



# Geriatric and Palliative Care Specialists as Valued Members of the Multidisciplinary Heart Team

Clinicians with expertise in geriatrics and palliative care are currently not part of the minimal requirements of the multidisciplinary heart team (MDHT) focused on enhancing care of patients with structural heart disease (SHD).<sup>1,2</sup> Although the concept of palliation is embedded in the consciousness of the cardiovascular team, and the incorporation of primary and secondary palliative care expertise has gained momentum, current guidelines<sup>1</sup> and expert consensus<sup>2</sup> documents have not formalized the role that geriatric and palliative care specialists can play in the MDHT. We believe their addition as valued MDHT members can enhance SHD care.<sup>3</sup>

In accordance with current payor guidance, consultations of geriatric and palliative care by the MDHT are often and unfortunately based predominantly on an effort to

determine the presence or absence of futility.<sup>4</sup> This is in contrast to a more expansive and composite goal of matching treatment with specific patient-centered goals (eg, physical goals, cognitive goals) and a reduction of major adverse cardiovascular events as well as a reduction of serious adverse events. It is important to recognize that both geriatric and palliative care experts uniformly seek to find what matters most<sup>5</sup> to patients, emphasizing patient-centered care.

Specialty expertise in aging, comfort, and quality of life can provide further important insights into biological age through comprehensive geriatric domain assessments<sup>6</sup> that incorporate treatment plans with specific goals of care (Figure). The overarching domains and the individual components are as follows: medical or surgical domain (ie,

**Funding:** None.

**Conflicts of Interest:** AK, GMB report none. DLB reports serving on the advisory board for Boehringer Ingelheim, Cardax, CellProthera, Cereno Scientific, Elsevier Practice Update Cardiology, Janssen, Level Ex, Medscape Cardiology, MyoKardia, NirvaMed, Novo Nordisk, PhaseBio, PLx Pharma, Regado Biosciences, and Stasys; serving on the board of directors for Boston VA Research Institute, Society of Cardiovascular Patient Care, and TobeSoft; serving as chair: Inaugural Chair, American Heart Association Quality Oversight Committee; serving on data monitoring committees for Baim Institute for Clinical Research (formerly Harvard Clinical Research Institute, for the PORTICO trial, funded by St. Jude Medical, now Abbott), Boston Scientific (Chair, PEITHO trial), Cleveland Clinic (including for the ExCEED trial, funded by Edwards), Contego Medical (Chair, PERFORMANCE 2), Duke Clinical Research Institute, Mayo Clinic, Mount Sinai School of Medicine (for the ENVISAGE trial, funded by Daiichi Sankyo), Novartis, and Population Health Research Institute; receiving honoraria from the American College of Cardiology (Senior Associate Editor, Clinical Trials and News, ACC.org; Chair, ACC Accreditation Oversight Committee), Arnold and Porter law firm (work related to Sanofi/Bristol-Myers Squibb clopidogrel litigation), Baim Institute for Clinical Research (formerly Harvard Clinical Research Institute; RE-DUAL PCI clinical trial steering committee funded by Boehringer Ingelheim; AEGIS-II executive committee funded by CSL Behring), Belvoir Publications (Editor in Chief, Harvard Heart Letter), Canadian Medical and Surgical Knowledge Translation Research Group (clinical trial steering committees), Cowen and Company, Duke Clinical Research Institute (clinical trial steering committees, including for the PRONOUNCE trial, funded by Ferring Pharmaceuticals), HMP Global (Editor in Chief, Journal of Invasive Cardiology), Journal of the American College of Cardiology (Guest Editor; Associate Editor), K2P (Co-Chair, interdisciplinary curriculum), Level Ex, Medtelligence/

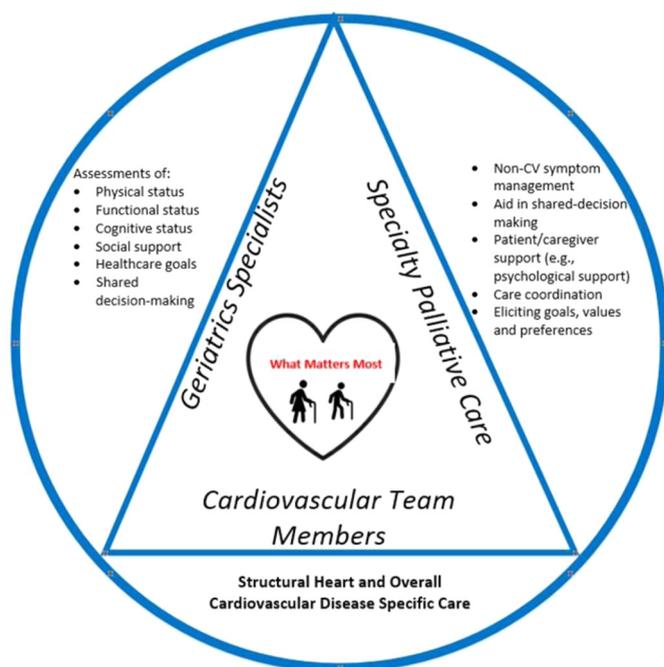
ReachMD (CME steering committees), MJH Life Sciences, Piper Sandler, Population Health Research Institute (for the COMPASS operations committee, publications committee, steering committee, and USA national co-leader, funded by Bayer), Slack Publications (Chief Medical Editor, Cardiology Today's Intervention), Society of Cardiovascular Patient Care (Secretary/Treasurer), and WebMD (CME steering committees); as well as affiliations with Clinical Cardiology (Deputy Editor), NCDR-ACTION Registry Steering Committee (Chair), and VA CART Research and Publications Committee (Chair); receiving research funding from Abbott, Afimmune, Amarin, Amgen, AstraZeneca, Bayer, Boehringer Ingelheim, Bristol-Myers Squibb, Cardax, CellProthera, Cereno Scientific, Chiesi, CSL Behring, Eisai, Ethicon, Faraday Pharmaceuticals, Ferring Pharmaceuticals, Forest Laboratories, Fractyl, Garmin, HLS Therapeutics, Idorsia, Ironwood, Ischemix, Janssen, Javelin, Lexicon, Lilly, Medtronic, MyoKardia, NirvaMed, Novartis, Novo Nordisk, Owkin, Pfizer, PhaseBio, PLx Pharma, Regeneron, Reid Hoffman Foundation, Roche, Sanofi, Stasys, Synaptic, The Medicines Company, and 89Bio; receiving royalties from Elsevier (Editor, Cardiovascular Intervention: A Companion to Braunwald's Heart Disease); serving as site coinvestigator for Abbott, Biotronik, Boston Scientific, CSI, St. Jude Medical (now Abbott), Philips, and Svelte; and serving as a trustee for the American College of Cardiology; Unfunded Research: FlowCo, Merck, and Takeda.

**Authorship:** All authors had access to the data and a role in writing this manuscript.

Requests for reprints should be addressed to Ashok Krishnaswami, MD, MAS. Kaiser Permanente San Jose Medical Center, Division of Cardiology, 270 International Circle, Building 3, 2nd Floor, San Jose, CA 95119.

E-mail address: [ashok.krishnaswami@kp.org](mailto:ashok.krishnaswami@kp.org)

Twitter: @cardskrish



**Figure** Geriatrics and Palliative Care Specialists as Valued members of the Multidisciplinary Heart Team in the Care of Older Adults with Structural Heart Disease. Cardiovascular team members include cardiologists, cardiothoracic surgeons, registered nurses, advanced care providers, and pharmacists. Geriatrics specialists include those who have formal training in geriatrics and cardiovascular diseases or have geriatric cardiology clinical or research expertise based on geriatrics precepts. Specialty palliative care includes those who have formal training or expertise in palliative care in addition to other training (eg, internal medicine, family medicine, geriatrics, cardiology, pulmonology, nephrology).

assessments of SHD and overall cardiovascular specific care, polypharmacy, deprescribing, multimorbidity, nutrition), cognitive domain (ie, assessments of mild cognitive impairment, dementia, delirium, depression), physical domain (ie, assessments of vision, hearing, frailty, balance, fall risk, function including activities of daily living, instrumental activities of daily living, and higher physical functioning activities such as Nagi and Rosow-Breslau), and social domain (ie, assessments of home, socialization, financial support). An important final domain is a goals-of-care discussion that should incorporate both SHD-specific and overarching goal<sup>3</sup> data while accounting for individual thresholds of treatment burden. Discovering the presence or lack of geriatric conditions may alter the perception of an individual's biologic age, resulting in the possibility of a change in the health care management plan.

Ageing specialists can augment shared decision-making processes by incorporating statistical concepts from key clinical trials that are not routinely considered.<sup>7</sup> Unlike the concept of absolute risk, number needed to treat or harm, or hazard ratio, restricted mean survival time (RMST), days alive and out of hospital (DAOH), time to benefit (TTB) and time to harm (TTH) are considered patient-centric statistical tools. Because there are no specific examples of

these statistical concepts in SHD to our knowledge, we use examples from other cardiovascular illness states.

RMST incorporates the concept of added days free from an outcome over a predefined period of time, allowing clinicians with aging expertise to incorporate such studies into their clinical judgment. For example, an implantable cardioverter defibrillator in the Sudden Cardiac Death in Heart Failure trial prolonged survival from 49.1 months to 51.4 months. This was an additional +2.29 months (95% confidence interval CI: 0.59-3.98,  $P = .01$ ) over 5 years.<sup>8</sup>

DAOH has recently reaped substantial attention as an important patient-centered outcome. In its comprehensive application, it addresses days alive, incidence of hospital readmissions, and the freedom from admission to an acute care, long-term care, or skilled nursing facility. It could be considered a cardiovascular disease-agnostic quality metric in older adults. In the Effect of Sotagliflozin on Cardiovascular Events in Patients with Type 2 Diabetes Post Worsening Heart Failure trial, the sotagliflozin group had a 3% higher DAOH than the placebo group [rate ratio, 1.03, 95% confidence interval: 1.00-1.06,  $P = .027$ ].<sup>9</sup>

TTB and TTH are important concepts in older adults because some interventions with a shorter TTH and prolonged TTB may unmask individuals with decreased life expectancy to harm with lower probability of remaining alive to experience the benefits. For example, in the Systolic Blood Pressure Intervention Trial, the TTB with intensive blood pressure treatment was 1-year, whereas the TTH was 3 months.<sup>10</sup> Therefore, individuals with life expectancy of <1 year may not benefit from intensive blood pressure treatment. In addition, failure to account for the competing risk of mortality in older adults can result in inappropriately overestimating the probability of occurrence of an event.

Palliative care specialists are increasingly asked to help with conversations about goals of care, as well as aid in improving symptoms and quality of life. Eliciting goals of care often requires heightened prognostic awareness in patients and caregivers. The “palliative” should not imply an approach to care for patients with SHD that is either “interventional” or “medical” because it can be both. It may also include other approaches such as spiritual care. Not only can experts in palliative care and geriatrics offer guidance to improve function, symptoms, and quality of life among patients with severe SHD, but they can also provide valuable input on decision-making in patients with complex serious illness. The success with increasing use of palliative care among patients with heart failure should now be translated to patients with SHD.<sup>11</sup>

The current insufficient geriatric and palliative care workforce further underscores the need to incorporate geriatric and palliative care precepts in novel manners. Geriatrician demand is expected to increase by 45% by 2025 with a projected shortage of 30,000 geriatricians. Integrating comprehensive geriatric assessments using technology (eg, clinical decision support tools) and possible role expansion of current MDHT members will need to be considered. Advance practice providers such as nurse practitioners and

physician assistants, potentially capable of further training in geriatrics and palliative care, may help to address some components of the shortage. Licensed social workers in some organizations have conducted cognitive examinations and addressed goals of care. The impending change in US demographics, leading to an increase in older adults with higher prevalence of SHD, should be met with appropriate and creative enhancements in the workforce to meet these challenges. Using novel and creative tools, the time has come to address the comprehensive needs of an aging population whose cardiovascular interventions have become more widely available.

## ACKNOWLEDGMENTS

We wish to thank Dr James Kirkpatrick, MD (Chair, Geriatric Cardiology Section, American College of Cardiology), for his review of the manuscript.

Ashok Krishnaswami, MD, MAS<sup>a,b,c</sup>

Gwen M. Bernacki, MD<sup>d,e,f</sup>

Deepak L. Bhatt, MD, MPH<sup>g</sup>

<sup>a</sup>Section of Geriatric Medicine,  
Division of Primary Care and  
Population Health, Stanford  
University School of Medicine,  
Stanford, Calif

<sup>b</sup>Geriatric Research, Education and  
Clinical Center. US Department of  
Veterans Affairs, VA Palo Alto  
Health Care System, Palo Alto,  
Calif

<sup>c</sup>Division of Cardiology, Kaiser  
Permanente San Jose Medical  
Center, San Jose, Calif

<sup>d</sup>Division of Cardiology, University  
of Washington, Seattle

<sup>e</sup>Cambia Palliative Care Center of  
Excellence, University of  
Washington, Seattle

<sup>f</sup>Hospital and Specialty Medicine,  
Veterans Administration of Puget  
Sound, Seattle, Wash

<sup>g</sup>Brigham and Women's Hospital  
Heart and Vascular Center,  
Harvard Medical School,  
Boston, Mass

## References

- Otto CM, Nishimura RA, Bonow RO, et al. 2020 ACC/AHA Guideline for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation* 2021;143(5):e72–e227.
- Nishimura RA, O'Gara PT, Bavaria JE, et al. 2019 AATS/ACC/ASE/SCAI/STS Expert Consensus Systems of Care Document: A Proposal to Optimize Care for Patients With Valvular Heart Disease: A Joint Report of the American Association for Thoracic Surgery, American College of Cardiology, American Society of Echocardiography, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. *J Am Coll Cardiol* 2019;73(20):2609–35.
- Bell SP, Orr NM, Dodson JA, et al. What to expect from the evolving field of geriatric cardiology. *J Am Coll Cardiol* 2015;66(11):1286–99.
- Lindman BR, Alexander KP, O'Gara PT, Afilalo J. Futility, benefit, and transcatheter aortic valve replacement. *JACC Cardiovasc Interv* 2014;7(7):707–16.
- Tinetti ME, Naik AD, Dodson JA. Moving from disease-centered to patient goals-directed care for patients with multiple chronic conditions: Patient value-based care. *JAMA Cardiol* 2016;1(1):9–10.
- 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):1921–36.
- Krishnaswami A, Forman DE, Maurer MS, Lei SJ. A decision-making framework for objective risk assessment in older adults with severe symptomatic aortic stenosis. *Curr Geriatr Rep* 2015;4:338–46.
- McCaw ZR, Orkaby AR, Wei LJ, Kim DH, Rich MW. Applying evidence-based medicine to shared decision making: Value of restricted mean survival time. *Am J Med* 2019;132(1):13–5.
- Szarek M, Bhatt DL, Steg PG, et al. Effect of sotagliflozin on total hospitalizations in patients with type 2 diabetes and worsening heart failure: a randomized trial. *Ann Intern Med* 2021;174(8):1065–72.
- Krishnaswami A, Peterson ED, Goyal P, Kim DH, Rich MW, Lee SJ. Time to benefit and harm of intensive blood pressure treatment: Insights from SPRINT. *Eur Heart J Qual Care Clin Outcomes* 2021;7(4):e1–2.
- Mandawat A, Heidenreich PA, Mandawat A, Bhatt DL. Trends in palliative care use in veterans with severe heart failure using a large national cohort. *JAMA Cardiol* 2016;1(5):617–9.