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AGS STATEMENT RESOURCE ALLOCATION & COVID-19

Title: AGS Position Statement: Resource Allocation Strategies and Age-Related Considerations in the COVID-19 Era and Beyond

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/jgs.16537

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Abstract word count: 324

Main text word count: 3548

Number of tables: 0

Number of figures: 0

ABSTRACT

COVID-19 continues to impact older adults disproportionately, from severe illness and hospitalization to increased risk for death. Concurrently, concerns about potential shortages of healthcare professionals and health supplies to address these needs have focused attention on how resources are ultimately allocated and used. Some strategies misguidedly use age as an arbitrary criterion, which disfavors older adults regardless of health relative to COVID-19.

This statement represents the official policy position of the American Geriatrics Society (AGS). It is intended to inform clinicians, administrators, hospitals, and policymakers about ethical considerations to consider when developing strategies for allocating scarce resources during an emergency involving older adults. Members of the AGS Ethics Committee collaborated with interprofessional experts in ethics, law, nursing, and medicine (including geriatrics, palliative care, emergency medicine, and pulmonology/critical care) to conduct a structured literature review and examine relevant reports. The resulting recommendations defend a particular view of distributive justice that maximizes relevant clinical factors and de-emphasizes or eliminates factors placing arbitrary, disproportionate weight on advanced age. The AGS positions include: (1) avoiding age per se as a means for excluding anyone from care; (2) assessing comorbidities and considering the disparate impact of social determinants of health; (3) encouraging decision makers to focus primarily on potential short-term (not long-term) outcomes; (4) avoiding ancillary criteria such as “life-years saved” and “long-term predicted life expectancy” that might disadvantage older people; (5) forming and staffing triage committees

tasked with allocating scarce resources; (6) developing institutional resource allocation strategies that are transparent and applied uniformly; and (7) facilitating appropriate advance care planning. The statement includes recommendations that should be immediately implemented to address resource allocation strategies during COVID-19, aligning with AGS positions. The statement also includes recommendations for post-pandemic review. Such review would support revised strategies to ensure that governments and institutions have equitable emergency resource allocation strategies, avoid future discriminatory language and practice, and develop a national consensus on a framework that should guide institutions in making emergent decisions.

AGS POSITION STATEMENT: RESOURCE ALLOCATION STRATEGIES AND AGE-RELATED CONSIDERATIONS IN THE COVID-19 ERA AND BEYOND

Older adults are disproportionately affected by the COVID-19 pandemic's devastating consequences of severe illness, hospitalization and death. The extent to which this disproportionate impact is due to factors such as the disease itself, versus the response of health care systems to the disease, is unknown. Concerns about potential shortages of ventilators, ICU beds, and hospital beds – both now and in the fall when resource shortages caused by any surge in COVID-19 will likely be intensified due to influenza - have focused attention on how decisions to allocate these scarce resources are being made. Many of the initially available resource allocation strategies were informed by the H1N1 pandemic over ten years ago. The first resource allocation strategy specific to COVID-19 was developed in northern Italy[1,2], where the number of people with this illness far exceeded available resources. Since then, several strategies have been put forward that address rationing of scarce resources in times of crisis.[3-5] However, some of these suggested strategies apply age as a criterion in a way that disproportionately disfavors older adults, raising concerns that older adults may be treated unjustly when there is an emergency need to ration resources due to a crisis such as the COVID-19 pandemic.

Overall Framing

The authors developed this AGS position statement and the companion manuscript, "Rationing Limited Health Care Resources in the COVID-19 Era and Beyond: Ethical

Considerations Regarding Older Adults,"[6] within the context of a society in which too few adults have engaged in meaningful advance care planning discussions with their families and loved ones and, as a result, have not completed an advance directive.[7] We also considered the overall framework of a just society with a specific focus on health care systems as well as reviewing legal considerations. We determined that it is important to include these three considerations in both this AGS position statement and in the companion manuscript.

Urgent Need for Advance Care Planning

It is our strong assertion that the COVID-19 pandemic further highlights the widespread and urgent need for all adults to engage in advance care planning discussions and create an advance directive. Advance care planning discussions are of paramount importance to reduce the need to ration limited health care resources during an emergency because these discussions will inevitably identify people who do not wish to receive intensive care, including mechanical ventilation. A critical point in the discussion of advance care planning is that these discussions are not rationing and should not be confused with triage allocation decisions. Advance care planning discussions should occur before patients are in crisis and should be part of every patient's individualized care plan.[8,9] A conversation with older patients about what matters most to them[10] and their goals of care should not lead health care providers to incorrectly infer that simply having had a goals of care discussion signals a clear preference for limited interventions. Also, providers should be aware that care plans developed for anticipated longer term declines in health may not be applicable to sudden emergencies such as COVID-19, and it is inappropriate

to infer from a do not resuscitate order that a particular patient would necessarily refuse mechanical ventilation.[11]

Achieving Justice in Resource Allocation[12-14]

A just health care system should treat similarly situated people equally, as much as possible. There is something particularly unjust about membership in a class, such as an age group, determining whether one receives health care. Not only is membership in a class defined by characteristics such as race, sex, or age, beyond the individual's control, but the use of these criteria might conceal implicit bias and other social inequities. As health care is critically important to many other goods in life across the life span, it may be distinct in terms of requiring equal access. These factors suggest that basing resource allocation decisions on advanced age may violate the ethical principle of justice.

Resource allocation strategies, such as those proposed in response to COVID-19, rely on different notions of distributive justice. There are many contested theories, and each theory claims to represent justice in the priority given certain factors or values when goods are distributed to society. This position statement defends a view of distributive justice that maximizes relevant clinical factors and either de-emphasizes or eliminates factors that place an arbitrary and disproportionate weight on advanced age.

Legal Considerations

The non-discrimination section of the Affordable Care Act, § 1557, prohibits discrimination in federally funded health care programs on the grounds prohibited by the Age

Discrimination Act of 1975, 42 U.S.C. §§ 6101-6107. The Age Discrimination Act applies to discrimination on the basis of age, which includes exclusion from, participation in, or denial of the benefits of, any program or activity receiving federal financial assistance. Allocation strategies that exclude based on age as a category violate this provision of federal anti-discrimination law. Whether provisions of the Age Discrimination Act beyond identifying age as a category are also included by reference in § 1557 is an unsettled legal question, but if they are, they would permit age to be used as a proxy for some other characteristic, such as survivability, that is necessary to the statutory objective or to the business and that cannot practically be measured in an individualized way. The statute and implementing regulations would also permit use of reasonable factors other than age that have a disproportionate effect on persons of different ages, if the factor bears a direct and substantial relationship to the program's normal operation or statutory objective.[15] The legal question then would be whether factors such as long-term survival or life-years lived are reasonable factors other than age that meet this standard.

Methods

The AGS Ethics Committee is charged with ensuring that every older American receives high-quality, person-centered care by improving public and professional understanding of ethical and moral issues intrinsic in caring for older adults. The Committee developed these policy and clinical recommendations in collaboration with an interprofessional writing team of experts in ethics, law, nursing, and medicine (including geriatrics, palliative care, emergency medicine, and

pulmonology/critical care). This writing team conducted a structured literature review and examined relevant reports and studies pertinent to this statement, which are outlined in the companion paper.[6]

About this Position Statement

This statement represents the official policy position of the American Geriatrics Society. It is intended to inform clinicians, health system administrators, hospitals, and policymakers about ethical considerations involving older adults that should be considered when developing strategies for allocation of scarce resources during an emergency. The rationale for each position is provided in a companion paper[6] and the rationale for immediate implementation strategies is included in this position statement. Members of the AGS Ethics Committee led the writing group and the AGS Executive, Ethics, Ethnogeriatrics and Clinical Practice and Models of Care (CPMC) Committees provided review and input. The statement was approved by the AGS Ethics and AGS Executive Committees (on behalf of the AGS Board) in April 2020. It will be reviewed and updated (if needed) in 2025.

The American Geriatrics Society is a nationwide, not-for-profit society of geriatrics healthcare professionals dedicated to improving the health, independence, and quality of life of older people. Our 6,000+ members include geriatricians, geriatric nurses, nurse practitioners, social workers, family practitioners, physician assistants, pharmacists, internists, and specialty physicians who are pioneers in advanced-illness care for older individuals.

AGS Recommendations for Resource Allocation Strategies if Emergency Rationing is Required

These recommendations were developed to guide states and institutions that are currently developing emergency rationing strategies. Our recommendations are informed by a structured literature review and a discussion of a number of issues that are described more fully in our companion paper. These issues include: (1) age as a determining factor; (2) age as a tiebreaker; (3) criteria with a differential impact on older adults; (4) individual choices and advance directives; (5) racial/ethnic disparities and resource allocation; (6) scoring systems and their impact on older adults; and (7) the need for post-pandemic reviews.[6]

1. Age per se should never be used as a means for a categorical exclusion from therapeutic interventions that represent the standard of care. Likewise, specific age-based cutoffs should not be used in resource allocation strategies.
2. When assessing comorbidities, the disparate impact of social determinants of health including culture, ethnicity, socioeconomic status and other factors should be considered.
3. Multi-factor resource allocation strategies that equally weigh in-hospital survival and severe comorbidities contributing to short-term (<6 month) mortality should be the primary allocation method in emergency circumstances that require rationing due to a lack of resources.
4. In order to avoid biased resource allocation strategies, criteria such as “life-years saved” and “long-term predicted life expectancy” should not be used, as they disadvantage older adults.

5. Triage committees and triage officers who have no direct clinical role in the care of the patients being considered for allocation of limited resources should be familiar with resources available at their institution and also should be available to clinicians when decisions about allocating scare resources must be made. Whenever possible, these committees should include persons with expertise in the disciplines of ethics, geriatrics, and palliative care.
6. Institutions should develop resource allocation strategies that are transparent, applied uniformly, and developed with forethought and planning with input from multiple disciplines including ethics, medicine, law, and nursing. These strategies should be used consistently when making emergency decisions. Such strategies should be reviewed frequently to ensure inclusion of the latest science and to identify any evidence of disparate impact or bias.
7. Widespread and carefully considered advance care planning discussions are of paramount importance in achieving ethical care decisions based on the individual's values, preferences, and goals. These decisions should not be viewed as a form of rationing, and advance care planning should preferably be done well before a time of crisis. Efforts should be intensified to increase meaningful advance care planning across health systems.

AGS Recommended Strategies for Immediate Implementation During the COVID-19 Pandemic

Given the current and near-future implications of the COVID-19 pandemic, the AGS recommends the following strategies for immediate implementation to address the COVID-19

pandemic. Given the urgent need to implement these strategies, we have included our rationale for each.

Implementing a Multi-Factor Resource Allocation Strategy

We recommend that institutions implement a multi-factor resource allocation strategy as the primary allocation method that equally weighs in-hospital survival and comorbidities contributing to short-term mortality (< 6 months), rather than implementing a resource allocation strategy based primarily on lifecycle principles. Age should never be used as a categorical exclusion; this violates the principle of justice and discriminates against older adults. Moreover, a robust body of literature demonstrates that chronological age alone is less predictive of mortality than other factors, such as functional trajectory[16], multimorbidity[17,18], and frailty.[19,20] Thus, age is a poor proxy for projected outcomes. Moreover, as discussed below, including chronic comorbidities unlikely to affect short-term mortality is ethically problematic. We recommend including only severe comorbidities likely to result in death over a short period of time, such as <6 months.

It is important to note that reliance on in-hospital survival as a strategy is not at odds with policies at many institutions that withhold care that offers no possibility of benefit. The withholding of such futile care, although reducing resource use, is justified by the principles of beneficence that apply to persons of all ages.

Establishing Triage Committees and Identifying Triage Officers

In the event that resources are so constrained that emergency rationing must occur, and for circumstances in which consideration is given to withdrawing resources due to medical futility, "triage committees" and "triage officers" should be established and available around the clock to implement rationing strategies. These third parties, which are not members of the primary care team, could integrate objective considerations about decision making with rationing. Early initiation of these roles would alleviate moral distress among front-line clinicians, who are confronted by rationing decisions for patients that may lead to distressing outcomes. Being able to rely on a pre-existing rationing strategy allows them to focus on clinical care. Clinicians at the front lines should be applying – not selecting – emergency rationing criteria when resources are limited.

Ensuring Access to Hospice and Palliative Care

The AGS recommends enhancing the availability of hospice and palliative care within post-acute facilities, long-term care, and assisted living facilities and removing barriers to obtaining palliative care and hospice care in these settings.[21] For those individuals who are (1) critically ill but elect against high-intensity treatment measures; or (2) are unlikely to benefit from critical care; or (3) when it is compelling clear that health resources are limited and rationing decisions are in adherence with institutional policies, supportive care services should be invested in as part of COVID-19 surge preparations in acute care settings such as emergency departments.

Clear Communication About Available Resources

States and health systems should communicate clearly and transparently about the ethical resource allocation strategies that are proposed and selected. Transparent communication is helpful in promoting greater adherence to these strategies. A clear description of accountability and responsibility regarding these policies is also needed. During the COVID-19 pandemic when information is changing rapidly, policies and chosen strategies should come from a centralized source for direct communication to healthcare providers and clinicians.

Individual Care Plans

All older adults should be encouraged to develop individual care plans[22] that include information such as lists of medical conditions, medications, and health care providers, as well as advance directives. The Medicare Annual Wellness Visit is an ideal setting for health care providers to establish and update these individual care plans with patients and their caregivers.

Advance Care Planning During and After the COVID-19 Pandemic

Advance care planning must be prioritized both now and after COVID-19. The rate of advance directive completion is unacceptably low at about 50% of adults over age 60.[7] The Age-Friendly Health Systems movement, as well as Medicare reimbursement for advance care planning discussions, present opportunities to increase goals of care discussions, advance directive completion, and POLST/MOLST completion. Completion of advance directives is necessary but insufficient without a meaningful goals of care discussion focusing on what matters most to the patient and also ensuring patient understanding by accounting for cultural factors, limited health literacy, and sensory deficits that may impede communication.

Advance care planning should not be limited to the purview of only the primary care provider, geriatrician, or palliative care provider, and urgent efforts should be made to discuss patient preferences before COVID-19 surges occur. All outpatient clinicians including subspecialists, and particularly those who care for high-risk populations such as pulmonologists, cardiologists, rheumatologists, nephrologists and transplant specialists, should engage in this advance care planning effort. In fact, many of these specialists are best suited to assess their patient's chronic illness, such as the severity of a patient's chronic lung disease and likelihood of survival through critical illness, in order to guide decision making. Patients are grappling with the new realities of care within more frequent virtual care settings and are looking to all providers to give them an individualized risk assessment should they become ill with COVID-19. These conversations are opportunities to discuss advance care planning. The existence of a prior advance directive should be confirmed with the patient, health care proxy, or surrogate decision-maker before medical decisions are made. The most basic discussion should include a decision about a surrogate decision-maker, and more advanced conversations should include patient preferences about mechanical ventilation and if sought, the clinician's assessment of the patient's co-morbidities and likelihood of survival following critical illness.[8, 23]

Advance care planning discussions should be documented appropriately and clearly with reliable contact information for surrogate decision makers. Although less ideal, such discussions can also occur in the ED setting. Goals of care discussions should not attempt to dissuade patients from using a ventilator or focus on resource allocation generally, but rather should

attempt to elicit what matters most to the patient[24] to help health care providers understand the individual and their progression through health and illness. Advance care planning for older adults should be facilitated in all settings through enhanced means of communication, including telephone visits and virtual care models such as telehealth visits where needed.

The shifting of outpatient care delivery (e.g. to telephone and virtual encounters) should include intensive outreach efforts in order to identify highly vulnerable patients (e.g. living alone, cognitively impaired) at high risk from the detrimental effects of social isolation and who, in the absence of intensive telephone or virtual outreach, would otherwise be less likely to engage in advance care planning.

In many cases, critical advance care planning discussions may need to be conducted with a surrogate who cannot be with the patient due to social distancing or facility visitation restrictions. These conversations can be appropriately performed as audio-only services. The Centers for Medicare and Medicaid Services (CMS) should allow payment for advance care planning that is provided via audio (telephone only) and extend changes to telehealth payment beyond the current emergency so that reimbursement is equivalent to in-person provision of advance care planning given the time-intensive nature of these discussions.

Call for Post-Pandemic Review of COVID-19 Rationing Strategies for Older Adults: AGS Recommendations

The AGS is deeply concerned about potentially negative long-term consequences of COVID-19 emergency rationing strategies that disfavor older adults. In particular, rationing

strategies that are solely, or predominantly, based on age cutoffs could lead to persistent beliefs that older adults' lives are less valuable than others' lives or are even expendable, and contribute to already rampant ageism.[25] Unless the injustice in these strategies is corrected, this will be a persistent issue if there is a resurgence of COVID-19 cases, a pandemic caused by a different virus in the future, or a different type of disaster where resources are scarce. Also, given that ageist views[12] existed prior to the COVID-19 pandemic – including in the media and in hiring practices – it is not difficult to imagine that that ageism would be further amplified by problematic COVID-19 rationing strategies. In light of these concerns, the AGS believes that there should be a post-pandemic review that is focused on removing discriminatory language from resource allocations created during the pandemic, and on developing and implementing ethical resource allocation strategies to be used when emergency rationing is required.

Recommendations

1. State and local governments and institutions should establish committees that include older adults to conduct a post-pandemic review of outcomes of emergency rationing strategies that were actually implemented. This review process should be conducted using deidentified data and should include results such as survival rates stratified by age group and comorbidities, with the goal of informing the development of a national framework that can guide institutions in developing decision-making strategies for resource allocation that are just and equitable.

2. Hospital ethics committees, state officials, and other relevant stakeholders should remove discriminatory provisions, including age-based cutoffs, that disfavor older adults from any resource allocation strategies that were developed during the COVID-19 pandemic.
3. Health care facilities and systems that did not develop and do not currently have a resource allocation strategy should develop an ethical framework or adopt an existing ethical framework that incorporates the principles described in this AGS position statement.

Summary

Emergency resource allocation strategies during the era of COVID-19, and during future pandemics, must not disproportionately disfavor older adults. Ideally, these strategies will be developed and integrated into institutional policies when an institution is not in crisis. When developing and implementing such strategies, key stakeholders including ethics committees, health care systems, and policymakers must not apply categorical age exclusions since such exclusions are unethical and violate anti-discrimination law. Ethical multi-factor resource allocation strategies exist that rely on in-hospital survival and severe comorbidities contributing to short-term (<6 month) mortality. Extreme care must be taken to consider the disparate impact on older adults of assessing comorbidities as part of resource allocation strategies, as older adults are heterogeneous with respect to burden of comorbidities and functional status. Racial and ethnic minorities are at even greater risk of the disparate impacts of assessing comorbidities in resource allocation strategies.

Moreover, our understanding of COVID-19 is rapidly evolving with respect to its pathophysiology, genetics, transmissibility, clinical trajectory, immune response, optimum management strategies, and individual and public health approaches. This incomplete understanding of the disease limits the ability to prognosticate about its clinical course and therefore makes the application of ethical frameworks even more difficult. Front-line providers should not be expected to make rationing decisions in isolation, and therefore must have guidance from clear, consistent, transparent, and uniformly applied ethical resource allocation strategies as well as triage officers and committees who have updated information about the availability of health care resources so that resource allocation strategies are not activated by hospital or health system leadership too early or too late. Now and in the future, intensive efforts to provide meaningful advance care planning must occur to ensure that patients' wishes are respected. Older adults would be well served by an intensive post-pandemic review of resource allocation strategies. As public health measures, creative use of resources, and shifting resources between states and communities become more commonplace, the need for rationing may be reduced or eliminated. When adequate resources are available, patient preferences for care remain the most appropriate metric and must be informed by a robust discussion of values, effectiveness, risks and time horizon to benefit.

Acknowledgments

The authors wish to acknowledge Nancy Lundebjerg, MPA, CEO of the American Geriatrics Society, for her editing and input during manuscript preparation. The authors also wish to acknowledge Mary Jordan Samuel, Associate Director for Governance & Operations, Dan Trucil, MA, MPH, Associate Director, Communication, and Aimee Cegelka, MA, Senior Manager of Education & Special Projects, of the American Geriatrics Society, for their assistance with manuscript formatting, copy editing, and submission. The AGS Executive, Ethics, Ethnogeriatrics, and Clinical Practice and Models of Care Committees reviewed and provided feedback on the manuscript. The following expert reviewers who provided feedback on the manuscript: Mary Mulcare, MD, FACEP and Michael Stern, MD from the from the Department of Emergency Medicine, Weill Cornell Medicine/New York-Presbyterian Hospital and Chakravarthy Reddy, MD from the University of Utah School of Medicine and Huntsman Cancer Institute. Tony Rosen, MD, MPH appreciates the generosity of the Razak family in allowing him to live in their home during the COVID-19 pandemic. The authors dedicate this manuscript to the memory of AGS Ethics Committee member Jeffrey Escher, M.D., a geriatrician and tireless advocate for older adults, who died on April 26, 2020 of complications from COVID-19.

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Sponsor's Role

Lauren E. Ferrante's ((K76057023), Tony Rosen's (K76 AG054866), and Caroline Stephens' (K76 AG054862) participation was supported by Paul B. Beeson Emerging Leaders in Aging Career Development Awards from the National Institute on Aging. Leah J. Witt's (K01HP33446) participation was supported by a Geriatrics Academic Career award from the Health Resources and Services Administration (HRSA), an operating division of the U.S. Department of Health and Human Services. This paper is the position of the American Geriatrics Society and does not represent the official views of any sponsor.

REFERENCES

1. Rosenbaum L. Facing COVID-19 in Italy—Ethics, logistics, and therapeutics on the epidemic's front line. *N Engl J Med*. Published online March 18, 2020. Doi: 10.1056/NEJMp2005492
2. Società Italiana di Anestesia Analgesia Rianimazione e Terapia Intensiva. Clinical ethics recommendations for the allocation of intensive care treatments, in exceptional, resource-limited circumstances. Accessed April 29, 2020. http://www.siaarti.it/SiteAssets/News/COVID19%20-%20documenti%20SIAARTI/SIAARTI%20-%20Covid-19%20-%20Clinical%20Ethics%20Reccomendations.pdf
3. White DB, Lo B. A framework for rationing ventilators and critical care beds during the COVID-19 pandemic. *JAMA*. Published online March 27, 2020. doi:10.1001/jama.2020.5046
4. Emanuel EJ, Persad G, Upshur R et al. Fair allocation of scarce resources in the time of COVID-19. *N Engl J Med*. Published online March 23, 2020. doi: 10.1056/NEJMsb2005114
5. Truog RD, Mitchel Cl, Daley GQ. The toughest triage – allocating ventilators in a pandemic. *NEJM*. Published online March 23, 2020. doi: 10.1056/NEJMp2005689
6. Farrell TW, Ferrante LE, Widera E et al. Rationing limited health care resources in the COVID-19 era and beyond: Ethical considerations regarding older adults, *J Am Geriatr Soc*. 2020; In press. https://doi.org/10.1111/jgs.16539

7. U.S. Centers for Disease Control & Prevention (CDC). Advance Care Planning: Ensuring Your Wishes Are Known and Honored If You Are Unable to Speak for Yourself. Accessed on April 29, 2020. https://www.cdc.gov/aging/pdf/advanced-care-planning-critical-issue-brief.pdf

8. PREPARE for Your Care. Accessed April 29, 2020. https://prepareforyourcare.org
9. VitalTalk. Accessed April 29, 2020. https://www.vitaltalk.org
10. Fulmer T, Mate KS, Berman A. The Age-Friendly Health System Imperative. *J Am Geriatr Soc*. 2018; 66(1):22-24. doi: 10.1111/jgs.15076
11. Gutmann Koch V, Han SA. Denying ventilators to COVID-19 patients with prior DNR orders is unethical. Accessed April 29, 2020. https://www.thehastingscenter.org/denying-ventilators-to-covid-19-patients-with-prior-dnr-orders-is-unethical
12. Lindland E, Fond M, Haydon A, Kendall-Taylor N. Gauging Aging: Mapping the Gaps Between Expert and Public Understandings of Aging in America. Accessed April 29, 2020. http://www.frameworksinstitute.org/assets/files/aging_mtg.pdf
13. Gaining Momentum: A FrameWorks Communications Toolkit. Accessed April 29, 2020. http://www.frameworksinstitute.org/toolkits/aging
14. Volmert A, Lindland E. "You Only Pray that Somebody Would Step In": Mapping the gaps between Expert and Public Understandings of Elder Abuse in America. Accessed April 29, 2020.

https://www.frameworksinstitute.org/assets/files/elder_abuse_mtg_report_formatted_final.pdf

15. Rules against age discrimination. 45 CFR 91.11 et seq. https://www.govinfo.gov/content/pkg/CFR-2019-title45-vol1/xml/CFR-2019-title45-vol1-part91.xml#seqnum91.11
16. Ferrante LE, Pisani MA, Murphy TE, Gahbauer EA, Leo-Summers LS, Gill TM. Functional trajectories among older persons before and after critical illness. *JAMA Intern Med*. 2015 Apr;175(4):523-9. doi: 10.1001/jamainternmed.2014.7889
17. DuGoff EH, Canudas-Romo V, Buttorff C, Leff B, Anderson GF. Multiple chronic conditions and life expectancy: a life table analysis. *Med Care*. 2014;52(8):688–694. doi:10.1097/MLR.0000000000000166
18. Gijsen R, Hoeymans N, Schellevis FG, Ruwaard D, Satariano WA, van den Bos GA. Causes and consequences of comorbidity: a review. *J Clin Epidemiol*. 2001;54(7):661–674. doi:10.1016/s0895-4356(00)00363-2
19. Ferrante LE, Pisani MA, Murphy TE, Gahbauer EA, Leo-Summers LS, Gill TM. The association of frailty with post-ICU disability, nursing home admission, and mortality: A longitudinal study. *Chest*. 2018 Jun;153(6):1378-1386. doi: 10.1016/j.chest.2018.03.007
20. Brummel NE, Bell SP, Girard TD et al. Frailty and subsequent disability and mortality among patients with critical illness. *Am J Respir Crit Care Med*. 2017 Jul 1;196(1):64-72. doi: 10.1164/rccm.201605-0939OC

21. D'Adamo H, Yoshikawa T, Ouslander JG. Coronavirus disease 2019 in geriatrics and long-term care: the ABCDs of COVID-19. *J Am Geriatr Soc*. Published online March 25, 2020. doi:10.1111/jgs.16445

22. U.S. Department of Health and Human Services. Develop a Care Plan. Accessed April 29, 2020. https://www.cdc.gov/aging/develop-care-plan.html

23. Curtis JR, Kross EK, Stapleton RD. The importance of addressing advance care planning and decisions about Do-Not-Resuscitate orders during novel Coronavirus 2019 (COVID-19). *JAMA*. Published online March 27, 2020. doi:10.1001/jama.2020.4894

24. Institute for Healthcare Improvement. Age-Friendly Health Systems: Guide to Using the 4Ms in the Care of Older Adults. Accessed April 29, 2020. http://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Documents/IHIAgeFriendlyHealthSystems_GuidetoUsing4MsCare.pdf

25. Kapp MB. *De facto* health-care rationing by age. *J Legal Med*. 1998; 19(3): 323-349. https://doi.org/10.1080/01947649809511066