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The Evolution of Oral and Maxillofacial Surgery Over the Past 100+ Years—With Special Emphasis on the Role of Fluoride and the High-Speed Handpiece

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Our specialty has undergone several name changes and an evolution in surgical scope and anesthesia delivery during the past 100-plus years. A major part of our clinical practice journey directly relates to dramatic improvements in oral health and surgical equipment and breakthrough discoveries in dental implants. This contribution to the *Journal of Oral and Maxillofacial Surgery* in its 75th year of publication reviews the history of the specialty of oral and maxillofacial surgery, particularly with respect to office-based practice.

Oral surgery originated as a medical specialty in the 18th century.[1] Not that this was particularly noteworthy at a time when proprietary US medical and dental schools were one and the same; students, often without any qualifications (other than money), paid tuition for a couple of semesters (in medicine or dentistry or both) and received a degree. (Johns Hopkins was the first US university to offer medical education as it is known today and that began in the mid-1890s.) The individual wishing to really learn his craft would digest the textbooks available at the time[2-4] and find a preceptorship with a practitioner respected in the student's field of choice. When he felt he had learned what the preceptor had to offer, he went out on his own. Many leaders in dentistry in the late 19th and early 20th century, including G.V. Black, had medical degrees but not all specialized in oral surgery.

Medically qualified dentists, including oral surgeons at the time, often had their academic appointments in dental schools; their dental progeny eventually moved oral surgery into the dental profession. Not only did Garretson, Brophy, and Sharp have their appointments as professors of oral surgery in dental schools, but they also became the deans of those schools.

The Carnegie Report by Flexner[5] in 1910 resulted in the evolution of US medical schools from proprietary diploma mills to the university-based system we know today (ie, a preparatory college education, with a basic science education followed by clinical medicine, all in a university setting). The Carnegie Report by Gies[6] in 1926 mandated similar reforms in dental education, making it a doctoral-level discipline on par with medicine. US medicine and dentistry would now look to Europe claiming equality in medical education and superiority in dental education. Indeed, the Flexner-Gies system of medical and dental education remains the basis for this education today.

As oral surgery evolved into a dental specialty, it ultimately split into hospital-based providers, who managed clefts, tumors, facial trauma, etc, and primarily office-based surgeons who performed exodontia under general anesthesia. The office-based providers formed the American Society of Exodontists in 1918.[7] The hospital-based surgeons formed the American Society of Oral Surgeons in 1921,[1] which ultimately became the specialty of plastic surgery. In

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the same year, the American Society of Exodontists changed their name to the American Society of Exodontists and Oral Surgeons. The 2 groups had hospital or preceptorship training and the 2 claimed facial trauma. Most hospital-based providers possessed or sought medical degrees to distinguish themselves from their single-degree brethren. Some dual-degree individuals stayed with the office-based oral surgeons and others identified with office- and hospital-based surgeons.

The specialty of oral surgery was built on exodontia under general anesthesia. Oral surgeons convinced the American people that they had to go to sleep for painless tooth removal and were most successful. This was not a particularly difficult task because the local anesthetic then available (procaine) was not particularly effective, especially for acute pulpitis. Oral surgeons built the specialty by competing with the general practitioner by offering exodontia under general anesthesia at the same price! Teter, McKesson, and Heidbrick developed reliable N_2O/O_2 delivery machines that facilitated its administration.

As time went on and training programs developed, the training provided reflected the need for oral surgeons to be able to provide advanced forms of anesthesia (Fig 1). One third to one half of training was often in anesthesia. Hypoxic N_2O/O_2 evolved to trichloroethylene and then to Pentothal during the next 25 years, with Hubble introducing intravenous anesthesia to the profession. All this time, office-based practice was essentially exodontia under general anesthesia for a global fee. It was most lucrative at a time when dentistry (and medicine) was hard work, generally providing only a middle-class lifestyle.

There was no shortage of decay, non-restorable teeth, and, more importantly, patients whose only option was tooth removal when it hurt. This was the era of the prevailing concept of "focal infection" primarily from diseased teeth, further enhancing the need for exodontia.[8-11] World War II provides a snapshot of the state of oral health of the "flower of American youth." At the beginning of World War II, draft requirements for dentistry required 12 functionally opposing teeth. By the end of the war, this requirement had decreased to 2 opposing jaws.[12] This was the sad status of oral health in the United States before fluoride. Indeed, the author can personally recall that as a child growing up in the 1940s and 1950s, in a middle-class dentally motivated family, he had hygiene instruction provided at school, parental "guidance" with the tooth brush, visits every 6 months to the dentist, and fairly optimal dental guidance and care as was available then. Yet, by the time he was 14 years old, every occlusal and proximal surface of his posterior teeth had restorations. The only reason the anterior teeth were lesion free was because of spacing!

Needless to say, oral surgery boomed. This was the era of "Pentothal parlors." To many less dentally motivated, the oral surgeon was their dentist. If it hurt, then it was removed under general anesthesia.

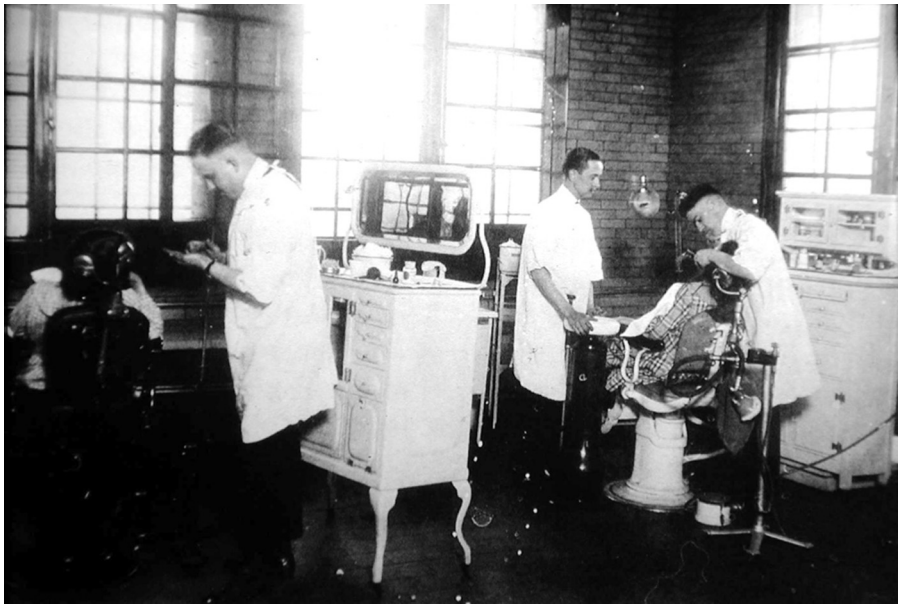

FIGURE 1. Oral surgery clinic of the Louisville General Hospital (Louisville, KY) circa 1921. Note the N_2O/O_2 gas machine. The surgeon in the center is Frank Hower, DDS, later to be president of the American Society of Oral Surgeons in 1944 and a founding member of the American Board of Oral and Maxillofacial Surgery.