

<b>Project Lead/Key Contact</b>
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<b>Why are you interested in the Improvement Scholars Program?</b>
<p>My interest in the Improvement Scholars Program is driven by my passion for enhancing clinical efficiency, ensuring equitable access to healthcare for all patients, and developing innovative solutions that enhance employee satisfaction. My commitment to these goals stems from my experiences working in clinical settings where I have witnessed firsthand the challenges that inefficiencies and barriers to access can pose to patient care. By focusing on virtual care, I aim to create a more efficient, productive, and satisfied workforce. My goal is to implement strategies that not only boost morale and job satisfaction but also ensure that clinical operations run smoothly without the constraints of space limitations. Additionally, these improvements will enable us to reach more patients, providing them with the necessary care and expanding our service capacity.</p>
<b>Problem Statement: What is the problem you are looking to solve?</b>
<p>Many patients live in areas with limited access to audiology services, often requiring them to travel several hours to attend appointments at UNC Hospitals. This situation frequently necessitates patients or their companions to take time off work and sometimes even spend the night in a hotel for a 1-2 hour appointment. There is the capability for these appointments to be completed virtually, which could alleviate much of this inconvenience. Furthermore, the audiology department is experiencing continuous growth and has reached the maximum capacity of its current space utilization. As a result, the waitlist for appointments continues to grow because there is not enough space to accommodate more clinicians to see these patients. In addition, clinicians are seeking more flexibility in their work schedules and environments. The current setup does not provide the desired level of flexibility, which can impact job satisfaction and overall productivity.</p>
<b>Importance Statement: Why is this project important?</b>
<p>Providing access to virtual care appointments aligns with the organization's goals of improving quality patient care. By offering virtual appointments, we can enhance the patient experience by allowing patients to receive care from the comfort of their homes, thereby reducing the need for long travel times, taking time off work, or overnight stays. This approach also improves efficiency and reduces costs by streamlining operations, minimizing the overhead associated with in-person visits, and optimizing the use of clinical space.</p> <p>Additionally, virtual care helps with provider utilization by triaging patients who most need to be seen in person, ensuring that those requiring physical appointments are prioritized. This makes better use of our clinicians' time and expertise. Furthermore, virtual appointments increase access to care, enabling us to serve more patients, including those in remote or underserved areas, thus improving the overall quality of patient care.</p>
<b>Project Scope</b>

**In Scope:**

- The project will focus on established adult patients utilizing hearing aid and/or cochlear implant technology. Thus far in FY25, Adult Audiology has completed 3,445 referrals. A significant portion of these referrals will become hearing aid or cochlear implant candidates. In calendar year 2024, 13,615 total visits were completed across the clinic locations at Carolina Crossing, Cary, and Pittsboro. Of these, 250 were for new cochlear implant activations, and 1,140 hearing aid units were ordered. This cohort of new users is then added to the existing caseload of patients already utilizing hearing aid and cochlear implant technology. The implementation of virtual care solutions will include the integration of a secure virtual care platform specifically for audiology programming services. Training will be provided to clinicians and administrative staff to ensure they are proficient in using the new technology. Additionally, protocols and guidelines for conducting virtual audiology appointments will be established. Patient and clinician engagement will be a key focus, with efforts to educate patients on the benefits and usage of virtual appointments, as well as gathering feedback from both patients and clinicians to continuously improve the virtual care experience. Operational adjustments will be made to include virtual care options in the appointment scheduling processes, and clinical space will be reassessed and reallocated to accommodate the shift towards virtual appointments. Performance monitoring and evaluation will be conducted by tracking key performance indicators (KPIs) such as patient satisfaction, wait times, and clinician productivity, and analyzing the impact of virtual care on patient access, clinical efficiency, and cost savings. This problem will be addressed in the outpatient setting.

**Out of Scope:**

- The project will not include the expansion of virtual care services to other departments or specialties outside of audiology. Major renovations or expansions of physical clinical spaces will not be undertaken, nor will there be overhauls of existing IT infrastructure beyond what is necessary to support the virtual care platform. Additionally, the implementation of long-term organizational policies related to remote work or telehealth beyond the scope of the audiology department will not be addressed in this project.

**Measures: (Process, Balancing, Structure)**

*Please describe the anticipated outcome measure(s), 2-3 process measures, and one balancing measure. Please do not include more than 5 measures total.*

Measure Name	Measure Type	Measure Calculation	Measure Exclusion	Data Source	Baseline	Goal	Collection Frequency
Travel Time	Outcome	<p>The outcome measure will be calculated as the average reduction in travel time for patients attending virtual audiology appointments compared to traditional in-person appointments.</p> <p>Formula: [ <math>\frac{\sum (\text{Travel Time for In-Person Appointments}) - \text{Travel Time for Virtual Appointments}}{\text{Number of Virtual Appointments}}</math> ]</p>	<p>Patients who do not have access to the necessary technology for virtual appointments. Patients who require in-person visits due to the complexity of their condition. Appointments that are rescheduled or canceled.</p>	<p>Electronic Health Records (EHR) will be used to track appointment types (virtual vs. in-person) and patient travel time. Appointment scheduling system data will be used to identify and categorize appointments.</p>	<p>The baseline will be established by calculating the average travel time for in-person audiology appointments over the 6 months prior to the implementation of the virtual care platform.</p>	<p>The goal is to achieve a 50% reduction in the average travel time for patients attending virtual audiology appointments compared to the baseline average travel time for in-person appointments.</p>	<p>Data will be collected and analyzed on a monthly basis to monitor progress and make necessary adjustments. Quarterly reports will be generated to provide a comprehensive overview of the project's impact.</p>

<p>Virtual Appointment Utilization Rate</p>	<p>Process</p>	<p>The percentage of audiology appointments conducted virtually out of the total number of audiology appointments.</p> <p><b>Formula:</b>  <math display="block">\left[ \frac{\text{Number of Virtual Appointments}}{\text{Total Number of Appointments}} \right] \times 100</math></p>	<p>Appointments for patients requiring in-person visits due to the complexity of their condition. Appointments rescheduled or canceled.</p>	<p>Appointment scheduling system data. Electronic Health Records (EHR).</p>	<p>The baseline will be established by calculating the percentage of virtual appointments out of the total audiology appointments for the 6 months prior to the implementation of the virtual care platform.</p>	<p>To achieve a 30% utilization rate of virtual appointments within the first year of implementation.</p>	<p>Data will be collected and analyzed monthly to monitor progress. Quarterly reports will be generated to provide a comprehensive overview of virtual appointment utilization.</p>
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<p>Clinician Satisfaction with Virtual Care</p>	<p>Process</p>	<p>The average satisfaction score of clinicians with the virtual care platform, collected through surveys.</p> <p><b>Formula:</b>  <math display="block">[\text{Average Satisfaction Score}] = \frac{\sum (\text{Satisfaction Scores})}{\text{Number of Survey Responses}}</math> </p>	<p>Surveys with incomplete responses. Clinicians who have not conducted any virtual appointments.</p>	<p>Clinician satisfaction surveys conducted at regular intervals.</p>	<p>The baseline will be established by conducting an initial survey of clinician satisfaction with the current state of audiology services before the implementation of the virtual care platform.</p>	<p>To achieve an average satisfaction score of 8 out of 10 within the first year of implementation.</p>	<p>Surveys will be conducted quarterly to gather feedback from clinicians. The data will be analyzed after each survey period to monitor trends and identify areas for improvement.</p>
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<p>Patient Satisfaction with Virtual Care</p>	<p>Balancing</p>	<p>The average satisfaction score of patients with virtual audiology appointments, collected through post-appointment surveys. <b>Formula:</b> [ <math>\frac{\sum (\text{Patient Satisfaction Scores})}{\text{Number of Survey Responses}}</math> ]</p>	<p>Surveys with incomplete responses. Patients who did not complete a virtual appointment. Patients who have had fewer than two virtual appointments (to ensure a fair assessment).</p>	<p>Patient satisfaction surveys conducted after each virtual appointment.</p>	<p>The baseline will be established by conducting an initial survey of patient satisfaction with in-person audiology services before the implementation of the virtual care platform.</p>	<p>To achieve an average patient satisfaction score of 8 out of 10 within the first year of implementation.</p>	<p>Surveys will be conducted after each virtual appointment. Data will be analyzed monthly to monitor trends and identify areas for improvement. Quarterly reports will be generated to provide a comprehensive overview of patient satisfaction with virtual care.</p>
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**Root Cause Analysis**

Underutilization of remote care services has been identified as a significant underlying root cause of the problem. Despite the potential benefits of virtual care in enhancing clinical efficiency and patient access, its adoption has been slower than anticipated due to late approval for the provision of remote care services and resistance to change within the clinical environment. Regulatory and administrative hurdles have slowed the implementation of virtual care solutions, leading to a lag in offering these services to patients. This delay has resulted in missed opportunities to alleviate the travel burdens faced by patients and to optimize the use of clinical space. Consequently, many patients continue to travel long distances for in-person appointments, incurring additional costs and time off work, while the audiology department remains constrained by its physical space limitations, unable to accommodate the growing number of patients and referrals. Clinicians are also affected, as the lack of flexibility in work schedules and environments can impact their job satisfaction and productivity. To address underutilization, it is crucial to streamline the approval processes for remote care services and to foster a culture that embraces innovation and change. This includes providing comprehensive training for clinicians and administrative staff, educating patients on the benefits of virtual care, and continuously gathering feedback to improve the virtual care experience. By recognizing underutilization as a root cause and taking steps to address it, the project aims to create a more effective and efficient healthcare delivery system that meets the needs of both patients and clinicians.

**Ideas for Improvement**

To enhance the success of the project, several improvement ideas can be implemented. Streamlining approval processes with regulatory and administrative bodies will expedite the provision of remote care services. Comprehensive training programs for clinicians and administrative staff on virtual care technology, coupled with ongoing support, will address technical and procedural challenges. Educating and engaging patients through informative materials and orientation sessions will highlight the benefits and ease of using virtual care. Establishing regular feedback mechanisms with patients and clinicians will help refine the virtual care experience. Optimizing scheduling processes to integrate virtual care options seamlessly will enhance efficiency. Investing in reliable and user-friendly virtual care platforms, supported by robust IT services, will ensure high-quality interactions. Launching pilot programs in select locations will allow for testing and refinement before a full-scale rollout, using data to make evidence-based adjustments. Collaborating with other departments that have successfully implemented virtual care will facilitate knowledge-sharing and best practices. Continuous monitoring and evaluation of key performance indicators (KPIs) such as patient satisfaction, wait times, and clinician productivity will enable ongoing adjustments to improve patient access, clinical efficiency, and cost savings. By implementing these strategies, the project aims to address underutilization and ensure a successful transition to virtual care services, ultimately enhancing patient access, clinical efficiency, and clinician satisfaction.

**Risks and Opportunities**

Integrating cloud-based platforms into healthcare presents both significant risks and promising opportunities. On the risk side, data security and privacy are paramount concerns. To mitigate this, strict access controls are essential. Technical challenges, software incompatibility, and connectivity issues, can disrupt virtual care services, necessitating thorough testing, adequate IT support, and contingency plans. Resistance to change among clinicians and administrative staff due to unfamiliarity or perceived complexity can lead to underutilization of the platform, which can be addressed through comprehensive training, ongoing support, and clear communication about the system's benefits. Ensuring regulatory compliance, particularly with healthcare regulations like HIPAA, can be resource-intensive and requires close collaboration with legal and compliance teams. Additionally, patient acceptance of virtual care may be hindered by a lack of technological literacy or a preference for in-person interactions, which can be mitigated through patient education and support.

On the opportunity side, cloud-based platforms can significantly improve patient access to audiology services, especially for those in remote or underserved areas, by eliminating the need for long travel times. This enhanced accessibility can attract more patients and expand service reach. Virtual care can streamline clinical workflows, reduce appointment wait times, and optimize the use of clinical space, leading to increased efficiency. The resulting cost savings from reduced physical space needs and minimized overhead costs associated with in-person visits can be substantial, allowing for reinvestment in further improvements. Virtual care also offers clinicians greater flexibility in their work schedules and environments, potentially improving job satisfaction and productivity. Furthermore, cloud-based platforms provide scalability and the potential for continuous innovation, enabling the healthcare system to adapt to changing needs and incorporate new technologies. By addressing the risks and leveraging these opportunities, the project can successfully integrate cloud-based platforms into healthcare, enhancing the delivery of virtual care services and achieving its goals.

**Stakeholders and Project Team Members**

The key stakeholders in this proposal for the system and process include patients, clinicians, administrative staff, IT and telehealth teams, UNC Health administration, and regulatory and compliance officers. Patients, particularly those utilizing hearing aid and/or cochlear implant technology, are the primary beneficiaries, and their feedback and acceptance are crucial for the success of virtual care services. Clinicians, such as audiologists, will deliver these services, making their training, engagement, and satisfaction essential. Administrative staff play a critical role in integrating virtual care into existing workflows, while IT and telehealth teams ensure the technology is reliable, secure, and user-friendly. The support and commitment of UNC Health administration are vital for project approval and sustainability, and regulatory and compliance officers ensure adherence to healthcare regulations. Additionally, patient advocacy groups, clinical operations supervisors, managers, and financial officers are important process stakeholders, providing insights into patient needs, overseeing daily operations, and ensuring financial viability.

Key project team leaders include the project manager, clinical lead, IT lead, training and development lead, patient engagement lead, and quality improvement lead. The project manager oversees planning and execution, while the clinical lead ensures clinical standards are met. The IT lead handles technical aspects, and the training and development lead ensures stakeholders are proficient in using the platform. The patient engagement lead focuses on educating and supporting patients, and the quality improvement lead monitors and evaluates the project's impact. By involving these stakeholders and leaders, the project aims to effectively design and implement changes within UNC Health, ensuring successful integration of virtual care services and achieving the desired outcomes.

**Impact on the Quintuple Aim**

- *Improved health:* Implementing virtual care services will increase access to audiology services, enabling timely interventions and continuous management of hearing aid and cochlear implant technology, ultimately improving patient health outcomes.
- *Enhanced patient experience:* By offering virtual appointments, patients can receive care from the comfort of their homes, reducing travel time and associated costs, and minimizing disruptions to their daily lives, thus significantly enhancing their overall experience.
- *Enhanced clinician and staff experience:* Providing clinicians with flexible work schedules and environments through virtual care options can improve job satisfaction and productivity. Comprehensive training and ongoing support will ensure clinicians and staff are comfortable and proficient with the new technology, leading to a more positive work experience.
- *Health equity:* Virtual care services will expand access to audiology care for patients in remote or underserved areas who might otherwise face significant barriers to receiving care. This approach ensures that all patients, regardless of location, have equitable access to necessary healthcare services.
- *Reduced costs:* The shift to virtual care can reduce overhead costs associated with maintaining physical clinical spaces and decrease the need for in-person visits. By optimizing the use of clinical resources and minimizing travel expenses for patients, the project aims to achieve significant cost savings for both the healthcare system and the patients.

**Sustainment Plan**

To sustain the improvement achieved through the integration of virtual care services, it is essential to implement ongoing training programs for clinicians and administrative staff, ensuring they remain proficient and confident with the technology. Regular feedback and evaluation systems should be established to continuously monitor key performance indicators (KPIs) and address any issues promptly. Dedicated IT and telehealth support teams, along with patient education and engagement initiatives, will ensure both users and providers are well-supported. Seamless integration with existing electronic health records (EHR) and appointment scheduling systems will streamline workflows. Designing the platform to be scalable and flexible will allow adaptation to changing needs

and advancements. Fostering partnerships with other departments and organizations, along with transparent reporting to stakeholders, will build trust and support.

**Carolina Quality Tools**

Incorporating TeamSTEPPS tools such as briefs, huddles, and debriefs will enhance team communication and coordination, ensuring all team members are aligned and informed. Using SBAR (Situation, Background, Assessment, Recommendation) for structured communication will help address issues efficiently. By implementing these strategies, the project can sustain the improvements achieved, ensuring long-term success and continued benefits of virtual care services for patients, clinicians, and the healthcare system.