

## Gone, but not Forgotten

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### Abstract

The global health and economic impact of the coronavirus disease 2019 (COVID-19) pandemic has rocked our communities and way of life. With millions infected around the globe, and hundreds of thousands of lives lost, there has been a paradigm shift in how clinicians evaluate and care for patients in multiple different types of healthcare settings. Many patients are reluctant to seek medical attention for cardiovascular illnesses, and late presentations of acute cardiac issues are raising the morbidity and mortality for treatable cardiac conditions. In this expert opinion, the authors canvas the many challenges in the diagnosis, treatment and delivery of care to patients with congestive heart failure and acute coronary syndromes during the COVID-19 pandemic.

### Keywords

COVID-19, hospitalisation, clinic visits, televisits, heart failure

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The direct impact of coronavirus disease 2019 (COVID-19) has resulted in a shift from inpatient to offsite care, as bed utilisation is appropriated to COVID-19 patients or potential COVID-19 patients. The mean number of hospitalisations for acute coronary syndrome was significantly reduced in northern Italy when compared to same time period in 2019 and prior to the national lockdown.<sup>1</sup> Data from the Veterans Affairs Corporate Data Warehouse showed that, from 29 January–10 March 2020 to 11 March–21 April 2020, there was an overall 41.9% reduction in hospitalisations, with admissions decreasing by 51.9% for strokes, 40.3% for MI and 49.1% for heart failure. There was no decline during the same time period in 2019.<sup>2</sup>

At the University of Mississippi, a comparison of heart failure hospitalisations during the comparable timeframe in 2019 showed a 50% decline (average cases 30 per week) after the first case of COVID-19 was diagnosed (mean heart failure hospitalisations declined to 15 per week). After a state of emergency was declared in Mississippi, there was a further decrease. Hospitalisations continued to decline even further, once the shelter-in-place order was mandated.<sup>3</sup>

There was a median reduction in the cardiac surgery case volume of 50–75% in 60 centres included in the international Randomized comparison of the Outcome of single versus Multiple Arterial grafts (ROMA) trial.<sup>4</sup>

In addition, there has been a decline in patients presenting by emergency medical services or to the emergency department with ST-elevation MI. Patients and family members are less apt to call the 911 emergency number, perhaps due to fear of contracting coronavirus.<sup>5</sup> As a result,

numerous organisations have initiated public awareness campaigns highlighting the safety of their facilities and reminding patients to seek help when they have symptoms of a heart attack or stroke.

It is interesting to postulate that a decline in heart failure hospitalisations may be related to improvements in access to care related to telehealth, patients' newly developed appreciation for salt and fluid restriction, changes in access to food sources, discontinuation of smoking, initiation of exercise regimens or adherence to medication.

The impact of COVID-19 has no less an effect on outpatient visits. There was a 60% reduction in ambulatory patient visits to physicians by early April 2020. Although there has been some rebound recently, outpatient visits remain approximately one-third lower than prior to the pandemic. As onsite clinic visits declined, telehealth visits increased.<sup>6</sup>

Unfortunately, many patients are unable to utilise video visits, due to lack of familiarity with technology, inadequate internet service or lack of access due to financial constraints. Many patients have expressed concern over co-payments related to video visits. The lack of these options may further enhance disparities in care.

Many patients admit they are not exercising and cannot provide weights or blood pressures or recite their medication information. At times, they are out driving during video visits. They do not respond to calls in a timely manner, delaying visits with onsite and other offsite patients. One patient said via video visit that she was delighted she had lost 4.5 kg (10 lb), as she was running after her grandchildren. When she arrived at the clinic 2 weeks later, she had actually gained 4.5 kg. Another patient

gained 31.5 kg (70 lb) over 100 days and ignored her husband's advice to contact us. She declined a visit at our facility in lieu of adjusting oral diuretics, due to fear of COVID-19. Admittedly, these are not new behaviours, but highlight the deficiencies in care. Thus, although many centres utilise televisits, it is difficult to say that they are 'ready for prime time', particularly for patients with a history of non-adherence or advanced heart failure, the elderly, and the indigent and fearful.

Unfortunately, there has been a fair amount of misinformation disseminated to physicians and non-physicians regarding COVID-19. This has added to the panic and confusion regarding transmission and treatment. The United Nations has developed a new initiative to address this. Peer-reviewed literature is more carefully scrutinised.<sup>7,8</sup>

We acknowledge that patients are fearful of presenting to a hospital-based clinic. They are concerned there is a greater risk for exposure to COVID-19 in our clinic space, despite screening measures, compared to their primary care physician's office, the grocery store or leisure activity. They fear hospitalisation and loss of contact with family members and other significant others.

These are just a few considerations impacting patients. If we scrutinise advanced heart failure patients, delays in hospitalisation and initiation of therapy have an even greater impact. A recent patient in need of a ventricular assist device (VAD) was unable to see his family members while hospitalised. He declined a VAD in lieu of returning home for family discussions, despite three recent hospitalisations. While some would opine that a VAD is an elective procedure, there is significant variability in mortality with regard to Interagency Registry for Mechanically Assisted Circulatory Support class. Unfortunately, patients who delay surgery may deteriorate further and no longer remain candidates for device or other therapies, or succumb to their disease. Importantly, in high COVID-19 areas, intensive care unit resources may be diverted to these patients. Alternatively, an expedited VAD implant or heart transplant may increase bed availability, particularly in centres with high numbers of status 1–3 patients on the United Network for Organ Sharing (UNOS) scale.

There are additional challenges regarding heart transplant. Some centres have opted to decline all donors or inactivate recipients, as they are in the midst of the pandemic. Others have carefully selected patients who may proceed with transplant, based on risk/benefit ratio. UNOS has developed codes to temporarily inactivate candidates who providers believe cannot or should not receive organ offers due to COVID-19 concerns. When considering donor acceptance, particularly if the recipient is critically ill, allosensitised, blood group O or has a high height/weight profile, waitlist mortality must also be taken into consideration.<sup>9</sup> Challenges not previously faced include screening donors for COVID-19,

the accuracy of testing, time delays in getting test results, request to screen procurement teams, the need to provide personal protective equipment to procurement teams, procurement by offsite teams to reduce exposure risk, the need to ensure flight staff are COVID-19 negative and concerns for procurement team exposure when entering or leaving high caseload areas. In the event a transplant recipient contracts COVID-19, we need to consider modifications in immunosuppressant therapy, management of the disease and exposure of other patients within our clinic space. Finally, in an era of patient-centred care, we need to be aware of these influences on patient choice. The fear of dying alone should not be dismissed.

For those who lose employment, and thus insurance benefits, along with potential changes in state or national funding for Medicare/Medicaid programmes, or a patient's desire to remain outside the hospital, there may be no viable medical or surgical options available.

It is even more disturbing when we consider that certain areas of the US are yet to have a COVID-19 'surge'. As anticipated, our hospitals are well prepared, and some have been extremely fortunate not to be exposed to the consequences of COVID-19. However, our patients are not attended to, and as described above, may not recognise the impact of heart failure on mortality.

On a positive side, the current reduced readmission rates are a potential cost saving, due to loss of Centers for Medicare and Medicaid Services penalties, although offset by empty beds in low COVID-19 areas. Even if we disregard the financial ramifications, we cannot help but look to the future and anticipate poor cardiovascular outcomes, due to the downstream effect of COVID-19. Hopefully, the reduction in hospitalisations for heart failure (and other cardiovascular events) is a sign of patient wellbeing. If that is the case, hospitalisations and readmissions should remain low once there is a resolution of COVID-19. However, delays in seeking healthcare may ultimately lead to more acutely ill patients, with limited insurance benefits and limited options if presenting with cardiogenic shock or multiorgan dysfunction. Importantly, it may result in adverse patient behaviour with respect to direct provider interactions. Based on our current patient interactions, they have and will continue to require onsite care for advanced heart failure. The illusion that telehealth is a panacea for all patients is an illusion.

At some point, patients will venture from their homes or the 'safety' of televisits to the doctor's office, hospital or emergency department. At that point, we may be able to more fully assess the non-COVID-19 cardiac ramifications of social distancing, loss of insurance, lack of medication/dietary compliance and inactivity. There may be a different type of 'surge', as elusive as COVID-19, which is related to unremitting heart failure, acute MI, cardiac arrest and stroke. ■

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