Creation of Educational Videos for Patients Undergoing Non- Elective Surgery – Tools for the COVID-19 Era

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Abstract

Currently, there is a lack of reliable patient-centric educational videos in otolaryngology. In light of COVID-19, otolaryngologists have had to see patients through virtual visits and have been encouraged to send patients home after non-elective surgeries. Additionally, most hospitals are not permitting patients’ family members and care takers to enter patient rooms, thus often preventing them from receiving adequate education on postoperative care. Embracing educational videos as a valuable tool will improve communication with patients, especially during the times of COVID-19 and even beyond. The goal of this commentary is to describe our early lessons learned in developing educational videos in a streamlined, efficient and accessible format that can be shared between all members of the multidisciplinary and design production team. Background on the use of multimedia to reduce patient anxiety and frustration with surgical interventions is provided.
Introduction

COVID-19 has dramatically changed how we interact with patients. Physicians are no longer able to see patients in the outpatient office, except for emergencies, and are encouraged to conduct visits via telehealth. Physicians are also encouraged to send patients home as soon as it is safe to do so and family members and care takers are not permitted in the hospital. All these factors hinder proper perioperative education, increase patient anxiety and dissatisfaction and may even increase the likelihood that patients return to the emergency room.

Developing high quality videos to directly educate patients can improve perioperative education during the COVID-19 pandemic and beyond. In a recent study, orthopedic surgeons reported that incorporating web-based educational tools into preoperative counseling for knee arthroscopy enhanced patient satisfaction scores.\(^1\) Another group of surgeons reported that educational videos relieved anxiety and improved pain perception in patients undergoing pulmonary resection.\(^2\) Given these successes, we set out to explore the role of patient education videos in head and neck surgery by utilizing a pilot video about patient swallowing.\(^3\) The purpose of this paper is to describe the early lessons learned in creating effective patient-centric education videos.

Multimedia is Transforming Patient Education

Multimedia has long been used by the medical field as an effective tool to engage visual learners and reinforce difficult concepts. The number of patients using
video-sharing websites such as Youtube.com to research their health conditions has increased dramatically in the last decade. In particular, otolaryngologists have expressed concern at the quality of information on the internet relevant to care of their patients, including epistaxis treatment and esophageal cancer. Currently, there is a lack of reliable patient-centric educational videos in many surgical subspecialties, including otolaryngology. A wide variety of video-recording devices are already being used in operating rooms for the purpose of surgical education; however, these do little to help patients understand how their surgical experience will affect their lives.

Using Storyboarding to Design Effective Videos

Designing videos for patient education requires the input of a multidisciplinary team across several disciplines. Providing the opportunity for physicians, nurses and allied health professionals to provide feedback regarding video production can help ensure that content accurately reflects all aspects of a patient’s journey through the healthcare system. Using a storyboard can allow all team members to view and provide feedback on the many aspects of the video throughout the production process. A storyboard consists of a planned sequence of illustrations or images displayed in parallel to corresponding narration in order to synchronize and pre-visualize the video throughout production. This structure provides the reviewer with an easily visualized framework of the narration, anatomical representations and animations as well as efficient revisions of the video before it enters production (Figure1). Accurate, simplified
diagrams and animations explaining the relevant anatomy and physiology can be synchronized with verbal explanations to best convey health information.

In order to maximize the video's utility in patient education, it is important to ensure that the visual elements align with the narration. The cognitive theory of multimedia learning suggests that there are two channels for the acquisition and processing of information: a visual/pictorial channel and an auditory/verbal-processing channel. Design strategies that coordinate the use of both channels maximize working memory's capacity and enhance learning. Additionally, using segmenting to chunk information is thought to manage intrinsic load. Guo and colleagues examined the length of time that viewers watched streaming videos of four courses offered by edX, a company that offers access to free online classes from universities such as Harvard and MIT. They found that students tended to watch the whole video when the videos were six minutes or shorter, but that making videos longer than 6-9 minutes was likely to be wasted effort.

Assembling a Multidisciplinary Team to Produce High Quality Videos

Frequent communication with the video production team as drafts of the storyboard are produced will ensure good flow during the video production process. In particular, creating a storyboard can help take away many aspects of ambiguity in collaborating with a digital communications agency. It is ideal to use a professional familiar with medical terminology pronunciation for the voice over. For the swallowing video, a female voice over talent was used in order to reflect the predominance of
female SLPs currently in practice. Patient education videos can be used to enhance information that is usually explained verbally in the office. The online format allows the videos to be accessed and used in a wide variety of settings including in the hospital as well as at home after patients have been discharged. Using pre- and post-video surveys to assess for patient understanding, anxiety, and satisfaction with surgical experience will be an important next step in utilizing multimedia technology to provide the highest quality patient education possible.

Conclusions

COVID-19 has forced physicians to institute measures to minimize patients’ risk of contracting COVID-19, and these methods do not allow for optimal patient education. Embracing video education as a valuable tool for otolaryngologists will improve communication with patients in an era where face-to-face encounters are increasingly limited and virtual visits grow to become an integral part of the patient experience. The storyboard structure allows for visualization of the video content in a productive way, which drastically improves receiving input from a multidisciplinary team. This in turn allows for the production of high-quality videos in a timely manner, which can improve patient education during the current pandemic and beyond.
References


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Figure 1. This easily visualized framework allows for efficient revisions of the video by all team members throughout the production process.
1.1 Swallowing is the process of breaking down food by chewing, putting it back together in a "package" of food and saliva called a bolus and sending it from the mouth to the throat, esophagus, and into the stomach.

1.2 There are three stages of swallowing.

2.1 First, salivary glands secrete saliva, which helps to break down food and form a bolus.

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<th>Figure 1</th>
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<td>ORAL STAGE</td>
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Fade out logo, fade in lateral cut-away view of head, neck, and abdomen with pertinent anatomy (oral cavity, pharynx, esophagus, stomach) visible.

Camera slowly zooms in on head and neck.

Text at top of screen: Oral Stage
Lateral cut-away view of head and neck with pertinent anatomy visible. The salivary glands "glow" as they are mentioned, and a salivary glands label appears with lead lines pointing to these structures, then disappears. The bolus also "glows" as it is mentioned, and a bolus label/lead line appears then disappears.