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# Heart & Lung

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## Telemedicine in Heart Failure during COVID-19: Like it, Love It or Lose It?



The onset of Coronavirus disease 2019 (COVID-19) led to social distancing and stay-at-home recommendations to slow a surge in cases. Many hospitals and ambulatory medical services abruptly halted usual care services to participate in social distancing and prepare for intensive care admissions. Slowing of office services meant that providers of patients with chronic heart failure (HF) needed to find new ways to communicate with and manage patients since up to 90% of patients have symptoms, and at any time, over 30% have New York Heart Association functional class III or IV symptoms.<sup>1</sup> Regardless if patients' left ventricular ejection fraction reflects reduced or preserved etiologies or if the current status is decompensated or compensated, it is customary to maintain close follow-up.

It seems like a natural phenomenon that an unintended positive consequence of COVID-19 environmental changes would be to maintain interactions with patients using non-invasive distance health methods. Before COVID-19 became prominent, clinicians and investigators were using and examining telemedicine strategies to better meet patients in their communities. For example, telemedicine has been used to detect medication nonadherence<sup>2</sup> and to facilitate self-care lifestyle modifications and clinical decisions.<sup>3,4</sup> Although innovations in telemedicine have been ongoing, use was primarily an adjunct to office visits until the Centers for Medicare & Medicaid Services broadened access to telehealth services for Medicare beneficiaries on an emergency and temporary basis, as part of the COVID-19 Preparedness and Response Supplemental Appropriations Act.<sup>5</sup> The enhanced coverage involves real-time interactive 2-way telecommunications that can be audio or video.

There are many platforms for video telecommunication that are available on smartphones and computers. In a paper on virtual visits in the era of COVID-19, benefits of telemedicine included access to clinicians, recipient of medical advice, inclusion of family caregivers, and answers to medical questions (general and COVID-19 related, including the value of specific renin-angiotensin system medications).<sup>6</sup> However, challenges need to be better discussed so that access, engagement and tailored innovations can lead to improvement of services and potentially, patient outcomes.

Challenges with video telemedicine occur for many reasons. Patients who have access may not know how to use features of their computer or phone to support video telecommunication. If using a phone, face-to-face communication may be difficult. If patients hold their phone to improve face-to-face interaction, movement can be distracting. It is easy to complete a subjective assessment, as clinicians simply need to learn the art of asking questions that do not allow for yes/no responses. Instead of asking patients if they are following their low sodium diet, the question should be rephrased to ask patients to describe what they ate the previous day. However, patients may not want to provide information when other people are

close by in the home. Some objective data should be easy to capture, but patients may not anticipate that clinicians will want blood pressure, pulse, and weight readings. It is not uncommon to receive responses such as “my weight has not changed” or “it’s been months since I took my blood pressure, I don’t know where the equipment is”. When patients are non-adherent to the suggested management plan, they may be more likely to give brief responses or change the subject. It is up to clinicians to ask more questions after getting the discussion back on track. Clinicians may not be able to see facial expression nuances and family members may not be on screen and are unable to provide cues that they share at in-person office visits.

A video examination may be less successful. For example, when asking patients to make their neck or ankles visible, they may be uncomfortable losing eye contact or not know how to maneuver their head or feet to meet clinician needs. If patients are wearing a turtle-neck pullover top or if they are unprepared to remove socks and shoes, time is lost while waiting for those steps to occur. Clinicians may be uncomfortable documenting their findings if they believe the data they have received, or their clinical judgments, are based on untrustworthy data. In one paper on patient examinations via video, authors expressed similar challenges.<sup>7</sup> It may be that telemedicine works best when patients are computer or smartphone technology savvy and when patients and their telemedicine clinicians have long standing face-to-face relationships and in-person physical examination experiences so that changes in responses can be easily identified. Additionally, telemedicine findings may be enhanced by patient-reported outcome measures, such as a valid, reliable quality of life questionnaire.

Challenges abound when clinicians conduct telemedicine visits by telephone without video capabilities. Patients are generally comfortable discussing their needs and clinicians can easily discuss simple management plans via phone; for example, HF medication up-titration in patients with stable status. Since there is no face-to-face exposure, it becomes imperative that clinicians be prepared to ask questions based on comorbid conditions when patients have symptoms of worsening HF. For example, if a patient with HF and reduced ejection fraction and asthma has moderate exertional dyspnea, questions that distinguish the 2 conditions will facilitate an optimal management plan. Clinicians also need to understand changes to patients' activities of independent living. Patients may be deconditioned from staying indoors (if they fear contracting COVID-19), especially if they are self-isolating with family members in small homes or they may be selecting staples when food shopping (milk, bread, cereal and soup), many of which could increase sodium intake and lead to decompensation. Thus, daily living discussions and shared decision making should include low sodium diet choices, adherence to the medication plan and physical activity.

Finally, challenges that affect any form of telemedicine visits include symptoms due to anxiety or non-HF related acute medical conditions that require additional testing and comfort in up-titrating HF medications when serum electrolytes cannot be easily monitored. For patients that are not newly diagnosed and on HF medications for the first time, medication up-titration can be completed safely when clinicians pose important questions related to adverse events.

Future research and quality improvement initiations in video telecommunication and telephone visits are needed. Providers need to better understand technical issues from the patient's perspective, so that visit pre-planning can be enhanced. Research and quality assessment findings may assist organizations and telemedicine software vendors to understand necessary features that promote optimal services. Use of patient reported outcome measures will become more important. Through research, we can learn which tools are easy for patients to deploy and respond to and for healthcare providers to score. Tools that provide results that are consistent with an objective assessment or outcome (valid) and provide consistent findings in different situations (reliable) will be important adjuncts during a video or telephone telemedicine visit and in decision-making. We also need to learn if results of specific patient reported outcome measures can replace biomarker data; thereby, limiting the need for healthcare site visits for laboratory or other testing.

Through research, it will be important to learn the ideal number of or ratio of virtual versus in-person visits, given that patients may prefer virtual visits once they get started. How often is an objective examination needed in patients in NYHA FC III or IV? What adjunct testing is needed (and how often should it be obtained) to complement virtual visits? What externally available devices or procedures will provide valuable objective data that augments the subjective telephone assessment? For example, a device that projects the intensity of S1 heart sounds might provide evidence of worsening cardiac function and a new S3 heart sound could substantiate hypervolemia, possibly even before patients recognize that they have new or worsening status. If we are going to embrace telemedicine, we also need to embrace patient-directed self-care. Patients need to understand that *they* are in control of their health. Through research findings, we must develop patient-directed management actions or steps that are safe and effective in improving health when symptoms emerge or worsen. These are just a few examples of potential research. Ultimately, new research that involves advancements in technology, self-assessment techniques and action plans when signs and symptoms worsen can lead to optimized medical therapies, especially among patients who are already on guideline-directed medical therapies.

We believe that video telecommunication and telemedicine are here to stay for some patients who appreciate remaining in their community to receive care. And, new innovations will make it easier to obtain objective physical examination information. Most likely though, consistent use may be based on the Center for Medicare & Medicaid's reimbursement decisions once COVID-19 simmers or ceases. In the meantime, clinicians need to learn new tricks to get trustworthy results from both video telecommunication and telephone visits and understand that visits may be longer, based on the depth and breadth of questions posed to patients and questions patients ask during visits.

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