

Advancing Value-Based Models for Heart Failure

A Call to Action From the Value in Healthcare Initiative's Value-Based Models Learning Collaborative

ABSTRACT: Heart failure (HF) is a leading cause of hospitalizations and readmissions in the United States. Particularly among the elderly, its prevalence and costs continue to rise, making it a significant population health issue. Despite tremendous progress in improving HF care and examples of innovation in care redesign, the quality of HF care varies greatly across the country. One major challenge underpinning these issues is the current payment system, which is largely based on fee-for-service reimbursement, leads to uncoordinated, fragmented, and low-quality HF care. While the payment landscape is changing, with an increasing proportion of all healthcare dollars flowing through value-based payment models, no longitudinal models currently focus on chronic HF care. Episode-based payment models for HF hospitalization have yielded limited success and have little ability to prevent early chronic disease from progressing to later stages. The available literature suggests that primary care-based longitudinal payment models have indirectly improved HF care quality and cardiovascular care costs, but these models are not focused on addressing patients' longitudinal chronic disease needs. This article describes the efforts and vision of the multi-stakeholder Value-Based Models Learning Collaborative of The Value in Healthcare Initiative, a collaboration of the American Heart Association and the Robert J. Margolis, MD, Center for Health Policy at Duke University. The Learning Collaborative developed a framework for a HF value-based payment model with a longitudinal focus on disease management (to reduce adverse clinical outcomes and disease progression among patients with stage C HF) and prevention (an optional track to prevent high-risk stage B pre-HF from progressing to stage C). The model is designed to be compatible with prevalent payment models and reforms being implemented today. Barriers to success and strategies for implementation to aid payers, regulators, clinicians, and others in developing a pilot are discussed.

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Hear failure (HF) is a leading cause of hospitalizations and readmissions, particularly among the elderly,¹ and its costs are projected to reach \$70 billion by 2030.² The prevalence of HF is expected to continue to rise as the population ages.² Despite tremendous progress in improving HF care and examples of impactful innovations in care redesign, the quality of HF care varies greatly. Ensuring all patients with HF receive high-quality care is, therefore, a clinical and public health priority.

The current payment system for HF care, largely based on fee-for-service (FFS) reimbursement, leads to fragmented, low-quality HF care.³⁻⁶ First, FFS pays for illness rather than wellness,⁷ and thus provides few resources for preventing HF or managing it longitudinally using tools like diet and lifestyle coaching, or addressing social determinants of health. Second, many of these management techniques could and should be done by a nonphysician clinician, such as an HF nurse, but FFS is less likely to reimburse the services of such clinicians.⁸ Third, FFS tends to separate primary and specialty care, which impedes care coordination needed for chronic management of patients with HF.⁹ Fourth, for later-stage patients, FFS encourages invasive and intensive treatments,⁷ such as left ventricular assist devices, heart transplantation, and implantable defibrillators, but may not cover shared decision making about treatment options or palliative care. The challenges associated with FFS thus have a major impact on patients with HF across the care continuum, and the clinicians who care for them.

However, the payment landscape is changing. An increasing proportion of all healthcare dollars are moving away from FFS toward value-based payment (VBP) models. For the healthcare system as a whole, VBP models constituted 36% of all healthcare spending in 2018, up from roughly 25% three years prior.¹⁰ VBP models exist in different forms (eg, bundled payments, accountable care models) but typically include some level of clinician responsibility for total costs of care and quality metrics. Such payment models encourage care redesign in ways that would particularly benefit HF care through more flexible reimbursement of services, such as care coordination, team-based care, remote monitoring, behavioral tools, and social and community interventions. There is evidence that several of these models have been associated with reduced costs and improved quality of care,¹¹⁻¹³ although the evidence base is still developing¹⁴ and results have varied based on the model and the conditions it covers.¹⁵

Thus far, the majority of VBP and alternative payment models have focused on population health and primary care. None of the models that involve financial risk and bigger care redesign changes (eg, accountable care organizations)—the models with more promising results—have focused on HF.¹⁶ Even in the

context of recent growth in specialty care VBP models (such as models for cancer care, kidney care, and joint replacements), there has been less activity focused on cardiovascular conditions. The few cardiovascular-focused payment models in use have been episode-based, focused on acute events or procedures, and not prospective in nature.^{9,16} A physician-led model that addresses a patient's longitudinal needs for HF and is designed to be compatible with prevalent payment models and reforms being implemented today would apply to a larger proportion of Americans and be more preventive in nature.

This article describes a proposal to address this gap by the Value-Based Models Learning Collaborative of The Value in Healthcare Initiative,¹⁷ a collaboration of the American Heart Association and the Robert J. Margolis, MD, Center for Health Policy at Duke University. The Learning Collaborative contains a diverse representation of stakeholders with expertise and perspectives on this topic representing patients, clinicians (including cardiologists), academia, government, health systems, payers, professional associations, and others. The Learning Collaborative reviewed existing literature (both peer-reviewed and gray literature) to highlight areas for improvement in HF care and gaps in current VBP models. Through a series of calls and in-person meetings, the group designed a framework for a longitudinally focused, HF VBP model, identified barriers to success and strategies for implementation, and set forth potential next steps.

CURRENT VALUE-BASED MODELS RELATED TO CARDIOVASCULAR DISEASE

Existing VBP models for cardiovascular care generally fall into one of 3 categories. Table 1 highlights prominent examples for each category; details on their payment and risk-sharing approach; and how they address HF.⁹ The 3 categories are as follows:

1. episode-based models for acute procedures and events,
2. primary care-focused longitudinal models, and
3. specialty care-focused models that include longitudinal care and disease management.

The first category, episode-based models, consists of public and private bundled payments based around cardiovascular episodes of care. Most of these models are triggered by a hospitalization, either associated with an event or major procedure, and consist of the hospitalization plus 30, 60, or 90 days of follow-up care. A notable example is the Centers for Medicare and Medicaid Services' (CMS) Bundled Payment for Care Improvement (BPCI) program and its closely related successor, BPCI-Advanced.¹⁸ BPCI

Table 1. Examples of Different Cardiovascular Disease Alternative Payment Models

Payment Approach Category	Example Alternative Payment Model	Focus (Procedure, Condition, Population)	Years of Existence	Payment Approach
Episodic models	Medicare Acute Care Episode ¹⁹	Valve surgery, defibrillator implants, CABG, pacemakers, PCI	Demonstration (2009–2012)	Prospective payment with 2-sided risk
	Cleveland Clinic and Boeing/Lowe's/Walmart ²⁰	Valve surgery	Private sector partnership started between 2010 and 2012	Prospective payment with 2-sided risk
	Integrated Healthcare Association ²¹	Cardiac catheterization	Pilot launch in 2012	Prospective payment with 2-sided risk
	Medicare BPCI initiative ²²	Examples: PCI, pacemaker, ICD, valve surgery, CABG, HF hospitalization and recovery	Demonstration between 2013 and 2016; BPCI-Advanced in progress now ¹⁸	Mix of retrospective and prospective payment and 1- and 2-sided risk
	Arkansas Healthcare Payment Improvement Initiative ²³	Heart failure hospitalization and recovery	Pilot beginning 2012, finalized design in 2019 ²⁴	Retrospective payment with incentive payment or 2-sided risk
Primary care-focused longitudinal models	Medicare Shared Savings Program ²⁵	General Medicare population (contains HF quality measures)	Program (2012–current)	Shared savings/losses
	Million Hearts: Cardiovascular Disease Risk Reduction Model ²⁶	Medicare population without previous heart attack, stroke, or transient ischemic attack	CMMI model 2017–2022	Per-beneficiary payment for risk stratification and performance payment based on risk reduction
Specialized care-focused longitudinal models	Atlanta Value-Based Health Care Pilot ²⁷ (under development)	Late-stage HF patients at risk of readmission who may benefit from palliative care	Details not yet announced (currently under development)	Details not yet announced (currently under development)

Notes on payment model terminology: Retrospective payment refers to assessing and paying cost after services have been provided (ie, at the end of the year, comparing costs vs cost targets). Prospective payment is when a set amount is established per patient in advance of service provision. Two-sided risk refers to financial arrangements whereby providers can receive bonuses for good financial performance relative to agreed-upon per patient cost targets (upside risk, shared savings) but also could have to reimburse payers for poor financial performance (downside risk, shared losses). BPCI indicates Bundled Payment for Care Improvement; CABG, coronary artery bypass graft; CMMI, Centers for Medicare and Medicaid Innovation; HF, heart failure; ICD, implantable cardiac defibrillator; and PCI, percutaneous coronary intervention.

and BPCI-Advanced are voluntary programs in which participants (hospitals and physician group practices) are responsible for total costs of care arising from a triggering hospitalization.²² Participants can select from a number of clinical conditions, including a handful of cardiovascular episodes; in both BPCI and BPCI-Advanced, HF was among the most commonly selected bundles. BPCI-Advanced improves upon the benchmark risk adjustment methodology of BPCI and requires reporting of some quality metrics.^{28–31}

The second category of value-based models is primary care-focused models that are tied to population-level cost benchmarks and quality performance metrics, with an emphasis on longitudinal care, care coordination, and risk factor identification and modification. These models often include cardiovascular quality measures.^{25,26} They are distinct from patient-focused delivery reform models like the patient-centered medical home model (which has neither accountability around total costs and utilization nor quality measures beyond those related to primary care).

There is one prospective primary care-focused payment model that targets atherosclerotic cardiovascular risk reduction—Medicare's Million Hearts initiative²⁶—which has enrolled roughly 300 000 Medicare beneficiaries. This model focuses on primary prevention of cardiovascular events. However, this program is not

far removed from FFS, as it provides bonuses for risk stratification and reduction but not accountability for total cost and utilization. It is still being piloted, and its impact is not yet known.

A model in this category that is farther removed from FFS is the Accountable Care Organization (ACO) model. ACOs take on varying levels of financial risk for their population's overall quality and total costs of care. Roughly 44 million lives are covered by ACOs across Medicare, commercial payers, and Medicaid programs.³² A prominent example is the Medicare Shared Savings Program (MSSP), which covers about 13 million Americans.^{25,32} The MSSP evaluates participants on their performance for attributed populations broadly but does include 3 quality metrics that are HF-related (ambulatory care-sensitive HF admissions, β -blocker therapy for left ventricular systolic dysfunction, and all-cause admissions for patients with HF).³³

The third category of payment models includes longitudinal models focused on specialized care for cardiovascular conditions. Although there are examples of such specialized models in the areas of kidney disease, cancer, and osteoarthritis, there has been less progress for cardiovascular care. One example is potentially emerging within this category targeting high-risk, late-stage HF patients at risk of hospital readmissions who

may benefit from palliative care,²⁷ but is currently limited to a pilot.

GAPS IN CURRENT PAYMENT MODEL DESIGNS

Current alternative payment models that specifically focus on cardiovascular conditions have impacted only small populations and have had modest results. This section illustrates the gaps in current models, which shows where future models need to focus.

One major gap is that current cardiovascular models center on narrowly defined cardiovascular events, like acute myocardial infarction, or a specific intervention, like coronary artery bypass surgery, for short windows of time (often 90 days or less). This may improve the efficiency of a given episode but does not prevent chronic disease from progressing to later stages or prevent that intervention in the first place. Further, CMS' BPCI HF bundle was not associated with significant changes in cost, quality, or outcomes.^{34,35} One hypothesized reason for the lack of effect was that participating hospitals were poorly equipped to influence care provided by post-acute care settings (like skilled nursing facilities, long-term care hospitals, inpatient rehabilitation facilities, or home health agencies).³⁴ Others have also pointed to BPCI not properly accounting for patient heterogeneity,³⁵ not requiring new care delivery models, and not requiring systematic quality reporting,³⁶ which could also affect success. It is worth noting that BPCI-Advanced does require quality reporting and improves upon benchmark risk adjusting, thus results of this program should be monitored as they become available.

A second gap is that there are no payment models focused on addressing patients' longitudinal chronic disease needs for HF. Medicare's Million Hearts initiative²⁶ mentioned above addresses atherosclerotic cardiovascular risk reduction, but not HF. The American Heart Association has a Heart Failure Centers of Excellence accreditation program where hospitals that meet certain standards for treating complex heart disease receive enhanced marketing and exposure, with the goal of increasing the number of payers/patients who choose to use the hospital,³⁷ but this is not a payment model.

There is one advanced HF payment model pilot under development,²⁷ but it will focus mostly on specialty care for late-stage HF readmissions and will have limited HF prevention and management capacity. By comparison, CMS' Medicare Shared Savings Program ACOs have reduced spending and improved quality relative to FFS Medicare^{12,32,38} and improved HF admission rates and all-cause unplanned admissions for patients with HF over time.³⁹ Further, recent evidence found that when

cardiologists were part of an MSSP ACO, spending on beneficiaries with cardiovascular disease was \$200 per beneficiary per year lower than when no cardiologists participated in the ACO while achieving similar HF quality measure scores.⁴⁰ This suggests there may be incremental value in cardiologists' engagement in longitudinal primary care-focused payment models to improve the care of those with HF.

A final gap is that current VBP models often fail to capture the patient voice and experience. Quality of life is important to patients with HF, as HF can affect one's ability to take place in physical and social activities, one's happiness, and one's relationships.⁴¹ There is a need for measures that are meaningful to patients, such as quality of life and patient-reported measures that capture these domains,⁴¹ especially since patients with HF can now live relatively long lives but often with low reported quality of life. Further, most models examined that do relate to cardiovascular disease do not include cost and quality accountability at the patient/person level, and thus do not align with existing and widespread reforms in place.

BUILDING A VBP MODEL FOR HF

Given these challenges, the Learning Collaborative sought to develop a framework for an HF model with a longitudinal focus on disease management and prevention that could be compatible with prevalent existing payment models. This proposed HF-specific VBP model is summarized in the Figure and could be further developed into a pilot. The key elements of this model are that it focuses on longitudinal care, supports the integration of specialty care into a VBP arrangement, and promotes innovative, team-based care delivery.

General Payment Approach

The ideal payment structure would consist of a population health approach. This could take one of 2 forms. The first is similar to current shared savings programs, in which clinicians continue to be reimbursed through FFS but have a payment component in which spending and performance are reconciled against targets at the end of a predetermined period of time (typically annually). Alternatively, payment could be shifted more substantially to a per-member per-month care management payment, which would be more disruptive but would provide greater flexibility for participating clinicians to innovate. Either approach would hold clinicians financially at risk for certain outcomes directly or indirectly related to HF. Such a model would emphasize providing high-value, guideline-based HF care as well as eliminating low-value care by including both quality measures and cost targets. The advantage of this pay-

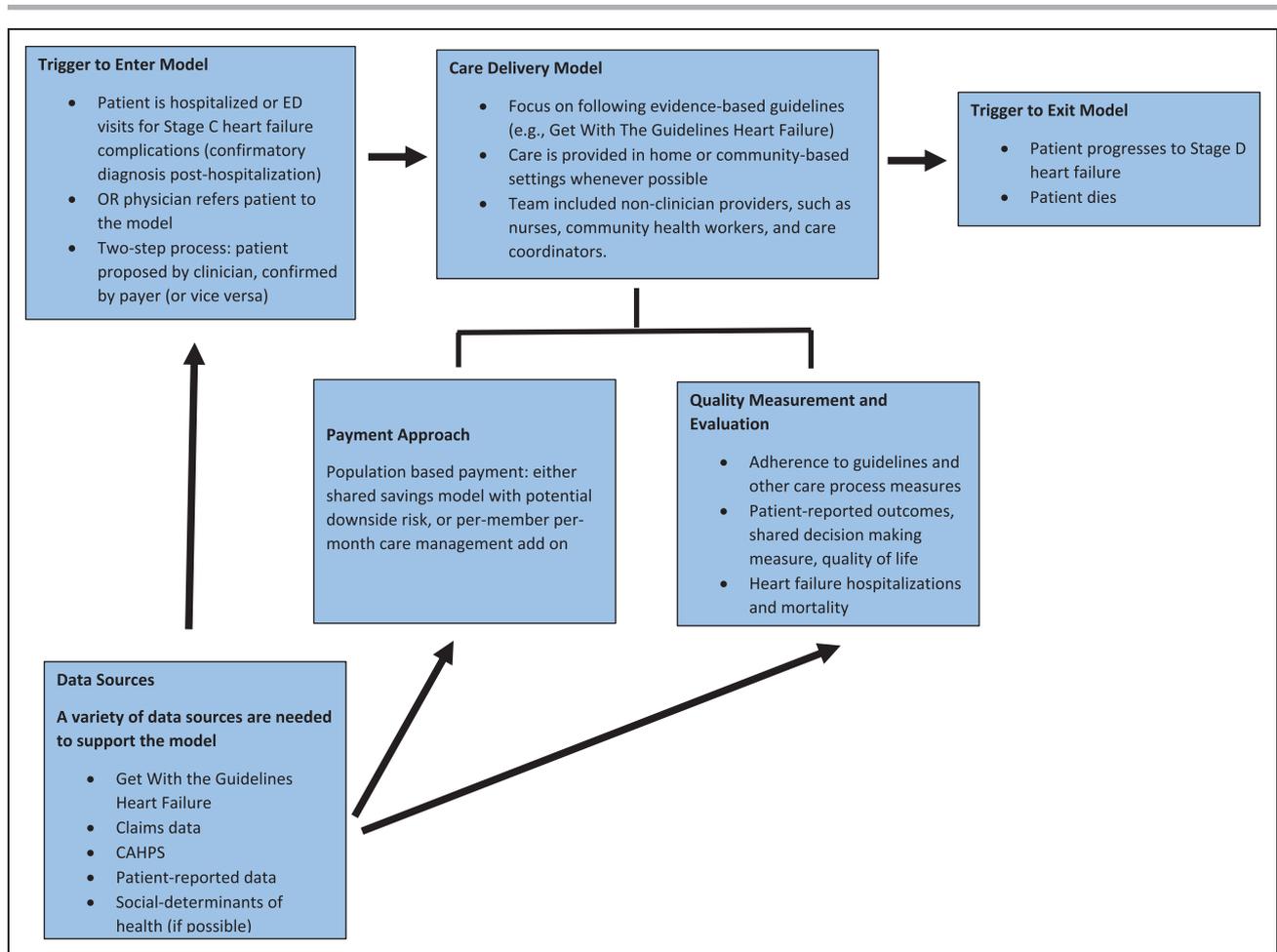


Figure. Conceptual model of the heart failure value-based payment model in action.

This is for the stage C (main) model preventing stage D. A similar model would exist for the stage B preheart failure parallel track preventing stage C. CAHPS indicates Consumer Assessment of Healthcare Providers and Systems.

ment approach is that it would support specialized care of the longitudinal course of HF, encouraging long-term management.⁴⁰

Patient Population

Effective payment models have to balance being narrow enough to be actionable while being broad enough to have population impact. The Learning Collaborative sought to balance these with a model that focuses on people with stage C HF, with a secondary focus on people with stage B high-risk pre-HF. See Appendix I in the [Data Supplement](#) for an overview of HF stages and types.

While HF has already occurred in this population, there is opportunity for interventions to prevent clinical decompensation leading to admissions, readmissions, and the occurrence of stage D HF. Patients would exit the model when their HF has progressed to stage D, such as those with ventricular assist devices, transplants, home inotropic therapy, and hospice use, as this population requires a different standard of care and has less opportunity for prevention and management.

A secondary population (perhaps in an optional or parallel track of the model) could include people on the higher-risk end of stage B pre-HF. Such a model could focus on those with structural heart disease and at the highest risk of HF (ie, those with multiple risk factors or medication usage indicating they may be at high risk of HF) but still with no HF symptoms. Payers could consider how narrow they want the high-risk stage B population to be, but major buckets of risk factors include combinations of prior cardiovascular history, use of certain medications that would imply high risk of (or potentially undiagnosed) HF, namely a daily loop diuretic, traditional medical HF risk factors⁴²; and traditional behavioral HF risk factors, such as smoking, poor diet, and physical inactivity.⁴²

Triggers to Enter the Model

The model would trigger with a clinical event related to HF, such as a hospitalization with a primary diagnosis of HF. As HF can be difficult to distinguish from other diseases, the HF diagnosis should be confirmed within 1 year of a triggering inpatient admission. This would

capture recent stage C diagnoses in claims data. The intent of this model, however, is to include all stage C patients (not just patients with recent utilization). To accomplish this, an additional trigger would be physician referral into the model confirmed by outpatient, inpatient, or pharmacy claims related to HF. A similar referral approach could be used to generate triggers into the optional or parallel track of patients on the higher-risk end of stage B pre-HF. Clinicians could refer patients with structural heart disease and multiple risk factors for HF to this model.

Triggers to enter the payment model should be algorithmic and criteria-based to avoid strategic inclusion or exclusion of patients. A 2-step process could be considered to ensure mutual agreement on eligibility (ie, the patient is proposed by the payer and confirmed by the clinician, or vice-versa). Steps would need to be taken to automate this process and not create a burdensome process similar to prior authorization.

On the payer side, potentially eligible patients could be identified in 2 ways. First, *International Classification of Diseases, Tenth Revision* codes could be automatically monitored to flag potentially eligible patients in a consistent manner. Using existing code lists would also allow for interoperability with other programs such as the Get With The Guidelines quality registry. Second, payers could develop additional criteria that flag patients based on other aspects of care that are consistent with HF such as a claim for specific medications (eg, sacubitril/valsartan, diuretics) or coverage for investigations (eg, B-type natriuretic peptide elevation, echocardiography, etc). These patients could then be flagged to their clinicians as being potentially eligible for the payment model.

On the clinician side, patients could be recruited in a similar way to how they are recruited for a clinical trial. For example, clinicians could refer eligible patients by providing supporting evidence of (1) HF symptoms, (2) a history of hospital admission with an HF diagnosis, and (3) a confirmatory diagnostic test such as an echocardiogram or B-type natriuretic peptide elevation.

Given that there is an ongoing pilot of a payment model for advanced HF,²⁷ the VBP model proposed in this article should also consider how patients transition to payment models for stage D HF. The length of the model should consider the amount of time needed to generate care improvements and financial sustainability as longer models may be more difficult to sustain long-term. Once patients do exit the model (either due to a trigger or completing the duration of the model) consideration should be given to next steps, such as whether the patient will re-enter the general healthcare system or continue some level of connection with the HF model.

Care Delivery Model

The backbone of the care delivery model would focus on evidence-based, high-quality guideline implementation that supports longitudinal follow-up. A significant opportunity exists to take existing Get With The Guidelines–Heart Failure recommendations⁴³ and adapt them to be compatible with outpatient care for HF prevention and management.

We acknowledge that many important HF risk factors require social and behavioral interventions, but recognize that the evidence base for these interventions is still developing.⁴⁴ Future research should continue to evaluate social and behavioral interventions outside of the clinical guidelines. While the main focus here is on the known evidence-based clinical guidelines, the recommendations we make below regarding the care delivery model will help the clinical team to identify social and behavioral challenges for individual patients. This will help integrate the clinical model and care delivery model.

The care team should be co-led between primary care and general cardiology, with consulting roles for specialty HF-focused cardiologists for complex questions. The exact composition of the care team should be allowed to vary somewhat (although would always require some cardiologist involvement), as the availability and use of different clinicians will vary based on geography and other factors. Importantly, the model should use nonphysician clinicians to the maximum extent possible, such as physician assistants, nurse practitioners, pharmacists, community health workers, social workers, medical assistants, care navigators and coordinators, and others. This strategy would allow for more targeted use of physicians and would be more cost-efficient and maximize patient outreach, engagement, and community knowledge.^{45–47}

The model should facilitate the provision of home or community-based care—potentially bolstered by telehealth and remote monitoring; keeping as much care in the home or the community as possible would be beneficial to all and patient-preferred.^{48–50} Expanding the use of patient-facing technology, such as through the use of online patient portals that allow for communication with clinicians, would likely be needed to expand access outside of clinic visits.

We acknowledge that the evidence for disease management programs' effects on clinical outcomes and spending in HF is mixed, with a number of high-profile trials demonstrating limited efficacy.^{51,52} However, there have also been a number of successful trials in this space. A 2009 pooled analysis of randomized controlled trials showed that multidisciplinary team-based care and in-person communication reduced readmission days per month by 6.4% and 5.7%, respectively.⁵³ A number of trials demonstrating both efficacy and

cost-effectiveness of such interventions, as well as with remote monitoring, have been reported in the years since.⁵⁴⁻⁵⁶ However, these programs have not been widely implemented, in part, due to a lack of sustainable funding models. In fact, a study surveying primary authors of published randomized controlled trials on outpatient HF management showed that, although 81% of United States studies included in the analysis showed a benefit from program implementation, 83% were discontinued after completion of the trial due to a lack of a sustainable reimbursement model.⁵⁷ Therefore, a payment model that provides funding for effective disease management strategies may hold promise for bridging the gap between theory and implementation.

Quality Measurement and Evaluation

Quality measures serve several purposes in VBP models such as providing guardrails to ensure that costs are not reduced by limiting needed care, providing requirements for meeting certain quality of care thresholds, and rewarding clinicians for further improvements in quality of care. The quality measures for the proposed model would assess evidence-based guideline adherence; prevention of HF hospital admissions, readmissions, and mortality; and patient-reported outcomes for quality of life and shared decision making. Performance on quality measures would affect reimbursement in the model (eg, bonuses for improving them over time), including on patient-reported outcomes and keeping patients well.

Measures should align with already-existing measures in other programs whenever possible. This could include MSSP ACO quality measures on HF admission rates, all-cause unplanned admissions for patients with HF, and β -blocker therapy for HF with reduced ejection fraction.³⁹ Similarly, measures of clinical guideline adherence and other HF quality measures should be harmonized with Get With The Guidelines Heart Failure, which is used in hospitals nationwide. Patient-reported outcomes could be collected through one of the validated instruments designed to collect HF patient-reported outcomes, such as the Kansas City Cardiomyopathy Questionnaire and the Minnesota Living with Heart Failure Questionnaire.⁵⁸ These instruments contain a variety of questions that could be adapted to this VBP model that assesses HF-related physical function, social function, emotional health, symptoms, knowledge and self-efficacy, and quality of life.

Rigorous evaluations of the model should be conducted to ensure the model is achieving its goals of improving outcomes (and lowering costs), as well as meeting the expectations of clinicians and patients. There should be explicit monitoring for unintended consequences, such as inappropriate reductions in care,

or cherry-picking patients for enrollment. Ideally, the model should allow for iterative improvements, using insights from the early experiences of patients and clinicians, similar to how the Center for Medicare and Medicaid Innovations' approach to testing payment models involves iterative scaling and adjustment.

Data Sources

To support the model as outlined above, multiple data sources will be needed to define and identify the patient population, deliver care, adjust for the different risk factors of different patient populations, and evaluate the model. The data structures that health systems, clinicians, or payers may need to access could include:

- Get With The Guidelines Heart Failure;
- Claims data;
- Electronic Health Record data (potentially including from health information exchanges, if available);
- Consumer Assessment of Healthcare Providers and Systems;
- Patient-reported data; and
- Social determinants of health (noting that this can be difficult to capture).

The ideal data system would be interoperable with other data sources to capture as much patient information as possible. Standard data usage in the MSSP ACO model, for example, allows for coordinated approaches to care, and comparable assessment of payment model program performance over time to generate learnings. For the HF VBP model, the already existing and widely implemented Get With The Guidelines Heart Failure program registry would be a key data source.⁴³ Significant opportunity exists to adapt this registry to outpatient care settings for heart failure prevention and management.

It may also be possible to design software features (often called a computable phenotype) to automatically flag patients who are likely eligible for model participation based on their electronic health record and claims data. There are successful machine learning examples of this specific to HF.⁵⁹ Whenever possible, the data system should operate electronically, with limited use of manual data entry. A completely electronic, coordinated, and integrated data system could also facilitate real-time learning around total costs of care. This would allow clinicians (and health systems) to examine their own cost patterns and lower overall costs.

There are a number of details beyond the scope of this framework that payers in coordination with clinicians, regulators, and other expert stakeholders would need to flesh out to apply this model in practice. First, payers will need to determine the level of financial risk and the glide path to risk. Lessons from the MSSP ACO program suggest that clinicians may need to start in upside-only contracts (ie, potential for financial gain,

but no potential for loss) and transition to downside risk after having time to build organizational competencies for the model.⁶⁰ Second, payers will need to determine how to coordinate savings and risk in the model, as care will likely be delivered by multiple clinician groups. Third, they will need to determine the specific services that are included in the payment (eg, perhaps excluding other specialty conditions like those related to cancer). Fourth, payers would need to determine the appropriate method for accounting for the differing characteristics of the patient population and risk adjusting accordingly. This is particularly important in light of recent mixed evidence around hot-spotting complex populations⁵¹ and is part of our rationale to use registry data and other data sources instead of just claims data. Finally, they will need to determine how this model interacts with and nests within other developing population health-focused models, such as CMS' primary care first, that may support care management for HF. Other payment models like the oncology care model involve interaction of specialty care models with broader, primary care-focused models and could offer important lessons.

IMPLEMENTING THE PAYMENT MODEL IN PRACTICE: BARRIERS TO SUCCESS AND COMPETENCY BUILDING

Payment reform alone is not enough to drive changes in care delivery and improve the quality of care for patients with HF. Designing a payment model is an important first step—but effective and well-designed payment reforms depend on changing care delivery, leveraging existing infrastructure as well as building new value-based competencies and infrastructures, and overcoming multiple implementation barriers. Organizations face both external and internal barriers to successfully participating in VBP models broadly and for cardiovascular conditions. These barriers and strategies to overcome barriers are summarized in Table 2.

Supporting the Current Workforce and Getting Their Buy-In

One consideration is whether there is an appropriate workforce to implement the care model supported by the payment approach. This may include physicians, pharmacists (especially for medication titration in the community), nurses, community health workers, and others. Furthermore, there will be additional challenges in providing new models of care in rural settings, which may not have general cardiologists or specialized HF physicians. This VBP model should be inclusive of vulnerable populations and implemented in a variety of settings and geographies, including in resource-

Table 2. Implementation Considerations for a Heart Failure Specific Value-Based Model

Barriers/Considerations for Implementation	Strategies to Overcome Barriers, Examples
Building an appropriate workforce and gaining physician buy-in	Allowing flexibility on clinician coordination and care team composition can accommodate differing care team mixes and allow for innovative care pathways
	A multi-level, coordinated strategy to enact culture change is needed to implement a major VBP model
Implementation in low resource settings	Telehealth could allow for remote consultations to address workforce shortages
	Providing upfront capital and technical assistance to smaller, more fragmented, and rural organizations could help facilitate their success
Using implementation science	Look to previous examples of success in implementing payment reform
	Consider an implementation science approach to program testing and rollout
Managing model overlap and model development	Align with preexisting models, partner with innovative plans, clinicians, and value-based help organizations to reduce provider burden
	Start with a limited number of steps and expand over time

VBP indicates value-based payment.

deprived organizations and areas. The model must be careful to not create or worsen any health inequities, which already exist in cardiovascular care. Looking to the future, this (and other) VBP models could be adapted to provide additional supports for accountable care for the most disadvantaged patients, as a way to reduce health inequities and care asymmetries.

Telehealth technologies could allow for remote consultations that would help address local workforce shortages while also allowing the patient to be treated in their community or at home. Recently, CMS expanded the availability of telehealth payment in its MSSP ACO model,⁶¹ which could offer opportunities for rural health implementation.⁶² Moreover, beginning in 2020, CMS is piloting an expansion of telehealth to Medicare Advantage.⁶³ While particularly useful in rural and underserved areas, greater use of telehealth can be incorporated in all environments to promote greater accessibility and convenience for patients.

Even with a sufficient workforce, organizations may struggle with achieving the necessary participation and engagement. While it is important to get buy-in from executive leadership, buy-in from front-line clinicians is critical as they will be driving the change. There needs to be a coordinated strategy at all levels of an organization to implement the culture change for a major VBP model to succeed. These strategies for achieving change in payment and delivery reform models are dis-

cussed in prior literature, including how to effectively communicate payment and delivery reform changes to a variety of clinicians, how to effectively use organization resources and workflow in ways that support new models, and how to create a team-based and care coordination oriented organizational environment.⁶⁴

Longitudinal, HF-specific models will need coordination between primary care clinicians and specialist clinicians. Many patients with HF (especially advanced HF patients) will need a cardiologist for specialized care and a primary care doctor for chronic management. A longitudinal model needs to allow for flexibility as to how primary care clinicians and specialists coordinate. This coordination will likely vary depending on local workforce and how the model attributes patients to clinicians. For example, a rural area may need to lean more heavily on primary care clinicians, while more urban areas may place increased responsibility on specialists. A model should be flexible enough to be used across multiple environments with differing clinician mixes and allow for the use of innovative care pathways.

Building Value-Based Competencies and Infrastructure

Organizations also cite that major barriers to participation in alternative payment models include developing finance, health IT, and governance competencies. Financial capital is often a barrier, as the organization must secure the capital and build the infrastructure required to start in a VBP model.⁶⁵ Organizations must also continue investing in their health IT structure and identify the new capabilities they will need to successfully participate in a new payment reform. Finally, the leadership of the organization must commit to pursuing value-based models and support clinicians in the transition.⁶⁵ There are existing resources that could be helpful for understanding and building the necessary competencies to develop a longitudinal VBP model.⁶⁵

Given all of the pieces needed to implement a new model, smaller and more fragmented organizations will likely face increased difficulty in moving towards value-based care. While VBP implementation may be doable for well-resourced, mature organizations, other organizations may need technical assistance in standing up models or upfront financing for capacity development. However, smaller organizations may be more nimble when incentives are designed appropriately, and rural organizations may be well-connected with all other care delivery groups in the community, allowing for easier coordination and co-management. Further strategies are needed for implementing VBP in less resourced or smaller organizations. The MSSP grappled with this issue early on and developed the ACO Investment Model to provide advanced, prepaid savings to be used as capital for infrastructure building

for organizations in rural and underserved areas.⁶⁶ This was associated with significantly more savings to CMS in the end,⁶⁷ offering promise to payers that this may be a successful approach for a HF VBP model that benefits both underserved organizations and the payer.

Utilizing Implementation Science and Available Implementation Pilot Learnings

In addition to the still-developing evidence base for value-based models¹⁴ and variation of results by model and condition,¹⁵ there are known implementation challenges. Implementation challenges have been identified in the rollout of prior models, such as the potential for care disparities,⁶⁸ the lack of testing before implementation, and not measuring patient-focused outcomes. More research is needed to determine the true effectiveness of many VBP models in lowering costs and improving outcomes, especially in cardiovascular care.

Implementation science may help foster success when putting a new model into practice. Organizations should look to those who have experienced success in implementing payment reform and learn from their experiences. One pilot example is an ongoing partnership between the American Heart Association and Novartis in Dallas-Fort Worth called Rise Above Heart Failure that provides on-site education to clinicians, patients, and families around HF self-management and preventing readmissions.⁶⁹ These efforts can provide implementation learnings on how to engage clinicians, patients, and families in HF payment models, but further research is needed on how best to put other components of the VBP framework into practice.

Aligning With Existing Models, Allowing Flexibility, and Incremental Change

There are many payment models in the United States, some with significant overlap. Frequently, clinicians must attribute payments across multiple models. Thus, the Learning Collaborative emphasized that this model would ideally be supported by and aligned with preexisting quality measures, structures, and widespread VBP models—most notably, the ACO model could be used as a backbone for the HF VBP model. Further, CMS' models intended to be next steps after ACOs, such as the Direct Contracting and Primary Care First models, could be useful to consider considering that they are designed to enable increased engagement of providers directly (including specialists).

Moreover, CMS should consider identifying a short list of other highly morbid, population health-affecting chronic conditions and follow a similar process as described by our Learning Collaborative. The generation of small number of other MSSP-aligned sub-tracks

around those prioritized conditions may have particular value when there are shared risk factors or comorbidities, such as diabetes mellitus or chronic obstructive pulmonary disease.

There are other payers and healthcare provider groups that could serve as implementation partners. Medicare Advantage plans, which receive capitated rates for providing Medicare services and supplemental benefits, are growing in popularity and implementing a range of payment and benefit reforms spanning different VBP model categories.⁷⁰ The flexibility to work within the capitated rate to provide Medicare services allows for innovations in care delivery and in sharing accountability with providers for cost and quality.⁷⁰ Further, Medicare Advantage plans have the highest percentage of all healthcare dollars flowing through VBP models.¹⁰ While the lack of transparency on what plans are doing results in little data on how payment reform is occurring, the available information suggests that they are improving quality scores and outcomes⁷⁰ but not necessarily while lowering costs.⁷¹

Additionally, there are organizations that specialize in developing value-based competencies and infrastructure for healthcare delivery organizations and providing technical assistance that could be of use in both the population health and specialized care spaces. Organizations should keep in mind that they do not need to take on everything at once, and in fact, success is likely facilitated by doing a limited number of steps at one time and expanding over time.

CONCLUSIONS

There is a pressing need for a longitudinal VBP model to improve care and reduce costs for patients with HF. Current cardiovascular alternative payment models are largely based on short-term episodes, focus on acute events or procedures, and leave a gap for patients with HF who need long-term care coordination and prevention strategies to maintain and improve function and help avoid those events and procedures. This article describes a conceptual framework for a payment model developed with a Learning Collaborative that focuses on a stage C HF population. This model also could include a parallel or optional track targeting higher-risk stage B pre-HF patients to prevent development of stage C HF. The article outlines model components, including the payment approach, patient population, care delivery model, triggers to enter the model, data sources, and quality measurement. Challenges in implementing a value-based model remain, such as ensuring adequate workforce and building organizational competencies and infrastructure. However, using implementation science, looking to examples of success, and designing this model to build on already-existing widespread

payment models can help ensure the viability of this new model.

To move from concept to implementation, the American Heart Association Value-Based Models Learning Collaborative calls for collaborative action across the healthcare ecosystem. There is an opportunity for:

- Private and public payers to incorporate the proposed payment model into value-based model pilots to prevent HF from becoming advanced and to prevent pre-HF from turning into HF;
- Clinicians and health systems to assess variation in care cost and quality outcomes of their patients with HF and participate in this value-based model; and
- The American Heart Association to adapt Get With The Guidelines Heart Failure to be compatible with outpatient care for preventing the transition of pre-HF to HF to advanced HF and to work with payers, clinicians, health systems, and experts in implementation science on their design, implementation, and evaluation.

ARTICLE INFORMATION

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