

Perspectives on Implementing a Multidomain Approach to Caring for Older Adults With Heart Failure

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BACKGROUND/OBJECTIVES: The American College of Cardiology (ACC) Geriatric Cardiology Section Leadership Council recently outlined 4 key domains (which are composed of 14 subdomains) that are important to assess in older adults with heart failure (HF). We sought to determine which geriatric domains/subdomains are routinely assessed, how they are assessed, and how they impact clinical management in the care of ambulatory older adults with HF.

DESIGN: Survey.

SETTING: Ambulatory.

PARTICIPANTS: Fifteen active ACC member physicians from the geriatric cardiology community.

MEASUREMENTS: Electronic survey assessing which domains/subdomains are currently assessed in these selected real-world practices, how they are assessed, and how they are incorporated into clinical management.

RESULTS: Of 15 clinicians, 14 responded to the survey. The majority routinely assess 3 to 4 domains (median, 3; interquartile range, 3-4) and a range of 4 to 12 subdomains

(median, 8; interquartile range, 6-11). All respondents routinely assess the medical and physical function domains, 71% routinely assess the mind/emotion domain, and 50% routinely assess the social domain. The most common subdomains included comorbidity burden (100%), polypharmacy (100%), basic function (93%), mobility (86%), falls risk (71%), frailty (64%), and cognition (57%). Sensory impairment (50%), social isolation (50%), nutritional status (43%), loneliness (7%), and financial means (7%) were least frequently assessed. There was significant heterogeneity with regard to the tools used to assess subdomains. Common themes for how the subdomains influenced clinical care included informing prognosis, informing risk-benefit of pharmacologic therapy and invasive procedures, and consideration for palliative care.

CONCLUSIONS: While respondents routinely assess multiple domains and subdomains and view these as important to clinical care, there is substantial heterogeneity regarding which subdomains are assessed and the tools used to assess them. These observations provide a foundation that inform a research agenda with regard to providing holistic and patient-centered care to older adults with HF. *J Am Geriatr Soc* 67:2593-2599, 2019.

Key words: frailty; heart failure; polypharmacy

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The prevalence of heart failure (HF) rises sharply with increasing age.¹ Consequently, the majority of the HF population is older than 75 years and typically contends with age-related medical conditions and challenges, such as cognitive impairment and frailty. The complexity of caring for older adults with HF was the subject of a recent review article by the American College of Cardiology (ACC) Geriatric Cardiology Section Leadership Council.² In this review, the council proposed a “domain management”

approach that outlined four key domains that warrant routine assessment in older adults with HF—medical, mind and emotion, physical function, and social environment (Figure 1).

While developing a holistic model to improve the care of older adults with HF is an important first step, the best strategies to implement this model into real-world practice are unknown. We, therefore, conducted a survey of several active physician members from the geriatric cardiology community, perhaps the strongest proponents of the domain management approach, to better understand which domains and subdomains are currently assessed in these selected real-world practices, how they are assessed, and how they are being incorporated into clinical management and decision making.

METHODS

Study Population

The ACC Geriatric Cardiology Section Leadership Council identified active ACC member physicians from the geriatric cardiology community who (1) provide ambulatory care to HF patients and (2) have previously self-reported implementing aspects of the domain management approach into their practices.

Data Collection

We created an electronic survey (Supplementary Text S1) of up to 39 total questions that inquired about which domains and subdomains are routinely assessed in practice (multiple choice), how they are assessed (free-text response), and how they are incorporated into clinical management and decision making (free-text response). The survey also inquired

about the available personnel and time allocated to office visits (multiple choice) since these factors can impact whether performing these assessments is feasible.

Statistical Analysis

We calculated the proportion of respondents who reported routinely assessing each domain and subdomain and counted the number of different tools reported for each subdomain.

One investigator (P.G.) reviewed and coded free-text responses for the questions inquiring about ways that each subdomain affected clinical care and subsequently grouped them into themes. Two additional investigators (E.Z.G. and S.H.) independently reviewed and corroborated these themes; disagreements were resolved through discussion.

Finally, we calculated the distribution of time allocated for new and follow-up office visits and the proportion of respondents who had additional personnel to assist with implementing the domain management model.

RESULTS

Of 15 clinicians, 14 responded to the survey; respondents came from the United States and Canada (Supplementary Figure S1). Among respondents, 13 were trained in cardiology; 6 had additional training in HF, and 2 had additional training in geriatrics (Supplementary Table S1). One individual was trained in geriatrics alone. Of 14 respondents, 12 were affiliated with a large academic institution. Several respondents reported leading programs targeting a specific population in which geriatric issues are especially relevant—this included four geriatric cardiology programs, two HF with preserved ejection fraction programs, and one post-acute care program where care was primarily provided in nursing homes.

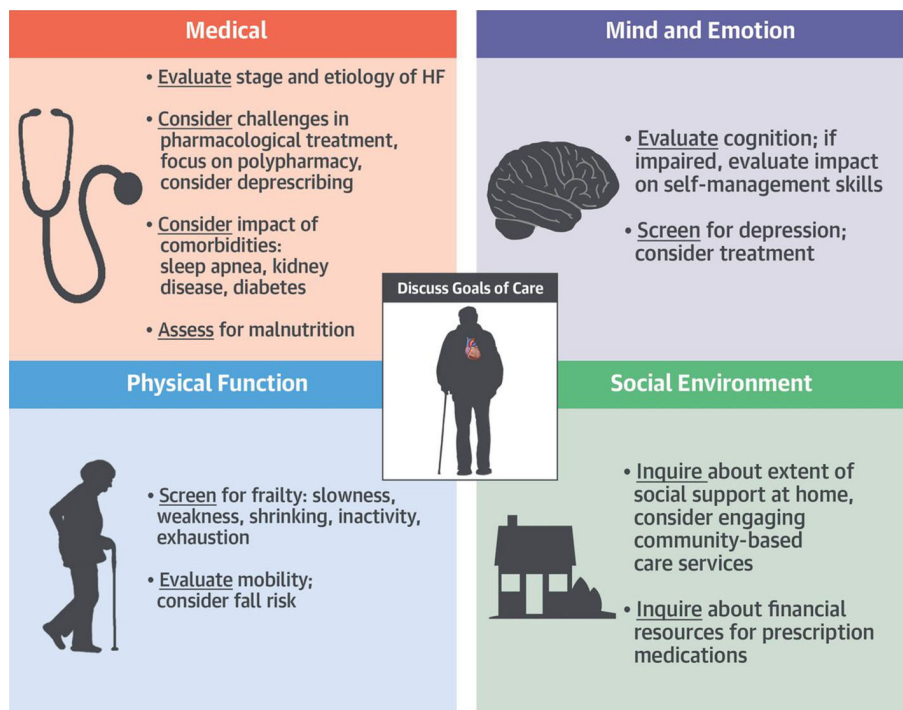


Figure 1. The domain management approach for older adults with heart failure (HF). Republished with permission from Gorodeski et al.²

Domain and Subdomain Assessments

The majority of respondents reported routinely assessing 3 to 4 domains (median, 3; interquartile range, 3-4) and a range of 4 to 12 subdomains (median, 8; interquartile range, 6-11). As shown in Figure 2, all respondents routinely assessed some component of the medical and physical function domains, 71% assessed the mind/emotion domain, and 50% assessed the social domain. All respondents routinely assessed the medical subdomains of comorbidity burden and polypharmacy. They also commonly reported assessing several physical function subdomains, including basic function (93%), mobility (86%), falls risk (71%), and physical frailty (64%). The only other subdomain routinely assessed by over half of the cohort was the mind/emotion subdomain of cognition (57%).

Table 1 shows the methods that each respondent uses to assess each subdomain. Within the medical domain, respondents universally review the electronic medical record (EMR) to assess comorbidity burden and polypharmacy. Respondents reported seven different ways to assess nutritional status, with no clear consensus. Among respondents who assess sensory impairment, most reported simply asking patients about the presence of these impairments, while two respondents also reported using the EMR and two reported performing sensory examinations to gather this information.

Among respondents who routinely assess cognition, most use the Mini-Cog. The Mini-Cog consists of a three-word recall and clock drawing test and provides a simple screening test for cognitive impairment with a high negative predictive value.^{3,4} To assess for depression and anxiety, several respondents ask patients about associated symptoms; the use of validated tools, like the Patient Health Questionnaire-2⁵ and Generalized Anxiety Disorder seven-item scale,⁶ was rarely reported.

There was significant variability with regard to the assessment of physical function subdomains. For physical frailty assessments, respondents reported using the Short Physical

Performance Battery (SPPB),⁷ the Fried frailty index,⁸ gait speed, the Essential Frailty Toolset (a four-item test that combines chair stands, cognitive impairment, serum hemoglobin, and serum albumin),⁹ the sit-to-stand maneuver, and the Study of Osteoporotic Fracture (SOF) index (a three-item test that combines chair stands, weight loss, and a self-report of energy level).¹⁰ To assess for basic function, the majority of respondents reported inquiring about activities of daily living and instrumental activities of daily living (N = 8). Other reported methods included gait speed, New York Heart Association class, 6-minute walk test, the SPPB, the sit-to-stand maneuver, the SOF index, and the Kansas City Cardiomyopathy Questionnaire. One respondent reported simply watching the patient walk to the examination room and watching the patient get onto the examination table. To assess mobility, the majority of respondents reported measuring gait speed (N = 9). Other reported tests included chair stands and the SPPB. Finally, to assess fall risk, the majority of respondents report asking about a history of falls.

Respondents assess for social isolation and loneliness based on self-report. The one respondent who assesses financial means discusses the cost of medications.

Impact on Clinical Care

When asked about how various subdomains would impact clinical care, several common themes emerged (Table 1), including informing prognosis, informing risk-benefit of pharmacologic therapy and invasive procedures, and consideration for palliative care. There was significant overlap with regard to how the subdomains impacted various aspects of clinical care.

Respondent Time and Resources

There was significant variability in the duration of office visits (Supplementary Figure S2A); new patient visits ranged from 20 to 60 minutes, and follow-up visits ranged from 15 to

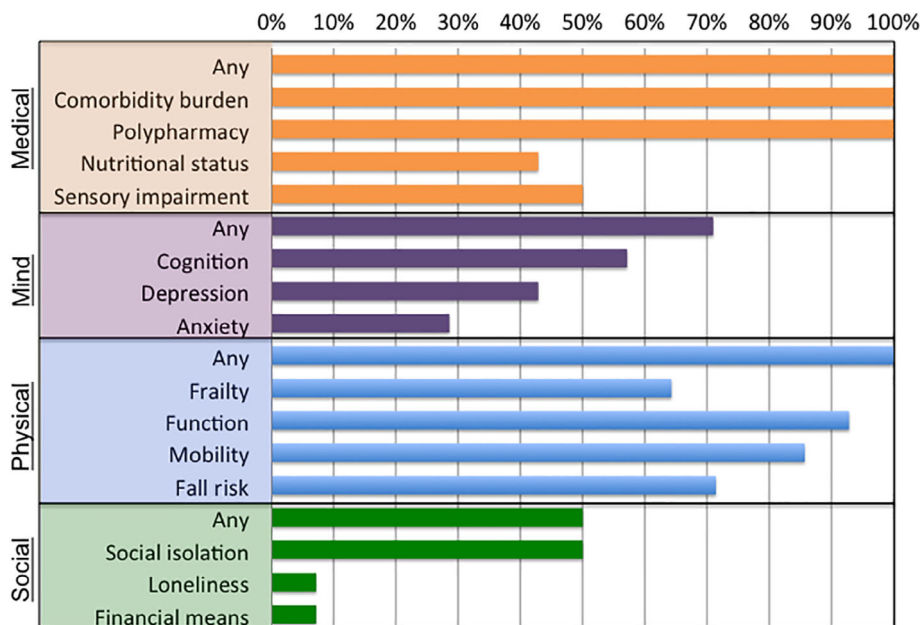


Figure 2. Percentage of respondents who routinely assessed each domain and subdomain. [Color figure can be viewed at wileyonlinelibrary.com]

Table 1. Assessment and impact of domains and subdomains

Domain	Subdomain	Methods used	Impact on care
Medical	Comorbidity burden	<ul style="list-style-type: none"> • EMR (N = 14) 	<ul style="list-style-type: none"> • Reassessment of health goals/priorities in setting of competing priorities/risk • Increased coordination with other clinicians • Engagement of social support (caregivers, family), services • Medication management decisions (including slow and/or fewer medication changes; increased surveillance for drug interactions, therapeutic competition, contraindications, high medication regimen complexity, and polypharmacy) • Assessment of mobility • Consideration for palliative care
	Polypharmacy	<ul style="list-style-type: none"> • EMR (N = 14) 	<ul style="list-style-type: none"> • Medication management decisions (including consideration of deprescribing; reconsideration of the value of initiation and/or uptitration) • Increased coordination with other clinicians • Reassessment of health goals/priorities in setting of competing priorities/risk • Consideration for palliative care
	Nutritional status	<ul style="list-style-type: none"> • Ask about weight loss (N = 4) • Ask about diet, food intake (N = 2) • Check albumin (N = 2) • Eyeball test (N = 1) • Mini nutritional assessment (N = 1) • Ask about appetite (N = 1) • Ask about energy level (N = 1) 	<ul style="list-style-type: none"> • Referral to dietician/nutritionist • Consideration of nutritional supplements • Dietary recommendations (eg, increasing caloric intake and/or liberalizing dietary restrictions) • Assessment of external factors that may be contributing to malnutrition, like financial means, dental issues, social support • Consideration for palliative care
	Sensory impairment	<ul style="list-style-type: none"> • Ask patients about impairments (N = 5) • EMR (N = 2) • Physical examination (N = 2) 	<ul style="list-style-type: none"> • Referral for formal assessment and/or discussion with other clinicians • Increased coordination with other clinicians (primary care physician) • Engagement of social support (caregivers, family), services • Increased efforts to ensure patient understands instructions; consideration for using pocket voice • Consideration for palliative care
Mind and emotion	Cognition	<ul style="list-style-type: none"> • Mini-Cog (N = 7) • Ask patient/family (N = 1) 	<ul style="list-style-type: none"> • Engagement of social support (caregivers, family), services • Referral for formal assessment and/or discussion with other clinicians (geriatrics and/or memory center) • Reassessment of health goals/priorities • Reassessment of prognosis and risk-benefit ratio of management options, especially for complex decision making • Medication management decisions (including consideration of deprescribing) • Consideration for palliative care
	Depression	<ul style="list-style-type: none"> • PHQ-2 (N = 2) • Ask patient about symptoms (N = 2) • EMR (N = 1) 	<ul style="list-style-type: none"> • Referral for formal assessment and/or discussion with other clinicians • Consideration for palliative care
	Anxiety	<ul style="list-style-type: none"> • Ask patient about symptoms (N = 3) • GAD-7 (N = 1) • EMR (N = 1) 	<ul style="list-style-type: none"> • Referral for formal assessment and/or discussion with other clinicians • Detailed discussion about prognosis and disease trajectory, with reassurance if appropriate • Consideration for palliative care
Physical function	Frailty	<ul style="list-style-type: none"> • Short Physical Performance Battery (N = 3) • Fried frailty index (N = 3) • Gait speed (N = 2) 	<ul style="list-style-type: none"> • Reassessment of prognosis and risk-benefit ratio of management options, especially for complex decision making related to invasive procedures • Medication management decisions (including consideration of deprescribing)

Table 1 (Contd.)

Domain	Subdomain	Methods used	Impact on care
	Function	<ul style="list-style-type: none"> • Essential Frailty Toolset (N = 1) • Sit to stand (N = 1) • SOF index (N = 1) • Ask about ADLs/IADLs (N = 8) • Gait speed (N = 2) • New York Heart Association class (N = 2) • 6-Minute walk test (N = 1) • Short Physical Performance Battery (N = 1) • Sit to stand (N = 1) • SOF index (N = 1) • Kansas City Cardiomyopathy Questionnaire (N = 1) 	<ul style="list-style-type: none"> • Emphasis on lifestyle recommendations, such as exercise (home programs, cardiac rehabilitation programs, and strength training) and nutrition • Consideration for palliative care • Referral to physical and/or occupational therapy; provision of exercise prescription • Reassessment of prognosis and risk-benefit ratio of management options, especially for complex decision making • Careful medication reconciliation process (ensure indications present; determine if negative effects on function or symptoms) • Consideration of effect on symptom burden and effect on quality of life • Treat function as a patient-reported health goal/priority • Assessment of social support • Consideration for palliative care
	Mobility	<ul style="list-style-type: none"> • Walk into clinic, get up onto table (N = 1) • Gait speed (N = 9) • Chair stands (N = 2) • Short Physical Performance Battery (N = 1) • Ask about falls (N = 1) • Ask about walking ability (N = 1) 	<ul style="list-style-type: none"> • Referral to physical and/or occupational therapy; provision of exercise prescription; provision of ambulation aids • Referral to geriatrics • Medication management decisions (including reconsideration of medications that can contribute to injurious falls and increase risk for bleeding, such as antihypertensive medications and anticoagulation) • Reassessment of prognosis and risk-benefit ratio of management options, especially for complex decision making • Modification of follow-up visit frequency, which may be reduced in setting of difficulties getting to and from appointments • Consideration for palliative care
	Fall risk	<ul style="list-style-type: none"> • Ask about fall history (N = 7) • Assess gait (N = 1) • Assess standing balance (N = 1) • Fall risk screening tool (N = 1) 	<ul style="list-style-type: none"> • Medication management decisions (in particular, reconsideration of antihypertensive medications and anticoagulation) • Assessment of orthostatic vital signs, polypharmacy, and home environment • Referral to geriatrics • Referral to physical and/or occupational therapy • Provision of education about falls • Consideration for palliative care
Social environment	Social isolation	<ul style="list-style-type: none"> • Ask about living situation and social contacts (N = 5) • Ask about their life space, leaving their home (N = 1) 	<ul style="list-style-type: none"> • Increase socialization through community center involvement and/or home care services • Consideration for palliative care
	Loneliness	<ul style="list-style-type: none"> • Ask patient (N = 1) 	<ul style="list-style-type: none"> • Ask about social support • Consideration for palliative care
	Financial means	<ul style="list-style-type: none"> • Discuss cost of medications (N = 1) 	<ul style="list-style-type: none"> • Referral to programs that facilitate cost reduction of medications

Abbreviations: ADL, activity of daily living; EMR, electronic medical record; GAD-7, Generalized Anxiety Disorder seven-item scale; IADL, instrumental ADL; PHQ-2, Patient Health Questionnaire-2; SOF, Study of Osteoporotic Fracture.

30 minutes. Approximately a third of respondents reported that they conduct assessments on their own, without the assistance of any other personnel (Supplementary Figure S2B).

DISCUSSION

The domain management approach has been proposed as the optimal care model for older adults with HF.² Key findings

were that respondents often assess multiple domains and subdomains, and they view these domains and subdomains as having an impact on several aspects of care; but the subdomains assessed and the tools used to assess these subdomains differed across respondents. These data provide insight on the relevance of the domain management approach to the care of older adults with HF and ongoing challenges to its implementation.

The domain management approach has yet to be validated; however, our findings indicate that aspects of this model are commonly used by active physician members in the geriatric cardiology community and provide important information for clinical care. Indeed, respondents frequently reported systematically assessing the medical, mind and emotion, and physical function domains; and they reported that almost every subdomain had an impact on multiple aspects of care. This included informing prognosis, which shapes discussions regarding health goals and priorities, as well as the risk-benefit ratios of various diagnostic studies and therapeutic interventions. For example, frailty may affect decision making for placement of an implantable cardioverter-defibrillator for primary prevention¹¹ or implantation of a left ventricular assist device.^{12,13} Subdomain deficits are relevant to medication management as well. For example, the risk of adverse drug reactions increases in the setting of polypharmacy, cognitive impairment, and frailty.¹⁴⁻¹⁶ These deficits can alter the risk-benefit ratio of several different medications, perhaps even those in HF clinical practice guidelines. Indeed, many respondents in this study reported that they would consider deprescribing¹⁷ in the setting of polypharmacy, cognitive impairment, and frailty. Taken together, our findings provide empirical support for utilizing the domain management approach in the care of older adults with HF, and they highlight the need to formally validate the domain management approach as a care model to improve patient-centered outcomes in older adults with HF.

While we found that respondents commonly assessed multiple subdomains, we noted substantial heterogeneity in the methods used to identify deficits in these subdomains. This was especially noteworthy for frailty. While many of these tests include overlapping components (eg, the sit-to-stand maneuver is a component of the SPPB and the Essential Frailty Toolset), our findings demonstrate the lack of consensus on how best to assess frailty in older adults with HF. The variability across several other domains and subdomains observed in this study indicates that this lack of consensus is a global issue for components highlighted in the domain management approach. Accordingly, our findings highlight the need to develop best practices for assessing the domains and subdomains outlined in the domain management approach in older adults with HF.

While the majority of respondents typically assessed some aspect of the medical, mind and emotion, and physical function domains, the subdomains varied. For example, nutrition, sensory impairments, depressive symptoms, anxiety symptoms, social isolation, and loneliness were each routinely assessed by 50% or less of the cohort. This is particularly notable because we found this among a select cohort of perhaps the strongest proponents of the domain management approach. There are several possible reasons for this. First, clinicians may not have sufficient time to assess these subdomains, in part due to the current reimbursement structure, which does not account for time spent on conducting geriatric assessments. Respondents reported having as little as 20 minutes to see new patients; and many did not have additional support staff to assist with assessments. Second, it may be unclear how to best assess various subdomains. For example, respondents reported six different ways to assess frailty and seven different ways to assess nutrition. Third, it may not be clear what to do with the findings. For example, identifying loneliness might prompt a more

thorough evaluation of social support, but interventions to address deficits in this area remain underdeveloped. Last, it is not clear which subdomains should be routinely assessed and which should be assessed on an as-needed basis. Taken together, these limitations support the need to systematically study the impact of the domain management approach in older adults with HF. In the meantime, it may be reasonable to develop a consensus on how best to assess various domains and subdomains and to devise strategies that directly address deficits when present. Practice models that incentivize comprehensive and patient-centric evaluations for older adults are needed¹⁸; whether the domain management approach can provide a formal model of such care is unknown and represents another potential area for future study.

There are some important limitations that we wish to note. We surveyed 15 active participants in the geriatric cardiology community, predominantly from academic settings. Accordingly, their responses reflect expertise and experience that is not representative of all clinicians caring for older adults with HF, and probably represent the current best-case scenario for the implementation of the domain management approach. Future study on how a broader cohort of clinicians caring for older adults with HF can incorporate the domain management approach into clinical care is warranted.

CONCLUSIONS

We describe how selected active physician members from the geriatric cardiology community incorporate the domain management approach in their clinical care of older adults with HF. While there were similarities in how various subdomains were reported to impact care, we found substantial heterogeneity regarding the subdomains that were routinely evaluated and the assessment tools that were used. These observations provide a foundation that informs a research agenda with regard to providing holistic and patient-centered care to older adults with HF.

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Conflicts of Interest: None.

Author Contributions: Dr Goyal and Dr Gorodeski had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: All authors.

Acquisition, analysis, or interpretation of data: Goyal, Gorodeski, and Hummel.

Drafting of the manuscript: Goyal, Gorodeski, and Hummel.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Goyal, Gorodeski, and Hummel.

Administrative, technical, or material support: Maurer, Rich, and Alexander.

Study supervision: Maurer, Rich, and Alexander.

Sponsor's Role: The sponsor did not have a role in the design, methods, subject recruitment, data collections, analysis, or preparation of the manuscript.

REFERENCES

- Benjamin EJ, Virani SS, Callaway CW, et al. Heart disease and stroke statistics-2018 update: a report from the American Heart Association. *Circulation*. 2018;137(12):e67-e492.
- Gorodeski EZ, Goyal P, Hummel SL, et al. Domain management approach to heart failure in the geriatric patient: present and future. *J Am Coll Cardiol*. 2018;71(17):1921-1936.
- Borson S, Scanlan JM, Chen P, Ganguli M. The Mini-Cog as a screen for dementia: validation in a population-based sample. *J Am Geriatr Soc*. 2003; 51(10):1451-1454.
- Tam E, Gandesbery BT, Young L, Borson S, Gorodeski EZ. Graphical instructions for administration and scoring the Mini-Cog: results of a randomized clinical trial. *J Am Geriatr Soc*. 2018;66(5):987-991.
- Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care*. 2003;41(11):1284-1292.
- Lowe B, Decker O, Muller S, et al. Validation and standardization of the Generalized Anxiety Disorder screener (GAD-7) in the general population. *Med Care*. 2008;46(3):266-274.
- Volpato S, Cavalieri M, Sioulis F, et al. Predictive value of the Short Physical Performance Battery following hospitalization in older patients. *J Gerontol A Biol Sci Med Sci*. 2011;66(1):89-96.
- Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci*. 2001;56(3):M146-M156.
- Afilalo J, Lauck S, Kim DH, et al. Frailty in older adults undergoing aortic valve replacement: the FRAILTY-AVR study. *J Am Coll Cardiol*. 2017;70(6):689-700.
- Ensrud KE, Ewing SK, Taylor BC, et al. Comparison of 2 frailty indexes for prediction of falls, disability, fractures, and death in older women. *Arch Intern Med*. 2008;168(4):382-389.
- Chen MY, Orkaby AR, Rosenberg MA, Driver JA. Frailty, implantable cardioverter defibrillators, and mortality: a systematic review. *J Gen Intern Med*. 2019. <https://doi.org/10.1007/s11606-019-05100-9>. [Epub ahead of print].
- Dunlay SM, Park SJ, Joyce LD, et al. Frailty and outcomes after implantation of left ventricular assist device as destination therapy. *J Heart Lung Transplant*. 2014;33(4):359-365.
- Chung CJ, Wu C, Jones M, et al. Reduced handgrip strength as a marker of frailty predicts clinical outcomes in patients with heart failure undergoing ventricular assist device placement. *J Card Fail*. 2014;20(5):310-315.
- Marcum ZA, Amuan ME, Hanlon JT, et al. Prevalence of unplanned hospitalizations caused by adverse drug reactions in older veterans. *J Am Geriatr Soc*. 2012;60(1):34-41.
- Larson EB, Kukull WA, Buchner D, Reifler BV. Adverse drug reactions associated with global cognitive impairment in elderly persons. *Ann Intern Med*. 1987;107(2):169-173.
- Jyrkka J, Enlund H, Lavikainen P, Sulkava R, Hartikainen S. Association of polypharmacy with nutritional status, functional ability and cognitive capacity over a three-year period in an elderly population. *Pharmacoepidemiol Drug Saf*. 2011;20(5):514-522.
- Krishnaswami A, Steinman MA, Goyal P, et al. Deprescribing in older adults with cardiovascular disease. *J Am Coll Cardiol*. 2019;73(20):2584-2595.
- American Geriatrics Society Expert Panel on the Care of Older Adults With Multimorbidity. Patient-centered care for older adults with multiple chronic conditions: a stepwise approach from the American Geriatrics Society. *J Am Geriatr Soc*. 2012;60(10):1957-1968.

SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article.

Supplementary Figure S1: Geographic location of respondents.

Supplementary Figure S2: Time and resources available to implement the domain management approach, according to respondents. A, Distribution of time allotted for patient office visits. B, Percentage of respondents who reported having personnel available to help with domain and subdomain assessments.

Supplementary Table S1: Characteristics of survey respondents.

Supplementary Text S1: Survey questions.