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AHA SCIENTIFIC STATEMENT

Patient-Centered Adult Cardiovascular Care: A Scientific Statement From the American Heart Association

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ABSTRACT: Patient-centered care is gaining widespread acceptance by the medical and lay communities and is increasingly recognized as a goal of high-quality health care delivery. Patient-centered care is based on ethical principles and aims at establishing a partnership between the health care team and patient, family member, or both in the care planning and decision-making process. Patient-centered care involves providing respectful care by tailoring management decisions to patients' beliefs, preferences, and values. A collaborative care approach can enhance patient engagement, foster shared decision-making that aligns with patient values and goals, promote more personalized and effective cardiovascular care, and potentially improve patient outcomes. The objective of this scientific statement is to inform health care professionals and stakeholders about the role and impact of patient-centered care in adult cardiovascular medicine. This scientific statement describes the background and rationale for patient-centered care in cardiovascular medicine, provides insight into patient-oriented medication management and patient-reported outcome measures, highlights opportunities and strategies to overcome challenges in patient-centered care, and outlines knowledge gaps and future directions.

Key Words: AHA Scientific Statements ■ cardiovascular diseases ■ decision-making ■ patient-centered care ■ patient-reported outcomes ■ structural determinants of health

Cardiovascular diseases (CVDs) are a leading cause of morbidity and mortality worldwide. In the United States, nearly half of all adults have at least 1 key cardiovascular risk factor (hypertension, hyperlipidemia, or smoking), and 1 in 5 deaths is due to CVD.[1,2] Efforts to address this high population burden of CVD have traditionally involved a disease-centered care approach. A disease-centered approach may be appropriate when individuals have 1 predominant disease and the same outcome is desired by all those with the disease (ie, prolonged survival). However, many variables may influence an individual's health priorities such as social determinants of health (SDOH), cultural differences, financial cost, time requirement, potential discomfort, self-efficacy, and comorbid disease.[3] Many of these factors may be considered by the patient but, if not elicited by the health care practitioner, may not be explicitly expressed and incorporated into treatment planning. Thus, disease-centered recommendations may not address what matters most to many patients who have varied health care priorities and preferences.

Although there is no standard, agreed-on definition of patient-centered care, there is conceptual agreement about the core elements. Patient-centered care involves being respectful of the patient's beliefs, preferences, values, and expressed needs; providing information and education to empower patients to make informed decisions; integrating family and loved ones into care; considering physical comfort and emotional support; ensuring access to care; and developing an active partnership among the patient, family, and health care team (Figure 1).[4]

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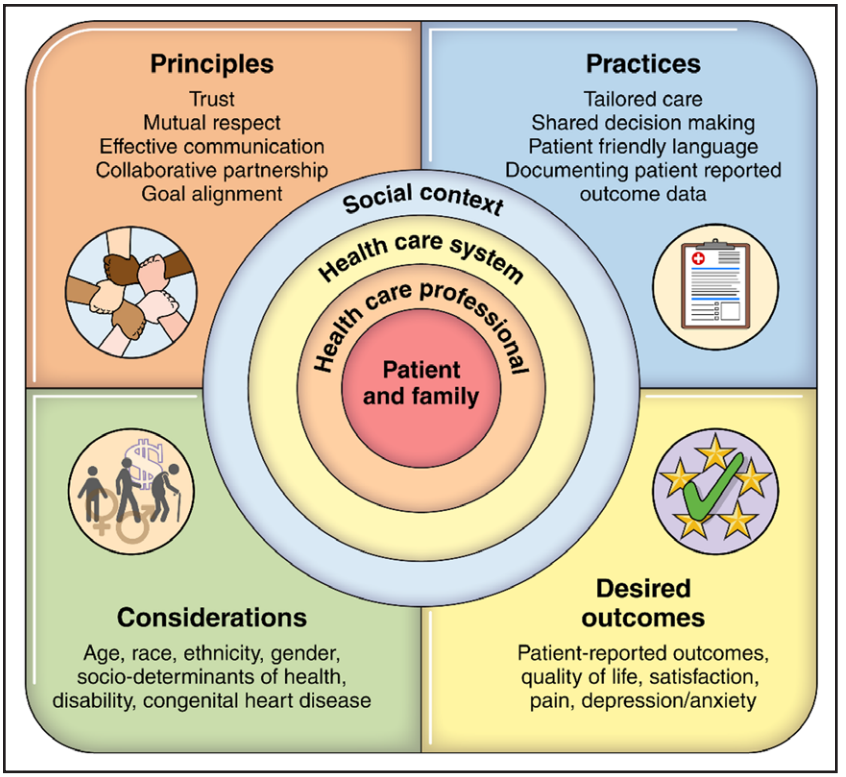

Figure 1. An overview of patient-centered care and what it encompasses.

Patient-centered care may also be defined by what it is not. Patient-centered care is not patient-dictated care, allowing patients to choose what they want when they want it. Rather, patient-centered care involves seeing the patient as a person, appreciating how their experiences and particular psychosocial context affect their health trajectory. Patient-centered care is not a departure from evidence-based practice, which is a cornerstone of contemporary cardiovascular medicine. Optimal patient-centered care delivery integrates clinical expertise and the latest evidence with the patient's health priorities.[5] A patient-centered approach is truly personalized medicine; the individual's needs and desired health outcomes are the focus of care planning and decision-making. Achieving patient-centered care can be a dynamic process that starts as disease centered and evolves into a more patient-focused approach as disease advances and the relationship among patients, family, and the health care professional develops.

Patient-centered care is increasingly recognized as a goal of cardiovascular care delivery. A 2012 statement on patient-centered care in cardiovascular medicine from the American College of Cardiology Foundation advocated for integration of patient-centered care strategies into routine cardiovascular care.[6] Subsequently, cardiovascular medicine training recommendations strongly emphasized the need to develop a patient-centered approach to cardiovascular care.[7] Cardiovascular professional society guidelines have increasingly incorporated patient-centered approaches in their care recommendations.[8] A recent American Heart Association scientific statement focused on the role of family members as key contributors to patient-centered care.[9]

There is a need for a practical guide for the cardiovascular clinician on patient-centered care in cardiovascular medicine. Thus, this scientific statement synthesizes the evidence to describe the role of shared decision-making, collaborative care, patient-oriented medication management, patient-oriented outcomes, challenges in patient-centered care, practical strategies to incorporate patient-centered care into clinical practice, patient and copatient perspectives, and knowledge gaps and future directions. The overarching objective of this scientific statement is to provide the cardiovascular clinician with the understanding and practical tools to incorporate a patient-centered care approach into routine clinical practice.

SHARED DECISION-MAKING

Shared decision-making is one of the foundational components of patient-centered care. Shared decision-making emphasizes a collaborative partnership among clinicians, patients, and family members, fostering a relationship built on trust, mutual respect, and effective communication and ensuring that all parties feel heard and valued. Meaningful shared decision-making to achieve ideal therapy is a longitudinal process and requires regular updates with patients about their health status, providing understandable health information and evaluating patient comprehension.

Shared decision-making leads to increased patient knowledge of their cardiovascular conditions and

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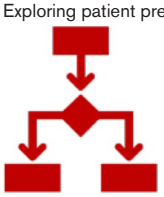
self-efficacy, reduced decisional conflict, improved patient-reported health outcomes, and better use of health care resources in CVD (Table).[3,10,11] Advances in technology, telemedicine, remote monitoring, artificial intelligence (AI), and digital communication platforms play a significant role in facilitating access to medical information, sharing test results, accessing decision support tools, and engaging in shared decision-making discussions.[1] Shared decision-making is also recognized as an important necessity to address disparities and health inequities in CVD.[12] Cardiovascular professional societies and health care organizations have developed recommendations and policies to promote shared decision-making in cardiovascular medicine.[6,8,9] Shared decision-making is required for reimbursement coverage by the Centers for Medicare & Medicaid Services for certain cardiovascular procedures.[13]

Shared decision-making is a critical component of diagnostic and management decisions across the CVD spectrum. In patients with cardiovascular risk factors but without symptoms or a diagnosis of CVD, shared decision-making in screening for CVD usually entails a

Table. Fundamental Components and Practical Steps of Shared Decision-Making

Information sharing 	Health care clinicians should strive to provide clear and relevant information to patients and their families about their cardiovascular condition, treatment options, potential benefits, risks, and uncertainties. Complicated medical jargon should be avoided.
Patient education 	Patients and family members should be provided education about the risk factors, prognosis, treatment options, and their potential impact on patient-centered and clinical outcomes; the risks of proceeding or not proceeding with treatment; and the importance of adherence to treatment plans
Exploring patient preferences 	Health care clinicians should engage in collaborative communication with patients and their families to understand their values, preferences, and goals related to their cardiovascular health
Decision support tools 	Decision aids or tools, for example, brochures, videos, and interactive online platforms, can help patients and families better comprehend complex medical information, evaluate the pros and cons of different treatment options, and make better informed and values-congruent decisions
Deliberation and discussion 	Health care clinicians should facilitate open, bidirectional, and nondirective discussions to encourage patients and families to ask questions, express their concerns, and discuss their management preferences, taking risks, benefits, and uncertainties into consideration
Shared decision-making agreement 	After considering patient preferences, clinicians and patients/families work together to arrive at a shared decision that aligns with the patient's values and goals. The explanations for each patient should be tailored with an intent to understand the patient's values, preferences, and goals.
Ongoing communication and review 	Health care practitioners should maintain regular communication with patients and families, reviewing and reassessing the treatment plan as needed on the basis of changes in the patient's condition and preferences or new medical evidence

discussion of the indications for screening, benefits and risks of screening, and types of screening (eg, risk tool, biomarker, imaging, stress test, genetic screening). In patients with cardiac symptoms, shared decision-making can include a discussion of suspected diagnoses, risks and benefits of diagnostic and treatment strategies, and expected outcomes (eg, resolution of symptoms, improvement in quality of life, functional capacity, rehospitalizations, and mortality). In patients with established CVD, shared decision-making typically includes ongoing discussions of prognosis, risks and benefits of management and treatment strategies, and expected outcomes. Shared decision-making is also important across transitions of care in CVD. These include but are not limited to decisions for appropriate levels of care (eg, admission to intensive care unit or acute care unit, referral to a long-term care facility, or hospice), referral for advanced care (eg, referral for valvular or cardiac structural intervention, mechanical circulatory support, or cardiac transplantation), and multidisciplinary care coordination (eg, management in collaboration with primary care physicians, advanced practitioners, palliative care, or other specialists).

When considering shared decision-making in CVD, health care professionals should consider ethical and practical issues related to partnership, autonomy, beneficence, capacity, and competency.[14] In shared decision-making, respecting patient autonomy and empowering patients to actively participate in decision-making according to their personal values and beliefs are crucial. Clinicians should act with the principle of beneficence in the best interest of the patient and promoting their well-being, considering the patient's individual circumstances and preferences. Clinicians must assess the patient's decision-making capacity and consider the patient's health literacy level.

COLLABORATIVE CARE

A collaborative care approach can provide timely, comprehensive, and personalized care tailored to the patient's preferences, needs, and values.[15] Individuals with advanced CVD, chronic comorbid conditions, and complex psychosocial contexts and those from historically underrepresented or at-risk population groups may particularly benefit from a coordinated care approach. Collaboration could occur in the form of an interprofessional health care team with a composition that may vary depending on the clinical setting, local capabilities, and patient needs. For example, a longitudinal cardiology clinic may include a CVD specialist, a pharmacist, and a nurse as the core clinical team, with ad hoc involvement of a social worker or community health worker, nutritionist, physical therapist, behavioral health professional, or patient care navigator. There should be expeditious access to the patient's primary care physician and other treating medical specialists. A collaborative care approach may be useful in assisting patients and their families with comprehensive goal-setting discussions, long-term care planning, continuity and transitions in care, and health care system navigation. In-person or virtual group meetings involving the patient, family, and relevant care team members could facilitate decision-making and care planning, particularly for complex cases. It could also prevent a lack of alignment within the multidisciplinary team internally, which could lead to tension and dissatisfaction. The organization of effective systems of coordinated multidisciplinary care could improve patient-centered cardiovascular care delivery.

PATIENT-ORIENTED MEDICATION MANAGEMENT

The impact of guideline-directed medical therapy on morbidity and mortality in CVD is well established.[2,8] However, it is imperative for clinicians to individualize medication management according to patient-related and drug-related factors (Supplemental Figure S1). A recent systematic review with meta-analysis of cardiovascular medication prescribing revealed substantial practice variation and both medication overuse and underuse in primary and secondary prevention.[16] Tools to identify potentially inappropriate medications for deprescribing include the Screening Tool of Older People's Prescriptions criteria and The Beers List; the Screening Tool to Alert Right Treatment criteria can be used to enable initiation of guideline-directed medical therapy in older adults with CVD.[17] Polypharmacy and nonadherence are other important considerations in determining appropriate patient-centered pharmacotherapy. The prevalence of nonadherence in patients with CVD is reported to be >50%, which may be attributed to the asymptomatic nature of hypertension and dyslipidemia, high pill burden, and excessive drug costs.[18] The use of combination pills, also known as polypills, is an effective strategy to mitigate financial toxicity and improve adherence.[19] In a randomized, controlled trial of diverse and socioeconomically vulnerable adults, prescribing a polypill that consisted of low-dose atorvastatin, amlodipine, losartan, and hydrochlorothiazide led to greater reductions in systolic blood pressure and low-density lipoprotein cholesterol than usual care.[20]

Clinicians should also integrate pharmacological principles to ensure drug safety and efficacy on the individual patient level. Assessing drug metabolism and excretion, in addition to disease-induced or age-induced physiological changes that may alter these processes, can guide clinicians in optimizing drug selection and dosing while avoiding drug interactions and adverse drug reactions. Personalized medicine that includes pharmacogenomic-guided prescribing based on genetic

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variation can improve drug response and reduce toxicity. Although evidence on cost-effectiveness is currently mixed, tailoring clopidogrel therapy for acute coronary syndrome and tailoring warfarin therapy for atrial fibrillation are current applications in CVD management.[21]

As part of the shared decision-making process, patient preferences and goals should be established and incorporated before initiating, titrating, or deprescribing therapy, and a multidisciplinary model should be considered to facilitate patient-centered medication management. In a retrospective study of 2390 patients receiving care at a preventive cardiology clinic, a team approach that leveraged the expertise of clinical pharmacists and advanced practitioners demonstrated high rates of evidence-based cardiovascular drug use, medication access and cost minimization, and low rates of adverse drug events.[22] Last, empowering patients to take an active role in their medication management can improve adherence, self-efficacy, and quality of care.[3,18,23]

IMPORTANT CONSIDERATIONS

People From Underrepresented Races and Ethnicities

People from underrepresented racial and ethnic populations have the highest cardiovascular morbidity and mortality burden and are often affected by adverse SDOH. Assessing and addressing SDOH is an important component of providing patient-centered cardiovascular care, especially for women[24] and individuals from underrepresented races and ethnicities.[25,26] Standardized tools that assess SDOH should be incorporated into electronic health records (EHRs). Once assessed, clinicians should work with a multidisciplinary health care team to ensure that these barriers to optimal cardiovascular care are removed. These teams often include social workers, community health workers, case managers, patient care navigators, care coordinators who are skilled and have experience with engaging patients from historically underrepresented groups, and patients in resource-limited health care settings.[25,26]

Multidisciplinary health care teams can be effective by tailoring these interventions to the specific patient's social needs, such as ensuring availability of interpreters or the use of language line services and addressing transportation needs and food insecurity issues. Linguistically appropriate and culturally competent care and patient engagement should be incorporated as key components of patient-centered cardiovascular care and clinical decision-making.

Race concordance has been associated with better outcomes such as adherence to cardiovascular medications.[27] A diverse health care team that is congruent with the patient population enhances the cultural competency of the health care team and the quality of clinical care delivery, in addition to reducing health care disparities.[28] Historically underrepresented groups are most affected by the adverse effects of unconscious bias and discrimination. Thus, health care practitioners and staff should undergo cultural competency and implicit bias training to mitigate the impact of unconscious bias and discrimination on providing optimal patient-centered cardiovascular care.[25]

Addressing Disparities in Cardiovascular Care and Outcomes

Disparate cardiovascular care results in worse cardiovascular outcomes, especially for groups who have a higher burden of CVD. To promote patient-centered cardiovascular care and improve cardiovascular outcomes for historically underrepresented groups, SDOH and structural barriers such as racism and discrimination must be addressed. Patient-centered care should be delivered with a health equity lens, especially for those patients who are often faced with the double-edged burden of the highest CVD morbidity and mortality and societal and structural inequities. With the adoption of mobile and digital health technologies and telemedicine in cardiovascular care, we must ensure that they do not widen these existing health care disparities. Recent evidence suggests that patient-driven, culturally tailored telehealth interventions and best practices that meet specific community and population needs can help address disparities and ensure effective telehealth implementation.[29] Patient-centered collaborations among clinicians, health care systems, professional societies, and government agencies should be promoted to eliminate the gaps in disparate cardiovascular care.[26]

Older Adults

To improve cardiovascular outcomes for older adults with CVD, an age-friendly integrated care model that incorporates the management of complex aging-related health issues faced by this group should be prioritized in both the inpatient and outpatient setting. This patient-centered care framework for elderly cardiovascular care should include the elicitation of goals and health care preferences, an appreciation of the prognosis of aging-related health issues, and deliberate management of age-associated risks such as polypharmacy, frailty, dementia, and falls.[30] Frailty status and dementia should be considered in the risk-benefit evaluation of cardiac procedures in older adults. Older adults with sarcopenia could also benefit from dose adjustment of certain medications such as direct oral anticoagulants.[31] Shared decision-making alignment with quality-of-life goals with preferred treatment options and access to optimal cardiovascular care should

remain the focal points for patient-centered care in older adults.[30]

Women

Patient-centered cardiovascular care should be implemented across the life course of women. Examples include multidisciplinary care teams such as pregnancy heart teams that provide comprehensive cardiovascular care for women with CVD in pregnancy with the potential to reduce pregnancy-related morbidity and mortality.[32] Heart centers for women provide specialized and focused cardiovascular care and patient education for women through collaboration with multispecialty care teams and partnership with patient-centered advocacy organization for women across their life course.[33]

Individuals With Behavioral and Mental Health Disorders

The interaction of psychological well-being and cardiovascular health has been well described.[34] For individuals with behavioral and mental health disorders who often face disparities in specialized cardiovascular care, the delivery of patient-centered cardiovascular care should include integrated behavioral health care, a collaborative care model that specifically addresses the unique challenges and barriers faced by this population.[35] Potential strategies should be targeted at the patient, health care practitioner, and health care system levels.[35]

Adult Congenital Heart Disease

Adults with congenital heart disease are an ever-growing patient population that frequently needs specialized team-based care. These patients often have lifelong interactions with the health care system at multiple levels and often require high-level medical and surgical care.

Individuals With Physical Disabilities

Individuals with physical disabilities often have reduced access to health services and self-report poorer overall health than those without disability.[36] Care planning may require customization to account for their abilities. Efforts should be made on a health care system level to ensure adequate access to preventive care and treatment of chronic conditions in individuals with physical disabilities.

PATIENT-ORIENTED OUTCOMES

Patient-reported outcomes (PROs) are reports of a person's health status that provide a global perspective of patient well-being across global, mental, physical, and social health. Common heart disease–specific PROs include physical functioning, symptom burden, emotional well-being, social functioning, and quality of life.[37] These domains reflect the multidimensional nature of CVD and its impact on various aspects of patients' lives. Systematic collection and evaluation of longitudinal patterns in PROs can detect subtle changes in a patient's disease trajectory that might otherwise be missed through monitoring of physiological measurements alone. When PROs are paired with physiological parameters, a more complete picture of health status and symptom progression allows health care professionals and patients to make more informed decisions about clinical care. When captured rigorously, PRO results can aid in decision-making, systematic reviews, meta-analysis, and clinical guideline development and ultimately influence health care policy.[38]

On an individual level, PROs provide a holistic picture of the consequences of the treatment or intervention and the impact it has on symptoms and quality of life. The Consensus-Based Standards for the Selection of Health Measurement Instruments checklist recommends using a multidomain approach for the measurement of PROs, including a selection of instruments across multiple domains and generic and disease-specific outcome assessments (Figure 2 and Supplemental Table S1).[39]

More research is needed to establish cohort-specific minimal clinically important difference scores for cardiac patients who are likely to have clinically relevant changes in PRO scores. Furthermore, establishing minimal clinically important differences will bolster routine use of PROs in clinical management of patients across different settings and for multiple cardiac diseases. Having tools available in multiple languages will increase representation from diverse patient populations. In addition, using digital versions of the validated instruments can also facilitate more rapid completion of PROs outside of the outpatient or inpatient environment. There is a need for more trials to include PROs, which would increase the evidence base supporting patient-centered care.

CHALLENGES TO PROVIDING PATIENT-CENTERED CARE

Barriers to achieving high-quality patient-centered care exist at the patient, clinician, health system, and societal levels (Figure 3). At the patient level, distrust of and unfamiliarity with the health system, health literacy, and difficulties with regular access to care may affect the ability of a patient to openly express their cardiovascular care treatment goals with the care team. There may be situations in which a patient would like to do something detrimental to their health such as leaving the hospital in an acute heart failure exacerbation or choosing to go home when discharge to an acute rehabilitation facility may be better. At the clinician level, competing time

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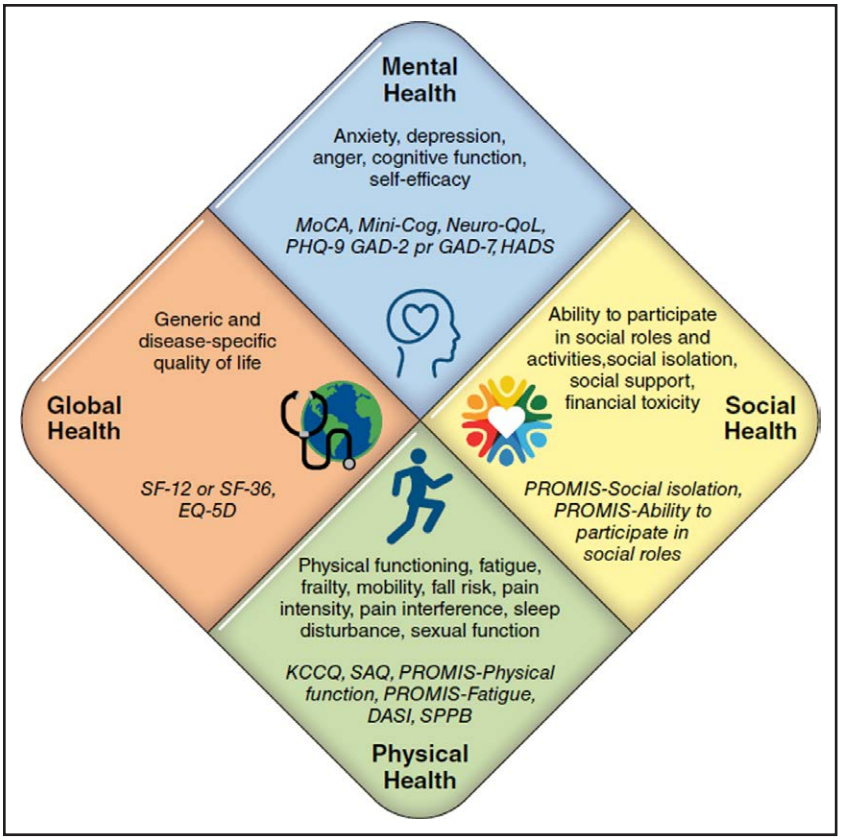

Figure 2. Four patient-reported outcome domains with select examples of instruments.
DASI indicates Duke Activity Status Index; EQ-5D, EuroQol; GAD, General Anxiety Disorder; HADS, Hospital Anxiety and Depression Scale; KCCQ, Kansas City Cardiomyopathy Questionnaire; MoCA, Montreal Cognitive Assessment; Neuro-QoL, Quality of Life in Neurological Disorders; PHQ-9, Patient Health Questionnaire-9; PROMIS, Patient Reported Outcomes Measurement Information System; SAQ; Seattle Angina Questionnaire; SF-12, Short-Form Health Survey 12 items; SF-36, Short-Form Health Survey 36 items; and SPPB, Short Physical Performance Battery.

demands and performance metrics that incentivize quantity over quality may impede meaningful engagement with patients about their care. With a growing number of evidence-based therapies and frequently updated practice guidelines to aid in the management of chronic cardiac conditions, incorporating shared decision-making and patient experiences may not be prioritized. At the system level, many health care systems have insufficient infrastructure to routinely collect PROs. Another barrier is the lack of team-based patient care in many health care systems. Many systems still rely on the individual physician, who is increasingly becoming overwhelmed by time constraints and an increased workload. This can lead both to physician burnout and to patient dissatisfaction. Transitions of care between different health systems and settings can also be vulnerable points in ensuring patient-centered care.[40] Coordination of processes and goal setting within the interprofessional team can improve patient-centeredness even in acute care settings.[41] At the societal level, challenges to the

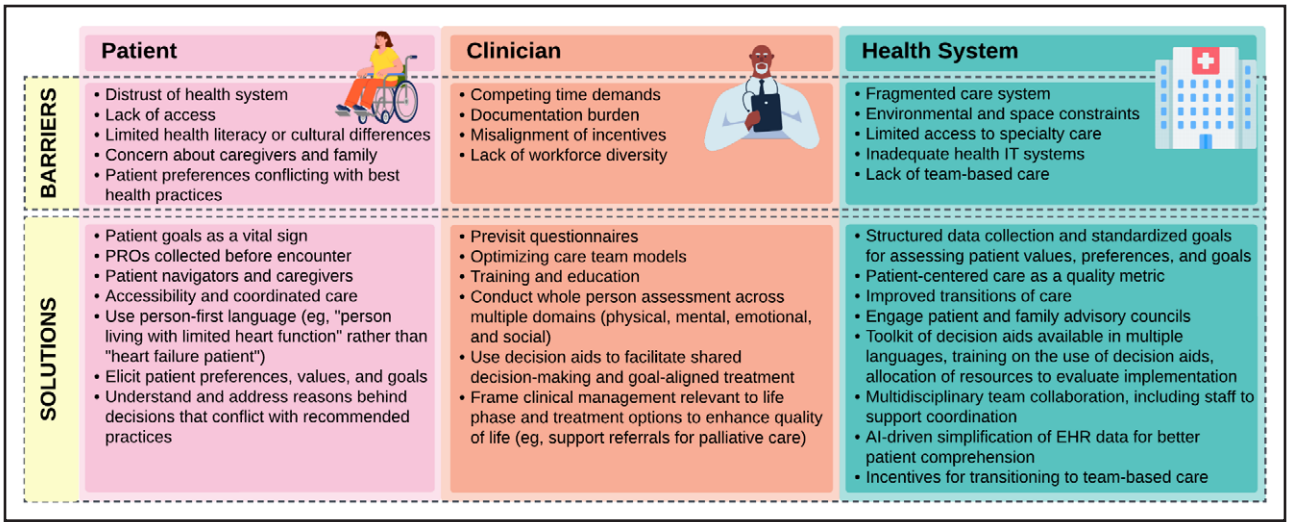

Figure 3. Barriers and potential solutions by patient-, clinician-, and health system–level factors.
EHR indicates electronic health record; IT, information technology; and PRO, patient-reported outcome.

patient-centered care approach include conventional perceptions and expectations of health care delivery, traditional care practices and structures, and sociocultural influences.[42]

PRACTICAL STRATEGIES TO PROMOTE PATIENT-CENTERED CARE

Although there are many challenges to the incorporation of patient-centered care into our current care models, there are also many opportunities. Health care teams, including clinicians, should focus on the person holistically, including eliciting patient preferences, values, and care or functional goals. An important aspect of patient-centered care is clear communication, including regular practice of person-first language.[43] Treating a patient as a whole person rather than a medical condition can build trust and improve communication and therapeutic decisions. Understanding the bigger picture is especially helpful for the health care team when a patient is considering or makes a decision that may make sense to the patient in terms of their values but may be considered detrimental to their health (ie, leaving the hospital against medical advice to return home to take care of a pet). The clinician should attempt to understand the rationale for the decision and work with the clinical team to address factors that may be able to be solved with health care–adjacent services. Core strategies to provide patient-centered care to individuals with CVD and other comorbidities are listed in Figure 3 with clinician- and health system–level implications.[44]

We propose that collecting patient perspectives and preferences for their care and environment should be as essential as collecting vital signs, and this should occur at every clinical encounter. This can be as simple as asking, "What are your goals and expectations for today's visit?" There are also widely available and validated standardized PRO measures that can be used to collect information on symptoms, functional status, and health-related quality of life related to living with chronic CVD.[45] PROs can assess changes over time, be integrated into EHR clinical documentation, and be collected before the encounter to facilitate patient-clinician conversations on the topics that matter most to patients. EHRs can also use PROs as tools to incorporate patient values into therapeutic decisions such as starting new medications or undergoing invasive procedures. Optimizing transitions of care through systems-based approaches is paramount to ensuring that patients are at the center of their cardiovascular care journey.

Shared decision-making can be supported with patient decision aids to make preference-sensitive discrete treatment decisions when there is equipoise between available treatment options.[46] The purpose of patient decision aids is to present balanced, unbiased information about all options, including risks and benefits, using the most up-to-date scientific evidence. Decision aids often leverage multiple learning styles through short narrative stories and infographics to improve interpretation, increase satisfaction with treatment choices, and enable patients to make informed choices that align with their preferences and values.[46]

Optimal patient-centered care may also include providing an example of how patients would use prescribed therapies at home. For example, for injectable therapies, what equipment is needed, where will that equipment be stored, and does the patient need or have friends or family to help?

AI can be used to analyze and share electronic health information in patient-friendly jargon so that the patient and their family can more readily understand results and the management plan.

In the acute care setting when health care decisions need to move quickly, ensuring the presence of family members during critical decision-making is beneficial to provide additional perspectives and emotional support. For acutely ill patients, holding regular family meetings, early involvement of palliative care for end-of life discussions, and attention to the emotional and psychological needs of patients and their families can help provide patient-centered care.[47]

Achieving patient-centered care requires commitment across multiple structural levels, from legislative policies to individual patient-level support, and recognition that patient-centered care may also include valued family members. Guiding strategies for improving patient-centered care involves a commitment to communication, shared decision-making, and respect for patient values and preferences across care settings. At the structural/organizational level, policies supporting patient-centered care may be improved by engaging patient and family advisory councils, investing in training for health care professionals, and reimbursing critical conversations with patients such as advance care planning. Incentives for institutions to transition from individual physician care to team-based care are needed. Structural policies that enable consistent implementation of patient-centered care strategies for all patients are needed to ensure equitable access and health equity.

THE PATIENT AND COPATIENT PERSPECTIVE

Experiencing an acute cardiac event or CVD diagnosis is often traumatic for patients and family caregivers—or copatients—making them feel a distressing loss of control and helplessness.[48,49] This distress can lead to the development of acute stress disorder or even posttraumatic stress disorder.[50] Cardiac disease–induced posttraumatic stress disorder is associated with a 53%

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increased risk of another cardiac event, and 35% of caregivers have clinically relevant posttraumatic stress disorder symptoms, especially those whose partners survive an out-of-hospital cardiac event.[50]

As a result, it is essential to recognize that the repercussions of a cardiac event extend beyond the acute phase with the patient and affect the quality of life for all involved, often profoundly affecting spouses, parents, or children.[48,50] Amid the trauma of the event or diagnosis, understanding and remembering verbal information can be challenging; thus, it is essential for health care practitioners to offer written instructions and sufficient decision-making time. The hope is that preventive measures can be taken to ameliorate some of these experiences of trauma.

First, one must recognize that each patient's case is unique. Engaging in discussions specific to the patient's circumstances instead of focusing on general statistics will help foster comfort and clarity. During these interactions, avoiding professional jargon is crucial to avoid adding to their confusion and anxiety. What health care professionals say is as important as what they do.[48] If the health care professional does not address the issues that they have ruled out as concerns, patients and copatients may continue worrying about them.

Next, maintaining a connection to the outside world through cell phones can be an invaluable lifeline during these challenging times, facilitating contact with support systems and empowering those affected.[49] Last, guiding patients and copatients through the intricacies of the health care system and connecting them to the necessary resources are pivotal. This comprehensive approach to cardiac care recognizes the collective impact of health crises and advocates for comprehensive healing, addressing physical and mental health, where patient- and copatient-centric care should be grounded.

KNOWLEDGE GAPS AND FUTURE DIRECTIONS

Patient-centered care in cardiology will strengthen the quality of cardiovascular health care provided (Supplemental Figure S2). Patient-centered care not only reduces health care costs and errors but also improves health.[51] Although most health care professionals wish to deliver patient-centered care, many barriers exist that often make it difficult to ensure that such care is provided. One gap that is central to its delivery is the lack of education related to patient-centered care provided within all medical training. In addition, similar education for patients may be necessary.[52] Some medical schools have instituted the principles of patient-centered care into the curriculum of medical student education, and this has been encouraged by the Liaison Committee on Medical Education. Despite this, there has been no attempt to fully define what patient-centered care education is and how to ensure that current practicing and future doctors are prepared to provide such care.

The EHR can provide a potential opportunity to improve patient-centered care, given its ability to connect to both the patient and the health care team. The EHR should also include what matters to the patient, incorporating the patient goals of care and preferences, which should guide any plan of care for chronic diseases, including cardiovascular conditions. The EHR should incorporate standardized tools that assess SDOH, which is critical to ensuring equitable patient-centered cardiovascular care, especially for patients from historically underrepresented groups. Patient beliefs, environment, behaviors, and priorities should be incorporated into their EHR, in addition to their social history and health behaviors, to assist the health care team in understanding the patient and improving the ability to provide precision-based cardiovascular care. However, there are challenges related to integrating patient-generated data into the EHR, so medical documentation often is simply unidirectional (representing the health care team perspective, with little ability to incorporate input from the patient).[53] There are examples of using the EHR with a patient-centered care approach such as the Veterans Health Administration's Whole Health Program, which involves veterans and their care teams with a focus on patient self-management, which is a patient-driven, personalized data application initiative.[54]

Technologies to enhance patient-centered care are emerging, and patient-facing technologies have the potential to empower patients and improve safety. Technology that can measure patient data, manage this information, and automate processes has the potential to also respond to the patient's needs, values, and preferences if properly integrated into the cardiovascular health system. Such examples are patient access to the EHR through patient portals, allowing patients to see test results and act on their health data. It allows patients the ability to communicate with their health care team and, perhaps at some point, allows them to interact with patients with similar health conditions. Evolving mobile health applications (apps) are often patient-facing tools that can provide personalized monitoring and education that may empower patients and allow the patient to engage in their care experience.[55] Despite the growing use of smartphones and apps, few apps address the needs of the patients who would benefit the most, many remain unvalidated, and data privacy remains an overriding concern within the medical community.[56]

Similarly, wearable technology like smartwatches and rings that detect certain physiological signs such as vital signs, sleep duration, physical activity, sedentary time, and other measures of health has significant potential to improve health, but validation of these devices is required. Even the implications of wearable technology and the visual screen on any device providing feedback

may play a role in facilitating behavior changes, but evaluation of their effectiveness is needed. Wear time, battery life, personalized sizing, and rapid software updates of any technology are critical factors to the usefulness of such devices. Nonetheless, the availability of any device will often be the barrier to patients with poorer SDOH and ultimately poorer overall health.

Telemedicine is now increasingly used in cardiovascular care since the COVID-19 pandemic. Barriers such as digital literacy and broadband access must be addressed in all efforts to provide equitable patient-centered cardiovascular care, especially for patients of underrepresented races and ethnicities, who have the highest burden of CVD and are disproportionately affected by the digital divide.[25]

AI is increasingly being used in cardiology in imaging modalities, big data, biobanks, clinical sensors and monitors, and numerous other applications. Most AI has focused on improving the detection of CVD, particularly with imaging modalities, ultimately improving the ability to predict, diagnose, and treat patients. The application of AI must evolve to be patient centered to benefit patients and overcome the barriers of inequities that currently exist within health care but also within the incorporation of AI. This is based on medical research that is encumbered with human bias, inequities in clinical care, and lack of diversity and representation in current research.[57] Given the bias in cardiovascular research to date that has often ignored women, transgender individuals, and those of diverse backgrounds, the application of AI must be scrutinized to ensure that the application benefits all patients. In addition, the privacy and security of data with the use of AI need to be ensured, and the rights of the individual when determining health data ownership should be preserved.[58] Examples of AI that have not been biased and not fully patient centered include pulse oximetry devices, which have been demonstrated to be inaccurate in Black individuals, Asian individuals, and Hispanic individuals.[59] Patient-centered approaches would inform patients when technology, machine learning, and AI do not specifically apply to them on the basis of a lack of inclusion if incorporated into clinical care.

There is a need for national stakeholders and policymakers to change from traditional volume-based metrics or traditional outcome metrics to a more patient-centered approach. There is a need to determine appropriate metrics to evaluate the value of implementing a patient-centered health care approach. Ultimately meeting a patient's goals and expectations of treatment should be central to any measure of success in the treatment delivered.

CONCLUSIONS

Patient-centered care is one of the main tenets of contemporary health care delivery and can improve health equity and care outcomes. Cardiovascular professionals should incorporate patient-centered care strategies into their routine care approach. There is an important need to educate cardiovascular health care professionals about patient-centered care principles and strategies. Clinicians, health care systems, professional societies, and government agencies should collaborate to promote equitable patient-centered cardiovascular care to improve cardiovascular outcomes. Additional research on the impact of patient-centered care practices on clinical and patient-oriented outcomes is warranted.

ARTICLE INFORMATION

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

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Disclosures

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Fatima Rodriguez	Stanford University	NIH/NHLBI (PI; 1K01HL144607, R01HL168188)†; AHA/Robert Wood Johnson Foundation (AHA/Harold Amos Medical Faculty Development program)†; Doris Duke Foundation (PI; grant 2022051)†	None	None	None	Carta Healthcare*	HealthPals†; Movano Health*; Kento Health*; Novartis*; Novo Nordisk†; Esperion Therapeutics*; Inclusive Health*; Edwards*; Arrowhead*	Stanford University (associate professor)†

This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives $5000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns $5000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest.

†Significant.

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Mamas A. Mamas	Keele Cardiovascular Research Group (United Kingdom)	Terumo (payment made to my employer for a PhD studentship)†; Boston Scientific (payment made to my employer for a PhD studentship)†	None	Terumo*; Amgen*; Biosensors*	None	None	Abbott*	None

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*Modest.

†Significant.

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