



# Impact of social media on the continuous education of the general surgeon, a new experience, @Cirbosque: A Latin American example



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## ABSTRACT

Social media has gained widespread recognition for its importance in the medical field. Such platforms play an important role for learning and teaching, because knowledge can be transmitted instantly and massively, and specialists in different world-wide locations can discuss experiences instantaneously. The present article presents our experience of using social media to facilitate surgical learning while encouraging leadership and global mentoring. This retrospective descriptive study was initiated at the time of the creation of our social media handle on Twitter, February 22, 2019. Since that time, we have posted 10,587 academic tweets; the monthly growth rate has been 9% (393 new followers per month). Currently, we have 4,213 followers, 11,241,000 impressions, 121,105 visits, and 121,105 mentions. We have reviewed 59 topics of interest in general surgery and 132 clinical cases in trauma, as well as in hepatobiliary, gastrointestinal, thoracic, and acute-care surgery. We have made 13 image challenges using illustrations of diagnostic and intraoperative images. Although the evidence is uncertain to promote education performed entirely through social media, we show that @Cirbosque has been effective, and the impact of this initiative on Twitter is appreciated by many surgeons worldwide, including renowned teachers in each of the topics addressed. Furthermore, the number of participants in the discussions increased each day, as did all impact indicators according to Twitter Analytics. Thus, we conclude that the educational message of @Cirbosque is having a positive effect and reaching thousands of people worldwide, suggesting that others can develop similar outreach programs in education and communication.

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## Introduction

Social media are interactive technologies that utilize the Internet to connect people or organizations based on common interests or values. In modern society, social networks have become a means of mass communication. Many aspects of the health system

now involve social networks to share information and to enable interaction among professionals across the world.<sup>1,2</sup>

The use of social media enables real-time communication without the limitations of geographic boundaries. These platforms offer a wide variety of resources, which permit the dissemination and acquisition of knowledge, including visual, auditory, and written content between different networks via forums, blogs, micro blogs, accounts, or other various platforms.<sup>1</sup> In 2018, about 4.021 million people—approximately half of the population of the world—used the Internet, and around 39% of the world's population were active users

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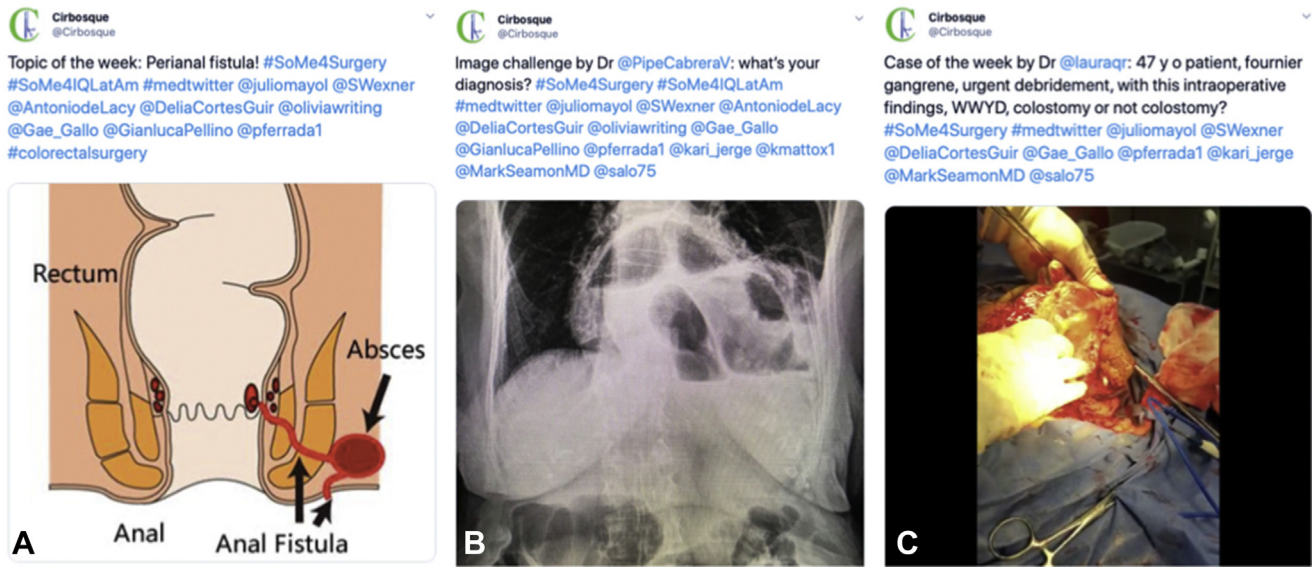


Fig 1. Weekly activities of SoMe Project: (A) Topic of the week; (B) Image challenge; and (C) Daily clinical case.



Fig 2. Recommended articles of the week: (A) Weekly publication from our program and (B) Weekly international publication.

of social networks. In addition, in Spain, individuals aged between 16 and 65 years old represented about 86% of social network users, which equates to more than 19 million people.<sup>2</sup>

The various avenues of social media have become incorporated gradually into the medical field, where they offer the important

benefit of instant distribution of knowledge for learning and teaching between students as well as specialists in different locations worldwide. The present article presents the use of social networks to facilitate surgical learning with leadership and global mentoring in 1 institution in Colombia.

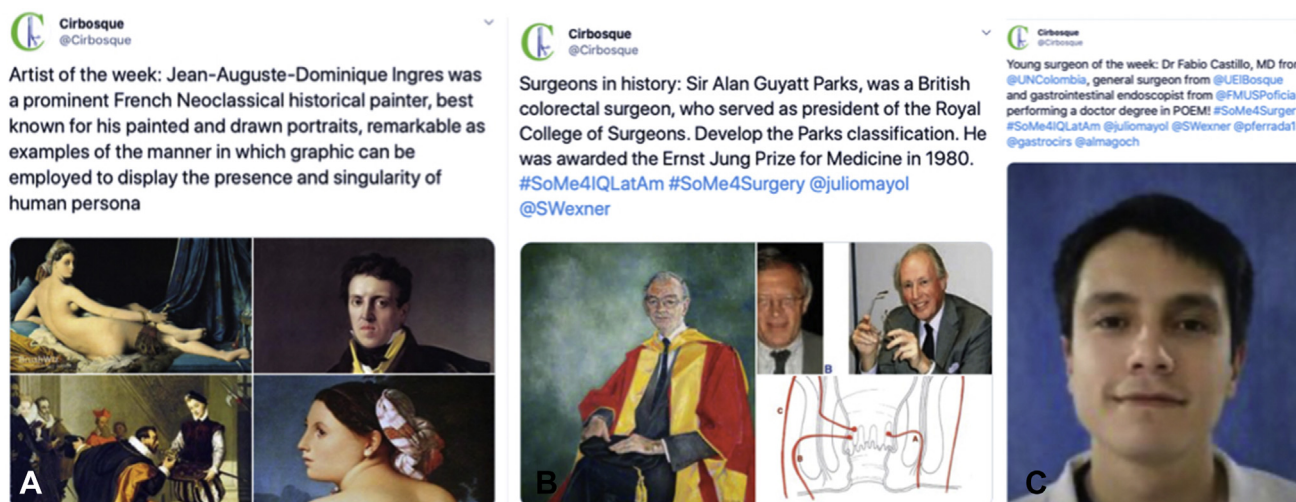


Fig 3. Cultural contributions and examples of leadership: (A) Artist of the week; (B) Surgeons in history; and (C) Empowering young surgeons.

Table 1  
Results of Twitter Analytics

Month Variable	February	March	April	May	June	July	August	September	October	November	December	January	Total
Number of tweets	0	431	581	681	1,396	1,199	1,242	1,050	1,021	1,130	898	958	10,587
Impressions	0	166,000	356,000	581,000	1,020,000	1,030,000	1,280,000	1,150,000	1,480,000	1,350,000	1,410,000	1,418,000	11,241,000
Visits	4	5,559	7,365	7,477	13,900	12,000	14,000	9,648	11,700	16,800	12,600	10,052	121,105
Mentions	0	134	369	640	1,722	1,847	1,623	1,032	1,296	2,340	1,463	1,500	13,966
New followers	0	363	237	183	393	434	404	233	590	657	429	410	4,333

## Methods

This retrospective descriptive study was carried out beginning at the time of the creation of social networks on Twitter at the Universidad El Bosque. We performed the following activities each week: (1) daily systematic tweets about random surgical academic issues that occurred during the week (Fig 1, A); (2) identify the diagnosis of clinical image (Fig 1, B); (3) presentation of daily clinical cases to encourage clinical discussion and surgical decision-making among world-renowned surgeons (Fig 1, C); (4) presentation and dissemination of academic articles published by our general surgery residents and surgeons (Fig 2, A); (5) presentation and dissemination of an international publication about an academic issue during the week (Fig 2, B); (6) live streaming of the monthly grand rounds of our general surgery program; (7) presentation of representative surgeons in history (Fig 3, A); (8) presentation of an artist or painter of the week (Fig 3, B); and (9) weekly descriptions of the goals and achievements of young deserving surgeons of our general surgery program.

Each tweet was linked to a trend such as #SoMe4Surgery, #SoMe4Trauma, and #SoMe4QLatAm. In every tweet, we referenced important, worldwide academic and social media surgeons as well as local influential surgeons in our country. Tweets were also linked to well-known national and international surgical scientific societies, such as the American College of Surgeons, the Society of American Gastrointestinal and Endoscopic Surgeons, the Pan American Trauma Society, and the Colombian Surgery Association in order to disseminate information more widely.

The tweets distribute academic information in terms of the bibliographic references which include short text, images, videos,

audios, tables, schemes, acronyms, and concept maps to provide solid academic support and facilitate learning through the visual association of information.

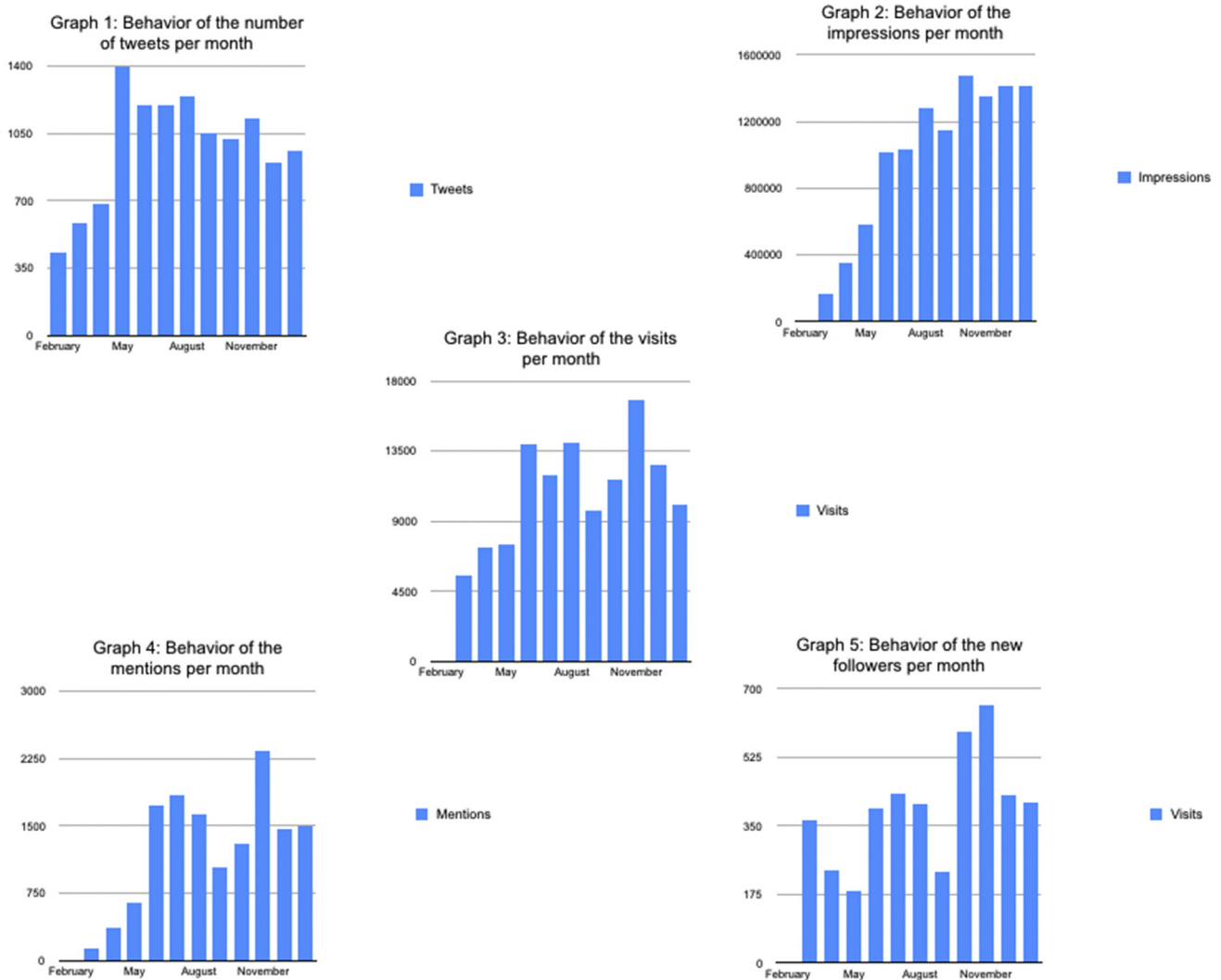
All social media activities were carried out by a young, general and acute-care surgeon who was the creator and was appointed the “surgical community manager” of the account. The creation of this position enabled real-time, direct interaction with an academic surgeon who was able to respond truthfully and concisely to followers’ questions.

We used Twitter Analytics to measure the impact of these weekly activities on the national and international surgical community. All cases and clinical images on our Twitter account respect the privacy of patients and are authorized by the patients and the ethics committee of each institution.

## Results

On February 22, 2019, the account relating to our program, @CirBosque, was created on Twitter to offer virtual surgical education through social media and to facilitate new forms of learning among our followers. During the initial 11 months of the project, we have achieved the following results by carrying out the above-mentioned weekly activities: (1) followed 33 accounts; (2) published 10,587 academic tweets; (3) a monthly growth of 9.1% equal to 393 new followers per month; (4) a total of 4,213 followers; (5) a total of 11,241,000 impressions; (6) a total of 121,105 visits; (7) a total of 13,966 mentions; (8) reviewed 59 topics of interest in general surgery; (9) presented 132 clinical cases in trauma as well as hepatobiliary, gastrointestinal, thoracic, and acute-care surgery; (10) made 85 image challenges using illustrations of diagnostic or





**Fig 4.** Graphs showing the numbers by month: *Graph 1:* Tweets per month; *Graph 2:* Impressions per month; *Graph 3:* Visits per month; *Graph 4:* Mentions per month; and *Graph 5:* New followers per month.

intraoperative images; (11) direct interactions with world-renowned surgeons such as @pferrada, @kmattox, @juliomayol, @swexner and @salo75; (12) are members of the trend #SoMe4Surgery, SoMe4-IQLatAm; and (13) an influencer of the #ACSCC2019 clinical congress.

Table 1 shows the monthly growth of our platform based on Twitter Analytics in terms of the following variables: number of tweets, impressions, visits, mentions, and new followers per month. Figure 4 shows the progression of the ascending curve for each variable, as well as the outcomes of our continuation of quality work underrating the weekly activities described previously.

Visibility increased with time as we engaged with subject experts, major academic and clinical organizations, and trends such as #SoMe4Surgery created by @juliomayol, and as we experienced interactions and continuous academic exchange with world-class surgeons.

Through this platform, we were able to encourage leadership, mentoring, education, and dissemination of information to many more people than just our local university. Finally, we were invited to present our project at the National Surgery Congress of the Colombian Association of Surgery, @ascol, that took place in the city of Bogotá in 2019.

## Discussion

The main surgical entities and organizations in the world, such as the American College of Surgeons and the American Society of Gastrointestinal and Endoscopic Surgeons, have implemented the use of social networks to distribute information relating to the field of surgery such as updates in the management of surgical pathologies.<sup>3</sup>

Leading personalities in the fields of medicine and surgery, such as Dr. Kenneth L. Mattox, Steven Wexner, Julio Mayol, and recognized academic research journals, such as Surgical Endoscopy, Annals of Surgery, and Surgical Clinics of North America, have also created online profiles and accounts for similar purposes. Through these, knowledge is transmitted, new research is shared, discussions relating to the management of certain pathologies are facilitated, and information relating to surgical fields is distributed.<sup>3,4</sup>

Social networks are changing the way people interact and share information in all fields, including in the surgical environment.<sup>5</sup> This platform constitutes a new and widely adopted method of communication, but it is met with some degree of skepticism and criticism, because inappropriate and nonvalidated, expert-derived presentation of data can result in a loss of professionalism for

**Table II**Twelve tips for the use of social media for training purposes<sup>4</sup>

Identify and then reflect your digital identity and objectives for the use of social networks.
Select a tool based on the objectives and a platform capable of supporting educational activities.
Observe and establish comfort first. Think, then contribute.
Make some initial connections and empower the community.
Know and apply the guidelines of the social media for the use of social media.
Develop principles of individual guides with which you are comfortable.
Keep all patient information private.
Handling requests for “friends” of trainees: know your options and its consequences.
Share credible information: disseminate evidence-based health information to improve public health.
Commit, learn, reflect, and teach.
Mentor and be mentored: demonstrate academic responsibility in the use of social networks.
Research: advance your academic productivity by expanding your professional network.

health care providers.<sup>3</sup> As for any open platform, social networks are associated with both benefits and risks, and recommendations for their use should be followed. These recommendations are summarized in Table II.

The educational opportunities that social networks can offer are widespread with many opportunities. Social networks enable access to telemedicine (remote monitoring of certain procedures through video calls/conferences), educational videos for particular surgical procedures, and expert discussions and opinions on specific cases or issues and are quickly becoming a vital tool for all surgeons in the present-day situation.<sup>6</sup>

A recent study involving 523 bariatric and general surgeons investigated the importance of social networks in their working life and continuing education. This study revealed that one-third of surgeons believed social networks to be an important tool with an especially high prevalence/penetration among young surgeons.<sup>6</sup>

In 2006, only 5% of health care professionals used social networks; by 2016, this figure had increased to 69%.<sup>7</sup> In 2013, Cheston et al<sup>3</sup> conducted a systematic review of social media interventions in medicine and of how they can be used to generate education and knowledge. The authors concluded that these tools were associated with improved knowledge (as assessed by exam scores), attitude (empathy), and skill (reflective writing). These observations indicate that social networks are now becoming even a more important component of modern surgical practice, whether or not we accept it as individuals, because the dissemination and use of these many aspects of the social media is inevitable. The authors mentioned that the problem for surgeons is not whether to use social media, but how to use it.<sup>8</sup>

Twitter is one of the most commonly used social networks. This highly interactive platform presents an ideal environment to experience new and relevant information shared by experts in its field. Surgeons interact with colleagues via Twitter to discuss common interests amongst surgeons around the world.<sup>7</sup> As an example, with more than 5,000 purely academic tweets without any commercial influence made to date, @Cirbosque contributes substantially to furthering medical education and to encouraging discussion among surgeons on multiple issues in an organized and

sequential way, without the limitations imposed by geographic location. Additionally, the same review showed these tools to promote student engagement, feedback, collaboration, and professional development, which is carried out completely in 100% of clinical case publications, discussions on current management of certain pathologies, and in the update in new surgical procedures. Recently, Ferrada et al highlighted the power of Twitter for global surgical education by comparing the impact of a tweet with a classroom; specifically, the authors asked “How many people can you reach in a classroom or in a meeting-20? 300? How about sharing your ideas with 30,000 people in an instant through a hashtag discussion on Twitter?”<sup>9</sup> To put this in context, 1 million impressions were generated by @Cirbosque in just 5 months of academic dissemination. This is highly influenced by the fact that social networks provide the opportunity to “learn at any time,” thus helping to fill the educational gaps created by busy schedules as well as providing the additional advantages of ease of use and economic benefits.<sup>1,9</sup>

In conclusion, although the evidence is still insufficient to induce a complete shift of educational practices to be carried out through social networks, @Cirbosque is effective and the impact of this initiative on Twitter is appreciated by many surgeons worldwide, including renowned teachers in each of the topics that have been covered. Furthermore, the number of participants in the various discussions increased every day, with an increase in all impact indicators according to Twitter Analytics. Thus, we can conclude that the educational message is having a positive effect and reaching thousands of people worldwide.

### Conflict of interest/Disclosure

There are no conflicts of interest to declare.

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