Spring 4-27-2022

A Quality Improvement Project to Improve Patients' Satisfaction with Telemedicine Use in the General Hematology-Oncology Setting

Jeneth Aquino
Belmont University, jeneth.aquino@pop.belmont.edu

A Quality Improvement Project to Improve Patients' Satisfaction with Telemedicine Use in the General Hematology-Oncology Setting

Jeneth Aquino

Belmont University

Scholarly Project Advisors: Dr. Linda Wofford and Dr. David Phillippi

Scholarly Project Team Members: Dr. Heather Jackson and Sara Hanai

Date of Submission: April 16, 2022

Abstract

The COVID-19 pandemic has accelerated the use of synchronous telemedicine in oncology. While telemedicine can increase access to care, decrease care costs, and reduce hospitalizations, patients' satisfaction with telemedicine is critical to telemedicine's sustainability. However, limited research exists on telemedicine use and patients' satisfaction in oncology. The scholarly project had a quality improvement design that determined the factors affecting patients' satisfaction using secondary data from patients' satisfaction surveys. Using the Donabedian Structure, Process, Outcomes Model as a framework, the project involved three general hematology-oncology clinics at a large urban, academic medical center. Three-hundred ninety-four patient satisfaction surveys with at least one comment from April 2020 to September 2021 were analyzed, which yielded 665 comments to provide context. Surveys with no comments were excluded from the analysis.

The independent variables were age, race, and gender. The dependent variables were *ease of scheduling*, *therapeutic communication* by the care providers, *audio/video quality*, and the *overall assessment* of telemedicine use. One-way analysis of variance (ANOVA) evaluated the differences in the mean scores with age and race. An independent t-test assessed the mean scores for gender. A statistical difference existed between age groups in the satisfaction scores regarding *ease of scheduling* and *audio/video quality* of telemedicine. In race or gender, neither the one-way ANOVA nor the independent t-test demonstrated any statistical significance in satisfaction scores. The analysis of the comments guided the quality improvement recommendations. The recommendations to positively impact patient satisfaction with the oncology clinic telemedicine workflow were: Build adequate systems capabilities and clinic infrastructure; establish workflow and evaluate staff resources; provide resources for patients and

providers by creating a telemedicine champion; leverage community resources and partnerships; assess the patient population; evaluate rules and regulations. The sustainability of synchronous telemedicine will depend on many factors, including patient satisfaction. Because patient satisfaction is crucial to clinical outcomes and reimbursements, it will continue to play a vital role in the sustainability of many initiatives in healthcare in today's healthcare landscape.

Keywords: telemedicine, synchronous telemedicine, patient satisfaction

.

.

Table of Contents

A Quality Improvement Project to Improve Patients' Satisfaction with Telemedicine Use in the General Hematology-Oncology Setting

Introduction and Background

The COVID-19 pandemic of 2020 accelerated telemedicine in health care across the United States. After the national emergency declaration, telemedicine increased by 154%, with 1,659,000 telehealth encounters in the first three months of 2020 (Centers for Disease Control and Prevention, 2020). Telemedicine use increased from 15 patients per day to 2,000 visits (Triana et al., 2020). The loosening of regulations and the recent reimbursement uptake allowed many medical providers to utilize telemedicine during the pandemic (Layfield et al., 2020). In addition, the Centers for Medicare and Medicaid Services expanded the credentialing and reimbursements for many healthcare professionals using telemedicine in 2020 to mitigate the risks of contracting the COVID-19 virus and provide continuity of care for many patients.

Moreover, the Public Health Service Act in 2019 provided funding and infrastructure to accelerate telemedicine use during the pandemic, including synchronous videoconferencing (Centers for Medicare and Medicaid Services, 2020). According to the Medicare telemedicine snapshot, there were 27,691,878 telehealth visits from March 1, 2020, to February 28, 2021, compared to 892,121 telehealth visits from March 1, 2019, to February 29, 2020 (Centers for Medicare and Medicaid Services, 2021). The focus of this scholarly project was on synchronous, videoconferencing telemedicine in a large academic center's general-hematology oncology clinics.

Telemedicine has been around since the early 1990s (Kruse et al., 2017). The World Health Organization (WHO) defined telemedicine as a form of technology used for diagnosis, treatment, prevention of disease and injuries, management of care, research, evaluation, and

education to advance the health of individuals, families, and communities (Centers for Medicare and Medicaid Services, n.d.; Kruse et al., 2017; Williams et al., 2017). In 2005, the World Health Organization (WHO) put the implementation of telemedicine as a global top health priority noting the possible impact of telemedicine in health care delivery, public health care service, research, and other healthcare activities (Zon et al., 2021) There are four types of telemedicine. Asynchronous telemedicine is a one-way, interactive transmission of patient information with store and forward capabilities; this is not real-time. One example of store and forward capabilities has been sending electrocardiograms to cardiology for interpretation. Synchronous telemedicine is a two-way, face-to-face contact via image or video-capable devices connecting patients and medical providers in real-time. Telemonitoring or remote patient monitoring is a telemedicine format where patients collect and gather clinical data through a device or sensors and send it to medical providers for evaluation and storage in the patient's records. Mobile health care services are telemedicine platforms, including smartphone applications for patients to message their medical providers (Daniel & Sulmasy, 2015). However, the widespread adoption of telemedicine in public and private health care sectors has been slow and challenging in the past ten years due to reimbursement issues, regulatory licensing, broadband infrastructure, and provider and patient acceptance (Kichloo et al., 2020; LeRouge & Garfield, 2013).

In 2010, President Obama's Patient Protection and Affordable Care Act included the National Broadband Plan to improve information technology such as electronic medical records and telemonitoring (Kichloo et al., 2020; LeRouge & Garfield, 2013). The act has many provisions, including reimbursements based on patient satisfaction scores. In addition, the Centers for Medicare and Medicaid Services created the Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS) in 2012, where patient satisfaction scores

are tied to reimbursements and hospital quality ratings (Kruse et al., 2017). In the past ten years, the research on telemedicine focused on clinical care, costs of care, and outcomes in different areas of healthcare, and limited research on patients' satisfaction with telemedicine use (Hasson et al., 2021; Kruse et al., 2017). Patients' satisfaction as a concept is multidimensional, intricate, and subjective (Kruse et al., 2017). It is related to how individuals perceive the care and services provided (Berkowitz, 2016; Kruse et al., 2017; Trinh et al., 2019). The challenge with measuring patients' satisfaction is that patient satisfaction may not reflect the quality of health care received or correlate with clinical outcomes (Berkowitz, 2016). Cohen et al.'s (2017) study cited that patient satisfaction does not improve clinical outcomes and can bias medical providers' treatment plans and should not be used to determine health care quality, much less used as an incentive for reimbursements. Kruse et al. (2017) argued that regardless of the modality of care, patients' satisfaction was the metric used by the Centers for Medicare and Medicaid through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAPS) and has been the focus of many healthcare initiatives. There were positive correlations between patient satisfaction with safety and positive clinical outcomes in many settings and different disease processes (Doyle et al., 2013; Layfield et al., 2020).

In the past ten years, the lack of broadband access and technology such as computers or smartphones has been a barrier to the effective implementation of telemedicine (Fassas et al., 2021; Triana et al., 2020). More recently, access to technology has grown. In 2017, forty-two percent of adults 65 years and older owned a smartphone, fifty percent had broadband access at home, and more than half had fast internet at home (Anderson & Perrin, 2017). According to the Pew Research Center (2021), most patients own a computer or a phone to date. In 2020, 97% of

Americans owned a cellphone, 85% of cellphone owners claimed they had a smartphone, ½ owned a tablet, and ¾ of Americans owned a laptop.

Many factors can affect patients' satisfaction with telemedicine use, such as age, educational level, gender, and other nonmodifiable cultural factors. Analyzing these factors can help guide effective workflow processes to improve patients' satisfaction with telemedicine use. While incorporating telemedicine in a busy outpatient clinic can disrupt, creating an effective and efficient operation with telemedicine use can benefit the clinic and patients.

Problem Statement

Before the pandemic, telemedicine utilization rates in the hematology-oncology setting were nominal. Oncology patients are a unique subset of patients that require a multidisciplinary approach to treatment (Hasson et al., 2021). Oncology patients often require visits with multiple providers in one day with indicated imaging and laboratory orders, further complicating the use of telemedicine (Tsamakis et al., 2020). However, the pandemic in 2020 forced the healthcare system, including hematology-oncology practices, to migrate and adapt to a different way of delivering care to mitigate the risk of virus spread while providing continuity of care for many cancer patients (Lewis et al., 2020). The research on patients' satisfaction with telemedicine was limited before the pandemic, especially in the oncology setting, and the lack of instruments to measure patient satisfaction added to the complexity (Garcia & Adelakun, 2019). Previously, most telemedicine utilization in oncology focused on symptom management, palliative care, enrollment, follow-up assessment in clinical trials, and psychological support (Hasson et al., 2021). In the general hematology-oncology setting, patients often travel from a distance, searching for cancer diagnosis and treatments. Many patients need face-to-face care during the diagnosis, treatments, and follow-ups.

Additionally, ongoing chemotherapy infusions and daily radiation treatments further necessitate in-clinic care. Nonetheless, telemedicine in cancer care can complement the existing services and provide an alternative form of care when face-to-face care is unnecessary. As many patients have experienced telemedicine during the pandemic, understanding the factors influencing patients' satisfaction with telemedicine use in the general hematology-oncology outpatient setting will facilitate the sustainability of telemedicine use.

Purpose

Analyzing the patient satisfaction surveys from April 2020 through September 2021, the surveys provided a foundational understanding of telemedicine's outpatient general hematology-oncology experience. This project aimed to answer what attributes from the patients' perspectives contributed to the patient's satisfaction with telemedicine use in the hematology-oncology setting. The purpose of the quality improvement project was to develop recommendations to create a workflow to improve patients' satisfaction with telemedicine in the general hematology-oncology setting.

Review of Evidence

The telemedicine platform allowed many cancer patients to continue their care during the pandemic (Layfield et al., 2020; Lewis et al., 2020). In oncology, telemedicine was used in outpatient settings for symptom management, palliative care, improved clinical care management, and as a triage tool to decrease emergency room visits (Hollander & Carr, 2020; Kichloo et al., 2020; Worster & Swartz, 2017). In the oncology setting, delayed care and diagnosis in cancer patients leads to poorer outcomes and cancer progression (Tsamakis et al., 2020). For many medical providers, seeing patients with telemedicine provides timely access to care and diagnosis (Kruse et al., 2017; Slightam et al., 2020). Synchronous telemedicine allowed

many cancer clinicians to provide assessment and diagnosis, lowering the barriers to accessing care, providing continuity of care, and maintaining the clinical relationships between patients and medical providers (Lewis et al., 2020; Tsamakis et al., 2020). In addition, telemedicine eased capacity issues and lowered healthcare costs (Baum, 2020; Kichloo et al., 2020; Lewis et al., 2020; Usher-Pines & Mehrotra, 2014).

The research findings on synchronous telemedicine improved patient outcomes and provided safe, effective care and cost-effectiveness in multiple healthcare settings (Hasson et al., 2021; Kichloo et al., 2020; Layfield et al., 2020). The systematic review completed by Bashshur et al. (2014) highlighted the positive impact of telemedicine on patient outcomes by reducing hospitalizations, reducing emergency department visits, and preventing the severity of illness in congestive heart failure (CHF), stroke, and chronic obstructive pulmonary disease (COPD) patients. Hasson et al. (2021) surveyed 172 cancer patients with gastrointestinal, lung, and genitourinary malignancies. They found telemedicine safe and effective in providing medical care without compromising the patient-provider relationship.

A review of the evidence in the literature demonstrated that the primary benefits of telemedicine were decreased traveling time and convenience, which provided timely and increased access to care for patients with a geographical barriers (Donelan et al., 2019; George et al., 2012; Hasson et al., 2021; Kruse et al., 2017; Martinez et al., 2018; Nguyen et al., 2014; Powell et al., 2017; Tasneem et al., 2019). According to Ray et al. (2015), decreased travel time was defined as time spent seeking care. The travel time spent seeking care averaged 123 minutes, with 86 minutes of clinic time and 36 minutes of driving time (Ray et al., 2015; Tasneem et al., 2019). However, the researchers also found that face-to-face time with providers averaged only 20.5 minutes, most of the time spent on paperwork (Ray et al., 2015). The study completed by

Green & Woyshner (2014) in neuro-oncology found that when using synchronous telemedicine, patients saved 118 minutes per visit and found synchronous telemedicine safe and effective with high levels of patient satisfaction. The recurring theme of convenience offered by the telemedicine platform improved patient satisfaction in the literature, especially for patients who live in Rural America (Finkelstein et al., 2011; Hasson et al., 2021; Kruse et al., 2017; Wennergen et al., 2014). For many cancer patients, telemedicine use with synchronous telemedicine allowed patients to see the specialist in oncology care without incurring travel costs yet receive the same quality of care as in the clinic and overall met their needs (Layfield et al., 2020). Telemedicine also increased providers' productivity, created a new revenue stream, and increased follow-up appointments (Donelan et al., 2019; Kruse et al., 2017; Le et al., 2018; Lewis et al., 2020).

The study by Layfield et al. (2020) of 145 patients utilizing surveys found that despite high patient satisfaction with telemedicine, a small group did not favor telemedicine use due to lack of physical examination and audio/video issues. Similarly, in Fassas et al.'s (2021) study, 68% (n = 64) of the patients preferred in-person visits, citing lack of physical exams, limited technology access, and digital literacy as factors for rejecting telemedicine use. Prasad et al. (2020) recommended designing the otolaryngology practice visit with patients doing their physical exam using graphics incorporated into the visit or having a family member assist on exams.

The use of telemedicine can be incredibly challenging to various groups of people despite the decreased travel time and convenience the platform offers, especially for the aging population with complex chronic conditions. Thirty-four percent of older Americans cited physical challenges and lack of familiarity with the device as barriers to patients' satisfaction

with telemedicine use (Anderson & Perrin, 2017; Gardner et al., 2015). One of the barriers to telemedicine use among the elderly population was the lack of awareness of using the system coupled with vision-related issues, hearing issues, and cognitive problems (Narasimha et al., 2017). The negative perceptions cited with telemedicine use with the elderly in the Gurupur et al. (2017) study had to do with technological complexity, communication issues (video and audio transmission), and comprehension concerns. Furthermore, Narasimha et al. (2017) found that most elderly populations who had experienced synchronous telemedicine reported satisfaction with the technology with the additional benefit of increased knowledge of their health. Supportive staff assisting in the telemedicine process, combined with the system's ease of use, contributed to patients' satisfaction with telemedicine use among the elderly populations (Moo et al., 2018; Narasimha et al., 2017).

Regardless of age, technical problems in the literature were common barriers to the effective use of telemedicine (Binder et al., 2020; Hiratsuka et al., 2013; Holtz, 2020; Finkelstein et al., 2011; Kichloo et al., 2020; Kruse et al., 2017; Layfield et al., 2020). Several studies reported a need for dedicated staff and technology support for efficient telemedicine implementation (Hiratsuka et al., 2013; Le et al., 2018; Triana et al., 2020). Multiple studies cited that the availability of support personnel contributed to the ease of use of telemedicine that contributed to patient satisfaction (Bagchi et al., 2018; Finkelstein et al., 2011; Kruse et al., 2017; Le et al., 2018; LeRouge et al., 2015; Narasimha et al., 2017; Powell et al., 2017). It is also worth noting that training and support to providers were essential facilitators to patients' satisfaction with telemedicine (Kruse et al., 2017; Le et al., 2018). Moreover, Binder et al. (2020) recommended creating a telehealth task force that works diligently with every patient to ensure access and easy use of the platform. Patients' satisfaction with telemedicine can also vary in age

groups, income levels, and races, affecting patient satisfaction with telemedicine use (Kichloo et al., 2020). Oncology patients with higher educational levels tended to use telemedicine more than patients with less-than-high school education (Gurupur et al., 2017; Raffenaud et al., 2019). There were also variations when it came to gender. Sixty-eight percent of males in the study (n = 71) were more inclined to use telemedicine to see a specialist rather than driving to the city compared to fifty-eight percent of females (n = 75) (Gurupur et al., 2017). Gurupur et al. (2017) found no significant differences in telemedicine use and patient satisfaction between the African American versus Caucasian population in terms of racial disparity. Contrary to this finding, the George et al. (2012) study found that African Americans cited privacy, security, data storage, and confidentiality as barriers to use compared to Latino patients who perceived telemedicine as safe and secure. Gurupur et al. (2017) reported that effective implementation of telemedicine would require strong collaboration between the physician, patients, and support staff.

Effective communication, patient information, ease of use, physician skills, and behaviors with a multidisciplinary approach to care contributed to patient satisfaction (Garcia & Adelakun, 2019; Trinh et al., 2019). Fassas et al. (2021) also found that telemedicine in head and neck cancer patients increased the opportunity for other family members to participate in their care, enhanced patient experience and provider interactions, and allowed for the collaboration of multiple specialties to care for patients. Correspondingly, Trinh et al. (2019) noted that the attentiveness of the physician and the clear explanation of their diagnosis and treatments also contributed to patient satisfaction. Prasad et al. (2020) also recommended that for a telemedicine visit to be beneficial in head and neck cancer patients, medical providers needed to set expectations ahead of the visit, have visual aids, and use a high-resolution camera. Patients should have a supportive member of the family who can help with examinations. When

integrating innovation in healthcare, the sustainability and integration of a new platform such as telemedicine will depend on patients' satisfaction.

Theoretical Framework

Telemedicine is more than a technology. Incorporating innovation into an existing clinical workflow can be challenging and requires a framework to guide the process. Dr. Avedis Donabedian conceptualized the Donabedian model; the framework was chosen for the quality improvement process. He is a research physician who saw how fragmentation in health care could affect the quality and safety of patients. The framework provides a general step-by-step guide from the beginning to the end. The basic premise of the framework is that a sound structure could create an effective process and beneficial outcomes (Nocella et al., 2016).

Donabedian published many articles on safety and quality with three domains: Structure (S), Process (P), and Outcome (O) (Ayanian & Markel, 2016). The elements in the framework are interconnected and synergistic. The structure (S) domain is where the project was implemented. It included all the structural components needed to implement the range of processes to support a patient-centered telemedicine clinical workflow initiative to improve patients' satisfaction with telemedicine use. Within the structure, domains are care processes, design, human resources, organizational culture, microsystems, and patients (Nocella et al., 2016). It included the qualification of providers and critical stakeholders, rules and regulations, infrastructure, resources, equipment, and administrative systems within the clinical microsystem (Brosnan, 2018). The barriers and facilitators of care and patient characteristics (age, race, gender, and language) were also included in the structural components of the Donabedian framework, and all the attributes of the systems and providers were embedded in the core structure (Brosnan, 2018). The accessibility, quality, and availability of resources were also part

of the structure domain (Chang, 2015). For this quality improvement project, the structure also focused on the system's capabilities, clinic resources, rules, and regulations of the organizations and clinics.

The process (P) domain included all the provisions of care, processes, and care delivered. The actions of the researcher or a project leader that influence outcomes of care were also part of the components of the process domain. It included the technical and interpersonal styles, healthcare actions, and workflow management (Brosnan, 2018; Tossaint-Schoenmakers et al., 2021). After analyzing the data, the project leader made recommendations to the clinic to improve patient satisfaction. All the recommendations included the process component of the framework.

The outcome (O) is the clinical endpoint of a given project. It is the result of the processes of care. The outcomes component of the model were the recommendations on patients' satisfaction which included process, workflow, and resources (Moran et al., 2020). At the end of the project, the proposals were given to primary critical stakeholders in the hematology-oncology clinic. The outcome goal of the quality improvement project was to improve patient satisfaction by improving efficiency and workflow, which could, in turn, decrease the medical providers' stress with telemedicine use. In conclusion, using the Donabedian model as a framework provided a guide for seamless integration of telemedicine in general-hematology clinics to improve patient satisfaction (see Figure 1).

Project Design

This scholarly project was a quality improvement design utilizing retrospective de-identified secondary data focused on improving or innovating healthcare outcomes or workflow processes (Moran et al., 2016). The purpose of the scholarly project was to improve patients'

satisfaction with telemedicine use in the outpatient general hematology-oncology setting through recommendations for enhanced workflow. At the time of the scholarly project, the clinics had no collaborative process or workflow related to telemedicine.

The de-identified, secondary data from Press Ganey surveys provided a baseline for analysis and context to identify the factors that affected patients' satisfaction with synchronous telemedicine use in the outpatient general hematology-oncology setting. The findings guided the quality improvement project recommendations to improve patients' satisfaction with telemedicine use. The results were discussed with the general hematology-oncology setting stakeholder for feedback. The project leader employed interactive feedback to create recommendations for a process that could improve patients' satisfaction with telemedicine use. The final recommendations were provided in an executive summary.

The project leader of the scholarly project completed the Collaborative Institutional Training (CITI) modules on Human Subject Research and participated in an educational project focusing on professionalism, critical thinking, and practical respectful collaboration with stakeholders. The project leader adhered to the rules and guidelines set forth by Belmont's Department of Graduate Nursing and the Social-Behavioral-Educational Student Researchers - Human Subjects Research curriculum. The project leader also adhered to the Information and Privacy Security set forth by Vanderbilt University on data extraction. The project leader kept the data in an encrypted folder of the password-protected personal computer. The project leader complied with all the security and ethical requirements of Belmont's Department of Graduate Nursing.

Clinical Setting

This scholarly project's setting was the general hematology-oncology outpatient setting of a 1000-bed large, tertiary, academic medical center in Nashville, TN. The general hematology-oncology setting included three clinics. The clinic started using the telemedicine platform in March 2020 out of necessity to mitigate the risks of COVID-19 spread and provide continued cancer care. The loosening of the regulations and reimbursements from many public and private payors during the pandemic allowed the rapid implementation of telemedicine. Telemedicine was used sporadically for follow-up, symptom management visits, pain management, and consultation in the general hematology-oncology clinic. The accelerated implementation of telemedicine in the clinic allowed medical providers to use the zoom platform at home or office utilizing personal or hospital computers approved by the Information Technology (IT) department in the medical center. The telemedicine department provided infrastructure, support, and guidance. Although the hospital workflow and protocol implementation during the pandemic started in March of 2020, the clinics desired to refine their telemedicine workflow to streamline the processes tailored to their specific oncology patients to improve patients' satisfaction and incorporate telemedicine in the clinic workflow. The patient satisfaction survey was initiated in April 2020.

The three clinics had seventy-five combined providers seeing 335 patients per day. Thirty-five medical providers and eight advanced-practice nurse practitioners performed telemedicine since April 2020. The three clinics employed seven licensed practical nurses, 11 medical assistants, four patient care coordinators, five patient care technicians, and 33 registered nurses with 26 full-time equivalent hours (FTEs). The cancer clinic's advanced practice nurse practitioner director was the key stakeholder and provided guidance and assistance on this quality improvement project. This scholarly project utilized the electronic emails and zoom

platform through the hospital-secured Outlook email system for communication and feedback. The initial interview with the key stakeholder at the clinic at the beginning of the scholarly project provided the baseline data about the telemedicine process. The key stakeholder described the existing process as unpredictable and fragmented, as confirmed by the telemedicine department. Providers had difficulty incorporating telemedicine into the clinical workflow citing limited support staff to assist with telemedicine. By April of 2021, telemedicine utilization had decreased as patients resumed face-to-face visits, and medical providers had difficulty incorporating the process into a regular clinic workflow and a lack of nursing and support staff. By January of 2021, patients seeking refills for pain medications were not qualified via telemedicine, contributing to the clinic's reduction in telemedicine use.

Project Population

The scholarly project populations were patients in the general hematology (lymphoma, osteosarcoma, leukemia, and multiple myeloma) and oncology (head and neck cancers) setting who participated in telemedicine visits from April 2020 to September 2021 and completed the telemedicine surveys from the general hematology-oncology clinics. All patients were 18 years old or older. When Press Ganey received the surveys, the information was entered into an online platform. The Patient Experience team had access to the comments and data. The surveys had barcodes specific to a given patient and the provider they had seen. Each clinic had a particular number of identifications to which the data were aggregated and reported.

Sources of Data

This scholarly project was an interprofessional collaboration by the project leader within the academic center with the Patient Experience team, the Telemedicine department, and the Advanced-Practice Nursing Director of the hematology-oncology clinics. The key stakeholder of

the Patient Experience team provided the retrospective, de-identified secondary data from Press Ganey surveys. The raw data was loaded into a secured excel spreadsheet. Only surveys with at least one comment were included. The secondary data collected from the surveys were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) version 28. The Press Ganey Team administered the satisfaction surveys through an email platform with an alternative mailing option for patients who did not provide their email. Once a patient completed the telemedicine session, Press Ganey sent out the surveys, compiled the surveys, and the information provided was available through a dashboard. The Patient Experience team accessed the survey results for dissemination to the upper leadership throughout the adult hospital enterprise at the medical center. Results were presented to the department with at least 30+ telemedicine sessions each month to create awareness and opportunities for improvement.

Data Collection and Instruments

The survey was the 12-question Medical Practice Telemedicine Survey created and distributed by Press Ganey (See Appendix 1). The Telemedicine Department supported the telemedicine program platform at the medical center and focused on privacy, security, infrastructure, process, and workflow. The Patient Experience team focused on the data procurement on patients' satisfaction, including telemedicine use.

The telemedicine survey focused on a*ccess (ease of scheduling), care provider (therapeutic communication), telemedicine technology (audio/video component), and an overall assessment of the telemedicine platform.* Patients could write comments in each area. De-identified comments provided the qualitative data that were part of the narrative analysis of the scholarly project. Participants were asked to rate the a*ccess (ease of scheduling), care provider (therapeutic communication), telemedicine technology (audio/video component), an overall*

assessment of the telemedicine platform using a 5-point Likert scale; *(1) Very poor, (2) Poor, (3) Fair, (4) Good, and (5) Very good* (Press Ganey Associates, Inc., 2018). The Likert scale scores allowed meaningful analysis of the data. When the Patient Experience team received the data, it was converted to percentile rank scores. The raw data on the a*ccess (ease of scheduling), care provider (therapeutic communication), telemedicine technology (audio/video component),* and the *overall assessment of the telemedicine platform* comprised the patient satisfaction scores.

The first two questions assessed the *ease of scheduling* the telemedicine visits. These questions focused on how easy it was to arrange the video visit and how easy it was to contact the medical providers involved. The second question focused on the care provider's *therapeutic communication*. The concept of *therapeutic communication of the care providers* assessed the patient's perceptions of their concerns, their explanations of their medical issues, proposed treatments, and how satisfied patients were with their medical providers. The third area of the survey involved telemedicine's audio and video components. There were three questions about the *video and audio connection* and how well it worked during the video visit. Finally, the last question assessed the care team's collaboration overall in providing the video visit and how satisfied patients were with telemedicine. Although the patient's name and telephone numbers were optional data that the patient could provide, the project leader received de-identified data. A patient either mailed the completed survey in an enclosed, stamped envelope or emailed the study back to Press Ganey (Press Ganey Associates, Inc., 2018).

For the scholarly project, the dependent variable of *access (ease of scheduling)* focused on arranging the video visit and contacting the medical provider. The second variable studied was *the patient's perception of the providers' therapeutic communication. Therapeutic communication* was measured by the concern the care provider showed for patient questions or

worries, explanations that the care provider offered on problem or condition, care provider's effort to include the patient in decisions about their care, care provider's discussion of any proposed treatment (options, risks, and benefits) and the likelihood of the patient recommending this care. The project leader analyzed the third variable, *audio/video connection with telemedicine.* The fourth variable was *overall patient satisfaction scores,* which measured how well they recommended the platform to others (Press Ganey Associates, Inc., 2018).

After analyzing the surveys from April 2020 to September 2021, the findings were discussed and verified with the key stakeholder of the Patient Experience team. In January, the initial results were presented to the key stakeholder in the general hematology-oncology clinic. The final recommendations were drafted after the feedback was incorporated. Based on the recommendations, the clinics can design, create training modules, and create the process or workflow to improve patient satisfaction with telemedicine use.

Descriptive statistics described the demographic data on gender, age, and race using mean (*M)* and standard deviations (*SD)*. The independent variables of *race* and *age* were analyzed using a one-way analysis of variance (ANOVA) to determine differences between age groups and race in patients' satisfaction with telemedicine. The independent variable *gender* was analyzed using an independent T-test. The project aimed to find the difference in group means between males' and females' satisfaction scores with telemedicine use. The effect size in ANOVA was reported as eta squared, with the effect size of 0.06 as a medium effect size. The effect size for the T-test was measured using Cohen's d set for a moderate effect size of 0.50. The alpha level of .05 was chosen as the level for determining a significant result between the groups. The project leader evaluated 394 patient satisfaction surveys from the Press Ganey surveys from

April 2020 to September 2021 from the three general hematology-oncology clinics and 665 comments.

Results

The total sample size was 394. The sample size was large enough to assume that the sampling distribution of the mean was normal in distribution. The demographics data on race comprised of White (*n* = 311, 78.9%), Black or African American (*n* = 27, 6.9%), Asian (*n* = 25, 6.3%), and Unknown (*n* = 31, 7.9%). Table 3 describes each variable's mean and standard deviations and racial group. Levene's test was insignificant for the independent variables; therefore, the researcher assumed the population variances were equal (see Table 1). The one-way ANOVA statistical testing on racial groups did not find any statistical significance between the race groups on satisfaction scores with telemedicine use and the independent variables (Table 3). The ANOVA tests were not significant; thus, multiple comparisons between groups were not performed.

Table 3 describes the demographics on age. The age of participants ranged from 20 years old to 95 years old. The 65-74 age group had the highest percentage of participants who included at least one comment on the survey at 37.8%, and those under 45 years old had the lowest at 5.3%. A one-way analysis of variance (ANOVA) was conducted to evaluate if there were differences in satisfaction with telemedicine use between age groups and the results showed no statistical differences between age groups in the combined overall satisfaction and the therapeutic communication of the care providers; however, there was a statistical difference between age groups in the satisfaction scores in *access (ease of scheduling) F* (4, 386) = 3.54, *p* = .008, *eta-squared* = .036 and *audio/video component of the telemedicine F* (4, 354) = 2.79, *p* = .026, *eta-squared* = 0.031 (see Table 3). Post hoc comparisons to evaluate the differences

among group means were conducted using multiple comparisons pairwise and found significant differences between the mean scores of 45-54 years old age groups and under 45 years old in terms of *access (ease of scheduling), p* = .024. The 45-54 years old (*M* = 9.59) rated the ease of scheduling higher than those less than 45 (*M* = 8.43). Also, there were statistical differences between the age groups of 65-74 years old and 45-54 years old (*p* = .40) and 75+ years old (*p* = .036) regarding the satisfaction scores with telemedicine use in terms of video and audio quality of telemedicine. The 45-54 years old had the highest rating of satisfaction scores (*M* = 14.6) compared to the 65-74 years old (*M* =13.3) and 75+ age group (*M* = 13.1).

Gender was analyzed using the independent t-test (see Table 2). The project leader analyzed the mean scores between males and females. The total number included in the analysis was 394. The participants were 213 (54.1%) females and 181 males (45.9%) with *M = 0.46, SD = 0.49.* Independent t-test with equal variances not assumed except for the variable *overall assessment of telemedicine use* (see Table 1). There were no statistically significant differences between the mean scores of the males and females on the *overall assessment of telemedicine* with *t* (334) = 1.72, *p* = .091 *audio/video component of telemedicine* with *t* (340) = .142 *p* = .89, *therapeutic communication of providers* with *t* (370) = 0.45, *p* = .65, and *ease of scheduling* *t* (384) = .67, *p* = .50.

The comments were evaluated as part of the analysis to add additional context to the scholarly project. The total number of comments evaluated was 665 after removing the duplicates. The comments were divided into the positive comments about telemedicine (*n* = 482) 72.5% and negative comments (*n* = 183) 27.5%. Thirty-five percent of participants *(n* = 235) in the survey were satisfied with the providers' therapeutic communication on how providers cared for them and how providers explained the treatments and diagnosis using telemedicine. Fifty-

seven participants (8.5%) commented on the convenience and liked the telemedicine platform. One participant mentioned not having to drive 7 hours to come for a follow-up. Another participant commented on not having her children take off work to drive her to the follow-up appointment. Twenty-six percent of participants (*n* = 173) commented on how easy it was to schedule and access telemedicine. Patients verbalized the value of having supportive staff to schedule and access telemedicine. Moreover, thirty percent (*n* = 200) of comments dealt with audio and video issues. Comments such as "zoom audio did not work," "audio did not work," "had difficulty with audio/video," "waited 40 minutes, the doctor was late, audio/video did not work" negatively affected their ability to utilize the platform to their satisfaction.

Discussion

With the rapidly evolving use and the growing research on telemedicine, synchronous telemedicine will continue to be an integral component of healthcare. The American Telemedicine Association (2020) predicted that by 2030, 50% of activities in healthcare would be conducted virtually. While recent events, including the pandemic, have confirmed the role of telemedicine in cancer care, the scholarly project revealed that the patients receiving cancer care through the telemedicine platform were satisfied, as evidenced by the 73% positive surveys through the narrative comments.

The platform highlighted some factors that affect patients' satisfaction with telemedicine use. Patient satisfaction data will change over time as more and more patients get accustomed to the platform and the technology improves. While the sustainability of telemedicine depends on patients' engagement and interest, effective process or clinical workflow integration in the existing system is crucial for the sustainability of synchronous telemedicine. Synchronous telemedicine was safe, convenient, accomplished improved access to care, and positive patient satisfaction

scores (Donelan et al., 2019; George et al., 2012; Hasson et al., 2021; Kruse et al., 2017; Martinez et al., 2018; Nguyen et al., 2014; Powell et al., 2017; Tasneem et al., 2019). The multi-collaborative approach in oncologic care can be challenging for many telemedicine patients. The scholarly project survey results highlighted that the variables *therapeutic communication of providers* and *ease of use* contributed to a positive patient satisfaction score with telemedicine use. On the contrary, technical problems with audio and video connection with lack of supportive staff contributed to negative patient satisfaction scores with telemedicine use.

Therapeutic Communication of Providers

The scholarly project results from the secondary data survey narrative comments found that most patients in the general hematology-oncology clinics were satisfied with telemedicine use because it offered convenient access to care and did not compromise the patient-provider relationships, which were consistent with the literature (Lewis et al., 2020; Tsamakis et al., 2020). Most survey participants were highly appreciative of the care providers and felt their concerns were addressed. Although computer screens could be a barrier, the patient satisfaction surveys illuminated the value of therapeutic communication when using synchronous telemedicine. The ability of the care providers to show concern and project empathy through a virtual platform contributed to positive patient satisfaction with telemedicine use in this scholarly project.

The effective use of therapeutic communication in a telemedicine platform by the care providers showed enhanced patient-physician relationships in this project. In the literature, patients' doctor-patient relationships are strengthened during telemedicine visits (Hasson et al., 2021; Layfield et al., 2020; Tasneem et al., 2019). The American Society of Clinical Oncology recommends initial face-to-face visits before using synchronous telemedicine to establish

patient-provider relationships (Zon et al., 2021). Adams et al. (2021) highlighted that those patients were comfortable using telemedicine at the beginning of the pandemic because they had existing relationships with their providers. Since the secondary data did not provide information on whether patients were new or established at the telemedicine visits, it is premature to conclude that the initial face-to-face visits contributed to patient satisfaction. More research is needed to assess the significant impact of established patient-provider relationships before synchronous telemedicine use on patient satisfaction results.

Ease of scheduling telemedicine

Telemedicine's ease of use and usefulness contribute to patient satisfaction regardless of age, gender, or race (Garcia & Adelakun, 2019). Contrary, the results of the scholarly project showed that there were differences between age groups. The statistically significant results on *access or ease of scheduling* were scores between 45 and 54 years old and the age groups less than 45 years old. One could theorize that the younger groups found telemedicine easier to navigate than the older populations; however, the project leader could not discern why the 45-54 years old found the *access or ease of scheduling* challenging. Less than 45 years old found it also less satisfactory; however, it was difficult to assess given the small sample size of less than 45-year-old groups. Although utilization rates were negatively affected by income and educational attainment (Adams et al., 2021; Chunara et al., 2020; Qian et al., 2022), the age of the patients alone was not a predictor of lower telemedicine use. The scholarly project results found that the 64-75 age group had the highest number of survey participants with telemedicine use, consistent with Anderson & Perrin (2017), who reported that 4 out of ten seniors owned smartphones and had increasingly adapted to the digital platform. Comfort level with telemedicine was higher among those with access to and experience with technology (Akbar et al., 2020; Gardner et al.,

2015; Hiratsuka et al., 2013; Holtz, 2020). Akbar et al. (2020) added that younger, educated patients felt more satisfied with patient-physician communication using telemedicine than the older, less-educated population. Although Pew Research (2022) pointed out that education and income played a role in connectivity and use of the digital platform, the secondary data provided by the patient satisfaction surveys did not have any information regarding education or income. The analysis from the comments was not tied to specific age groups; thus, it was impossible to ascertain what part of accessing telemedicine was challenging for age groups that could have negatively affected their patient satisfaction scores.

Lack of support staff

The American Society of Clinical Oncology recommends that for synchronous telemedicine to be effective, a dedicated staff member, available external technical support, and practice sessions with each patient not only facilitate workflow for patients and the care providers but also ensure successful telemedicine utilization (Adams et al., 2021; Zon et al., 2021). Several studies noted that the availability of support personnel for initial set-up contributed to telemedicine's perceived efficiency and ease of use (Bagchi et al., 2018; Finkelstein et al., 2011; Kruse et al., 2017; Le et al., 2018; LeRouge et al., 2015; Narasimha et al., 2017). The specific clinics in the project had no particular support person, but depending on the staffing needs, it could be an individual nurse or someone designated for that clinic day. During the needs assessment visit, the nurses in the clinics tried to support the patients and the care providers; however, one registered nurse verbalized that supporting both the in-person and telemedicine patients was challenging. Despite the unfamiliarity with the platform at the beginning of COVID-19, the survey participants found the telemedicine platform easy to access. Most patients commented that their issues with telemedicine had nothing to do with the care

providers but the lack of the process and support staff. Although some patients were given the helpdesk number, they reported they did not know whom to call for assistance, nor were practice sessions offered. These missing process and support staff factors likely contributed negatively to patients' satisfaction with telemedicine use. The issues highlighted the need for a supportive staff to assist the patients and care providers during the telemedicine session. In the current healthcare landscape, where staffing needs are challenging, supportive staff could be medical assistants dedicated to telemedicine.

Technical problems with the audio and video capabilities

The analysis of the survey results concluded that the older age group (65 years and older) found the audio and video qualities challenging and negatively affected their satisfaction scores with telemedicine use. The scholarly project results were consistent with the findings in the literature that recommended technology designers consider age-related changes in cognition, perception, and patients' behavior for future telemedicine applications (Layfield et al., 2020; Le et al., 2018; Narasimha et al., 2017). As the population ages with increasingly complex health care needs, telemedicine could provide the needed access to care. According to recent data from the United Nations (2020), although 703 million people were aged 65 years and older in 2019, this will double to 1.5 billion by 2050; designing a telemedicine platform that can accommodate the aging population is vital and could sustain the telemedicine platform.

When analyzing the comments on the patient's responses, the project leader determined that patients who left the questions blank often provided additional insights in the comment section. Most of the negative comments were directly related to the audio and video connections. The scholarly project survey results showed that the problems persisted from April 2020 through September 2021, more than a year after the initiation of telemedicine in the medical center. The

key stakeholder in the clinic confirmed that issues with scheduling and audio/video connections were initially sub-optimal but later improved. The use of phone calls when audio/video issues arose did not affect the patient's satisfaction with care providers but did negatively impact patients' view of the telemedicine platform overall.

Gender gaps in telemedicine use

Limited research exists on gender gaps in telemedicine use and patient satisfaction. The scholarly project had more female than male participants in the survey, despite no statistical difference in gender in patient satisfaction scores with telemedicine use. This finding contrasts with the study done by Eberly et al., 2020 where more male patients completed telemedicine visits than females. The study measured factors contributing to telemedicine use rather than patient satisfaction scores. More research is needed in evaluating gender impact on telemedicine use and patient satisfaction. The analysis results were consistent with Raffenaud et al. (2019), where age and gender did not affect the patients' overall favorability with telemedicine use.

Racial gaps in patient satisfaction scores with telemedicine use

The scholarly project results did not find racial differences in patient satisfaction scores. The demographic data on race results revealed that more Whites participated in telemedicine than Black and Asians. The increased telemedicine use among Whites was consistent with Chunara et al.'s (2020) prospective cohort study from March to April 2020 of 140,184 telemedicine users in New York City. Despite the increased telemedicine utilization rates by Black patients during the pandemic driven by female patients seeking care, the telemedicine rate remained low compared to Whites. Contrary to Whites, Black patients tended to be sicker when seeking care (Chunara et al., 2020; Qian et al., 2022). More research is needed to determine the factors that influence lower utilization rates among Black patients. It was surprising to note that

the Asian groups had low utilization of telemedicine. In Qian et al.'s (2022) retrospective cohort study, the researchers found that smartphone ownerships were higher among Asians, yet their use of telemedicine remained low overall. The findings suggested that cultural preferences regarding health care access correlated with service and patients' satisfaction. Since Hispanics were coded as an ethnic group instead of a racial group, their patient satisfaction surveys were not captured in the racial group data forwarded to Press Ganey. In 2020, 64.1 million Hispanics lived in the United States (Pew Research Center, 2022), so the lack of information about the large population group of Hispanics is an example of racial inequality.

George et al.'s (2012) study highlighted the racial disparities among African Americans and Hispanics regarding telemedicine use and patient satisfaction. The African American groups acknowledged the platform's convenience yet were concerned about privacy, confidentiality, and the lack of physical examination. These concerns contrasted with the Latino groups' concerns about medical providers' qualifications and medical diagnosis accuracy, which correlated with their patients' satisfaction when using telemedicine (George et al., 2012). Not only were the survey participants without racial group information challenging to interpret, but the racial disparities in the surveys were confounded by the lack of general demographic data available from the specific oncology clinics. Yoon et al. (2018) found that minority groups and patients with lower socioeconomic status tended to utilize the internet less for health information and telemedicine. This finding was consistent with the retrospective cohort study done by Qian et al. (2022), where Hispanics, Asians, and low-income patients tended to utilize telemedicine less than non-Hispanic and middle-income patients. The researchers in Lam et al. (2020) found that unreadiness to use telemedicine was associated with lower income, minority groups, older age, male gender, single, non-metropolitan area residence, less education, and poorer self-health

report. Roberts & Mehrotra's (2020) findings explained that lower socioeconomic status, minorities, and people over 85 years old often lack digital access.

The lack of broadband internet access and unfamiliarity with the platform can negatively impact utilization rates and satisfaction (Cantor et al., 2021; LeRouge & Garfield, 2013). The cohort study by Eberly et al. (2021) in primary care and specialty ambulatory settings during COVID-19 highlighted racial and gender disparities in lower-income, older age, and minorities who had fewer telemedicine visits compared to younger, female patients who had the highest completed telemedicine visits in primary care but lower telemedicine visits in specialty care. Although the low number of Asians and Black participants posed questions on racial disparities among these minority populations on digital access, more research is needed on the effects of the social determinants of health and racial disparities in patients' satisfaction with telemedicine use.

As telemedicine becomes an acceptable alternative in securing health care and more and more patients become accustomed to its use, future research should focus on how race, income status, gender, education, and other social determinants of health may affect patients' utilization rates and satisfaction with telemedicine use.

Quality Improvement Recommendations

Build adequate systems capabilities and clinic infrastructure

It is critical to have a reliable IT infrastructure for telemedicine workflow to be effective (Collier et al., 2015). The scholarly project leader assessed the system's capabilities in the clinic supported by the IT department and the Patient Telemedicine department in the academic medical center. The IT department team ensures efficiency and high-quality broadband connections for care providers who use the platform in the medical center. The patients received the helpdesk number to assist with telemedicine set-up. If the care provider did the telemedicine

visit from their home, the IT team could not ensure stable connectivity. Patients also had varying levels of connectivity that affected the success of a telemedicine platform. It was essential to inform patients that stable connectivity, high-quality internet connection, and broadband capabilities were needed to complete the health visit on the telemedicine platform. The academic center's IT team supported the security and privacy of the forum. It was vital to encourage care providers to accomplish telemedicine visits within the medical center.

The clinic infrastructure must include adequate lighting, privacy, and security (American Telemedicine Association, 2020). Due to the ongoing pandemic, the project leader's assessment of the clinic infrastructure was limited; the advanced-practice level manager acknowledged that space and cameras were needed to facilitate secure and private telemedicine visits. Although challenging to provide a dedicated space for telemedicine exclusively, the clinics offer an appropriate area. Most care providers use their offices for telemedicine visits. The creation of telemedicine blocked appointments could help the patients and improve the workflow for providers (Turner et al., 2022). Patients waiting in the virtual waiting room while care providers finish seeing a patient in a clinic can be frustrating. Creating telemedicine block appointments would help the providers manage their appointments better and provide efficient workflow instead of telemedicine sporadically embedded into the daily clinic standard workflow. During the brief observation, care providers juggled the in-person clinic visits and telemedicine sessions. Although the project leader acknowledges that it might not be cost-effective, leadership in the clinic could pilot the process and assess if this adjustment could help with patients' telemedicine workflow and decrease the care providers' stress. When designing a clinical workflow, the goal is to improve patient satisfaction; however, addressing the challenges that may create pressure to

care providers should also be considered as care providers are bombarded with more responsibilities and a high burnout rate.

Establish workflow and evaluate staff resources

The American Telemedicine Association (2020) recommends that the clinic determine which patient visits are appropriate for telemedicine encounters. It is essential to create a telemedicine workflow that resembles the in-clinic process to develop consistency, allocate resources and maximize staff resources (American Telemedicine Association, 2020; Collier et al., 2015; Turner et al., 2022). The integration of the zoom app within the electronic health record (EHR) makes it easier for the care providers to accomplish the telemedicine sessions. Nonetheless, the clinics lacked a consistent process, which is critical for improvement. Each clinic and care provider has slowly implemented its process and standard of care with telemedicine, including a standard way of identifying the patients who may be qualified to use telemedicine. In the oncology clinics post-pandemic, the initial consultations must be face-to-face, and telemedicine was only used if access and distance were issues compared to the previous process at the height of the pandemic where all visits were virtual. Acute care issues, in the beginning, can be accomplished with telemedicine; however, as more and more providers saw patients in the clinic, patients with acute care issues and patients with pain management issues returned to in-person visits. The day-to-day telemedicine support depended on who was available. The challenges of getting labs and imaging were daily challenges for the providers. Although the clinics have a virtual waiting room, narrative comments from the participants indicated the lack of staff to communicate when the care providers were running late. Clear roles and expectations within the telemedicine team in the clinic ensure the success of the telemedicine workflow (American Medical Association, 2020).

Provide resources for patients and providers by creating a telemedicine champion

Gurupur et al. (2017) found that most oncology patients were ready to use telemedicine but needed exposure, education, and opportunity to use it effectively. A successful telemedicine workflow involves providing adequate resources to patients and providers (American Medical Association, 2020; American Telemedicine Association, 2020). The project leader assessed the resources available to patients and providers within the structure assessment. Due to constant changes in the pandemic and the lack of staffing, the clinics did not have a dedicated telemedicine champion to assist patients with trial sessions and scheduling. The nurses provided telemedicine assistance to patients, retrieved the imaging and labs necessary for the in-clinic patients, and other tasks in their daily workflow. Since the front desk staff was responsible for scheduling the telemedicine appointments, they provided the set-up needed for telemedicine in one of the clinics, answered phone calls, scheduled existing work, and helped with the front-desk workflow. The telemedicine appointments were sporadically embedded during care providers' clinic appointments. During the needs assessment, one provider accomplished all her telemedicine visits in her morning block, which facilitated the process. The care provider had to retrieve the imaging and laboratory results needed to start the session, since the results were not already on hand. Another physician verbalized that a dashboard could be helpful to improve the telemedicine workflow. The nurses assigned to specific providers also assisted the telemedicine patients. It might be beneficial for the clinics to have a telemedicine champion who could help patients set up MyHealth accounts if needed, schedule the telemedicine appointment, obtain and retrieve the needed imaging and laboratory results, accomplish a telemedicine practice session with patients 15 minutes before the visit, and provide support to the care providers and patients (American Medical Association, 2020). Staff resources included in the structure needs

assessments were a continued challenge for most clinics as the staff was absent with illness, on family medical leave, or on vacations. Although the literature noted that support staff does not need to be nurses, support staff could be medical assistants interested in telemedicine. They could work with the clinics, IT, Patient Experience department, and Telemedicine department to support patients and providers. The telemedicine champion job description could evolve as the telemedicine needs of the department arise. The nursing staff could manage the clinical aspect of the workflow in collaboration with the telemedicine champion. The American Telemedicine Association (2020) suggested creating a handout on telehealth, how-to videos on telemedicine, or a quick reference guide for patients and staff supported by the IT department to improve the session. Trial sessions and dedicated phone lines for telemedicine sessions were also encouraged. It may be beneficial for patients to get a handout on the telemedicine process from the clinics, obtain onsite demonstrations, and have trial practice sessions at home.

Creating a telemedicine champion who can support the staff, providers, and patients is central to having a patient-centered telemedicine workflow (American Telemedicine Association, 2020; Zon et al., 2021). The telemedicine champion can schedule patients, provide reminders to decrease no-show rates, provide the needed, decrease no-show rates, and provide technical assistance to patients at home during the telemedicine sessions. Having family members at home is valuable, especially among the elderly population. Having the telemedicine champion identify with patients who can help them at home may facilitate a practical telemedicine session. A dedicated phone line for telemedicine patients before and after telemedicine was also recommended. Telemedicine champions can also do the pre telemedicine checklists or post telemedicine visits and follow-up schedules. A weekly huddle is recommended so that care providers review the charts ahead of the telemedicine session and identify needs to

allow the telemedicine champion to get all the imaging and labs needed to facilitate the telemedicine session workflow. The telemedicine champion can also connect with patients before the telemedicine session to list issues and concerns that need to be addressed. It is also essential for someone to follow up with patients post telemedicine sessions to help care providers facilitate ordering of the follow-up labs and imaging.

Leverage Community resources and partnerships

Because computers are expensive to own, owning a computer could be a luxury for many patients with limited income. Community resources and partnerships could be leveraged into the workflow to ensure the success of the telemedicine workflow (DeGuzman et al., 2020; Eruchalu et al., 2021). One of the clinics partnered with the local site to provide a telemedicine follow-up. A patient was getting chemotherapy at one of the infusion sites and was able to follow up with the care provider at the main hospital to discuss side effects, chemotherapy regimen, and follow-up imaging with the help of the nurses from the infusion sites. Community resources (such as the library) and partnerships with primary care physicians' offices are not currently incorporated into the workflow, although the critical stakeholder was receptive to the idea. Using library laptops and private rooms could provide computers and space for patients who may not own a computer or have personal freedom (DeGuzman et al., 2020). The availability of community resources could help patients who live in rural communities. Senior Centers could also provide private space and technology to accommodate patients who may not have access to personal technology. Although security and privacy guidelines should be a top priority, technology should be available in areas where patients may congregate with space for privacy. Patients can borrow or sign out a technology to accomplish telemedicine sessions with their care providers in a private room. Patients could also identify specific laboratory clinics or sites where they consistently get their

labs or imaging to ensure the timeliness of labs and imaging results before the telemedicine sessions.

Assess the patient population

It is not within the scope of this scholarly project to assess the patient demographics within the clinics. However, it is crucial for leadership within the clinics to know the patient populations to design an effective clinical workflow. The American Society of Clinical Oncology endorses the assessment of patients' technological capacity to use telemedicine (Zon et al., 2021). Many modifying factors need consideration in designing a clinical workflow since patient care is not a one-size-fits-all strategy. Many homebound elderly patients with dementia, impaired vision, and physical disability require caregiver support. Having trusted family members to help during the initial set-up or sessions may be beneficial (Kalicki et al., 2021). Evaluating the clinics' population demographics could help design a better telemedicine workflow that could accommodate many homebound elderly patients. The clinic leadership must also address the inclusion of disabled patients who could benefit from telemedicine. The social determinants of health and diversity are incorporated into the assessment of the structure to meet the needs of the clinic populations. Interpreters need incorporation within the electronic health record (EHR) telemedicine platform to assist patients who are non-English speaking (Turner et al.,2022; Zon et al., 2021).

Evaluate rules and regulations

Although the evaluation of the telemedicine rules, regulations, hospital policies and regulations, and clinic policies were outside the scope of the scholarly project, it is worth noting the importance of knowing the telemedicine rules and regulations of the state, hospital policies, and the clinic's rules and regulations when implementing the telemedicine process or workflow.

(American Medical Association, 2020). Standard guidelines to guide the clinics and telemedicine champions should be developed within the process, and a traditional telemedicine process of care is needed for consistency. Nationally, more work is required from government agencies and medical insurance providers to ensure the sustainability of telemedicine. The reimbursements issues and licensing regulations will need to be addressed to meet the needs of all patients who may benefit from telemedicine. The clinics had specific guidelines on when to do telemedicine. For instance, one of the clinic regulations consistent with the state regulations was avoiding prescribing pain medications during a telemedicine session. During the pandemic, providers could use telemedicine for pain management, but patients in chronic pain management are being seen face-to-face in clinics in the current state.

Strengths and limitations

The use of secondary data was both a limitation and a strength. The lack of information about patients choosing the ethnicity of Hispanic was disappointing and highlighted inequities in the data collection process. It is important to note that only those who made at least one comment were included in the surveys; the information is not likely transferable to other settings. Because the secondary data set offered a substantial sample size for evaluating age, race, and gender, as well as a significant number of qualitative comments, the statistical analysis and recommendations are well-grounded.

Conclusions

Highlighting patient satisfaction in today's health care environment is essential. Using synchronous telemedicine to deliver quality patient care with solid patient satisfaction is possible using an evidence-based patient-centered process or workflow. Although telemedicine may not apply to every patient encounter, the existing research provides strong evidence for telemedicine

use in oncology. Telemedicine should be integrated seamlessly into the current healthcare landscape. A strategic process or workflow, organizational support, and a focus on patient satisfaction can secure synchronous telemedicine’s sustainability in the general hematology-oncology clinic setting.

References

Adams, R. B., Nelson, V. R., & Holtz, B. E. (2021). Barriers for telemedicine use among nonusers at the beginning of the pandemic. *Telemedicine Reports*, *2*(1), 211–216. https://doi.org/10.1089/tmr.2021.0022

Akbar, A., Iqbal, A., Gaziano, D., Gasior, F., Zaidi, A. J., Iqbal, A., & Silva, A. (2020). A cross-sectional survey on telemedicine use for doctor-patient communication. *Cureus*. https://doi.org/10.7759/cureus.10402

American Medical Association. (2020). *Telehealth implementation playbook*. American medical association. Retrieved February 6, 2022, from file:///C:/Users/16159/OneDrive/Desktop/ama-telehealth-playbook%20(1).pdf

American Telemedicine Association. (2020, April 10). *ATA's quick start- guide to telehealth during a health crisis*. American telemedicine association. Retrieved February 1, 2022, from https://info.americantelemed.org/covid-19-resources-quickstart-guide-landing

Anderson, M., & Perrin, A. (2017, May 17). *Tech adoption and climbs among older adults*. Pew Research Center. Retrieved March 7, 2021, from https://www.pewresearch.org/internet/2017/05/17/older-americans-tech-acknowledgments/

Ayanian, J. Z., & Markel, H. (2016). Donabedian's lasting framework for health care quality. *New England Journal of Medicine*, *375*(3), 205–207. https://doi.org/10.1056/nejmp1605101

Bagchi, A. D., Melamed, B., Yeniyurt, S., Holzemer, W., & Reyes, D. (2018). Telemedicine delivery for urban seniors with low computer literacy: A pilot study. *Online Journal of Nursing Informatics*, *22*(2). https://doi.org/http://www.himss.org/ojni

Bashshur, R. L., Shannon, G. W., Smith, B. R., Alverson, D. C., Antoniotti, N., Barsan, W. G., Bashshur, N., Brown, E. M., Coye, M. J., Doarn, C. R., Ferguson, S., Grigsby, J., Krupinski, E. A., Kvedar, J. C., Linkous, J., Merrell, R. C., Nesbitt, T., Poropatich, R., Rheuban, K. S.Yellowlees, P. (2014). The empirical foundations of telemedicine interventions for chronic disease management. *Telemedicine and e-Health*, *20*(9), 769–800. https://doi.org/10.1089/tmj.2014.9981

Baum, N. (2020). Telemedicine use in oncology practices. *ONCOLOGY*, (3407), 280–282. https://doi.org/10.46883/onc.2020.3407.0280

Berkowitz, B. (2016). The patient experience and patient satisfaction: Measurement of a complex dynamic. *The Online Journal of Issues in Nursing*, *21*. https://doi.org/10.3912/OJIN.Vol21No01Man01

Binder, A. F., Handley, N. R., Wilde, L., Palmisiano, N., & Lopez, A. (2020). Treating hematologic malignancies during a pandemic: Utilizing telehealth and digital technology to optimize care. *Frontiers in Oncology*, *10*. https://doi.org/10.3389/fonc.2020.01183

Brosnan, C. A. (2018). Conceptual models for evaluation in advanced nursing practice. In *Evaluation of health care quality for DNPs* (p. 3). Springer Publishing Company. https://doi.org/10.1891/9780826131584.0009

Cantor, J. H., McBain, R. K., Pera, M. F., Bravata, D. M., & Whaley, C. M. (2021). Who is (and is not) receiving telemedicine care during the covid-19 pandemic. *American Journal of Preventive Medicine*, *61*(3), 434–438. https://doi.org/10.1016/j.amepre.2021.01.030

Centers for Disease Control and Prevention. (2020, October 30). *Trends in the use of telehealth during the emergence of the COVID-19 pandemic — United States, January–March*

2020. Retrieved January 22, 2022, from https://www.cdc.gov/mmwr/volumes/69/wr/mm6943a3.htm

Centers for Medicare and Medicaid Services. (n.d.). *Telemedicine*. Medicaid. Retrieved August 28, 2020, from https://www.medicaid.gov/about-us/index.html

Centers for Medicare and Medicaid Services. (2020, October 14). *Trump Administration Drives Telehealth Services in Medicaid and Medicare*. CMS.gov. Retrieved September 5, 2021, from https://www.cms.gov/newsroom/press-releases/trump-administration-drives-telehealth-services-medicaid-and-medicare

Centers for Medicare and Medicaid Services. (2021, December 3). *Medicare telemedicine snapshot*. CMS.gov. Retrieved December 22, 2022, from https://www.cms.gov/medicare-telemedicine-snapshot

Chang, H. (2015). Evaluation framework for telemedicine using the logical framework approach and a fishbone diagram. *Healthcare Informatics Research*, *21*(4), 230. https://doi.org/10.4258/hir.2015.21.4.230

Chunara, R., Zhao, Y., Chen, J., Lawrence, K., Testa, P. A., Nov, O., & Mann, D. M. (2020). Telemedicine and healthcare disparities: A cohort study in a large healthcare system in new york city during covid-19. *Journal of the American Medical Informatics Association*, *28*(1), 33–41. https://doi.org/10.1093/jamia/ocaa217

Cohen, J. B., Myckatyn, T. M., & Brandt, K. (2017). The importance of patient satisfaction. *Plastic and Reconstructive Surgery*, *139*(1), 257–261. https://doi.org/10.1097/prs.0000000000002848

Collier, A., Morgan, D. D., Swetenham, K., To, T., Currow, D. C., & Tieman, J. J. (2015). Implementation of a pilot telehealth programme in community palliative care: A

qualitative study of clinicians' perspectives. *Palliative Medicine*, *30*(4), 409–417. https://doi.org/10.1177/0269216315600113

Daniel, H., & Sulmasy, L. (2015). Policy recommendations to guide the use of telemedicine in primary care settings: An American college of physicians position paper. *Annals of Internal Medicine*, *163*(10), 787–802. https://doi.org/10.7326/m15-0498

DeGuzman, P., Bernacchi, V., Cupp, C., Dunn, B., Ghamandi, B., Hinton, I. D., Jameson, M. J., Lewandowski, D., & Sheffield, C. (2020). Beyond broadband: Digital inclusion as a driver of inequities in access to rural cancer care. *Journal of Cancer Survivorship*, *14*(5), 643–652. https://doi.org/10.1007/s11764-020-00874-y

Donelan, K., Barreto, E. A., Sossong, S., Michael, C., Estrada, J. J., Cohen, A. B., Wozniak, J., & Schwamm, L. H. (2019). Patient and clinician experiences with telehealth for patient follow-up care. *The American Journal of Managed Care*, *25*(1), 40–45. https://doi.org/https://www.ajmc.com/view/patient-and-clinician-experiences-with-telehealth-for-patient-followup-care

Doyle, C., Lennox, L., & Bell, D. (2013). A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ Open*, *3*(1), e001570. https://doi.org/10.1136/bmjopen-2012-001570

Eberly, L. A., Khatana, S. M., Nathan, A. S., Snider, C., Julien, H. M., Deleener, M., & Adusumalli, S. (2020). Telemedicine outpatient cardiovascular care during the covid-19 pandemic. *Circulation*, *142*(5), 510–512. https://doi.org/10.1161/circulationaha.120.048185

Eruchalu, C. N., Pichardo, M. S., Bharadwaj, M., Rodriguez, C. B., Rodriguez, J. A., Bergmark, R. W., Bates, D. W., & Ortega, G. (2021). The expanding digital divide: Digital health

access inequities during the covid-19 pandemic in new york city. *Journal of Urban Health*, *98*(2), 183–186. https://doi.org/10.1007/s11524-020-00508-9

Fassas, S., Cummings, E., Sykes, K. J., Bur, A. M., Shnayder, Y., & Kakarala, K. (2021). Telemedicine for head and neck cancer surveillance in the covid -19 era: Promise and pitfalls. *Head & Neck*, *43*(6), 1872–1880. https://doi.org/10.1002/hed.26659

Finkelstein, S. M., Speedie, S. M., Zhou, X., Potthoff, S., & Ratner, E. R. (2011). Perception, satisfaction, and utilization of the VALUE home telehealth service. *Journal of Telemedicine and Telecare*, *17*(6), 288–292. https://doi.org/10.1258/jtt.2011.100712

Garcia, R., & Adelakun, O. (2019). A conceptual framework and pilot study for examining telemedicine satisfaction research. *Journal of Medical Systems*, *43*(3). https://doi.org/10.1007/s10916-019-1161-4

Gardner, M. R., Jenkins, S. M., O'Neil, D. A., Wood, D. L., Spurrier, B. R., & Pruthi, S. (2015). Perceptions of video-based appointments from the patient's home: A patient survey. *Telemedicine and e-Health*, *21*(4), 281–285. https://doi.org/10.1089/tmj.2014.0037

George, S., Hamilton, A., & Baker, R. S. (2012). How do low-income urban African Americans and Latinos feel about telemedicine? A diffusion of innovation analysis. *International Journal of Telemedicine and Applications*, *2012*, 1–9. https://doi.org/10.1155/2012/715194

Green, R., & Woyshner, E. (2014). Ql-10 neuro-oncology telemedicine follow-up visits. *Neuro-Oncology*, *16*(suppl 5), v180–v180. https://doi.org/10.1093/neuonc/nou269.10

Gurupur, V., Shettian, K., Xu, P., Hines, S., Desselles, M., Dhawan, M., Wan, T., Raffenaud, A., & Anderson, L. (2017). Identifying the readiness of patients in implementing

telemedicine in northern Louisiana for oncology practice. *Health Informatics Journal*, *23*(3), 181–196. https://doi.org/10.1177/1460458216639740

Hasson, S., Waissengrin, B., Shachar, E., Hodruj, M., Fayngor, R., Brezis, M., Nikolaevski-Berlin, A., Pelles, S., Safra, T., Geva, R., & Wolf, I. (2021). Rapid implementation of telemedicine during the covid -19 pandemic: Perspectives and preferences of patients with cancer. *The Oncologist*. https://doi.org/10.1002/onco.13676

Hiratsuka, V., Delafield, R., Starks, H., Ambrose, A., & Mau, M. (2013). Patient and provider perspectives on using telemedicine for chronic disease management among Native Hawaiians and Alaska Native people. *International Journal of Circumpolar Health*, *72*(1), 1–7. https://doi.org/10.3402/ijch.v72i0.21401

Hollander, J. E., & Carr, B. G. (2020). Virtually perfect? Telemedicine for covid-19. *New England Journal of Medicine, 382*(18), 1679–1681. https://doi.org/10.1056/nejmp2003539

Holtz, B. E. (2020). Patient's perceptions of telemedicine visits before and after the coronavirus disease 2019 pandemic. *Telemedicine and e-Health*, 1–6. https://doi.org/10.1089/tmj.2020.0168

Kalicki, A. V., Moody, K. A., Franzosa, E., Gliatto, P. M., & Ornstein, K. A. (2021). Barriers to telehealth access among homebound older adults. *Journal of the American Geriatrics Society*, *69*(9), 2404–2411. https://doi.org/10.1111/jgs.17163

Kichloo, A., Albosta, M., Dettloff, K., Wani, F., El-Amir, Z., Singh, J., Aljadah, M., Chakinala, R., Kanugula, A., Solanki, S., & Chugh, S. (2020). Telemedicine, the current covid-19 pandemic and the future: A narrative review and perspectives moving forward in the

USA. *Family Medicine and Community Health*, *8*(3), e000530. https://doi.org/10.1136/fmch-2020-000530

Kruse, C. S., Krowski, N., Rodriguez, B., Tran, L., Vela, J., & Brooks, M. (2017). Telehealth and patient satisfaction: A systematic review and narrative analysis. *BMJ Open*, *7*. https://doi.org/10.1136/bmjopen-2017- 016242).

Lam, K., Lu, A. D., Shi, Y., & Covinsky, K. E. (2020). Assessing telemedicine unreadiness among older adults in the united states during the covid-19 pandemic. *JAMA Internal Medicine*, *180*(10), 1389. https://doi.org/10.1001/jamainternmed.2020.2671

Layfield, E., Triantafillou, V., Prasad, A., Deng, J., Shanti, R. M., Newman, J. G., & Rajasekaran, K. (2020). Telemedicine for head and neck ambulatory visits during covid -19: Evaluating usability and patient satisfaction. *Head & Neck*, *42*(7), 1681–1689. https://doi.org/10.1002/hed.26285

Le, L. B., Rahal, H. K., Viramontes, M. R., Meneses, K. G., Dong, T. S., & Saab, S. (2018). Patient satisfaction and healthcare utilization using telemedicine in liver transplant recipients. *Digestive Diseases and Sciences*, *64*(5), 1150–1157. https://doi.org/10.1007/s10620-018-5397-5

LeRouge, C., & Garfield, M. (2013). Crossing the telemedicine chasm: Have the U.S. barriers to widespread adoption of telemedicine been significantly reduced? *International Journal of Environmental Research and Public Health*, *10*(12), 6472–6484. https://doi.org/10.3390/ijerph10126472

LeRouge, C., Garfield, M., & Hevner, A. (2015). Patient perspectives of telemedicine quality. *Patient Preference and Adherence*, 25. https://doi.org/10.2147/ppa.s67506

Lewis, G. D., Hatch, S. S., Wiederhold, L. R., & Swanson, T. A. (2020). Long-term institutional experience with telemedicine services for radiation oncology: A potential model for long-term utilization. *Advances in Radiation Oncology*, *5*(4), 780–782. https://doi.org/10.1016/j.adro.2020.04.018

Martinez, K. A., Rood, M., Jhangiani, N., Kou, L., Rose, S., Boissy, A., & Rothberg, M. B. (2018). Patterns of use and correlates of patient satisfaction with a large nationwide direct-to-consumer telemedicine service. *Journal of General Internal Medicine*, *33*(10), 1768–1773. https://doi.org/10.1007/s11606-018-4621-5

Moo, L., Xia, K., & Gately, M. (2018). Older adults' technical support needs for home video telehealth visits. *Innovation in Aging*, *2*(suppl_1), 730–730. https://doi.org/10.1093/geroni/igy023.2696

Moran, K. J., Burson, R., & Conrad, D. (2020). *The doctor of nursing practice project: A framework for success* (3rd ed.). Jones & Bartlett Learning.

Moran, K. J., Conrad, D., & Burson, R. (2016). *The doctor of nursing practice scholarly project: A framework for success* (2nd ed.). Jones & Bartlett Learning.

Narasimha, S., Madathil, K., Agnisarman, S., Rogers, H., Welch, B., Ashok, A., Nair, A., & McElligott, J. (2017). Designing telemedicine systems for geriatric patients: A review of the usability studies. *Telemedicine and e-Health*, *23*(6), 459–472. https://doi.org/10.1089/tmj.2016.0178

Nguyen, K.-S., El-Masry, M., Tham, M., Howard, L., Ventura, R., Chwick, K., & Das, M. (2014). Assessment of patients' satisfaction of an innovative oncology telemedicine clinic. *Journal of Clinical Oncology*, *32*(15_suppl), e17506–e17506. https://doi.org/10.1200/jco.2014.32.15_suppl.e17506

Nocella, J., Vaughan Dickson, V., Cleland, C., & D'Eramo Melkus, G. (2016). Structure, process, and outcomes of care in a telemonitoring program for patients with type 2 diabetes. *Patient-Related Outcome Measures*, 19. https://doi.org/10.2147/prom.s93308

Pew Research Center. (2021). *Mobile fact sheet*. Retrieved March 7, 2021, from https://www.pewresearch.org/internet/fact-sheet/mobile/

Pew Research Center. (2022). *Hispanic population growth and dispersion across U.S. counties, 1980-2020*. Retrieved February 5, 2022, from https://www.pewresearch.org/hispanic/interactives/hispanic-population-by-county/

Powell, R. E., Henstenburg, J. M., Cooper, G., Hollander, J. E., & Rising, K. L. (2017). Patient perceptions of telehealth primary care video visits. *The Annals of Family Medicine*, *15*(3), 225–229. https://doi.org/10.1370/afm.2095

Prasad, A., Brewster, R., Newman, J. G., & Rajasekaran, K. (2020). Optimizing your telemedicine visit during the covid -19 pandemic: Practice guidelines for patients with head and neck cancer. *Head & Neck*, *42*(6), 1317–1321. https://doi.org/10.1002/hed.26197

Press Ganey Associates, Inc. (2018). *Telemedicine for Medical Practice Surveys: Frequently Asked Questions*. Press Ganey Associates. Retrieved March 27, 2021, from https://www.pressganey.com/docs/default-source/default-document-library/telemedicine-for-medical-practice_faqs_040918.pdf?sfvrsn=0

Qian, A. S., Schiaffino, M. K., Nalawade, V., Aziz, L., Pacheco, F. V., Nguyen, B., Vu, P., Patel, S. P., Martinez, M., & Murphy, J. D. (2022). Disparities in telemedicine during covid-19. *Cancer Medicine*. https://doi.org/10.1002/cam4.4518

Raffenaud, A., Gurupur, V., Fernandes, S. L., & Yeung, T. (2019). Utilizing telemedicine in oncology settings: Patient favourability rates and perceptions of use analysis using chi-square and neural networks. *Technology and Health Care, 27*(2), 115–127. https://doi.org/10.3233/thc-181293

Ray, K. N., Chari, A. V., Engberg, J., Bertolet, M., & Mehrotra, A. (2015). Disparities in time spent seeking medical care in the united states. *JAMA Internal Medicine, 175*(12), 1983. https://doi.org/10.1001/jamainternmed.2015.4468

Roberts, E. T., & Mehrotra, A. (2020). Assessment of disparities in digital access among medicare beneficiaries and implications for telemedicine. *JAMA Internal Medicine, 180*(10), 1386. https://doi.org/10.1001/jamainternmed.2020.2666

Slightam, C., Gregory, A. J., Hu, J., Jacobs, J., Gurmessa, T., Kimerling, R., Blonigen, D., & Zulman, D. M. (2020). Patient perceptions of video visits using veterans affairs telehealth tablets: Survey study. *Journal of Medical Internet Research, 22*(4), Article e15682. https://doi.org/10.2196/15682

Tasneem, S., Kim, A., Bagheri, A., & Lebret, J. (2019). Telemedicine video visits for patients receiving palliative care: A qualitative study. *American Journal of Hospice and Palliative Medicine®, 36*(9), 789–794. https://doi.org/10.1177/1049909119846843

Tossaint-Schoenmakers, R., Versluis, A., Chavannes, N., Talboom-Kamp, E., & Kasteleyn, M. (2021). The challenge of integrating ehealth into health care: Systematic literature review of the Donabedian model of structure, process, and outcome. *Journal of Medical Internet Research, 23*(5), e27180. https://doi.org/10.2196/27180

Triana, A. J., Gusdorf, R. E., Shah, K. P., & Horst, S. N. (2020). Technology literacy as a barrier to telehealth during COVID-19. *Telemedicine and e-Health*. https://doi.org/10.1089/tmj.2020.0155

Trinh, L. N., Fortier, M. A., & Kain, Z. N. (2019). Primer on adult patient satisfaction in perioperative settings. *Perioperative Medicine*, *8*(1). https://doi.org/10.1186/s13741-019-0122-2

Tsamakis, K., Gavriatopoulou, M., Schizas, D., Stravodimou, A., Mougkou, A., Tsiptsios, D., Sioulas, V., Spartalis, E., Sioulas, A., Tsamakis, C., Charalampakis, N., Mueller, C., Arya, D., Zarogoulidis, P., Spandidos, D., Dimopoulos, M., Papageorgiou, C., & Rizos, E. (2020). Oncology during the covid-19 pandemic: Challenges, dilemmas and the psychosocial impact on cancer patients (review). *Oncology Letters*, *20*(1), 441–447. https://doi.org/10.3892/ol.2020.11599

Turner, K., Bobonis Babilonia, M., Naso, C., Nguyen, O., Gonzalez, B. D., Oswald, L. B., Robinson, E., Elston Lafata, J., Ferguson, R. J., Alishahi Tabriz, A., Patel, K. B., Hallanger-Johnson, J., Aldawoodi, N., Hong, Y.-R., Jim, H. L., & Spiess, P. E. (2022). Health care providers' and professionals' experiences with telehealth oncology implementation during the covid-19 pandemic: A qualitative study. *Journal of Medical Internet Research*, *24*(1), e29635. https://doi.org/10.2196/29635

United Nations. (2020). *World population ageing 2019 highlights*. Department of economic and social affairs, population division. Retrieved January 23, 2022, from https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Highlights.pdf

Uscher-Pines, L., & Mehrotra, A. (2014). Analysis of teladoc use seems to indicate expanded access to care for patients without prior connection to a provider. *Health Affairs, 33*(2), 258–264. https://doi.org/10.1377/hlthaff.2013.0989

Wennergen, J., Munshi, I., Fajardo, A. D., & George, V. V. (2014). Implementation of the Clinical Video Telemedicine (CTV) within a VA medical center is cost effective and well received by veterans. *International Journal of Clinical Medicine, 5*, 711–716. Retrieved August 24, 2020, from https://doi.org/10.4236/ijcm.2014.512097

Williams, O. E., Elghenzai, S., Subbe, C., Wyatt, J. C., & Williams, J. (2017). The use of telemedicine to enhance secondary care: Some lessons from the front line. *Future Hospital Journal*, *4*(2), 109–114. https://doi.org/10.7861/futurehosp.4-2-109

World Health Organization. (2005). *World health organization resolutions and decisions WHA 58.28, eHealth*. https://apps.who.int/gb/ebwha/pdf_files/WHA58/WHA58_28-en.pdf

Worster, B., & Swartz, K. (2017). Telemedicine and palliative care: An increasing role in supportive oncology. *Current Oncology Reports*, *19*(6). https://doi.org/10.1007/s11912-017-0600-y

Yoon, H., Jang, Y., Vaughan, P. W., & Garcia, M. (2018). Older adults' internet use for health information: Digital divide by race/ethnicity and socioeconomic status. *Journal of Applied Gerontology*, *39*(1), 105–110. https://doi.org/10.1177/0733464818770772

Zon, R. T., Kennedy, E. B., Adelson, K., Blau, S., Dickson, N., Gill, D., Laferriere, N., Lopez, A., Mulvey, T. M., Patt, D., Pickard, T. A., Purdom, T., Royce, T. J., Sumrall, A. L., & Page, R. D. (2021). Telehealth in oncology: ASCO standards and practice recommendations. *JCO Oncology Practice*, *17*(9), 546–564. https://doi.org/10.1200/op.21.00438

Figure 1. Diagram of the Donabedian SPO Framework

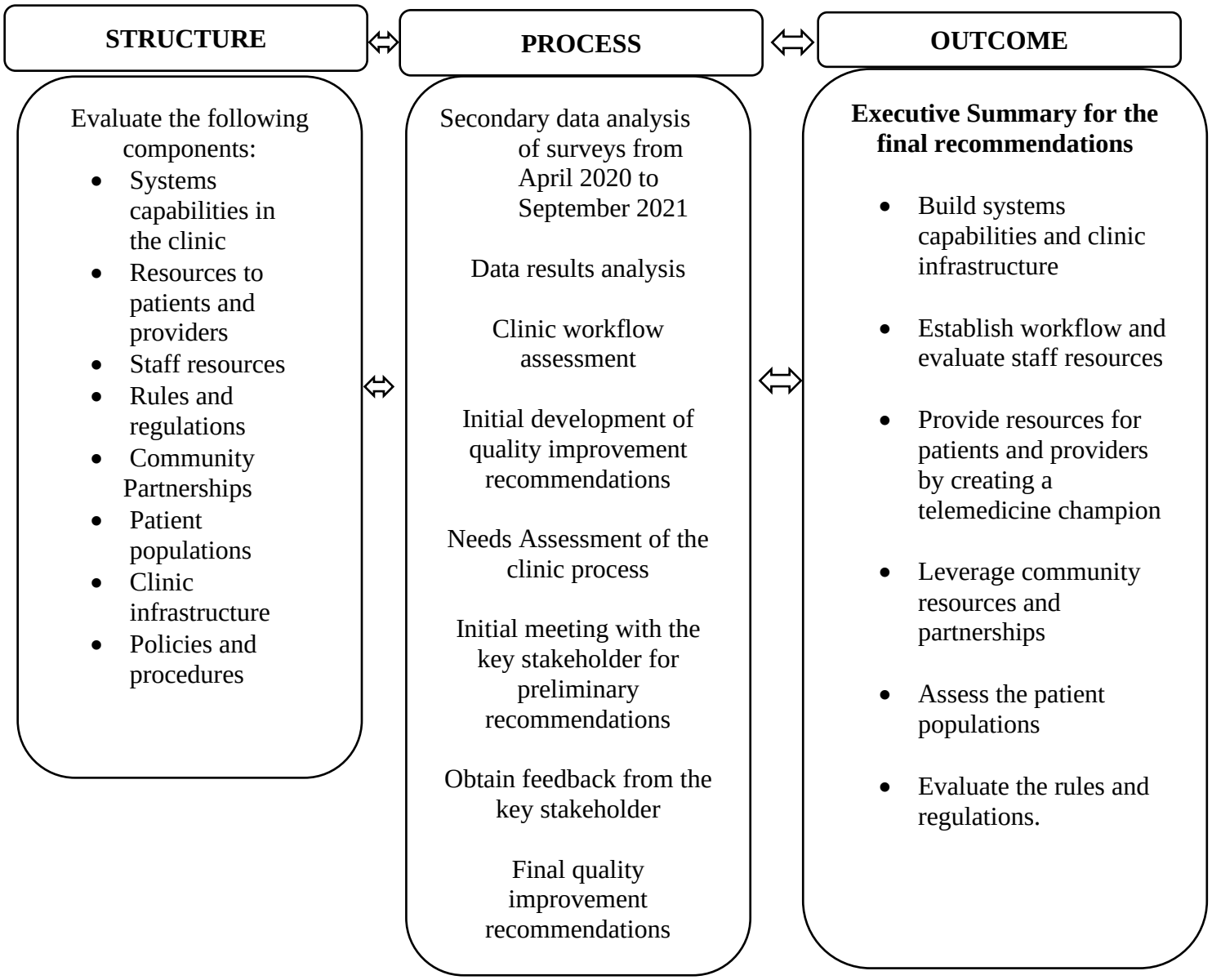

Figure 1 indicates the Quality Improvement Project-specific to the SPO items

Table 1

Levene's test of Independent t-test in gender

Dependent Variables	*F*	*df*	*p*
Overall assessment	10.4	334	.001*
Audio/Video	.147	340	.702
Therapeutic	.676	370	.412
Communication			
Ease of scheduling	1.23	384	.267

Table 1 *Sig. p <.05 indicates variances are not equal

Table 2

Results of Independent t-test on gender

	Gender	***n* (%)**	***M***	***SD***	***t***	***p***	***Cohen's d***
Overall assessment					1.72	.091	.179*
	Female	203 (52%)	9.90	.367			
	Male	170 (43%)	9.83	.430			
Audio/Video Component					.142	.887	.015
	Female	193 (49%)	13.6	2.77			
	Male	161 (41%)	13.6	2.79			
Therapeutic communication					.451	.652	.047*
	Female	201(51%)	24.4	1.99			
	Male	171 (43%)	24.3	2.32			
Ease of scheduling					.670	.504	.068*
	Female	209 (53%)	9.20	1.43			
	Male	177 (45%)	9.10	1.62			

*Table 2 * The effect size for the t-test is measured using Cohen's d set for a moderate effect size of 0.50.*

Table 3

Descriptive statistics and ANOVA results on age and race

	***n* (%)**	***M***	***SD***	***df***	***F***	***p***	η^2
Overall assessment	373 (95%)						
Age				4	1.96	.101	.021
Under 45 years old	21 (6%)	9.85	.478				
45-54 years old	63 (17%)	9.93	.245				
55-64 years old	99 (27%)	9.91	.369				
65-74 years old	136 (36%)	9.80	.468				
75+ years old	54 (14%)	9.90	.351				
Race				3	.736	.531	.006
White	293 (79%)	9.88	.379				
Black or AA	26 (7%)	9.80	.491				
Asian	24 (6%)	9.91	.408				
Unknown	30 (8%)	9.80	.484				
Audio/Video Component	354 (90%)						

Age				4	2.79	.026*	.031
Under 45 years old	20 (6%)	13.4	2.85				
45-54 years old	57 (16%)	14.6	1.27				
55-64 years old	97 (27%)	13.7	2.51				
65-74 years old	129 (36%)	13.3	2.97				
75+ years old	51 (15%)	13.0	3.60				
Race				3	.383	.765	.003

White	277(78%)	13.6	2.74				
Black or AA	25 (7%)	13.7	2.80				
Asian	22 (6%)	13.0	3.64				
Unknown	30 (9%)	13.8	2.41				
Therapeutic communication	372 (94%)						
Age				4	1.64	.164	.018
Under 45 years old	20 (5%)	23.3	3.67				
45-54 years old	62 (17%)	24.2	3.06				
55-64 years old	101 (27%)	24.4	2.17				
65-74 years old	136 (37%)	24.5	1.51				
75+ years old	53 (14%)	24.6	1.14				
Race				3	.720	.541	.006
White	294 (79%	24.3	2.26				
Black or AA	25 (7%)	24.1	2.56				
Asian	23 (6%)	24.8	0.65				
Unknown	30 (8%)	24.7	0.97				

Ease of scheduling	386 (98%)						
Age				4	3.54	.008*	.036
Under 45 years old	21 (6%)	8.42	2.39				
45-54 years old	63(16%)	9.58	1.02				
55-64 years old	102(26%)	9.29	1.37				
65-74 years old	146 (38%)	9.11	1.42				
75+ years old	54 (14%)	8.79	1.91				
Race				3	.956	.414	.007
White	304 (79%)	9.19	1.47				
Black or AA	27 (7%)	9.33	1.38				
Asian	24 (6%)	9.08	1.52				
Unknown	31(8%)	8.74	2.01				

*Note. *The mean difference is significant at the level of 0.05. The results of the post hoc test in the pairwise comparison tests.*

Appendix A. Medical Practice Telemedicine Survey

We thank you in advance for completing this questionnaire. When you have finished, please return it in the enclosed envelope.

Instructions: Please rate the services you received from our practice. Select the response that best describes your experience. If a question does not apply to you, please skip to the next question. Space is provided for you to comment on good and bad things that may have happened

	Very poor	poor	fair	good	very good
Access					
1. Ease of arranging your video visit	⬭	⬭	⬭	⬭	⬭
2. Ease of contacting us (i.e., email, phone, web portal)	⬭	⬭	⬭	⬭	⬭

Comments (describe good or bad experience) _____

Care Provider

During your video visit, your care was provided primarily by a doctor, physician assistant (PA), nurse practitioner (NP), or midwife. Please answer the following questions with that health care provider in mind.

	Very poor	poor	fair	good	very good
1. Concern the care provider showed for your questions or worries?	⬭	⬭	⬭	⬭	⬭
2. Explanations the care provider gave you about your problem or condition?	⬭	⬭	⬭	⬭	⬭
3. Care provider's efforts to include you in decisions about your care?	⬭	⬭	⬭	⬭	⬭

4. Care provider's discussion of any proposed treatment (options, risks, benefits, etc.)? ⬭ ⬭ ⬭ ⬭ ⬭

5. Likelihood of you recommending this care providers to others. ⬭ ⬭ ⬭ ⬭ ⬭

Comments (describe good or bad experience): _____

Very poor poor fair good very good

Telemedicine Technology

1. Ease of talking with the care provider over the video connection. ⬭ ⬭ ⬭ ⬭ ⬭

2. How well the video connection worked during your video visit. ⬭ ⬭ ⬭ ⬭ ⬭

3. How well the audio connection during your video visits. ⬭ ⬭ ⬭ ⬭ ⬭

Comments (describe good or bad experience): _____

Very poor poor fair good very good

Overall Assessment

1. How well the video visit staffs (including the care provider) worked together to care for you? ⬭ ⬭ ⬭ ⬭ ⬭

2. Likelihood of your recommending our video visit service to others. ⬭ ⬭ ⬭ ⬭ ⬭

Comments (describe good or bad experience): _____

Patient's name (optional) _____

Telephone number (optional) _____

Disclaimer: Press Ganey provided this survey; the survey copy was obtained from the Patient Experience Team.