Capstone for Impact Submission | GY2020

Project Title: Applying Patient-Generated Communications and Photographs to Smarter Telemedicine Triage and Redesign of Perioperative Educational Materials for Carotid Procedures

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Branch: Procedure-Based Care

Path of Excellence: Global Health Disparities

If this project can be continued by another UMMS student, please include your contact information or any other details you would like to share here:

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Summary: Patient access to clinicians through electronic medical record (EMR) portals, email, and smartphones allows sharing of include text and photographs in addition to and voice content. These capabilities have expanded communication and documentation burdens for clinicians, especially when patients experience unanticipated problems or have unanswered questions. We evaluated content of patient-generated perioperative communications in a cohort of consecutive carotid procedures and applied this information to streamlined triage strategies and updated educational materials targeting identified communication and education gaps

Methodology: One-hundred consecutive elective carotid procedures (either carotid endarterectomy or trans-carotid stenting) were identified and analyzed. Perioperative patient-generated communications (including telephone calls, emails, texts, and EMR portal queries) were identified from the EMR. Dates, demographics, readmissions, and unplanned clinic or emergency department (ED) visits were also collected. Communications and images were coded by two investigators using a deductive qualitative approach. Educational materials were evaluated for understandability and actionability using the Patient Education Materials Assessment Tool (PEMAT). New triage guidance and educational materials were generated to target identified gaps.

Results: One-hundred and fifty-eight patient-generated communications were identified and analyzed. Mean age was 71.1 ± 9.4 years; 95 were white, and 31 were women. 65% of communications were generated postoperatively. Common themes were medications (35%), scheduling (20%), preoperative testing (18%), surgical site (15%), and vital signs (15%). Ten communications preceded unplanned emergency department visits, 6 of which were related to surgical site questions and potentially avoidable), and 4 of which preceded readmissions. Five communications (3.2%) included patient-generated photos, all of which were pictures of incisions and none of which clearly identified a problem requiring in-person evaluation based on the image. PEMAT scores were fair: understandability of after-visit summaries, post-discharge instructions, and wound care instructions were 77%, 58%, and 69%, respectively. Themes and terminology that were missing or inconsistent with baseline educational materials were used to develop targeted refinements in the form of high-yield FAQ.

<u>Conclusion</u>: Patient queries can be used to identify improvements in educational materials and triage responses, maximizing efficiency of communication and potentially avoiding unneeded calls and ED visits. Improved communication, education, and triage of surgical site concerns is a potentially high yield focus for reducing unnecessary ED visits. Patient-facing scheduling and medication resources also have significant potential to reduce clinician administrative and documentation burdens. Refined educational content and triage approaches warrant post-implementation evaluation for effects on communication, unplanned visits, and readmissions.

Reflection/Impact Statement:

You may use the following questions to guide your reflection:

1. How did the process of conducting this research confront any limitations of your prior thinking?
2. Who could potentially benefit from this CFI project over different timescales and how?
3. What actions will you take afterwards to continue the momentum of this project, and maximise the likelihood of the identified benefits being achieved?
4. What advice would you give to another student completeing their CFI?

This project was my first experience working within the realm of Quality Improvement/Assurance (QI) and yielded a shift in my understanding of the countless facets of patient-care that can be improved using a QI approach. Further, the notion of using patient-generated communications as a crude form "crowd-sourcing" to identify common perioperative concerns was novel. This project was completed within the Division of Vascular Surgery at UMHS and, given that surgeons tend to perptually battle the time constraints of clinic, the process of using patient-generated communications to elucidate and quantify common concerns within the perioperative period represents a relatively unexplored source of data that can be used to reduce administrative burden, improve patient education in clinic, and help identify and correct concerns related to healthcare access.

Although this project was focused on developing a process to elucidate patient concerns in the perioperative period and to improve patient education materials in order to reduce administrative burden, there are numerous directions that could be taken to advance this work. Patients were intended to be the primary beneficiaries of this project, however, our goal was do reduce the communication burden placed on clinical administrators as well as enable more efficient and understandable communication between physicians and patients. Using data to determine the commonest patient concerns revealed that there are several potential future directions. We focused on improving patient education materials so that patients might develop a more accurate frame of reference for what post-operative concerns are part of the normal recovery process as well as what concerns merit evaluation by a healthcare provider. Additionally, given that surgical site concerns represented the highest number of ED visits and readmissions, we sought to evaluate the role that patient-generated photos played in the evaluation of the surgical incision and if there is a role for telemedicine in the evaluation of post-operative surgical incisions.

To that point, we are actively working on developing patient education materials that provide information related to surgical site conerns that is more understandable as well as a method that would allow a qualified healthcare provider to evaluate the wound remotely. These are initiatives that we are actively working on and, ultimately, we would like to demonstrate that improving the understandability and actionability of patient education materials as well as providing a method for tele-medical incision evaluation will significantly reduce administrative burden as well as ED visits and re-admissions during the perioperative period.

For any student working on a CFI project, I would advise that they pursue any topic that they are passionate about and to not be afraid to reach out if there is a need for resources or funding. I don't think I fully appreciated or took advantage of the phenomenal resources available with the UM Health System. That being said, I think it is advisable to keep an open mind. I was not particularly interested in QI at the

beginning of this project, but I've developed significant interest in the topic throughout this period, especially as it relates to patient education. Therefore, I believe that if a student has a topic they are passionate about, UMMS has the resources to make it a reality. However, if you are uncertain about what to do for a CFI project, I would advise them to meet with faculty in the specialty of their interest and keep an open mind. The CFI project may represent a great opportunity to get involved within a department and supplement their CV.