Virtual realities: Changes in clinic efficiency and obstacles in the transition to virtual clinics

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Background

KNIGHTS Clinic is a student-run free clinic that serves the uninsured population of downtown Orlando. The clinic is operated by a board of 38 students; 20 are Student Provider Experts (SPEs) who provide continuity of care to our patient population. As Clinic Directors, we strive to achieve high efficiency in the clinic flow, which ensures quality care to patients and an overall professional experience for volunteers - two of our primary goals at KNIGHTS Clinic.

During 2020, we collected survey data on clinic efficiency, challenges to clinic flow, and student satisfaction. Shortly after taking leadership of the clinic, the COVID-19 pandemic halted our clinic operations. After months of planning, we were able to introduce virtual clinics for our patients and student board. One major adjustment in these roles was the creation of a the SPE1 role, who fulfilled the original role of interviewing patients, and the SPE2 role, who acted as a scribe during the virtual visit, as well as helping to write up the final history and physical for later review with the medical director.

We evaluated data for four in-person clinics completed prior to the COVID-19 shut down, and four virtual clinics held during the pandemic.

Objectives

- Analyze changes to perceived clinic efficiency
- Evaluate student volunteer satisfaction
  - Interpret changes in satisfaction based on role changes
- Track obstacles to clinic flow/efficiency

Statistical Analysis

Clinic efficiency average was weighted to account for large changes in clinic volunteers between in-person and virtual encounters (from approximately 25-30 volunteers in-person to 8 virtually). Two-tailed t-tests were used in comparison of in-person to virtual changes for efficiency and satisfaction.

In-person challenges did vary from virtual challenges simply based on environmental differences. Challenges of having too many people in a room, for example, could not be compared adequately to problems of internet connection and sound quality. One common obstacle that could be directly compared was the problem of language barrier/interpretation. For this, the frequency of complaints per the number of students who had patients with foreign language needs was compared between in-person and virtual encounters and analyzed via a two-tailed t-test.

Methods

Clinic efficiency and student satisfaction were measured via a student self-reported survey, scaled from 1 (Poor) to 5 (Excellent). Obstacles to clinic flow were listed as multiple selection options on the same self-reported survey, with a choice to fill in an open-ended, "Other," selection. These surveys were offered to all students involved in a clinic night, following the completion of each clinic.

Results

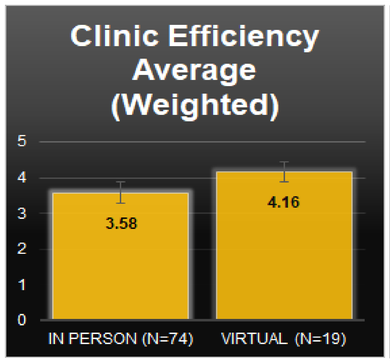

Figure 1. Weighted Clinic Efficiency Average (p = 0.0027), scaled from 1 (Poor efficiency) to 5 (Excellent efficiency)

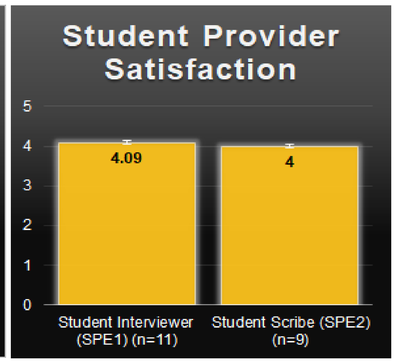

Figure 2. Student Provider Satisfaction (p = 0.8), scaled from 1 (Poor efficiency) to 5 (Excellent efficiency)

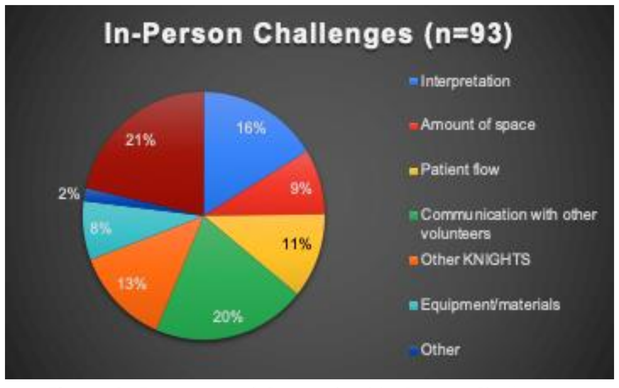

Figure 3. Frequency of Categorized In-Person Challenges

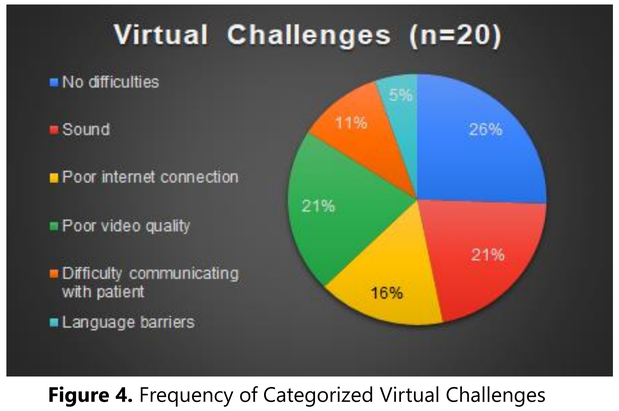

Figure 4. Frequency of Categorized Virtual Challenges

Discussion

While initial barriers hindered the ability to provide care at the onset of the COVID-19 pandemic, we adapted to providing virtual visits, which have shown greater clinic efficiency compared to the previous in-person clinics (p=0.0027). Several factors may have contributed to this perceived improvement in efficiency.

- Despite the occasional technical difficulty, virtual encounters generally adhered to appointment times, required fewer interactions with various members of the clinic (e.g., Patient Education, Lab), and eliminated the need to physically transport to and from clinic.
- Figure 3 illustrates that the greatest obstacle to in-person clinic efficiency was reported to be communication between KNIGHTS volunteer members (20%); in contrast, Figure 4 illustrates that the greatest obstacles to virtual clinics included video (21%) and sound quality (21%) during calls. Prior to the pandemic, the in-person challenge of communication was mitigated through clinic flow dry-runs and the use of secure radios to facilitate better communication between our multi-level clinic building.
- Overcoming the challenge of video and sound quality is more complex. It was standard procedure for all KNIGHTS volunteers to check their sound and video quality prior to conducting calls; however, excellent call quality could not always be guaranteed as the compatibility of the patients' devices varied. In worst case scenarios, video chats became phone calls. While this could at least guarantee the continuation of the appointment, visual interaction and communication was lost.
- Reported SPE satisfaction did not seem to vary greatly between those who performed the role of SPE1 or SPE2, though this was not found to be significant (p=0.8). While these outcomes cannot be directly addressed, the general observation was that students enjoyed being able to interact with patients in any capacity.
- Important improvements to virtual clinics were revealed through these observations – particularly in the potential elimination of challenges for interpretation barriers. This challenge, present in both in-person and virtual patient encounters, was significantly reduced through virtual visits (p<0.0001). This may be the result of reduced awkwardness or other perceived difficulties of in-person translation coupled with patients being in more comfortable and familiar environments. Further investigation into this is warranted.

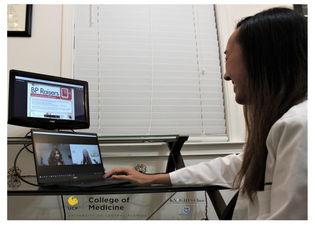

Figure 5. Virtual patient encounter following COVID-19 virtual transition

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Acknowledgements

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