



Telehealth Medicine Use in the Adult Congenital Cardiology Practice

How to Incorporate Telehealth into Your Clinical Practice During These Difficult Times

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The COVID-19 pandemic has changed our lives in ways that we did not envisage just over a month ago. At the time of writing, over 170,000 people have lost their lives worldwide and 4.5 billion people are under quarantine to slow the pandemic.¹ In addition to the acute burden COVID-19 is placing on our emergency rooms and intensive care units, we are also having to adapt our outpatient clinical practice to delay any non-urgent in-person visits in an attempt to limit exposure to patients and providers. As health care providers we find ourselves rapidly transitioning from the normal clinical visit in person to telephone or telehealth visits when appropriate. How do we do this effectively? What tips and tricks are there to performing a telehealth visit well? And with this increasing comfort and experience with telehealth, are we recognizing there may be an increased role for telehealth which outlives this pandemic?

Dr. Windram, Editor of the *Adult Congenital Heart Disease (ACHD) Learning Center*, had the opportunity to pose these questions and more to Dr. Ami Bhatt, an early adopter of the use of telehealth medicine in ACHD. Dr. Bhatt is the Director of the ACHD program at Massachusetts General Hospital and has been using telemedicine as a routine part of her clinical practice for several years in addition to conducting research in the field (**Figure 1,2**).

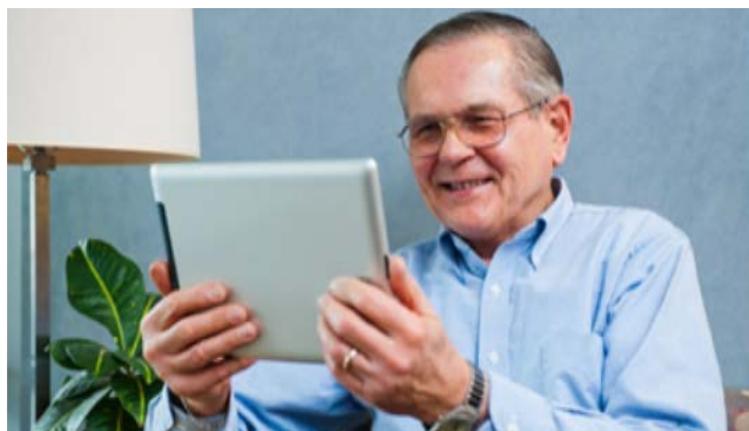
Dr. Bhatt's presentation and the subsequent discussion was recorded as a vodcast for *Heart University* (www.heartuniversity.org) and is freely available for the reader to watch on its component site, the *ACHD Learning Center* (**Figure 3**). While the discussion focused on the Adult Congenital Cardiologist, it can be generalized to both the pediatric and adult cardiologist, all of whom are attempting to rapidly incorporate telehealth into their practice today.

Summary of the Highlights from Dr. Bhatt's Talk and a Portion of the Discussion that Followed

- Telemedicine, be it by phone or video conference, has become the standard of care during the COVID-19 crisis, as it keeps both physicians and patients with complex cardiac disease safe from exposure and allows for continuation of care.
- Conducting a telehealth visit with a patient in their home creates a relaxed environment. This changed dynamic fosters better patient education and aids shared decision-making.
- Telemedicine allows for a more patient-centric approach, improving access and overall quality of care.
 - For the physician, it reduces no shows, improves adherence to care plans and increases clinic capacity. It promotes continuous care rather than the sometimes episodic care we experience in our regular face-to-face clinics.
 - For the patient, telemedicine is convenient. It decreases the time and cost expended on clinic visits.
- Wireless and wearable technologies, such as digital heart rate and blood pressure monitoring enhance the telemedicine encounter. Further development of these technologies may aid incorporation of telehealth into routine clinical practice.
- The inpatient clinic visit remains the mainstay of patient care with its ability to provide a thorough clinical examination and detailed cardiac imaging. The incorporation of telemedicine can enhance comprehensive patient care.



FIGURE 1 Dr. Bhatt conducting a telehealth visit.



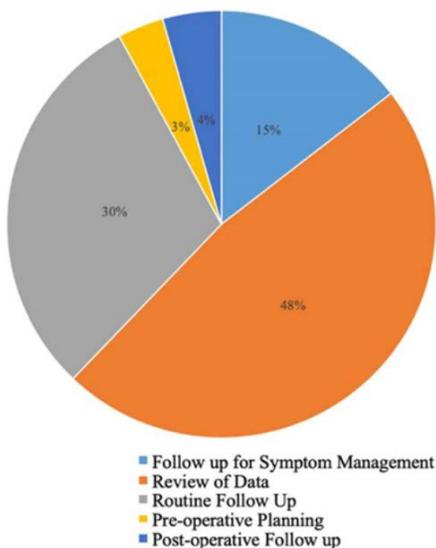


FIGURE 2 Reasons for Adult Congenital Heart Disease Virtual Care in the Massachusetts General Hospital Adult Congenital Heart Disease Program.

A Portion of the Conversation Between Dr. Windram and Dr. Bhatt

Dr. Windram: Telehealth appears to put the patient’s needs foremost with ease of access to the physician being perhaps the most obvious one. It also appears that the dynamics of the patient visit is different within the telehealth visit. How has integrating telehealth into your practice altered the way you conduct the traditional in-person clinic visit?

Dr. Bhatt: That’s an interesting question. Certainly, I find that the telehealth visit is more relaxed, and it makes you rethink how you conduct an in-person patient visit. I think most of us in Adult Congenital Heart Disease are good at building a rapport with our patients, but this seems to be enhanced within the telehealth visit.

Dr. Windram: I can see that a telehealth visit would be easier with a patient you know well, but how would you engage with a new patient? Is your approach different in the young patient who is transitioning, and you are meeting for the first time virtually?

Dr. Bhatt: I find that it can be a great opportunity to meet someone on their

own turf, so to speak. It allows the younger patient to have more confidence in interacting with you. A virtual visit with a younger patient can also be quite helpful in the transition visits when they may be still under the care of their pediatric provider. It gives an opportunity for patient education and parents find it helpful to be able to interact with you prior to meeting with you in the adult clinic. It makes the physical transfer to the adult clinic much easier.

Dr. Windram: There is anxiety amongst physicians in how to adopt telehealth as we feel that we must be physically with the patient so that we can examine them. Do you have any tips or tricks on how we can conduct a limited examination within a telehealth visit?

Dr. Bhatt: Well, I think once we are out of this COVID-19 period, we will be able to decide based on guidelines and clinical judgement how often you need to see your patient physically. That can then guide how often you need to see them in the office. Having said that how do I assess them at this time? Well, I look carefully at their face and appearance to gauge how comfortable they are. I let them talk without interruption to see whether they can speak for 30 whole seconds without difficulty, how many times do they breathe in a minute, and are they using accessory muscles. These are signs that you may not pay much attention to in a normal visit, but become more important when it is all you have. Neck veins can be challenging to assess in some but not in others, pedal edema is easy to demonstrate and having someone press on the liver can be helpful if they report that it is tender. You can also show a patient how to feel their radial pulse and you ask them to say the word “now” out loud when they feel the pulse. I have been able to diagnose atrial fibrillation this way and you can also confirm the pulse by asking the patient’s partner or relative to also measure the patient’s pulse with this technique.

Join us to follow the discussion between Dr. Windram and Dr. Bhatt, and learn how to incorporate telemedicine into your practice. Watch the podcast for free at: <https://www.heartuniversity.org/>

What is Heart University?

Heart University aims to be the premier resource for e-learning in congenital and pediatric acquired heart disease. It is a carefully curated open-access library of educational material for all trainees and practicing providers of care to children and adults with congenital heart disease or children with acquired heart disease.²

The website provides free content to a global audience by means of:

1. A comprehensive curriculum of training modules and associated testing for trainees
2. A curated library of conference and grand rounds recordings for continuing medical education

The site is managed and curated by editorial boards for the component sites (*Pediatric Cardiac Learning Center, Adult Congenital Heart Disease Learning Center*) comprised of a well-rounded international group of experts covering a wide range of subspecialties with endorsement from major international organizations in the fields of pediatric and adult congenital heart disease.

How Do I Access Heart University?

You can join Heart University for free by visiting <https://www.heartuniversity.org/> and sign up on either component site.



FIGURE 3 Access the podcast on telemedicine in Adult Congenital Cardiology featuring an interview with Dr. Bhatt by Dr. Windram on the ACHD Learning Center within Heart University.



If interested in joining our mailing list with weekly updates highlighting new content and events please email us at heartuniversity@cchmc.org.

You can also stay up-to-date with the new lecture series/activities of the Heart University by subscribing to the twitter handle "[@heartuni_org](https://twitter.com/heartuni_org)."

References

1. World Health Organization. Coronavirus disease (COVID-19) pandemic. www.who.int/emergencies/diseases/novel-coronavirus-2019.
2. Heart University: a new online educational forum in paediatric and adult congenital cardiac care. The future of virtual learning in a post-pandemic world? Tretter JT, Windram J, Faulkner T, Hudgens M, Sendzikaite S, Blom NA, Hanseus K, Loomba RS, McMahon CJ, Zheleva B, Kumar RK, Jacobs JP, Oechslin EN, Webb GD, Redington AN. *Cardiol Young*. 2020 Mar 31:1-21.



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Heart University Hosts Historical Event With First Webinar in Series of "Contemporary Questions in Congenital Heart Disease"

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It is not hyperbole to state that the first free webinar for the **Heart University Contemporary Questions in Congenital Heart Disease Webinar Series** hosted on May 6th, 2020 was a huge success, and in many ways a historical event in our field of Pediatric and Adult Congenital Heart Disease. The live educational event was attended by 1,374 people from 423 institutions, and 100 countries spanning six continents. This was a historical event in that it represents the largest gathering, albeit virtual, of congenital heart disease providers for which we are aware of outside of the Quadrennial World Congress of Pediatric Cardiology and Cardiac Surgery. Every form of provider involved in the care of both children and adults was represented; from trainees, to nurses, allied health care professionals, anesthesiologists, congenital heart surgeons, to adult congenital and pediatric cardiologists.

The first webinar covered the topic of **Tetralogy of Fallot: How Can we avoid poor outcomes late after repair?** (Figure 1) To listen to the webinar in its entirety, please visit www.heartuniversity.org or go directly to the listing of each lecture [here](#).

Webinar Moderators

Justin T. Tretter, MD, Cincinnati Children's Hospital Medical Center
Jonathan D. Windram, MBChB, University of Alberta Hospital

A poll was conducted at the beginning of the survey asking the following question:

Which cutoff values do you mostly commonly use at your institution to help guide timing for pulmonary valve replacement guidelines in patients with repaired Tetralogy of Fallot?

- A. RVEDVi >170 mL/m², ≥moderate RV systolic dysfunction, RV systolic pressure ≥2/3 systemic pressure, free pulmonary regurgitation
- B. RVEDVi >160 mL/m², progressive RV systolic dysfunction, severe RVOT obstruction, free pulmonary regurgitation
- C. RVEDVi >150 mL/m², RVESVi >80 mL/m², RV ejection fraction <47%, RV systolic pressure ≥2/3 systemic pressure, free pulmonary regurgitation
- D. Other cutoffs not listed

Of the 446 participants who answered the question, 65 (15%) answered "A" which are the cutoffs proposed by Canadian Cardiovascular Society, 1. 92 (21%) answered "B" which are the