

Secondary Impact of the COVID-19 Pandemic on Patients With Heart Failure

Nosheen Reza, MD

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The novel coronavirus disease 2019 (COVID-19) pandemic has presented 2 sets of challenges to the heart failure (HF) community. First, we were forced to rapidly establish best practices for the care of patients with HF and COVID-19 and to manage its cardiovascular complications. Although health systems have been immediately and appropriately focused on mitigation, we must prepare for the second wave of challenges ahead—the consequences of disruptions in HF care at the patient, provider, and systems levels.

PATIENT LEVEL

By April 2020, an unprecedented 12 million Americans had filed for unemployment benefits.¹ Poverty and unemployment, and their attendant consequences like loneliness and isolation, are associated with increased risks for cardiovascular mortality.² We can anticipate that this economic upheaval will result in enormous numbers of patients with HF becoming underinsured and unable to afford life-sustaining and life-saving therapies. Preexisting health inequities are being magnified by COVID-19, and underrepresented minorities are suffering a disproportionate burden of devastation.³ During this time, the physical separation of patients from their caregiver teams may further exacerbate this socioeconomic deprivation. Changes in dietary and lifestyle behaviors during social isolation, like increased processed foods and alcohol consumption and decreased physical activity, may trigger HF destabilizations. Amplifying the messages that those with chronic conditions should practice social distancing and stay home may confuse and frighten patients with HF, leading them to delay evaluation for advanced congestive or low output symptoms and suffer worse outcomes. Alternatively, patients with progressive symptoms, either due to COVID-19 or underlying disease, may choose to stay home with family rather than risk dying isolated in the hospital.

A multifaceted approach will be critical to overcome this crisis. Now, in-person and virtual remote care services are of high value. The capacity for and consolidation of home visits during which providers check vital signs and weights, perform blood draws, administer intravenous diuretics, and deliver prescriptions should be rapidly scaled. Patients should be proactively enrolled in telehealth programs and equipped with physiological monitors that can communicate information to providers. Clinicians should incorporate targeted questioning regarding changes in food stability, alcohol use, psychological health, physical activity, and caregiver support status into their assessments and should regularly reinforce the indications for seeking medical evaluation. Palliative care and hospice services need to be expanded in parallel. Unfortunately, socioeconomically disadvantaged populations are less likely to have access to, and, therefore, benefit from, this intensification of remote care, and may endure disproportionate cardiovascular

morbidity and mortality. Effective alternative outreach initiatives for these populations are urgently needed (Figure).

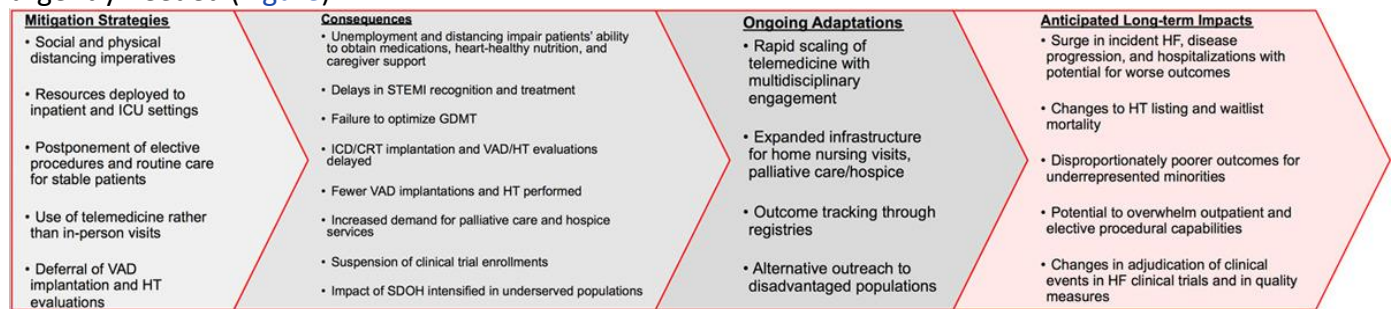


Figure. Mitigation strategies, consequences, ongoing adaptations to, and anticipated impacts of disruptions in heart failure care delivery imposed by the coronavirus disease 2019 (COVID-19) pandemic. CRT indicates cardiac resynchronization therapy; GDMT, guideline-directed medical therapy; HF, heart failure; HT, heart transplantation; ICD, implantable cardioverter-defibrillator; ICU, intensive care unit; SDOH, social determinants of health; STEMI, ST-elevation myocardial infarction; and VAD, ventricular assist device.

PROVIDER LEVEL

Distancing imperatives and telemedicine have transformed ambulatory HF care. We now assess disease progression without routine diagnostics, such as physical exams, echocardiograms, cardiopulmonary exercise testing, and right heart catheterizations. Titration of guideline-directed medical therapy for HF with reduced ejection fraction is being hampered as laboratory services, and nonessential contact are restricted. Clinicians may have to preferentially dose adjust β -blockers as the recommended monitoring for the titration of other guideline-directed medical therapy is less accessible. Paradoxically, individuals who may gain considerable benefit from optimal guideline-directed medical therapy, for example, the elderly and those with chronic kidney disease, may be those who are more likely to have titration delayed out of concern for needing more frequent blood draws. In contemporary practice, a majority of patients are not being treated with target guideline-directed medical therapy doses, and the barriers imposed by COVID-19 will further delay realization of this goal.

Similarly, stable patients with HF with reduced ejection fraction will have primary prevention implantable cardioverter-defibrillator implantations and cardiac resynchronization therapy deferred as elective procedures are differentially prioritized. With no foreseeable end to pandemic restrictions, the competing risks of delays in maximizing disease-modifying therapy and of sudden death should be balanced on an individual basis. Health system and national registry data collection will be essential to determine the impacts of these triage decisions.

Evaluation of patients with advanced HF awaiting ventricular assist device placement and heart transplantation may also be interrupted, as traditional social work, nutrition, pharmacy referrals, and diagnostic procedures are delayed. Telemedicine offers a platform for these multidisciplinary assessments to occur serially or simultaneously. It also permits caregivers who would not have been able to attend an in-person evaluation to participate remotely (Figure).

SYSTEMS LEVEL

Preliminary data collected during the COVID-19 pandemic has shown reductions in US cardiac catheterization laboratory activations for ST-elevation myocardial infarction and increases in severity of presentations to care due to undiagnosed ST-elevation myocardial infarction complications.⁴ While robust data are lacking, clinicians suspect that patients are avoiding cardiovascular evaluation out of fear of contracting COVID-19 in medical settings. Incident HF may

surge, and we may experience a biphasic demand for advanced HF services, including mechanical circulatory support and urgent heart transplantation evaluations, as patients with delayed ST-elevation myocardial infarction and malignant arrhythmia present in acute HF during this time period and with subacute HF in the coming weeks. Changes in organ availability and center-level practice variation may negatively impact waitlist mortality. The cascading consequences of these delays are likely to disproportionately impact our most disadvantaged populations.

When in-person clinic visits and elective procedures resume, traditional ambulatory models may become overwhelmed. Prioritization schemes for evaluation and treatment will have to be implemented. Our care delivery systems must be agile and ready to accommodate these patients in all settings. As we relaunch prepandemic workflows, we may find that some of our prior paradigms were superfluous and distracting us from providing high quality and high-value HF care.

At most institutions, clinical trials unrelated to COVID-19 have been paused. Trial enrollment and study interventions requiring in-person visitation and procedural resources have been suspended. Safety visits are being performed via telemedicine services. Our patients may suffer from suspension of or lack of access to interventions that may improve their quality of life, morbidity, and mortality. Moving forward, the results of these trials will have to be interpreted in the context of the pandemic as clinical event and adjudication definitions may need to be reconsidered before applying them to our HF population at large ([Figure](#)).⁵

CONCLUSIONS

The COVID-19 pandemic has challenged our health care systems in a myriad of ways. As we manage critically ill patients in emergency rooms and intensive care units, we must remain mindful of patients with established HF currently out of our collective sight, of the potential impacts of our current resource allocation strategies, and of how we can proactively adapt systems now to continue to provide quality care.