Telemedicine in Kidney Transplant

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ABSTRACT

The pandemic of Severe Acute Respiratory Virus 2 (SARS-CoV-2/COVID-19) has highlighted the necessity of telemedicine as a critical tool for public health and, specifically, for kidney transplant patients (Nielsen et al., 2020). Transplant patients in general require regular specialized care to monitor kidney function, assessment for rejection, screening for infections and proper dosing of immunosuppression medications. The use of telemedicine has been shown to reduce high risk/immunocompromised patients' in-person contact with the community, medical staff, and even other patients (Smith et al., 2020) thus also decreasing the risk of COVID-19. The use of telemedicine to care for kidney transplant recipients who are infected with COVID-19 demonstrated increased care needs related to immunosuppression while also reducing risks of in-clinic visits exposing other high-risk transplant patients (Abuzeineh et al., 2020). COVID-19, both through increased risk to immunosuppressed transplant patients but also through the management of actively infected transplant patients, demonstrates the necessity of telehealth utilization among this unique at-risk patient population. Moving forward, these benefits and widespread adoption of telemedicine are key to implementing within a kidney transplant protocol. This study identifies themes from transplant providers and uses these themes to recreate the current kidney transplant protocol at the Medical University of South Carolina (MUSC) with built-in telemedicine visits and follow-up.

METHODS

Key informant interviews with transplant leadership and providers was significant in assessing the current issues with telehealth implementation in the transplant program. A semi-structured interview protocol was developed to solicit key issues related to the provider's telehealth implementation. Interviews did not require IRB approval or consent due to the oral history nature of the responses of the providers that are not being used for "generalizable knowledge". Therefore, this study was excluded from IRB review. Participation of participants was voluntary, and any transcription was de-identifiable by removing any identifiable information. The providers were a convenience sample working within the transplant department. I explained to the providers that these data would only be used to identify themes and improve telehealth implementation within the Transplant Division of the Department of Surgery at MUSC.

The transplant protocol was created by three Advanced Practice Providers (APPs) from the transplant department representing transplant surgery, transplant nephrology, and transplant outreach at MUSC. The standard MUSC kidney transplant protocol was adapted using telemedicine and outreach visits while incorporating the qualitative results and levels of care as part of the process. This project resulted in a system change with the implementation of this protocol, but these results were also shared with transplant, telehealth, and system leadership which resulted in the creation of advertising focused on the findings.

RESULTS

The first major theme identified is connection. This is mainly interpreted as the provider-patient relationship first and foremost. The provider loses some of the in-person connection that comes from face-to-face interaction that is central to the art of medicine. Further, connection between providers and their support staff were also mentioned thus inhibiting communication since coordination of care was taking place across multiple areas. Many of the providers were seeing patients from their home or other locations adding another level of difficulty. This connection was hampered by location, internet availability, connection, timing, and other factors. Both providers reported the feeling or "being alone" or "on an island" early during this crisis.

The second theme was safety. This helped to drive the need to manage these patients distantly due to COVID-19 risk but also created safety issues by not seeing the patients in-person. Concern was expressed for findings being missed, ancillary procedures like labs and other testing not being completed or miscommunication of care due to these issues. A distinction was made between traditional telehealth where patients came into a physical telehealth office with staff versus digital/virtual visits during COVID-19 that the patients completed from home. Patient safety could also be comprised by the location with both providers reported patients doing visits while driving.

Based on these findings, I identified a hierarchy that all providers agreed that separated out the types of visits that patients could obtain through transplant including virtual, telehealth, outreach, in-person and inpatient. Transplant outreach clinics were adopted before COVID are outpatient clinics throughout the state where transplant patients can be seen by a transplant trained Advanced Practice Provider (APP), the location also includes a telemedicine site.
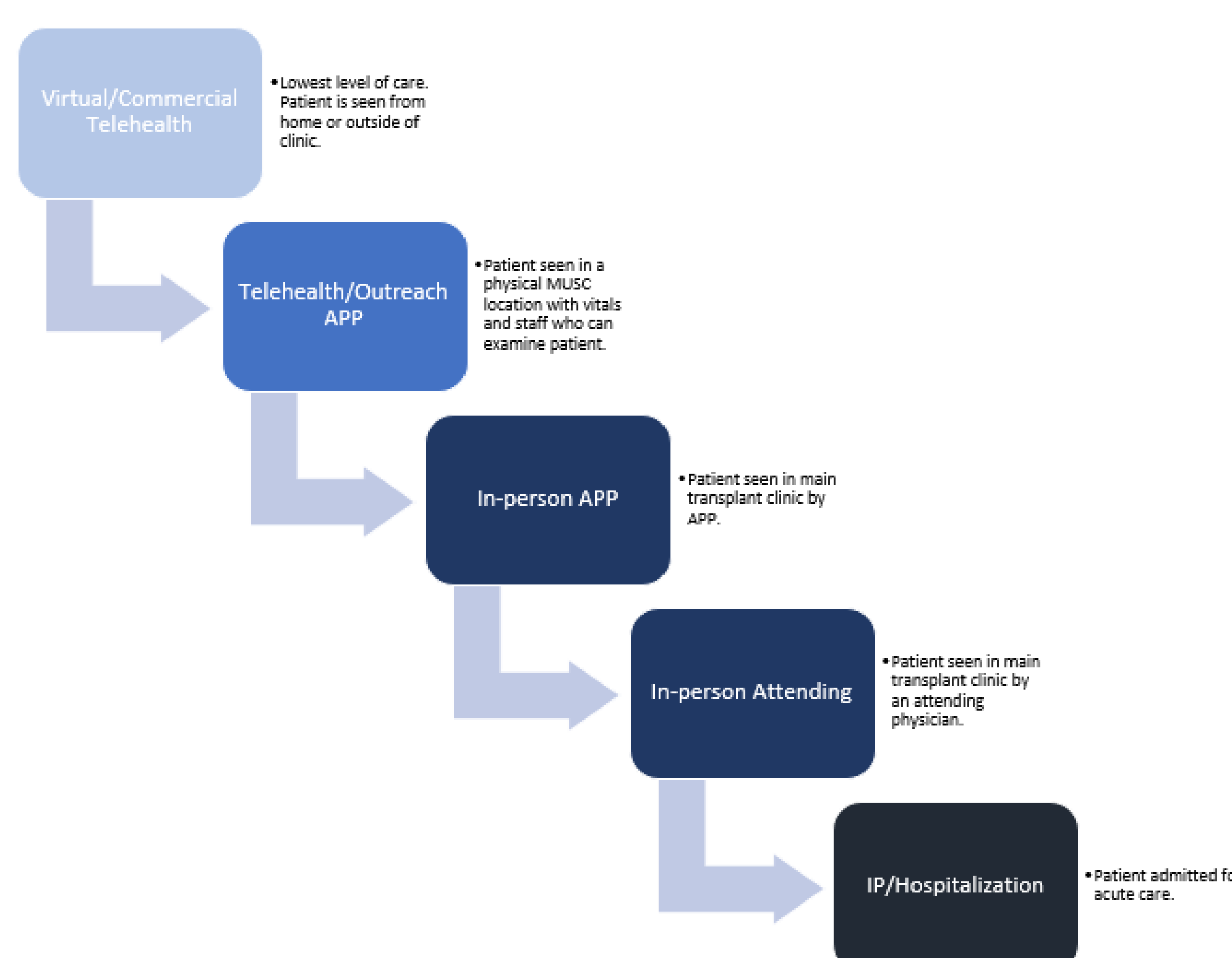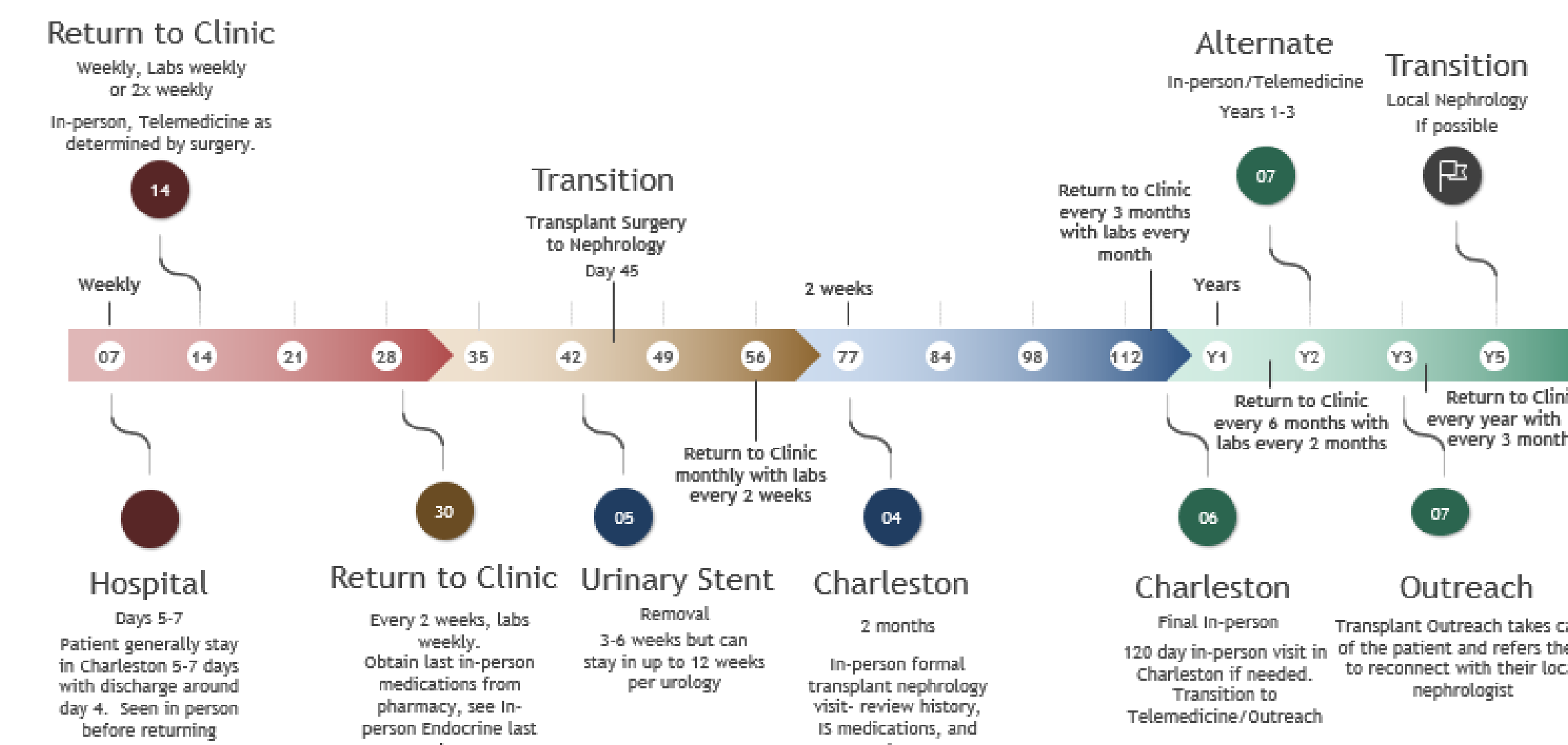
Figure 1. Levels of Care

Figure 2. MUSC Transplant Protocol

The above transplant protocol seen in Figure 2 shows the visual representation of the protocol. This process took place over a couple of weeks with the cooperation of other APPs within the transplant program. It is also currently in place and being used for kidney transplant patients. This visual model will used to help staff and patients understand the process post transplant. Due to the complicated process a sampling of patients have been selected to provider feedback on how to better modify it for patients both through wording and visualization.

The next part of our process included system change where the qualitative findings were shared outside of the Transplant Department with telemedicine and administration. The themes of connectivity, privacy and safety were used by the Center of Telemedicine to illustrate the benefits of the telehealth clinics which also house transplant outreach. One example of a graphic that they created can be seen below. This was used to assist recruiting providers in utilizing the telemedicine outreach clinics versus a traditional direct-to-consumer or virtual platform. Transplant made an early decision that transplant patients needed the added level of care that an in-person telemedicine visit brings but had yet to create a formal protocol. MUSC continues to work to expand the use of the Outreach and Telemedicine clinics across specialties at the Medical University of South Carolina as seen in Figure 4.

Figure 3. MUSC Graphic Created with Results
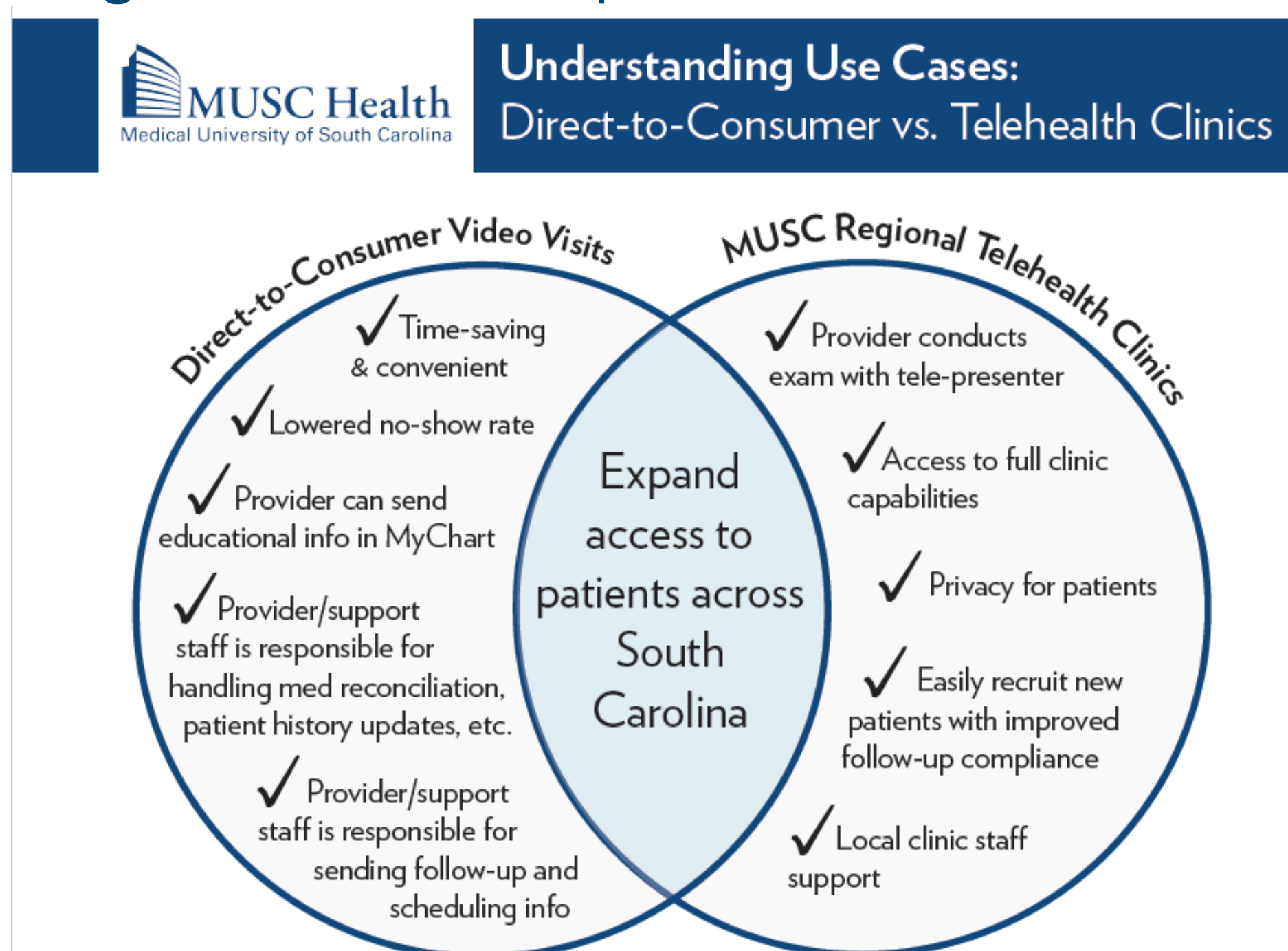
CONCLUSIONS

This study attempts to illustrate and summarize common issues/challenges related to telehealth implementation and utilization at the Medical University of South Carolina Transplant Program. Further, it sought to summarize the response and vision of transplant administration moving forward of how telehealth will be used to better serve a unique transplant population through the creation of a modified transplant protocol. This protocol was created through collaboration and hard work of two other Advanced Practice Providers (APPs)* that are listed below. The results of the interviews have already been used to help recruit providers to use telemedicine and Outreach clinics in South Carolina. Finally, leadership at MUSC is constantly seeking innovative ways to summarize, share and view data to improve decision making and communicate both within Transplant and with patients.

Figure 4. Transplant Outreach-Telehealth Locations

FUTURE RESEAECH

Future research would focus on measuring the implementation of telemedicine in transplant patients. This could focus on the number of visits, decreased travel and quality outcome measure as compared to before the implementation of telemedicine as a part of the protocol.

REFERENCES

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