Optimising the use of telemedicine in a kidney transplant programme during the coronavirus disease 2019 pandemic

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic has brought forth significant challenges in health-care delivery. The need to care for immunocompromised transplant patients in the safety of their homes while observing social distancing became imminent, as highlighted by Smith et al. Due diligence and thoughtful processes were warranted to prevent unwanted exposure in this high-risk population with multiple comorbid conditions.

Telemedicine delivered through a HIPAA-compliant platform is an innovative care delivery model that brings accessible and personable health care to patients’ home. In response to the COVID-19 pandemic, our kidney transplant programme rapidly adjusted workflows to convert 98% of transplant clinics into telemedicine sessions successfully. As per institutional guidance, we identified super users who ensured patients were ‘telemedicine ready’ by providing real-time technical assistance and test sessions prior to appointments. Today, more than 80% of adults in this country own smartphones, as reported by the Pew Research Center.

The ability to access telemedicine platforms through simple mobile applications increased patient participation by removing technological barriers and enabled seamless virtual patient and provider interaction. This rapid deployment of resources resulted in a dramatic institution-wide increase from 50 telemedicine visits a day to more than 3000 visits a day. Our institution transitioned most visits from ambulatory to telemedicine platform starting March 16th, 2020. As of June 1st, 2020, spaced out ambulatory visits have been resumed to facilitate social distancing and sanitization protocols which rigorously observed during patient encounters. Including our satellite nephrology and surgical sites average of 400 FTF transplant clinic visits per month between June 2019- March 16th, 2020 (including living kidney donor/ kidney recipient evaluations and post-transplant clinics). During this same time telehealth visits < 5 per month (these were mostly living kidney donor evaluation and post- transplant clinics) at these sites. In contrast, during COVID -19 pandemic (between March 16th to June 17th, 2020) our telehealth visit volume is about 250/ month.

We adopted an ‘agile listing model’ for pre-transplant evaluations. This entailed virtual education and consenting followed by history taking and medication reconciliation by the transplant coordinator. From there, a telemedicine physician evaluation was conducted (including a telemedicine physical examination; Table 1) followed by evaluations by a social worker, dietician and financial coordinator over a secure video-conferencing platform. This model, as expected, has increased our inactive status 7 listings from 30% to 33% in just six weeks. This model will ensure that the ‘restart’ process is smooth, with only the need for in-person physical examinations for subsequent transition to active listing. The kidney transplant programme is also orchestrating at-home phlebotomy for waitlisted and post-transplant patients. Additionally, we have utilised enterprise-wide infusion centres for fluids, electrolytes, transfusions and haematopoietic growth-stimulating factor administration needs during this pandemic while observing strict sanitisation, universal masking and physical-distancing guidelines.

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Table 1. The art of observation: physical examination tips on telemedicine.

- Vitals signs: self-reported or observed on camera via a BP monitor, weight, temperature.
- General: distressed, sick, healthy appearing, flushed, observe gait.
- Head, eyes, neck and throat exam: normocephalic, atraumatic. Camera-lit nasopharyngeal examination, assess for oral ulcers, plaques, thrush. Check for equal and reactive pupils and external ocular movements.
- Lung exam: respiratory rate, effort of breathing, intercostal retractions, use of accessory muscles, nasal flaring, paradoxical breathing, wheezing with breathing, coughing.
- Cardiac exam: BP monitor pulse check or, if available. ‘smart watch’ for pulse, rhythm.
- Abdominal exam: distension, assess surgical incision for bruising, drainage and integrity. Assess peritoneal catheter site. Look for umbilical or ventral hernia. Patient- or family-assisted palpation for tender points.
- Extremities: colour, ulcers, patient-assisted examination of arteriovenous access (observed pulsations and self-reported thrill), evaluation of pedal oedema with patient or family’s help. Ask to remove shoes and socks to check feet and nail hygiene.
- Musculoskeletal: assess for range of motion or joint swelling.
- Skin exam: check for pallor, icterus, cyanosis, plethora. Assess for rash characteristics such as macular, papular, vesicular or nodular. Pictures can be sent on HIPPA-compliant portal.
- Neurological: alert, awake, orientation. Assess for tremors.
- Psychological exam: mood, behaviour, attention span, agitation, demeanour.

BP: blood pressure.

We have used telemedicine for potential live donors since 2016, with >60% telemedicine donor evaluations resulting in living kidney donation. To provide a complete virtual work-up for donors, web links for educational videos are sent, followed by phone calls with the independent living donor advocate and the nurse coordinator to review the evaluation consent. Then, a telemedicine evaluation is completed by the transplant nephrologist and surgeon. A prerequisite step in this process includes evaluation by a primary physician locally. Additional members of the living donor team complete their evaluations via a secure audiovisual platform. A provisional candidacy decision is made at our multidisciplinary meeting. Potential donors only have to travel to the transplant centre once, about 10 days prior to the provisional donation date, to meet with various members of the team in person and to complete final testing, including imaging studies. This rapid virtual work-up has helped to make this process more financially feasible for donors by saving on travel, lodging and childcare expenses.

A primary drive for telemedicine is the payment reform guidelines that were urgently put together under the Coronavirus Aid, Relief, and Economic Security (CARES) Act which granted some leniency towards licensures and telemedicine reimbursements. Becker’s Hospital Review reported Medicare telemedicine visits increased from 100,000 a week to 300,000 a week as of 28 March 2020, and the Centers for Medicare and Medicaid Services administrator called telemedicine a ‘clear example of untapped innovation’. This pandemic was an unfortunate yet effective catalyst to address two major telemedicine roadblocks: consumer willingness to try new care delivery models and insurance coverage. Telemedicine allowed us to connect safely with our patients during their most vulnerable time and ensured that contact with them was uninterrupted.

Across the nation, conversations have begun regarding the ‘second health-care crisis’ that we can expect post COVID-19. This will be a result of health care that was not delivered because of cancelled surgical cases, closed preventative health clinics and the avoidance of health-care institutions by patients unless necessary. As we collectively navigate this ‘new normal’, we expect patients to be hesitant when coming in for ambulatory visits, as the potential risk of contracting COVID-19 still looms. A hybrid model of telemedicine and ambulatory visits will enable us to provide the best health care, not only to transplant patients but to all consumers of the health-care delivery system during these unprecedented times.

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