Project Lead/Key Contact
R. Gina Silverstein, MD gina.silverstein@unchealth.unc.edu 716-864-1069

Why are you interested in the Improvement Scholars Program?
I am eager to participate in the Improvement Scholars Program (ISP) because I have identified a clinical issue that requires improvement and recognize the opportunity to enhance my skills and access valuable resources to effectively address it. The ISP offers a unique opportunity to gain the formal training, knowledge, and experience necessary to drive meaningful change. With the program's support, I am confident I can successfully address this issue and build a foundation for future leadership in quality improvement and change management. As I advance in my career at University of North Carolina (UNC), I aspire to become an expert in quality improvement, and I believe the ISP will be crucial to my professional growth. Gaining proficiency in improvement methods and leadership will enhance my ability to make a lasting impact, enabling me to continue advancing patient care and health equity in the years to come.

Problem Statement: What is the problem you are looking to solve?
At UNC Medical Center (UNCMC), patients with limited English proficiency (LEP) typically do not have access to interpreter services while in the operating room (OR). At UNCMC, we serve a diverse patient population. In fiscal year 2024, 3,160 patients with LEP had surgery at UNCMC, accounting for over 8% of all surgical patients. Before every surgery, patients spend time in the pre-operative (preop) area. After every surgery, patients recover in the post-anesthesia care unit (PACU). In each of these areas, there is a combination of in-person and tablet-based professional medical interpreters available. However, between the preop area and PACU, no interpreter services are readily available. Although patients are typically under general anesthesia during surgery, there are critical moments before and after the procedure—during preoperative preparation and the transition to the PACU—when interpreter services should be both available and consistently used. For English-speaking patients, the time before anesthesia induction is crucial for effective communication. The OR team provides key information, including explanations (e.g., "This mask just has oxygen"), instructions (e.g., "Take deep breaths," "Move to the middle of the bed"), and anticipatory guidance (e.g., "The blood pressure cuff will feel very tight," "You're going to start feeling sleepy"). This is also when the pre-induction safety huddle, or time-out, takes place, allowing the patient to participate in the verification process. In addition to these essential exchanges, the surgical and anesthesia teams often use this time to offer reassuring small talk to help ease the patient's anxiety. Without an interpreter, LEP patients miss out on these important communications, which can contribute to stress and confusion during an already vulnerable time. In these situations, when the care team attempts to communicate without professional medical interpreters, they often rely on hand signals, limited vocabulary in the patient's preferred language, or unverified, automated web-based translation tools. This creates a significant inequity in the care experience.

Importance Statement: Why is this project important?

Language barriers significantly impact health outcomes, including access to care, risk of adverse events (Divi, 2007), patient experiences (Jacobs, 2006), and general health outcomes (Pérez-Stable, 2018). This is true throughout all phases of care, including in the operating room. Studies have shown that LEP is associated with reduced access to surgical care, delays in obtaining surgical care, and prolonged admissions (Joo, 2023). In addition, anesthesiologists are reported to prefer general over regional anesthesia for patients with LEP due to limitations of communication, which could bias their clinical decision towards using the riskier of the two methods (Akif Yazar, 2018). Case reports have demonstrated the potential harms of not having an interpreter during time out, including wrong site operations (Ring, 2010). Using a professional medical interpreter may help mitigate these disparities, with studies demonstrating interpreter use improved understanding of consent, post-operative pain control, and comprehension of post-operative instructions (Luan-Erfe, 2023). Given the above, adding interpreter services in the operating room has the potential to improve patient safety, patient outcomes, and patient and provider experience.

Project Scope

In Scope:
- *What is the specific patient population your project will impact?*
- *How many patients are in the population?*
- *In what setting(s) would this problem be addressed? (e.g., hospital unit, outpatient practice setting, non-clinical setting, etc.)?*

This project will impact all patients with LEP having surgery at UNC. In fiscal year 2024, 3,160 patients with LEP had surgery at UNCMC, accounting for over 8% of all surgical patients. It would only impact patients in the perioperative clinical setting.

Out of Scope:
This project will not address
- Language barriers for non-surgical patients with LEP
- Language barriers for surgical patients with LEP outside of the perioperative setting (e.g., communication at pre-operative appointments, prior to arrival at the hospital, post-operative admission, etc.)
- Language barriers with families of patients with LEP
- Other quality or safety concerns in the time between pre-op and induction of anesthesia (e.g. communication with patients without LEP, time-out concerns)

- **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	Base line	Goal	Collection Frequency
Utilization of interpreter tablet in the OR	Outcome measure	*Percent of eligible cases where interpret tablet used* **Numerator:** Patients identified as LEP (by "needs interpreter" in Epic) who used interpreter tablet in OR **Denominator:** Patients identified as LEP who had surgery at UNCMC	- case canceled - patient incorrectly listed as needing interpreter - OR team member is certified in patients' primary language	*Still in development.* Likely pre-op nursing documentation in Epic. Please see "Risk and Opportunities"	0%	80%	Collected on all eligible cases, analyzed weekly to monthly
Tablet availability	Process measure	*Staff reporting "agree" or "strongly agree" to the question "There are always interpreter tablets available when I need one"* **Numerator:** Staff reporting sufficient tablets **Denominator:** All staff completing survey	- Staff completing survey who did not need to use tablet	Staff Qualtrics survey	NA	90%	Collected weekly
Staff satisfaction	Process measure	*Staff reporting "satisfied" or "very satisfied" to the question "How do you feel about the process of using the interpreter tablets in the OR"* **Numerator:** Staff reporting they are satisfied **Denominator:** All staff completing survey	None	Staff Qualtrics survey	NA	70%	Collected weekly
Patient satisfaction	Process/ Audit	*Patients reporting satisfaction with*	- patients who do not	Patient phone call survey	NA	90%	Audit of 5-10 patients per month

		interpreter tablet in the OR **Numerator**: Patients reporting satisfaction **Denominator:** All patients surveyed	remember time in OR				
OR delays	Balancing	*Difference between average OR time metrics before/after intervention* - Minutes between "in-room" and "intubated - Turn over time before case of patient with LEP	- Patients without LEP - Patients awake during surgery	Epic data review	NA	5 min	Monthly

Root Cause Analysis

- *What do you think are the underlying causes of the problem?*
- *Why do you think the problem is happening?*

After completely the "Five Whys" exercise and discussing with the Hillsborough peri-operative staff and anesthesia teams, we identified the following underlying causes of why there are not interpreters used in the operating room:

- There are insufficient interpreter resources available, making it necessary to prioritize certain perioperative situations (e.g., obtaining consent) over others (i.e., communicating with the patient in the operating room).
- The OR is a place that always emphasizes the importance of efficiency, and the current state of resources and processes would mean OR delays if trying to add interpretation to new phases of care that do not currently use interpretation
- The OR staff has compensated for limited resources by coming up with alternatives (hand signals, limited vocabulary in the patient's preferred language, or unverified, automated web-based translation tools), and have gotten used to this being the best option available

Ideas for Improvement

- *What ideas do you have for changes that will result in improvement?*

Our idea is to introduce virtual interpreters on tablets that travel with the patient between pre-op and PACU at all surgical sites at UNC Health.

At Hillsborough Hospital, we have been piloting using tablet-based interpreters in the OR over the last 6 months. Through partnering with interpreter services, we acquired three additional tablets with Martti interpretation service accounts. These tablets are unmounted and can travel with the patient

from pre-op to the OR to the PACU; they are in addition to the traditionally used tablets on rolling stands that stay in pre-op/PACU. When the unmounted tablet goes with the patient to the OR, an interpreter remains on the line until the patient is under anesthesia. This was implemented after two PDSA cycles. Surveys of the Hillsborough OR teams showed that they find this process feasible and effective, with members giving feedback such as "I thought it would be a hinderance to efficiency, but it actually was helpful!" and "I was able to conduct more of my normal chit-chat... I feel strongly that this type of banter can really help ease anxiety & make for a better experience."

Additionally, a phone survey was conducted with 23 patients with LEP who had surgery at Hillsborough since pilot implementation. Of these, 12 recalled having access to an interpreter tablet in the OR, and all 12 reported finding it helpful. Of the 17 patients who had previously undergone other surgeries before the pilot, 10 (59%) stated that their experience with OR interpretation was better than in their prior surgeries. One patient expressed "*Estaría bien tener una forma de asegurarse que todos los demás tengan el mismo cuidado que yo tuve*/It would be good to ensure everybody else gets the same care I got."

Building on the success of this pilot program, our goal is to refine our processes at Hillsborough to help promote sustained use of interpreter tablets and then implement similar processes at all UNC Medical Center operative sites, including the new surgical tower (UNCSH), the ambulatory care center (ACC), and the Children's Hospital.   We have support from interpreter services and ISD to provide equipment for this endeavor, and are working with partners at UNCSH to help with implementation.

We are in process of solidifying stakeholder engagement by building relationships. We have been in talks with anesthesia leadership (Greg Belfanz*, Anesthesiologist and Vice Chair of Patient Safety and Quality Improvement*; Aaron Lemmon*, Chief CRNA),* perioperative leadership (Stephanie Bohling *Associate Chief Nursing Officer for Perioperative Care*), and nursing directors at UNCSH (Tosha Mcbryde *Director Perioperative Services*). By securing institutional buy-in, we will more easily integrate this project into standard processes and policies.

Phase I of this project will be to implement additional PDSA cycles at Hillsborough Hospital to optimize our processes and metric tracking while still on a smaller scale. We aim to confirm that we have created a system that is feasible and can sustain engagement. Our product in this phase will be a process map detailing the protocol for scaled roll out.

Phase II will be to PDSA this protocol at UNC Surgical Hospital, followed by ACC and Children's OR in subsequent phases. We expect that each OR site will have local differences which will require iteration on the protocol.

Risks and Opportunities

- *What factors do you anticipate will foster improvement?*
- *What are the major challenges you anticipate?*

Improvement will be fostered by making the new processes as easy and seamless as possible. This includes having adequate resources and making them easily available for use. Additionally, we will partner with the primary stakeholders (pre-operative nurses, anesthesia team) to get their support and feedback early on in the project to help foster buy-in and to make sure processes are optimized to their workflow. We also aim to partner with leadership to integrate new processes into policy. We will also provide the team with patient feedback to demonstrate the importance of this work.

Potential challenges associated with this initiative may include delays in the operating room and frustration among providers. The use of an interpreter inherently slows down communication, as all information must be conveyed twice. Additionally, there may be further delays in securing an interpreter, even when using a tablet. Changes to established processes can also lead to staff frustration. We will closely monitor these issues and remain vigilant for any other unforeseen challenges or balancing measures that may arise during implementation.

Additionally, we have already faced challenges in tracking improvement, as there is not currently an area in Epic to document interpreter use in the operating room. Based off focus groups with staff at Hillsborough and exploration of current Epic functionality, we have come up with several options including nursing notes, utilizing currently accessible pre-op checklist functionality in Epic, or tracking utilization through the Martti interpret accounts.

Stakeholders and Project Team Members

- *Who are the key stakeholders in your system and processes?*
- *Who are the key project team leaders to design and implement change?*

Name	Role
Gina Silverstein, MD	Team Lead
Lauren Schiff, MD	Sponsor
Myriam Peereboom	Partner - Associate Director of Interpreter Services
Greg Belfanz, MD	Partner - Anesthesiologist and Vice Chair of Patient Safety and Quality Improvement
Stephanie Bohling	Partner - Associate Chief Nursing Officer for Perioperative Care
Christina Lewis & Jeff Vance	Partners - Hillsborough Pre-op/PACU Nurse Manager & CRNA Lead
Ricardo Crespo-Regalado, Emily Bulik-Sullivan	Medical students; assist with patient calls and data management
TBD	Patient Partner – working on identifying ideal partner from Patient and Family Advisory Council (PFAC)

Impact on the Quintuple Aim

- *Improved health*
- *Enhanced patient experience*
- *Enhanced clinician and staff experience*
- *Health equity*
- *Reduced costs*

This project would impact multiple health improvement priority areas.

Most notably, it would impact *health equity*, as the current process clearly provide a different standard of care for patient with LEP. This also may enhance the patient experience.

While not our primary goal focus, decreasing language barriers has the potential to improve health via harm prevention and reduce costs via decreased hospital length of stay (de Crescenzo, 2022).

Sustainment Plan

- *What ideas do you have for sustaining the improvement?*
- *How do you see the work you start with IHQI's support continuing?*

Sustainability is essential. During our pilot at Hillsborough, utilization fell precipitously when active oversight was not continued. Creating and implementing a sustainability plan at Hillsborough such that this becomes standard work will be a critical part of Phase I of this project.

To achieve this, we will need to make interpreter use in the OR part of our policy guidelines. For example, it is now viewed as unacceptable to not have an interpreter present for obtaining surgical consent. We hope to set similar expectations for interpreter use in the OR. By embedding interpreter use in the OR similarly into policy guidelines, we can ensure sustainability. To do this, we will work closely with leadership within anesthesia, CRNAs, perioperative teams to support this.

Additionally, we will work to refine our process so that is well integrated into current workflow and requires minimal maintenance from the staff.

Carolina Quality Tools

How will Carolina Quality tools (Just Culture, SAFE reporting, TeamSTEPPS, huddles, and visual management boards) be used to support the work? Although use of these tools is not required, applications including them will be strengthened.

This project is well suited to utilizing many Carolina Quality tools.
- We will use visual management boards to track adherence to protocol and change overtime
- We will use morning peri-op huddles to identify patients with LEP and make sure all team members know they will need the tablet interpreter and bring up any concerns with the process
- Having a Just Culture will allow team members to practice TeamSTEPPS behaviors such as call out and cross monitoring to remind each other of the new processes and utilizing the tablets
- We already have been using SBAR communication to explain the project to different members of the care team and work with interpreter services to acquire interpreter tablets.

References

- Erin Carey, MD – Gina Silverstein's division director, pledging support of Gina's involvement in this project
- Myriam Peereboom – Interpreter services assistant director, pledging support of interpreter tablet Martti Accounts

Interpreter Services
Associate Director

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O 984-974-0159

April 2, 2025

Dear Improvement Scholars Program Grant Selection Committee:

This letter serves as a continued pledge of support for Dr. R. Gina Silverstein on her project to provision qualified medical video interpreters in the perioperative services.

We have been working with Dr. Silverstein since last year as she aimed to improve the timely access to qualified interpreters in the perioperative services at Hillsborough Hospital. At that time, she partnered with Gabriel Viñas, a former Interpreter Services manager. She acquired three dedicated tablets that we equipped with Martti Video Interpreting accounts to improve access to medical interpreters peri-operatively starting in April 2024.

The project was well received by both the staff at Hillsborough and patients. Dr. Silverstein reported the use of the video interpreter services useful and feasible. Patients were surveyed about their experience and of those that remembered having a video interpreter in the OR, 100% reported it was helpful and reassuring.

Dr. Silverstein presented an SBAR to us about this project requesting additional resources to expand to new sites, such as UNCSH, the ACC, and Children's OR and we look forward to supporting this project with the provision of additional Martti accounts. After our discussion, we determined we would start by providing four additional tablet accounts to expand to UNCSH first. If these are well utilized, we can provide additional tablet accounts for UNCSH and/or the additional sites.

We are excited to continue to partner with Dr. Silverstein on this project and hope to optimize improved and equitable care for all of our patients.

Sincerely,

Myriam Peereboom MHA/MBA Associate Director

UNC
HEALTH.

April 2, 2025

Dear IHQI ISP selection committee,

I am writing to express my enthusiastic support for Dr. R. Gina Silverstein's application to the UNC Institute for Healthcare Quality Improvement (IHQI) Improvement Scholars Program (ISP). I have had the pleasure of working alongside Dr. Silverstein in her roles as a resident, fellow, and now as a faculty colleague within the Minimally Invasive Gynecologic Surgery (MIGS) Division. Her impressive accomplishments and unwavering commitment to quality improvement (QI) make her an exceptional candidate for this unique opportunity.

Dr. Silverstein is deeply passionate about QI. During her fellowship, she chose the QI and leadership tracking path to further develop her expertise in this area. She successfully led both internal and cross-disciplinary projects that yielded measurable impacts prior to joining the faculty, demonstrating her commitment to building upon this foundation. Notably, she skillfully managed the complex scheduling for benign gynecologic surgery call coverage (as a fellow), overcoming numerous barriers while collaborating with specialty and subspecialty clinicians to ensure effective emergency call support. This critical role continues as she assumes faculty responsibilities, alongside her involvement in Hillsborough Perioperative Services under the leadership of Dr. David Fleishman.

Dr. Silverstein's research interests align seamlessly with her QI goals. Under the mentorship of Dr. Lauren Schiff, she spearheaded a transformative perioperative translator project ensuring non-English speaking patients have access to necessary communication services throughout the perioperative experience. Dr. Silverstein exemplifies the qualities of an outstanding process-improvement-oriented clinician. She is intelligent, dedicated, and well-positioned to lead innovative and impactful QI initiatives at UNC.

We are thrilled that Gina is pursuing her interest in QI and are excited about her potential participation in this excellent faculty development opportunity. Her dedication to enhancing perioperative interpretation services has been evident since her fellowship, and I believe the ISP will facilitate significant advancements in this project. She has the full support of the MIGS Division, and we are prepared to adjust her clinical schedule as needed to accommodate her work on this initiative.

Sincerely,

Erin T. Carey, MD MSCR
Associate Professor
Division/Fellowship Director, Minimally Invasive Gynecologic Surgery
Department of Obstetrics and Gynecology

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