

Clinical outcome & innovations in oral and maxillofacial surgery

“The value of an idea lies in the using of it”. [Thomas Alva Edison 1847–1931]

Before being accepted into the mainstream of surgical practice, innovations must usually stand the “trials of time”. New technologies are often compared to existing ones. Amongst a list of considerations such as learning curve, surgical efficacy, patient safety and costs, clinical outcomes from the application of new methods or technology are often scrutinized. In research publications, they often first manifest in “case reports or case series” and “technical note”. However, clinical studies using robust randomized controlled trials remain sparse in oral & maxillofacial surgery (OMS).

The era of technology has brought about great advances in OMS. In the scientific literature, we have seen an increasing number of articles featuring the use of technologies in OMS such as: 3-dimensional imaging, virtual surgical planning, patient specific implant and guides, navigational surgical support, mixed and augmented reality, haptic feedback, artificial intelligence and machine learning.

Often referred to as the “window to the soul”, the face not only provides an identity to oneself but also allows one to convey emotions through the various expressions. Functionally, we experience sight, sound, taste, hearing and touch all within the craniomaxillofacial complex. As oral & maxillofacial surgeons, we should thus strive to treat the various diseases, preserve and even restore facial form & function to our best abilities. Keeping in pace with research, assessing patients’ outcomes while applying current techniques and evaluating new technologies are ways for us to improve the level of patient care.

This series presents review articles (*Table 1*) featuring the clinical outcome and innovations of a range of OMS subspecialties.

The main objectives are:

- (I) To highlight and discuss on the technological advances in the field of OMS;
- (II) To discuss the clinical outcomes of various basic science and clinical studies in OMS namely orthognathic surgery, head and neck pathology, dentoalveolar and implant surgery.

As the Father of Innovation (Thomas Alva Edison) once said, “Genius is 1% inspiration, 99% perspiration”. We hope that the articles in this series will inspire our fraternity to relentless pursue clinical excellence and surgical innovations in their quest to improve overall patient care.

Table 1 List of topics covered in this series

General
<ul style="list-style-type: none"> • History of innovation in oral and maxillofacial surgery • Epidemiological study designs and statistical methods for clinical research in oral and maxillofacial surgery
Basic sciences
<ul style="list-style-type: none"> • Craniofacial bone regeneration • Potential application of dental stem cells in regenerative reconstruction of oral and maxillofacial tissues
Orthognathic surgery
<ul style="list-style-type: none"> • The role of skeletal surgical treatment in the management of obstructive sleep apnoea • Clear aligner in orthognathic surgery • Unconventional osteotomies in orthognathic surgery • Craniofacial deformities

Table 1 (*continued*)

Table 1 (continued)

General
Dentoalveolar
<ul style="list-style-type: none">• Design and future of locking-taper screwless and cementless dental implants• Edentulism and brain CNS deafferentation• Inferior alveolar nerve and lingual nerve injuries
Head and neck pathology
<ul style="list-style-type: none">• Immunotherapy in head and neck squamous cell carcinoma
Technology
<ul style="list-style-type: none">• Robot-assisted surgeries in oral and maxillofacial surgery• Endoscopic surgical applications in oral & maxillofacial surgery

CNS, central nervous system.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Frontiers of Oral and Maxillofacial Medicine*. The article did not undergo external peer review.

Conflicts and Interest: Both authors have completed the ICMJE uniform disclosure form (available at <https://fomm.amegroups.com/article/view/10.21037/fomm-23-72/coif>). The series “Clinical Outcomes and Innovations in Oral and Maxillofacial Surgery” was commissioned by the editorial office without any funding or sponsorship. S.K.C. served as the unpaid Guest Editor of the series and serves as an unpaid editorial board member of *Frontiers of Oral and Maxillofacial Medicine* from July 2022 to June 2024. The authors have no other conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

Sung-Kiang Chuang^{1,2,3,4}, DMD, MD, DMSc

¹*Department of Oral and Maxillofacial Surgery, University of Pennsylvania, School of Dental Medicine, Philadelphia, PA, USA;*

²*Department of Oral and Maxillofacial Surgery, Good Samaritan Medical Center, Brockton, MA, USA;*

³*Department of Oral and Maxillofacial Surgery, Kaohsiung Medical University, School of Dentistry, Kaohsiung;*

⁴*Department of Oral and Maxillofacial Surgery, National University of Singapore, School of Dentistry, Singapore, Singapore.*

(Email: sungkiangchuang@gmail.com)

Jie Han Timothy Sng^{5,6}, BDS, MDS (OMS)

⁵*Department of Oral and Maxillofacial Surgery, National University of Singapore (Faculty of Dentistry),*

National University Centre for Oral Health, Singapore, Singapore;

⁶*National University Hospital, Singapore, Singapore.*

(Email: timothysng@hotmail.com)

Keywords: Outcomes; innovations; technology; oral & maxillofacial surgery (OMS)

Received: 31 October 2023; Accepted: 23 November 2023; Published online: 29 December 2023.

doi: 10.21037/fomm-23-72

View this article at: <https://dx.doi.org/10.21037/fomm-23-72>

doi: 10.21037/fomm-23-72

Cite this article as: Chuang SK, Sng JHT. Clinical outcome & innovations in oral and maxillofacial surgery. *Front Oral Maxillofac Med* 2023.