after the tele-health visit. For patients with cognitive impairment, three-way call to include children/friends/other supports during tele-health visits.</li> </ul> </li> </ul>

a particular region. Mediport (i.e., implanted venous access port) flush intervals should be extended to at least 12 weeks or longer. Table 2 summarizes integrated recommendations from MSKCC and Wilmot Cancer Institute; these recommendations were developed in collaboration with geriatric oncologists at each institution.

#### 4. Geriatric Principles are Essential to Guiding Decisions Regarding Cancer Treatment during the Pandemic

##### 4.1. Decision-making for Treatment

During the pandemic, decisions regarding whether to initiate or continue cancer treatment in older patients should be based on, as always, (1) the preferences of the patient, (2) the degree of age-related vulnerability, and (3) the balance between treatment benefits and harms [23]. Preferences should be elicited related to what outcomes matter; older adults often value function and quality-of-life just as much as, if not more than, survival [24–26]. Age-related vulnerability should be assessed using valid geriatric assessment (GA) tools recommended by the American Society of Clinical Oncology and the International Society of Geriatric Oncology, as standard oncology performance measures are inadequate for older adults [27,28]. Benefits and harms of treatment must be estimated from the available evidence, but adjusted based on patient preferences and vulnerability [29]. Given that frail/vulnerable patients with multi-morbidity, cognitive impairment, and functional limitations are often excluded from clinical trials, intensive treatments in such patients may be associated with reduced benefits and greater harms [30–33]. Added to potential treatment harms are the risks of exposure, infection, and poor outcomes from infection with SARS-CoV-2, which are amplified in older adults and in patients with cancer [8,34,35].

Synthesizing the above three factors will best guide treatment decisions, as data reflecting treatment safety in the COVID-19 era are currently lacking. For fit older patients with little-to-no GA domain impairments who seek life-prolonging therapy, treatment considerations should be similar to those in younger patients, per national and institutional guidelines. Chronologic age alone should never preclude treatment in an older adults, as age-cutoffs are often arbitrary, biased, and do not represent true risk factors that are aging-related but heterogeneously present in older patients [36]. However, the lag time to benefit of treatment in certain cancers must now be weighed against the additional short-term risks of COVID exposure and allocation of scarce resources [37]. For example, in a woman age 75 years old newly diagnosed with breast carcinoma in situ, the risk of developing symptoms from her cancer in her remaining lifetime with no treatment may be outweighed by the risk of SARS-CoV-2 exposure in the hospital while undergoing breast cancer surgery and/or radiation. Surgery would also take up valuable operating room resources such as personal protective equipment, ventilators, and anesthesia staff that may be more urgently needed for intensive care provided to COVID-19 positive patients (see “Ethical Considerations” below). Accordingly, an active surveillance approach or treatment with oral endocrine therapy only may be optimal, especially if the patient prefers to limit encounters with the healthcare system or values avoiding treatment-related morbidity over gains in survival [38].

For vulnerable older patients with cancer with one or more GA domain impairments, treatment decisions must factor the number of impairments, their nature, and their severity. For patients with mobility or Instrumental Activity of Daily Living (IADL) limitations, traveling to and from appointments or treatment sessions and coordinating both cancer and supportive therapies will be complex given reduced clinic hours and community transportation options. For patients with cognitive or sensory deficits, engaging with virtual appointments for monitoring of treatment adherence and toxicity will be challenging. These complexities and challenges will be enhanced in older patients with minimal social supports and of lower socioeconomic backgrounds. For

frail patients with multiple comorbidities—some of which may be life-limiting independently of their cancer—intensive treatment may be an added stressor that not only poses an additional risk of COVID-19 but also depletes remaining physiologic reserves necessary to fight it. All of these impairments may increase the risks of treatment toxicity, discontinuation, and mortality [39–42], and these risks must be weighed against less intensive treatment options that may minimize harm without sacrificing benefit.

Evident in the above considerations is the necessity to evaluate these geriatric domains alongside or in place of traditional performance status assessment [e.g., Eastern Cooperative Oncology Group (ECOG) performance status]; the GA better identifies vulnerabilities that can greatly augment treatment harms in the context of the pandemic [27,43]. The information gathered can be input into toxicity risk calculators validated in geriatric oncology, such as the CARG (<http://www.mycarg.org>) and CRASH toxicity tools (<https://moffitt.org/eforms/crashscoreform/>) [44,45]. Life expectancy calculators such as those found on ePrognosis (<https://eprognosis.ucsf.edu>) [27] are useful adjuncts to treatment decision-making. In patients whose estimated non-cancer based life expectancy is less than the time to benefit expected from a particular cancer therapy, starting or continuing this therapy during the pandemic likely constitutes a net harm. Even brief GA screening tools such as the Geriatric 8 (G8) and Vulnerable Elders Survey (VES-13) incorporate assessment of GA domains, predict outcomes such as mortality and hospitalizations, and can triage those who need further assessment [46,47]. Regardless of what tool is used, the GA not only informs prognosis and leads to modifications in treatment, it guides non-oncologic interventions that can optimize outcomes regardless of what cancer treatment is chosen [48,49]. Even in COVID-era, social workers, physical therapists, pharmacists, and others essential to the care of older adults can interact with the patient and caregiver through telehealth. The GA improves communication between oncologists and patient and caregiver satisfaction, giving more control to older patients and their caregivers during this time of heightened uncertainty [50].

Modifications to treatments based on COVID-19 risk for specific disease types are currently derived from expert opinion and may be center- or institution-specific. It is recommended that clinical teams review their treatment approaches and develop recommendations for older patients with specific clinical scenarios. Kutikov et al. provided a framework that can be adapted for treatment scenarios for older and more frail individuals [51]. Fig. 2 is an example of how this framework could be used to guide decisions for older patients with breast cancer.

##### 4.2. Decision-making for Continuing Treatment in Patients with Suspected or Active COVID-19 Infection

Weighing the risks and benefits of delaying cancer treatments in the context of COVID-19 is an evolving challenge. Similar to management of patients with other active infections, systemic myelosuppressive or immunosuppressive cancer treatments should be held among older patients with active COVID-19 infection. COVID-19 testing of patients with cancer is currently dependent on its availability; the availability of polymerase chain reaction (PCR) testing is highly variable and the availability of serologic testing for antibodies is essentially non-existent across the United States as of April 2020.

For those who have had a positive test or symptoms that are consistent with COVID-19, it is unclear how long treatments should be held as data are lacking. Patients may shed virus after symptom resolution [52,53]; for seasonal coronavirus, viral shedding may last up to 4 weeks [54]. Patients with cancer may have a longer incubation period. We recommend that, at minimum, patients should self-isolate for at least 14 days, with the last 3 days being asymptomatic before re-initiation of systemic cancer treatment is considered. Once patients become asymptomatic, the decision to restart systemic treatment should depend on the benefits and harms of delaying cancer treatment further.

Decision Regarding Immediate Cancer Treatment During COVID-19 Crisis		Risk for significant morbidity from COVID-19			
		Low (Age 60-70; Fit GA, minimal comorbidity)	Medium (Age 60-70 with mild GA impairment and/or comorbidity)	High (Age >70; age 60-70 w/ GA impairment(s) and/or comorbidity(s))	Very High (Frail (any age), significant geriatric syndrome or activity of daily living deficit)
Risk of progression with cancer care delay with example clinical scenarios	Low • Surgery for HR positive breast cancer where neoadjuvant endocrine therapy is an alternative option				
	Medium • Adjuvant chemotherapy for breast cancer (increases in recurrence risk with delayed initiation >60-90 days post-op)				
	High • Advanced cancer				

- Proceed with immediate treatment
- Balanced risks and benefits of immediate treatment
- Delay immediate treatment

Fig. 2. Weighing the risks and benefits.

Among older patients, consideration of age-related conditions is important as the risks are potentially greater (e.g., higher risk of hospitalizations). If possible, cancer treatment should be further delayed if the benefits of restarting treatment do not outweigh the risks (e.g., stage IV disease that is stable, maintenance therapy, treatments that only provide small incremental benefits). As data emerge, treatments such as radiation may prove to be safe even during active COVID-19 infection and can be considered if indicated or as a temporizing measure for cancer control, though frequency of clinic visits for these therapies remains a concern for exposure. Radiotherapy should be provided with the shortest number of visits required as possible [55]. Given increasing community transmission, many patients have known exposure to COVID-19 (e.g., close contact with someone in household) but no personal evidence of infection. Availability of testing for this group is variable. In our opinion, cancer treatments should be held among older patients in this group, and they should be advised to self-isolate for at least 14 days, with last 3 days being asymptomatic before re-initiation of cancer treatment is considered.

Further recommendations are needed to understand when to re-test patients after infection to determine if this is necessary for determining safety for restarting treatment. Notably, that the sensitivity of COVID-19 testing ranges from 60 to 89% [56–58]. Where there is testing capacity, recommendations to have two negative PCR tests at least 24 h apart prior to removing isolation precautions have been implemented. At

this time, the vast majority of institutions in the United States do not have either PCR or serologic testing available to test every patient with cancer receiving treatment or to guide re-initiation of treatment after suspected or confirmed COVID-19 infection.

As serologic testing becomes available, this may be used to guide cancer treatment decisions. Logistically, since patients with COVID-19 may shed virus for a month or longer [54], these patients may need to have separate locations for treatments or be treated late in the day in a grouped cohort. Staff should have appropriate PPE, and equipment cleaning protocols must be strict. Colleagues in Italy have aimed to “guarantee separate and ‘clean’ pathways” to ensure safety for patients, families and health care workers [13].

### 5. Importance of Goals of Care and End of Life Discussions

While recognizing and addressing goals of care is an essential step in providing care of older adults with cancer, its importance is further amplified during the current crisis with COVID-19. It is inevitable that older adults with cancer will face overwhelming challenges in the upcoming few weeks, ranging from decision-making around their treatment trajectory to end of life conversations. Oncologists often build longitudinal clinical relationship with their patients, and it is imperative that candid and effective communication strategies ensure that the care provided by clinicians aligns with patient preferences. Although it is a challenging

time to have difficult conversations, it is important to revisit goals of care discussions and discuss desired resuscitation methods as clinically appropriate, particularly in frail and multimorbid older adults [59].

Defining and establishing goals of care should ideally occur early in the patient's disease trajectory and as much as possible outside of a crisis situation. In this crisis, clinicians must adapt to non-ideal situations. Previous studies have shown active discussion about an individual's goals and preferences, specifically as they relate to end of life issues, is linked with reductions in hospital utilization and aggressiveness of care at end of life, which is subsequently associated with better quality of life among both patients and caregivers [60]. Given the added threat of COVID-19, early and frank discussions regarding goals, values, and preferences are imperative. Effective communications skills are even more important right now as physical distancing barriers may already affect the quality of these conversations. Alternative and innovative methods of communication will be required, such as multi-person video conferencing, in order to decrease the burden of social isolation by ensuring caregiver and other loved ones can participate during these difficult discussions. Conversations regarding goals of care should remain as broad as possible, including decisions about specific treatments, the intensity of care, and advanced care planning. Evidence-based resources exist (e.g., <https://prepareforyourcare.org>) to facilitate these discussions [61]. Encouraging open dialogue with caregivers and family can further ensure delivery of goal-concordant care.

It is inevitable that some of these conversations will occur with clinicians in a crisis situation such as in the intensive care unit or emergency department. These clinicians will face the burden of making decisions for patients without the advantage of a longitudinal relationship or specialized knowledge. In these scenarios, any previous documentation regarding goals of care that is clearly outlined and easily retrievable will be critical to ensure that treatment goals are congruent with individual patient preferences. Additionally, it is important to support emergency medicine physicians and intensivists, who may not have the time nor training or access to oncologists or geriatricians to interpret the varied and nuanced prognostic implications of age-associated vulnerabilities in the context of different malignancies. Documentation of prognosis and life expectancy, ideally supported by GA data, could greatly inform choices which will need to be made quickly and within the setting of limited resources. Effective, timely, and collaborative discussions and documentation among different health care providers will be the cornerstone of providing patient-centered care as we deal with the burden of COVID-19 on older adults with cancer and their families.

## 6. Ethical Considerations

In situations of expansive local health emergencies and pandemic, some essential services and resources will experience far greater demands for need than can be supplied. In such events, rationing and intentional resource allocation (and sometimes reallocation) strategies will be required. American medicine has traditionally functioned by maximizing resource allocation to the patient sitting in front of us, with little need to give account for any impact upon society as a whole. The pandemic requires that the underlying philosophical principles of American medicine—prioritizing patient autonomy, are shifting in a way that more closely models European practice—a more utilitarian consideration of the reality of limited resources that must be used in a consistent, transparent, and responsible way to do the most good possible for the greatest number of people (a “distributive justice” priority) [62,63]. Health systems around the country are mobilizing to design and implement their own responses, and as they do so they should remain mindful of including not only health care professionals but also community members, especially those known from the history of medicine to be most at risk of experiencing bias in the process of resource allocation [64]. Input from groups that are under-represented, such as from the Black, Latina/o, Asian, sexual and gender minorities, and deaf

communities in addition to representation for older adults should be sought by groups guiding plans for resource allocation. Clear and accurate communication from leadership within the health system, but also to our community partners and the wider public, is essential to ensure full participation and buy-in of any allocation process which, no matter how aspirational is its intent, will remain imperfect.

Given the data indicating the increased risks for severe illness and mortality in older adults with COVID-19 [15,23], it is important to consider whether and how a health system will make unbiased decisions about allocating resources in situations where there are potential shortages. As an example, guidance issued from New York state [24] explicitly prohibits consideration of age in any resource allocation process, following a “most lives saved” approach. Other institutions are incorporating the idea of “highest life-years saved” approach, using age, comorbidities, or measures of life expectancy as a “tie-breaker” in cases where multiple patients are designated into the same triage categories [25]. Triage based on the Single Organ Failure Assessment (SOFA) score [26] is, at the time of this writing, recommended by New York state policy; it has not been extensively validated in COVID-19 positive cohorts or older patients with cancer [27], and it fails to account for pre-existing comorbidities or frailty that might limit life expectancy. Additionally, organ dysfunction differentially affects older and younger adults; older and younger adults with the same SOFA scores may not have similar survival rates due to the interactions between age, frailty, and illness that influence prognosis [28].

A similar trade-off between the ethical tenets of patient autonomy and distributive justice arises when considering whether to offer CPR to COVID-19 positive patients. Although specific data about post-resuscitation survival is not widely available, outcomes from CPR are poor in older adults with COVID-19 [29]. CPR is an aerosolizing procedure [30], and given scarcity of available PPE and the potential risk posed to health care providers, the traditional American approach to CPR may need to be reconsidered in this setting as an “opt-in” instead of “opt-out” procedure. This would be equivalent to setting a default DNR for all COVID-19 positive patients, which would represent a sea-change in policy and practice for American health care. Given the variation across communities in patient demand, available resources, and institutional policies, we agree with the American Society of Clinical Oncology's recommendation that oncologists become familiar with their institution's allocation plans and use best practices for health communication so they can have informed conversations about these with their patients [65].

Ethically, oncologists will face broader challenges in selecting appropriate therapy for their older patients with cancer [66]. Immunosuppressive antineoplastic therapies expose patients to higher risk of a severe or fatal COVID-19 infection, as do repeated trips to medical settings for the treatments or toxicity evaluations. Even antineoplastic therapies which are not immunosuppressive can cause adverse effects which weaken an older adult's physiologic resilience [67], creating more susceptibility to adverse outcomes from COVID-19. The benefit-to-risk ratio of therapy is therefore shifted at this time, and in particular, therapies for metastatic disease that offer only small incremental benefits to survival should be reconsidered, and a supportive care approach should be prioritized. This also represents a potential shift away from patient autonomy, as some patients and their families express hesitancy to “give up”. For patients with non-metastatic disease, decisions may be challenging as well, due to deferral of surgeries, considerations of exposure frequency with infusions or radiation treatments, and strict prohibitions on visitors, which will all complicate treatment decision-making and may compromise outcomes in older adults who are “fit.” Telemedicine software should be used where possible, to allow for involvement by family members and other caregivers, and life expectancy should be estimated to assess competing risks for mortality and impact on overall benefit of curative-intent therapies. Early and frank discussions about goals of care and specific risks and benefits are more necessary than ever.

## 7. Research on COVID-19 in Older Adults with Cancer

As COVID-19 poses unparalleled clinical challenges, collaborative and innovative research strategies are required to understand the burden of this disease in older adults with cancer. Early reports of COVID-19 have focused on age as a risk factor for morbidity and mortality. A tremendous body of work over the past 2 decades has demonstrated the pivotal role of GA to inform risk-stratification, prognosis, and decision-making in older adults with cancer, beyond chronological age alone [68,69]. Similarly, to fully understand the impact of this pandemic on morbidity and mortality of older adults with cancer, using the lens of aging-associated vulnerabilities rather than age alone will be an essential research strategy.

To understand which older adults with cancer are at greater risk for morbidity associated with COVID-19, data regarding patients' function, cognition, comorbidities, and other GA domains will be crucial. As clinicians struggle to meet the clinical demands of caring for patients with COVID-19, any variables collected during this process will need to be both high-yield and feasible given the constraints of physical distancing and limited staff availability. Baseline factors such as age, comorbidities, cancer subtype, and stage are likely already being collected in routine oncologic practice. Additional high-yield tools which may identify important geriatric impairments include functional inquiry such as ADLs/IADLs along with brief geriatric screening tools such as the G8 or VES-13 [70]. While physical performance measures are known to hold prognostic value [71], alternative and innovative strategies may need to be developed allowing for remote monitoring of these variables given the transition to telemedicine visits.

Along with practical and innovative research strategies, multicenter collaborations will likely emerge as a powerful research tool in understanding the effect of COVID-19 on older adults with cancer. Taking into account the prevalence and the morbidity/mortality of COVID-19, large cohorts of patients will be required to understand the independent impact of specific geriatric variables in the outcomes of older adults with cancer. Data sharing among various sites, both nationally and internationally, will be essential to achieve large sample sizes. Linkages to additional administrative databases such as the Surveillance, Epidemiology and End Results (SEER)-Medicare, which now includes a novel ICD-10 code for COVID-19 [72], Center for International Blood and Marrow Transplant Research (CIBMTR) registry, and various other insurance claim databases will also be an important resource in to fully understand the impact of COVID-19 in various disease-specific or treatment-specific subgroups.

Lastly, to ensure research findings are communicated in a timely manner during this pandemic, novel methods of research dissemination need to be considered. While the peer-review process remains a robust tool for academic knowledge transfer, it inherently leads to delays in timely transfer of important information to the appropriate audience. Alternative strategies such as social media and prepublication manuscript sites (e.g. [medRxiv.com](https://medrxiv.com)) are emerging as powerful tools to rapidly disseminate research findings in the face of rapidly evolving clinical scenarios facing clinicians during the pandemic. However, individual practitioners will need to carefully evaluate and critically appraise any new of information prior to implementation of such findings.

As we face the challenge of a lifetime, research strategies built on collaborative and inventive platforms will allow us to not only meet the challenge of this pandemic but may also yield innovating approaches, advancing our knowledge base for caring for older adults with cancer beyond the pandemic.

## 8. Conclusion

The authors of this perspectives on behalf of the Cancer and Aging Research Group do not support “ageism” in the care of older adults with cancer, and will extend the fight against “ageism” to advocate for older adults with cancer during the COVID-19 pandemic. An inspiring

case series of fit patients aged 98+ who recovered from hospitalization for COVID-19 published by Huang et al. reminds us that older age may not be a barrier to recovery [73]. As we have written these perspectives together, we reflect on how the older adults in our lives—our grandparents, parents, relatives, friends, patients, caregivers—have inspired us and will continue to inspire us to learn from them, and we grieve together for those who have died from this illness.

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## Author Disclosures

Dr. Mian reports personal fees from Honoraria/Consultancy fees: Amgen, Celgene, Takeda, Janssen, Sanofi, outside the submitted work. Dr. Loh reports other from Pfizer, other from Seattle Genetics, outside the submitted work; Dr. Wildes reports consulting from Carevive systems and Seattle Genetics, outside the submitted work. No other disclosures were reported.

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## Declaration of Competing Interest

None.

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