

## Communication



## Plastic and reconstructive surgery during the COVID-19 pandemic: impacts on healthcare workers, financing, and governance

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### Introduction

The coronavirus disease 2019 (COVID-19) pandemic has had significant impacts on the provision and delivery of healthcare services in most, if not all, medical specialties, and plastic and reconstructive surgery is no exception. The urgent need to provide care efficiently and safely, in order to minimize risk of disease transmission, has led to the postponement of non-urgent operations and major restructuring of management care teams. As such, it is crucial to closely examine these effects on elements of health systems in this specialty, including healthcare workers, financing, as well as leadership and governance, to consider potential solutions to address challenges as we move forward.

### Healthcare workers

Stress and burnout are notable concerns for healthcare workers including plastic surgeons, especially today. In a recent US-based study surveying plastic surgery residents, over 90% expressed concern over reduced exposure to operations and over the health of their friends and family [1]. This comes as plastic surgeons may be at greater risk of contracting COVID-19 compared to professionals of other specialties, with the completion of certain procedures such as rhinoplasty and nasal reconstruction which could result in the aerosolization of viral particles; they must strictly comply with the appropriate social distancing measures [2].

With respect to the challenge of decreased operative exposure, the use of technology allows for adequate training and practice to be upheld as much as possible during this challenging period. For example,

virtual grand rounds and educational conferences as well as interactive software on anatomy have been gradually integrated into residents' learning and work [3,4]. Although these tools have limitations particularly in their inability to completely replace hands-on training, logistical considerations and costs, as well as concerns of data security and information privacy, they have been well-received as an innovative way to circumvent current obstacles of the pandemic. As well, they provide unique benefits such as the ability to more easily connect with international experts in the field, greater flexibility to attend such events, and the patient-safe nature of such tools [3]. As the impacts of such strategies are further explored such as in regulating access and ability to join and record virtual sessions [5], improvements may be made in the long-run so as to encourage their use as a complementary training modality.

As for the lack of face-to-face contact between colleagues, having planned virtual time together can provide some structured support to monitor healthcare workers' mental health, especially given the stress that persists among plastic surgeons during this time. Initiatives that have been proposed include weekly social hours, independent from the aforementioned academic discussions and conferences [6]. By doing so, the use of virtual interactions may serve as a way to promote connectedness beyond simply being a vehicle for information exchange. This may help to develop strong social capital of the bonding type between plastic surgeons, which can have long-term benefits in preventing adverse mental health outcomes as social distancing remains a cornerstone of disease prevention [7]. Additional value may be conferred as the merits of such social networks and relationships can aid in building resilience, which may greatly support practices as they return to standard operations.

### Health financing

The COVID-19 pandemic has had major financial impacts in both reconstructive surgery and aesthetic surgery. These two fields have been affected in different ways and so will be separately addressed.

In reconstructive surgery, economic losses may be attributed to reduced surgical activity, as a result of decreased availability of hospital resources as a determinant of supply [8,9]. This may be compounded by numerous guidelines calling for the pausing of elective operations [10-12]. Although these procedures may be reduced, telemedicine services help providers to continue consultations for triage purposes and to follow up with patients post-operatively; these can also help to generate revenue. The advantages of virtual consultations include greater flexibility and convenience for patients due to the lack of travel costs and greater safety owing to the lack of unnecessary exposure to potential sources of infection [13]; they are also key in capturing data on supply costs in clinical documentation [14]. As such, this digital strategy may be continued in the future as an adjunct to live in-person consultations [15]. Additionally, maintaining focus on less price-demand elastic reconstructive operations, as opposed to cosmetic procedures, may not only address the clear and important

need for them but also help to restore service volume in a stable manner as restrictions on operative practices are lifted.

For aesthetic and cosmetic procedures: similar to the aforementioned, the subsequent decline in surgical volume as a result of the pandemic has incurred and will likely continue to have major financial costs [8,16-18]. In a modeling study based in the US, it was estimated that there would be a loss of 1.2 billion US dollars in considering reductions of the top five most commonly-performed cosmetic procedures, which represents a 20% loss compared to that in 2018 [16]. Despite current limitations in supply of such operations, the public interest, as a determinant of demand for these procedures, has been increasing during the COVID-19 pandemic [19,20]. These trends may be attributed to the rise of video-conferencing during the pandemic leading to greater worry over appearance, especially as facial areas were the most commonly reported concerns during consultations in one study [21]. The emergence of these changes is expected to persist with the growing integration of technologies in work and education [21]. Other factors accounting for these trends include increased time at home leading to greater social media usage and higher frequency of seeing self in the mirror, changes in social support systems affecting their desire to look better after the pandemic or owing to changes in relationship status, as well as income improvements with stimulus checks [21]. With the rise in demand for aesthetic procedures, the consideration of price signaling and service differentiation strategies may be warranted to increase service volume, as practices gradually begin to operate a higher capacity. This comes as aesthetic operations in particular have been suggested to function as luxury goods (i.e., Veblen goods) [22], where demand increases as price of procedures increases. However, this raises consequent concerns regarding inequity in access to such care. Although social media has also been used as an effective marketing tool to boost the number of consultations for future procedure arrangements in China [23], there are also important challenges to consider: a substantial proportion of the increased demand stems from increased use of video-conferencing, which can augment perception of distortion in one's facial appearance [24]. As such, this puts forth important questions such as whether such procedures to correct appearance concerns are needed [24], as well as whether such trends in health-seeking behaviors may drive unhealthy beauty standards and bring about psychological harms. As plastic surgeons prepare for and mitigate the possible economic challenges ahead, it is imperative that they remain committed to practicing ethically and safely.

## Leadership and governance

The need for strong health management has been emphasized in several studies [25,26]. Given the unpredictable nature of the pandemic including the emergence of new variants, guidance needs to be flexible and dynamic is needed to ensure prompt response to these changes. Specifically, this refers to leadership being shared and collaborative, with proactive instead of reactive action being taken to

prepare for potential crises [25,26]. This may include ensuring that there is an adequate amount of personal protective equipment in the wards at all times or drafting practice protocols in case of hospital outbreaks. During these processes, all members of the team should be involved regardless of their level of experience or seniority, in order to promote greater engagement and empowerment especially for more junior providers [25]. Understandably, building and ensuring strong governance may require some time. However, this remains a priority as doing so will ensure sustainability as junior members of the team can gain experience to better lead in the future and will be better prepared for health emergencies.

The effective allocation of resources to support staff in different divisions is applicable to plastic surgery as an adaptable subspecialty; plastic surgery residents may be called upon to handle other surgical fields such as vascular, trauma, and head and neck fields given their high levels of fine motor skills for surgical techniques including micro-anastomosis. Their anatomical expertise, due to the wide range of pathologies seen in various body systems, may make them able to assist in different specialties. This may be a viable immediate solution to address staff shortages in cases of increased demand for health services or where staff members who may be ill or self-isolating [25]. This raises key points on how interdisciplinary skills and knowledge are more important than ever in the provision of multi-disciplinary care [27,28]. Furthermore, coordinated efforts between public and private practices may be beneficial in managing the increased health-care burden. For example, private practices may be able to support planned surgical operations that are resource-intensive to offset the load from public hospitals [28].

## Conclusion

Ultimately, the COVID-19 pandemic has catalyzed the identification of opportunities for improvements in our health systems for plastic and reconstructive surgery practice, notably in technological advancements for supporting healthcare workers, financial considerations for aesthetic and reconstruction surgeries, as well as collaborative leadership and governance. Despite the many challenges of the pandemic, these initiatives, such as the incorporation of virtual interactions in clinical practice and the inclusion of all members of team in proactive preparation against future crises, can lead to beneficial long-term changes to promote sustainable development in this field. As we look ahead to the future, the importance of strengthening these components cannot be overstated, as this will greatly impact how this area of specialty may address some of the major hurdles that it has faced thus far as well as the challenges associated with the new normal.

## Notes

### Conflict of interest

No potential conflict of interest relevant to this article was reported.

**Author contribution**

Conceptualization: MK Ho, CYC Chau. Data curation: MK Ho, CYC Chau. Formal analysis: MK Ho, CYC Chau. Methodology: MK Ho, CYC Chau. Project administration: MK Ho, CYC Chau. Writing-original draft: MK Ho, CYC Chau. Writing-review & editing: MK Ho, CYC Chau.

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