to respond to a constantly changing COVID-19 climate with concerns for resurgences into 2025.[3] The ideal situation for a return to normalcy involves ample, efficient, and accurate testing along with scientifically proven treatment or vaccine availability. We hope that our COVID-19 experience provides a framework of considerations for resuming activities in an academic plastic surgery practice during these unprecedented times.

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## Changing Dynamics in Medical Education during COVID-19 Pandemic: Are Integrated Plastic Surgery Programs Adapting for Residency Applicants?

The coronavirus disease of 2019 (COVID-19) pandemic drastically changed the 2020 to 2021 residency application process.[1] The American Association of Medical Colleges released recommendations against visiting rotations and in-person interviews. Traditionally competitive fields, including plastic surgery, strongly encouraged students to participate in visiting rotations, which offer students an opportunity to network broadly, experience the specialty outside their own school's department, and learn about different residency training programs.[1,2] Loss of in-person evaluations may impact programs' assessments of applicants and applicants' impressions of programs. In this article, we describe how integrated plastic surgery programs adapted for the 2021 application cycle by developing a social media presence and implementing virtual opportunities.

An official list of accredited integrated plastic surgery residency programs was obtained from the Electronic Residency Application Service, identifying 82 programs. All programs were included and reviewed for the presence of departmental and residency Twitter, Instagram, and Facebook accounts. Platforms, program websites, and the American Council of Academic Plastic Surgeons website were reviewed for posts regarding virtual subinternship and open house opportunities. The Visiting Student Application Service website was reviewed for virtual subinternship opportunities. All data were collected on September 9, 2020.

Social media presence and virtual opportunities are profiled in Tables 1 and 2. In total, 138 social media accounts were identified, 65 programs (80 percent) had an online presence on either Twitter, Instagram, or Facebook, and 12 (15 percent) had a presence on all three platforms.

Open houses were listed by 50 programs (61 percent) on American Council of Academic Plastic Surgeons and four program websites (5 percent). Instagram offered 88 total open house opportunities, and 17 programs (21 percent) posted more than one offering. Three virtual subinternships (4 percent) were identified through the Visiting Student Application Service website and none through American Council

**Table 1. Social Media Characteristics of Integrated Plastic Surgery Programs: Ownership and Creation Date of Program Social Media Accounts**

| Program Characteristics | No. of Accounts (%) | No. Established before 2020 (%) | No. Established after 2020 (%) |
|---|---|---|---|
| Twitter | | | |
| Departmental Twitter | 27 (33%) | 23 (85%) | 4 (15%) |
| Residency Twitter | 4 (4%) | 4 (100%) | 0 (0%) |
| Instagram | | | |
| Departmental Instagram | 22 (27%) | 21 (96%) | 1 (4%) |
| Residency Instagram | 49 (60%) | 38 (78%) | 11 (22%) |
| Facebook | | | |
| Departmental Facebook | 30 (37%) | 28 (93%) | 2 (7%) |
| Residency Facebook | 6 (7%) | 5 (83%) | 1 (17%) |

**Table 2. Social Media Characteristics of Integrated Plastic Surgery Programs: Number of Programs with Open House and Subinternship Opportunities**

| Program Characteristics | Twitter | Instagram | Facebook |
|---|---|---|---|
| Programs with open house opportunities on social media, no. | 10 (12%) | 36 (44%) | 6 (7%) |
| Programs with virtual subinternship opportunities on social media, no. | 2 (2%) | 8 (10%) | 1 (1%) |

of Academic Plastic Surgeons or program websites. Two virtual subinternships listed on the Visiting Student Application Service website were not advertised on social media, and six virtual subinternships available on social media were not listed on the Visiting Student Application Service website.

Hosting of virtual open houses appears to be the preferred method of outreach to applicants this year, adhering to COVID-19 social distancing recommendations and travel limitations. Open houses hosted by residency training programs may have increased impact over virtual subinternships, creating program diversity for applicants. The apparent lack of virtual subinternship standardization through an official American Association of Medical Colleges platform is novel, and we recommend exploration of program social media to elucidate opportunities. We anticipate that letters of recommendation from students' home institutions and program director communication will play an enhanced role in the 2021–2022 residency application year.

Almost all integrated plastic surgery residency social media accounts were made before 2020 (Fig. 1). Instagram is the preferred social media platform of integrated programs, supported by 2020 studies.[3,4]

This article has limitations, including its retrospective nature. Data may be skewed due to the constantly changing social media platforms. In addition, the opening of departmental grand rounds, didactic conferences, and the like were not captured.

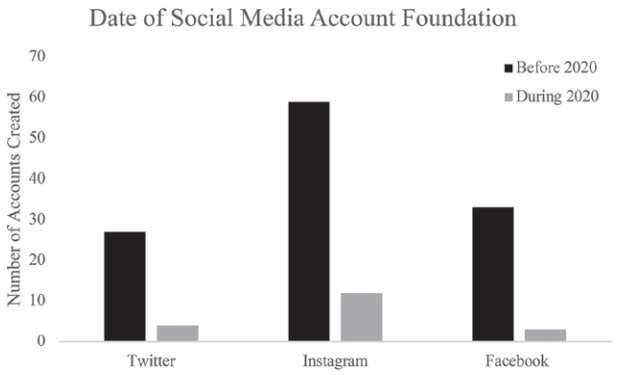


**Fig. 1.** Date of social media account foundation.

Integrated plastic surgery residency programs adapted to the novel COVID-19 pandemic by creation of virtual open houses for applicants. Programs demonstrated minimal virtual subinternship opportunities. Instagram is the preferred social media outlet for integrated plastic surgery residencies.

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## Medical Directors in Plastic Surgery: How Do We Quantify Their Efforts?

The complex nature of the United States' health care system has largely transformed the manner in which health care providers are evaluated and reimbursed for their efforts. In the operating room, the efforts of plastic surgeons are quantified by either the amount charged or by the relative value units earned from a surgical procedure.[1] While such metrics are well established for measuring surgeons' clinical efforts, there is no consensus regarding the quantification of effort exhibited by plastic surgeons serving as medical directors, despite their importance.

Medical directors serve in many sectors of health care. Consequently, methods for quantifying their efforts should be tailored toward their role (Table 1). Directors tasked with overseeing clinical activities are responsible for maintaining and improving the treatment infrastructure in which high-quality health care is provided. Metrics such as patient satisfaction, efficiency of clinical workflow, and results of safety audits may be used to reflect directors' efforts.[2] While each of these variables is easily quantifiable, their use should not be the sole method for measuring a director's efforts, as heterogeneity in directors' autonomy across institutions may limit their ability to improve certain aspects of clinical practice.[3]

The primary responsibility of medical directors practicing in industry is to ensure the profitability of the company they work for by analyzing the market, identifying opportunities, and advising the procurement and liquidation of valued and paltry assets, respectively.[4] One manner of evaluating directors' efforts in this setting is by observing how strategies developed by directors influence the valuation or growth of the company; however, this form of measurement is not without limitations. Company valuation is not directly representative of a director's efforts, as it is heavily influenced by fluctuations in the dynamic health care industry. In addition, some strategies developed by the director may be focused on long-term success and may take months or years to influence the valuation of the company.

Within academia, many medical directors are responsible for cultivating an environment in which research and innovation are conducted by facilitating the procurement of institutional grants through advocacy and networking.[5] In contrast to directors serving in clinical settings and industry, quantifying the efforts of directors' contributions in academia is more challenging. Metrics such as research output and funding acquired from institutional grants are heavily reliant on the surgeons conducting the research; thus, it can be difficult to delineate the director's impact in the process. Despite this, sustained levels of high research output and funding from grants deserve recognition when evaluating a director.

Plastic surgeons who undertake the role of medical director allot a significant amount of time to fulfill their director-related duties in addition to their extensive clinical responsibilities. Moreover, many directors, with the exception of those working in industry, serve without monetary compensation and are driven to serve secondary to their intrinsic desire to influence the field of medicine. The methods for quantifying the efforts of medical directors that were outlined in this article have utility; however, their limitations warrant further investigation to establish how directors should be rewarded for their contributions.

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**Table 1. Proposed Measures of Medical Directors' Efforts across Varying Sectors of Health Care**

| Role | Proposed Measurement(s) | Benefits | Limitations |
|---|---|---|---|
| Clinical Oversight | 1. Patient satisfaction; 2. Clinical efficiency; 3. Safety auditing | Metrics correlate with a director's efforts to ensure quality health care is provided safely and efficiently | Significant disparities in decision-making autonomy across institutions |
| Research & Innovation | 1. Research output; 2. Funding from grants | Accurately quantifies an institution's contributions to academia | Poorly correlated with a director's efforts |
| Industry | 1. Company valuation; 2. Revenue and profit margins | Quantifies the financial impact of the director | Market dynamics out of directors control can influence these metrics; failure to account for long-term strategies |