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Shared Medical and Virtual Surgical Appointments in Oral Surgery

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Abstract

Access to care and patient satisfaction are primary objectives in most, if not all, surgical practices. With current healthcare reform and implementation of The Affordable Care Act of 2010, surgeons are more frequently being challenged by their administrative counterparts to improve clinical efficiency and quality of care while maintaining current profit margins. This chapter describes two non-traditional, innovative concepts that can be incorporated into full scope, oral and maxillofacial surgery practices in order to allow more efficient delivery of care while maintaining quality. The two programs outlined herein are shared medical appointments (SMAs) and virtual surgical appointments (VSAs). These programs, when implemented in a busy academic or group private practice, have the potential to allow for efficient delivery of care while simultaneously improving patient satisfaction.

Keywords: shared medical appointments, virtual surgical appointments, telemedicine, third molar surgery, cost-effective medicine

1. Shared medical appointments

1.1. Introduction

An SMA can be defined as a medical appointment where multiple patients with similar medical conditions or needs are seen in a group setting. The appointment is moderated by the physician, surgeon, or medical team. Being in a group setting allows patients to share experiences, voice concerns, and receive feedback from others with similar conditions as well as with their provider. Whereas individual medical appointments are typically 15–20 minutes long, SMA

can last up to 90 minutes. Patients are allotted more time to their provider and medical team, and most often indicate increased satisfaction relative to individual appointments.

The concept of the SMA was first established by Dr. John Scott, a Kaiser Permanente staff internist and geriatrician, in 1991. Dr. Scott's cooperative healthcare clinic model for geriatric patients helped to shape early SMAs. At that time of its inception, Dr. Scott's model focused on 15–20 patients with a chronic medical condition. The appointment was staffed by a physician, nurse, and medical assistant [1]. Even though medical SMAs geared toward chronic illnesses have maintained this basic structure over the years, this model is currently being adopted by medical specialists in an attempt to provide knowledge to a larger group of patients in an environment that is more welcoming and nurturing for patients [2]. In addition, several surgical specialties have adopted this model as a pre-operative consultation or informational session, as in the case of breast [3] or dermatological surgery [4]. SMAs are also currently being utilized for post-operative monitoring of patients who have undergone bariatric [5] or cardiac surgery [6].

Participating in SMAs provides patients with the benefit of a longer visit with their physician and other members of the healthcare team, including nurses, physician's assistants, or health educators. Studies by Prescott et al. and Bartley et al. have both demonstrated that SMAs improved patient access to care, enhanced outcomes, and patient understanding by offering the same information at varied levels of literacy, and promoted patient satisfaction, while at the same time providing education for self-management in a more efficient manner for practitioners and patients [7, 8]. Giladi and co-workers showed that patients also benefit from developing a sense of camaraderie, peer support, and group education [3]. In the case of patients with morbid conditions undergoing cardiac surgery, Harris demonstrated that SMAs can reduce depression, anxiety, or the sense of isolation related to the severity of the patients' medical condition and the post-operative course [6].

Utilization of SMAs has not yet taken hold in the field of oral and maxillofacial surgery despite its potential to improve the accessibility and efficiency of care. Although SMAs were initially developed to manage patients with chronic diseases, the format is easily adaptable to meet the needs of patients who require minor oral surgical procedures, such as third molar surgery, or in patients with chronic conditions treated by oral and maxillofacial surgeons (e.g., temporomandibular joint disease, obstructive sleep apnea).

1.2. Economics of SMAs

The cost-effectiveness of SMAs has been shown in several studies since the beginning of the 1990s. Not only is the physician's productivity increased, but SMAs also provide many other economic and patient care benefits, while reducing the costs by leveraging staff [9]. In a case study performed by Caballero at Sutter Medical Foundation in California, the productivity among primary care physicians improved by 200% and specialty clinics by 300% [10]. When this model was introduced in the management of diabetic patients in Australia, it was calculated that the lifetime cost reduction of diabetes was estimated at over \$126,000 per person. In addition, by reducing one individual appointment for the diabetic population in

Australia (~2 million diabetic patients nationwide), the annual cost reduction would be an estimated \$100 million, considering one individual appointment to cost \$50 per patient [11].

When discussing about SMAs, it is also important to understand the billing aspect of the process. In general, medical insurance companies do not reimburse for group visits. However, an SMA is not a class or seminar but an actual office visit. Because the same documentation for individual appointments is required for SMA (e.g., history, physical examination, vital signs, laboratory testing, plan), it is possible to bill each patient according to the current procedural terminology (CPT) code based on the level of care provided. It is not advisable, however, to bill according to the time spent with patients [7].

1.3. Measuring patient satisfaction

Since the model of SMA is fairly new and not commonly used, there is a perceived skepticism on the patients' side that the medical team should consider and address at the time the appointment is made. In a controlled study done for patients undergoing post-operative bariatric surgery, 47 patients were asked to complete the same 13-question survey before and after the SMA. The patient's opinion of the SMA improved from baseline levels after taking part in one, and patients were generally happy with the level of confidentiality relative to individual appointments [5].

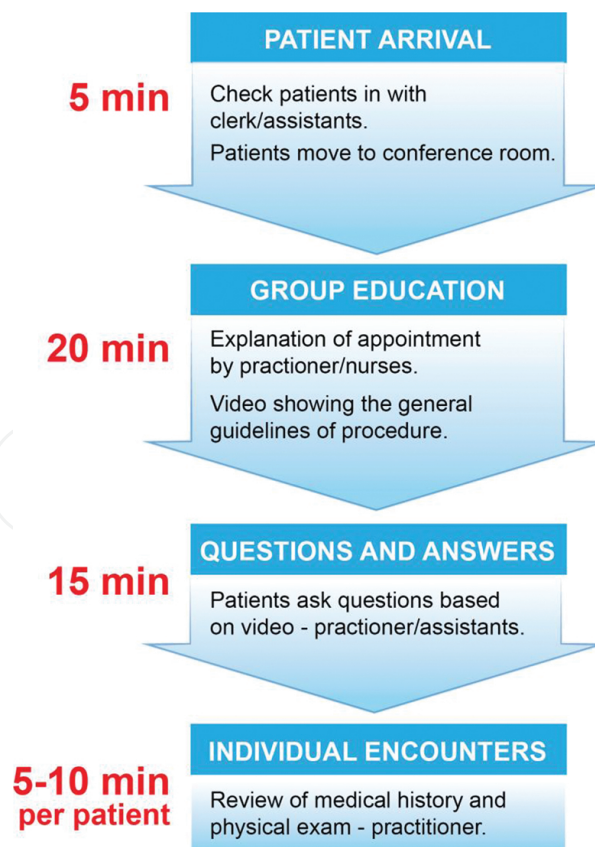


Figure 1. Structure and flow of the SMA.

We have implemented the concept of shared medical appointments over the past year in our Oral and Maxillofacial Surgery clinic for patients who needed third molar surgery. The patients are briefly explained the SMA model at the time that the appointments are made. **Figure 1** shows the flow of events and the approximate time allotted for each step in our SMA model.

Eighteen surveys were collected from the patients who participated in such appointments throughout this period. The surveys asked 7 questions that were graded by the participants on a scale of 1 to 5 (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree). Additionally, there were two questions asking the patient to provide qualitative short answers (questions 8 and 9). The questions in the survey are shown below:

1. Scheduling my shared medical appointment was easy
2. I gained valuable information from responses to other patient's questions
3. There was adequate time for my questions
4. I gained a sense of group support
5. I would participate in a shared medical appointment again
6. I would recommend shared medical appointments to other patients
7. I feel my medical information is secure in the group setting
8. How would you compare an SMA to a one-on-one appointment?
9. Do you have any further comments about the SMA?

After data collection was finalized, the survey results were analyzed by calculating averages, standard deviations, and standard errors for the first seven questions (**Table 1**).

Question	Average	Standard deviation	Standard error
1	4.33	1.08	0.25
2	4.11	0.83	0.19
3	4.50	0.98	0.23
4	3.94	1.05	0.24
5	4.55	0.75	0.17
6	4.44	0.51	0.12
7	4.61	0.50	0.11

1—Strongly disagree, 2—Disagree, 3—Neutral, 4—Agree, 5—Strongly agree.

Table 1. Summary of the data collected for the seven questions that had numerical quantification.

For Questions 8 and 9, there were no numerical data to analyze. The answers were generally favorable, with six neutral (i.e., the SMA was the same as a typical one-on-one appointment) and two negative responses (i.e., the one-on-one appointment was a better fit). One positive

recurrent answer found in the surveys was that SMAs benefited the patients in learning about the condition and treatment while benefiting from questions and concerns raised by others.

The data presented in **Table 1** indicate that SMAs were predominantly received well by patients, with respondents strongly agreeing that they would participate in a shared medical appointment again. With the exception of Question 4, all other question ranked in the 4–5 range. One of the main goals of SMAs in oral and maxillofacial surgery is to increase accessibility, and based on the answers received for Question 1, the patients had scheduled their appointments with ease in a timely manner.

2. Virtual surgical appointments

Telemedicine is the use of telecommunication technology to provide clinical care at a remote location. Telemedicine was first adopted in the 1990s. With the low cost and wide availability of mobile devices, the field continues to grow. Virtual appointments can aid practitioners by fostering the patient–doctor relationship and improve practice efficiency. Virtual appointments have the potential to reduce the wait times by offering more online services, such as virtual consultation (VCA) and post-operative appointments (VPAs). Telemedicine has been successfully employed in various medical and surgical fields, including primary care, psychiatry, dermatology, oncology, otolaryngology, and orthopedics, resulting in increased patient satisfaction while providing high-quality care [12]. Virtual patient–doctor relationships have been used for several purposes, such as scheduling of appointments, referrals to other doctors, the writing of prescriptions, discussion of test results, and certificates of health [13].

VSA can be effectively incorporated into oral and maxillofacial surgery practices in the form of VCAs and VPAs. VCAs allow surgeons to meet and screen potential surgical candidates whom otherwise may need to travel nationally or internationally, to be evaluated. The patient’s medical history can be reviewed and bidirectional communication can be established to determine the patient’s chief complaint and history of present illness. With the use of image exchange servers, previous clinical photographs, radiographs, and virtual surgical plans can be reviewed. A determination can then be made as to whether or not this patient would be an appropriate candidate for treatment in the surgeons practice. The use of virtual appointments for post-operative monitoring has not been greatly explored, most likely due to the potential oversight of surgical complications and the perceived importance of performing a “hands on” physical examination. However, VPAs are ideal for monitoring outcomes of minor surgical procedures performed on an outpatient basis (e.g., dentoalveolar surgery, third molar surgery, implant surgery, minor bone grafting procedures) that have a low risk for post-operative complications.

As defined by the American Dental Association (ADA), teledentistry is the electronic exchange of dental patient information from one geographic location to another for interpretation and/or consultation among authorized healthcare professionals [14]. Teledentistry employs both information and communication technologies to accomplish the electronic exchange of diagnostic image files, such as radiographs, photographs, video, or optical impressions. The

ADA released a policy on teledentistry in 2012. However, the policy was resolved in November 2015, explaining the scope of teledentistry and encouraging dentists to consider conformance with the Digital Imaging and Communications in Medicine (DICOM) standards when selecting and using imaging systems [14]. The 2015 resolution included more detailed guidelines addressing licensure of practitioners providing teledentistry, patient privacy, and billing issues. More specifically, the resolution states that dental benefit plans, and other paying public and private programs, should cover services provided through teledentistry at the same level as if the services were delivered in a traditional in-person encounter [15]. The ADA has encouraged both practitioners and patients alike to take advantage of teledentistry, as it greatly improves efficiency and access to care, respectively.

Teledentistry is a growing field that is currently utilized to virtually supervise the oral health care of patients in skilled nursing facilities, residents in rural areas, or others who do not have immediate access to a dentist [15]. According to the 2015 resolution, teledentistry can take multiple forms namely:

- Live video, which is a two-way interaction between patients and dental providers using audiovisual technology, such as smart phones, tablets, and computers equipped with webcams. This could include VPAs.
- Store and forward, which takes advantage of recorded health information that is transmitted through a secure electronic communications system to a practitioner at a distant site. The practitioner can then use the information to evaluate the patient's condition and render a consulting service outside of a real-time or live interaction. The health information communicated through this method includes radiographs, photographs, video, digital impressions, or photomicrographs.
- Remote patient monitoring is a method that could be used in the setting of a nursing home facility. It is the collection of personal health and medical information from an individual in one location and electronic transmission to another provider in a different location. This procedure differs from "store and forwards" in that it implies long-term monitoring.
- Mobile health, which involves the use of mobile communication devices to perform education projects in public health. This could include apps that monitor patient brushing (**Figure 2**).

In the field of oral and maxillofacial surgery, VPAs can be used to effectively and efficiently follow up patients who have undergone minor surgical procedures. These procedures include third molar surgical extraction, dental implant placement, allogenic bone grafting for ridge augmentation, adjunct implant procedures, and biopsies, and minimally invasive temporomandibular joint (TMJ) surgical procedures (e.g., arthroscopy, arthrocentesis, and intra-articular injections). Using a camera-equipped mobile device (e.g., cell phone, tablet, laptop, etc.) or desktop computer, patients can participate with their clinician in video conferences that are compliant with the Health Insurance Portability and Accountability Act (HIPAA). The clinician is able to do everything that would normally be done during a traditional post-operative appointment, except for a "hands-on" clinical examination. If the clinician has any concern about the patient's recovery, an in-office visit can be scheduled.

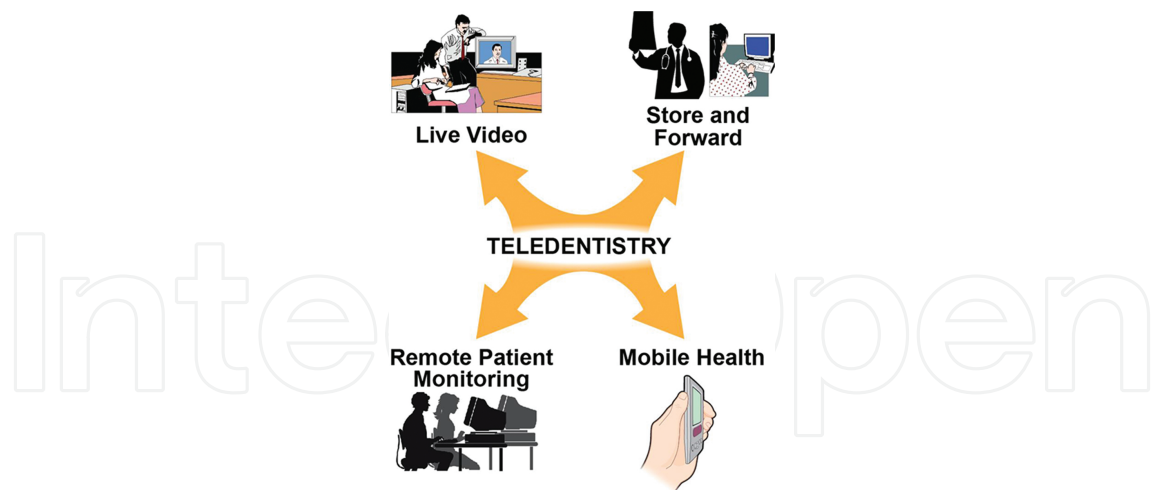


Figure 2. Four major practices employed through teledentistry [15].

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