



The surgical blog: An important supplement to traditional scientific literature



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ABSTRACT

Background: Blogging is a new and innovative means of information exchange in the surgical community. We examined the Association of Women Surgeons (AWS) blog to understand its audience and most read content.

Methods: Google Analytics was used to assess the AWS blog site data. A search was performed from February 2018 to February 2019. Demographic data, blog posts, and tags sorted by unique pageviews were recorded.

Results: There were 31,221 unique pageviews during the search period. The AWS Blog readership was mostly women (75%), ages 25–44 years (70.3%). The three tags that elicited the most pageviews were “residency (16.95%),” “medical students (12.12%),” and “family life (10.38%).” The most read blog post was responsible for 9.7% of total pageviews.

Discussion & conclusion: Most of the AWS Blog readership are young, women, and interested in content related to graduate and postgraduate medical education or family life. Blogging may be a good vehicle for topics not covered in traditional scientific literature.

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Introduction

The Association of Women Surgeons (AWS) was formed in 1981 for female surgeons to convene annually at the October meeting of the American College of Surgeons to share common experiences, interests, and concerns; for many female residents or newly practicing female surgeons over the next few years, this was the first setting where they had contact with more professionally advanced surgical women.¹ In 2013, the AWS launched social media platforms via the creation of a Twitter handle, Facebook page, and a WebLog, or blog²; these were the most popular social media platforms among the lay public in 2013. The decision to expand into social media and the resultant platforms selected were the product of several brainstorming sessions done via conference call by the AWS medical student committee and was ultimately approved by AWS governance. Over the next several years, Twitter gained traction as a professional tool that facilitates learning, networking,

and research collaboration.³ For women in academic medicine, Twitter has been touted as a supplemental method for navigating networks to obtain access to role models, peer-to-peer interactions and continuous education, and connections with those entering the pipeline—students, trainees, and mentees.⁴ Similarly, Facebook has been leveraged as an innovative platform for continuing medical education, such as with the International Hernia Collaborative.^{5,6}

Blogs are journal-style websites with new entries posted regularly over time. Many of the earliest surgeon tweeters were bloggers.⁷ Medical blogs, particularly those authored by healthcare professionals, allow dissemination of not only health information but also personal narratives and experiences related to healthcare. While many bloggers choose to run individualized accounts, there are a select number of healthcare organizations with blogs that curate writings from multiple resources and are generally trusted as more reputable and reliable because the writings are associated with that of a recognized umbrella organization.⁷ Blogs can portray the challenges facing our professions and often act as the public face of healthcare.⁸ Among social media platforms, blogs have emerged as important means of information exchange and opinion-building in the academic surgical community; however, it

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remains to be studied whether or not blog readership is representative of the greater surgical community and whether the blog content that is read is reflective of what already exists in the scientific literature or instead provides a home for alternative content that cannot be found in traditional publications.

In this study, we aim to examine the AWS blog to understand both its audience and the content that is most read.

Material and methods

No institutional review board approval was necessary for the purposes of this study.

Editorial process

Authors are voluntary and are solicited at in-person events like surgical conferences including the AWS Annual Conference and online via social media platforms. Authors who want to write for the blog are also welcome to contact the AWS blog members directly with their interest. There is no limitation on who can author content, and content is welcome from medical students to attending surgeons well-established in practice. The due date and a mutually agreed upon topic to write about are assigned several months in advance. Authors are encouraged to keep posts to 500 words and to provide website links to any reference cited. All blog posts are due a minimum of one week in advance, to enable content to undergo a thorough editing process by the AWS blog subcommittee, composed of eight individuals from varying levels of surgical training and practice and geographic distribution. At least two blog subcommittee members are required to review a piece before feedback is sent back to the author. A checklist is used to make sure a standardized process is used to review each blog post. Blog posts with sensitive content may require deadline extensions and additional review and approval by the AWS leadership. All blog posts are tagged with one or more descriptive labels for categorization based on the blog post's subject content (Fig. 1), to assist blog readers who desire to read selectively based on areas of interest using the subject categories. The AWS blog is updated with one to two new posts weekly and is open for perusal to the public, free of charge, regardless of AWS membership.

Subcommittee collaborations

The blog subcommittee has many collaborations with other subcommittees and committees within the AWS, such as other social media platforms and the Residents and Fellows Committee, and with websites like Doximity™. Collaborations with the other social media platforms are used both for promotional purposes and to generate or continue conversations associated with certain blogs. When posts are tweeted, the hashtag #AWSBlog is used to help promote scheduled blog posts. Hashtags are words preceded by a hash or pound sign and used to categorize and catalog social media posts to allow easy identification of messages on a specific topic.⁷ Additional special feature posts on current events or hot topics use the hashtag #AWSFood4Thought. At least one blog post per month is scheduled a full week prior to a tweet chat in collaboration with the AWS Twitter subcommittee using the hashtag #AWSChat. A tweet chat is a planned Twitter discussion moderated through the use of a hashtag.⁷ In February 2018, in collaboration with the AWS Residents and Fellows committee, the blog introduced Dear Pat on the fourth Sunday of the month. Dear Pat was created specifically to address issues pertinent to residents and fellows, like applying to fellowship, family planning, and navigating difficult situations on the job. The name Pat was chosen in homage to Dr. Patricia “Pat” Numann, who founded AWS in 1981,

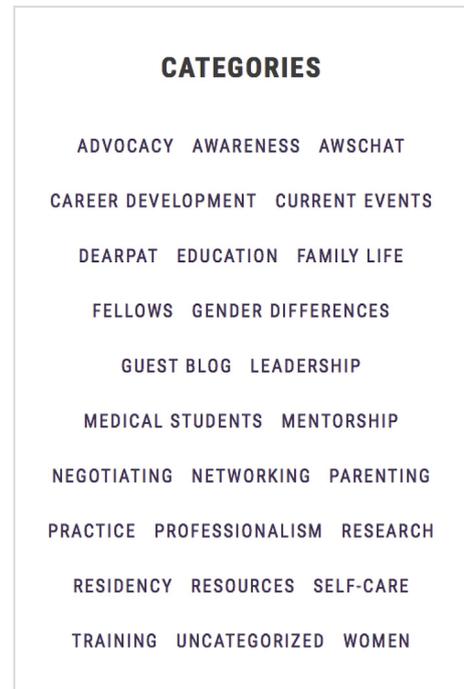


Fig. 1. Several of the more prominent categories with which blog posts could be tagged.

when she invited as many women surgeons as she could identify to breakfast at the American College of Surgeons to share common experiences, interests, and concerns.⁹ These are also featured on Doximity and are highlighted using the hashtag #DearPat.

Data analytics

The Google Analytics platform was used to assess the AWS blog site data. All information that is collected by Google Analytics via cookies is done so in a legally compliant way with user consent, which is typically obtained when users set up their internet preferences to allow cookies to be collected during online perusal and when users sign the privacy policy during creation of a Google account. Only aggregate data were made available for review, i.e. no raw data on user demographics or personal information on blog readers were accessible for analysis.

A one-year search was performed—from the earliest searchable date, which was February 16, 2018, to present day February 21, 2019. While the AWS blog was introduced in May 2013, the blog's host website underwent multiple transitions over the years before it finally settled on its official landing page at *blog.womensurgeons.org* in February 2018. Data regarding site traffic, user demographics (including age, gender, geography), device type, and blog posts and tags sorted by unique pageviews were obtained and recorded. Demographic information like age and gender were obtained from users who were logged into a Google account in the background and/or from third-party DoubleClick cookies (user tracking cookies) while simultaneously accessing the AWS blog. The level of engagement per blog post was also assessed via the average session duration. We deliberately chose to disregard the bounce rate, the percentage of visitors to a particular website who navigate away from the site after viewing only one page, as a reflection of the AWS blog's performance. Typically, websites strive to avoid high bounce rates, but for single-page sites like blogs, high bounce rates between 65 and 90% are considered well within the

limits of normal.¹⁰ We further excluded unique pageviews for the blog website's main landing page for consideration during our final review and interpretation of the data.

Results

Demographics

During the study period, Google Analytics was able to capture age and gender data on 1.45% and 1.51% of total users, respectively. Among the users who were sampled, 70.3% of AWS blog readership was between 25 and 44 years of age. Twenty-five percent of readers were male. AWS blog readers were largely located in the United States (84.91%) followed by 2.21% located in Canada (Table 1).

Site traffic

With duplicate pageviews eliminated, there were 31,221 unique pageviews during the search period. The majority of readers, 61.9%, read blog posts from a mobile device, followed by 34.88% from a desktop. Traffic to the AWS blog came from readers who had direct access to the web address of the blog or of a specific blog post (39.73%) or from readers referred to the AWS blog via social network referrals (35.92%). Twitter and Facebook were the two most popular social media platforms that referred readers to the blog (Fig. 2). The AWS blog experienced the most traffic on Monday, Wednesday, Thursday, and Saturday evenings as well as Thursday during mid-day (Fig. 3).

Most read content

The blog posts which received the most unique pageviews had content addressing issues related to graduate and postgraduate medical education, work-place respect, parenting and family life, and work-life integration. Posts combined evidence with anecdotal experience. The most read blog post was a guest post titled “Ban the Bouffant,” which was responsible for 3,028 unique pageviews, or 9.70% of total unique pageviews (Table 2). Seven of the top ten AWS blog posts had generalizability to an audience irrespective of gender.^{11–17} Of the remaining three, one was promotional,¹⁸ and the other two centered around fertility.^{19,20} Three of the top ten AWS blog posts were in the format of a question-and-answer-style

advice column via Dear Pat.^{12,13,17} The three tags that elicited the most unique pageviews were “residency (16.95%),” “medical students (12.12%),” and “family life (10.38%)” (Table 3). The average time spent on the top ten most read blog posts ranged from 137.25 s to 389.54 s. Nine authors were responsible for the top ten most read blog posts; all were female. Two of the nine authors were surgical residents. Three of the nine authors were early career surgeons. The remaining four were surgeons well-established in practice.

Discussion

We strove to examine the AWS blog to understand both its audience and the content that is most read. We found that most readers were between 25 and 44 years of age. Despite AWS being an organization mostly geared toward female surgeons, it was fascinating that a quarter were male, suggesting that the content resonates with a broad audience. The AWS blog has proven popular likely for the following reasons: the material is readable and has been vetted by a verifiable umbrella organization, Dear Pat and other authors provide remote mentorship, posts often capture content not traditionally found in the scientific literature, and for aspiring and established academic surgeons, the blog enables an alternative avenue for authorship.

Readable and trustworthy

The AWS blog peer review process has a similar process as that typically followed by what happens behind the scenes for scientific publications. Blog posts take considerable time and effort to compose, edit, and publish. Many posts are interactive, with hyperlinks to referenced sources. The end result is attractive to readers because posts do not require a log in to access, have a reputation for being well-researched yet are formatted in a narrative or bulleted fashion, and can quickly be digested in a couple of minutes from any device, which facilitates perusal during pockets of downtime between operating room cases or in the evenings, which was evidenced by the high number of readers who read the AWS blog content on their mobile devices and during midday or in the evenings. The allure of the AWS blog is supported by prior research demonstrating that blogs are a particularly popular medium for conveying clear and concrete recommendations of policies as well as summarizations of relevant research findings and are more likely to be utilized “if perceived as credible and championed by trusted and senior individuals”²¹ and if written in a non-intimidating and conversational fashion, with minimal use of jargon.²²

Remote mentorship

Blog posts related to graduate and postgraduate medical education were among the most frequently viewed. This could be due in part either to the lack of available approachable mentors within the same physical vicinity of AWS blog readers or to the sensitivity of the issues posed on the blog, the online venue of which may be perceived as less threatening and judgmental than an in-person encounter, a phenomenon seen with information and communication technology which has been well-studied.²³ Furthermore, much of the readership falls in the age category in which they are wrapping up or have recently finished their final stretch of formal education and training. Strategies for navigating the pathway forward, whether that be career development or family planning, are not clearly laid forth out in the formal literature and many institutions lack formal policies.²⁴ Multiple studies have demonstrated the burden of being underrepresented in medicine and surgery and the lack of mentorship and role modelling currently

Table 1
Demographics of AWS blog readers, February 16, 2018–February 21, 2019. Age and gender data were available for 1.45% and 1.51% of total users, respectively.

Age, years	n	%
18–24	27	10.15
25–34	124	46.62
35–44	63	23.68
45–54	35	13.16
55–64	17	6.39
Gender		
Female	207	75
Male	69	25
Country		
United States	15593	84.91
Canada	406	2.21
India	258	1.4
United Kingdom	249	1.36
Australia	168	0.91
Mexico	112	0.61
Germany	95	0.52
Peru	87	0.47
Philippines	87	0.47
Italy	69	0.38

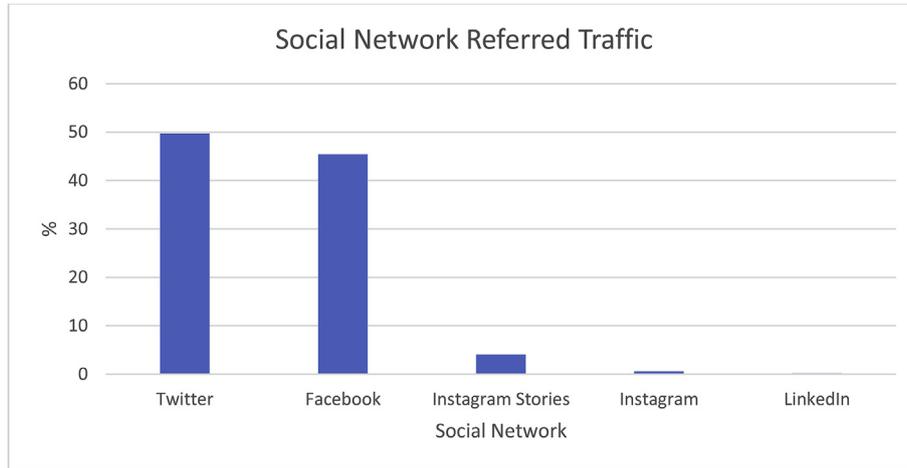


Fig. 2. Traffic directed to the AWS blog from other social networks.

available now or anytime in the near future.^{25–27} There is a clear need for professional role models among trainees. The AWS may fill this void. The AWS blog has had innumerable posts written by trusted and respectable individuals on these matters that provide a roadmap incomparable to resources practically anywhere else, on- or offline. Lagu et al., in 2008 wrote about the benefits of blogs for physicians facing challenges or isolation at work, in that blogs help them to connect to peers who can provide advice and support, and consequently may improve the retention of health professionals, particularly in rural or other settings where it may be difficult to find peer support.⁸ In academic surgery, we still have a significant way to go to reach full parity in the role models available to those coming up through the pipeline, but blogs may be an important bridge toward that goal.

Nontraditional content

Blogs provide an opportunity to meld the personal and professional and can vividly illustrate the emotional challenges that unite surgeons across time and geography.^{7,28} What was particularly striking in our study findings was the 25% male readership. It shows that many of the issues written about in the AWS blog are pertinent across genders and highlight the reality that the issues surrounding forced use of the bouffant hat, family planning, parental leave, workplace respect, and work-life integration matter and have yet to be resolved by any of our governing healthcare structures or organizations. The vulnerability inherent to narrative reporting—and the sharing of authentic, raw personal tales—is rarely attainable in the dry, impersonal writings that is the standard of traditional scientific literature; our study shows that nontraditional subjects are among the most popular AWS blog fare. Importantly, our study reveals that the content of the AWS blog fills an important gap in what is presently available in scientific literature. The content is clearly desired by a wide audience of surgeons. The AWS has the opportunity to normalize these nontraditional experiences and act as a vehicle to generate conversation around these topics. Motivated academicians can also capitalize on the AWS blog findings to direct research funding and projects specifically toward nontraditional subjects.

Furthermore, blogs may allow faster publication of timely, relevant hot topics such as physician wellbeing and burnout or gun regulation, as well as conference highlights, than traditional publication. Because of the availability of real-time data analytics, the AWS was able to see that Thursdays were when the blog received the most traffic and changed its updating practices to scheduled posts to Wednesday evenings whenever possible. Moving forward, it may be enlightening to examine whether the content published in the surgical scientific literature mirrors trends previously demonstrated in surgical blog publications.

Opportunity for authorship

Finally, the AWS provides an opportunity for multiple authors to share their writings in less time than would have been necessary to maintain a personal blog or push through a peer-reviewed scientific publication. Numerous articles have been published in recent years about gender trends in academic medicine and the lack of parity in authorship^{29,30}; the AWS blog, on the other hand, extends a welcoming environment for female authors, which may help

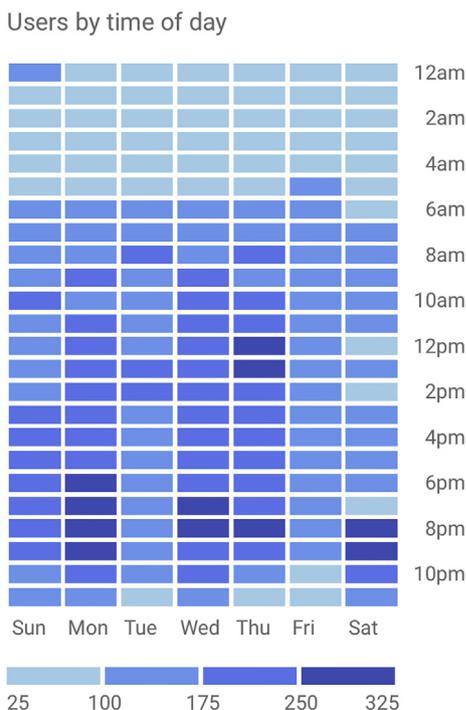


Fig. 3. Heatmap demonstrating frequency of AWS blog visits by time of day, February 16, 2018 to February 21, 2019.

Table 2
Top ten AWS blog posts, February 16, 2018–February 21, 2019.

Title	Author	Short Synopsis	Unique Pageviews, n (%)	Average Time on Page, Seconds
#BANTHEBOUFFANT	Mary L. Brandt	Evidence-based summary decrying the disposable bouffant hat	3028 (9.70)	270.29
“PERI-MENOPAUSE”	Arghavan Salles	Personal and fact-based awareness raising post about egg-freezing	1521 (4.87)	389.54
DEAR PAT RESPONDS TO OFFENDED AND HUMILIATED	Marie Crandall	Column advising surgeon how to deal with sexist patient	1367 (4.38)	204.50
MATCHING INTO A COMPETITIVE SURGICAL PROGRAM: WHAT YOU SHOULD KNOW	Mariela Martinez	Guidance for pursuing a competitive surgical residency	1060 (3.40)	242.10
NOT ALL SURGEONS FIT THE STEREOTYPE	Lillian Erdahl	Personal tale illustrating examples of diverse surgeon personalities	708 (2.27)	236.27
“HOW DO YOU ENVISION YOUR FAMILY LOOKING?”	Arghavan Salles	Intimate retelling of a surgeon's experience at a fertility clinic	587 (1.88)	263.19
PARENTAL LEAVE FOR SURGEONS	Virginia R. Litle, Mara B. Antonoff	Exploration of importance of parental leave for surgeons, with comparison of policy and reality	577 (1.85)	196.90
CLOSING THE GAP: MAKING HISTORY AT TULANE	Monica Llado-Farrulla	Promotion of strengthening female surgical presence over last decade	518 (1.66)	214.84
“DEAR PAT” RESPONDS TO A “FEELING LOST, SURGICAL MOM”	Christine Laronga	Advice column grapples with realities of work-life integration	521 (1.67)	173.85
DEAR PAT RESPONDS TO “PLEASE CALL ME DOCTOR”	Marie Crandall	Strategies to help junior resident be recognized as doctor	533 (1.71)	137.25

Table 3
Top fifteen AWS blog tags, February 16, 2018–February 21, 2019.

Tag	Unique Pageviews	%
Residency	5292	16.95
Medical Students	3785	12.12
Family Life	3240	10.38
Guest Blog	3138	10.05
Training	2169	6.95
Career Development	1204	3.86
Leadership	971	3.11
Professionalism	709	2.27
Uncategorized	689	2.21
Education	659	2.11
Women	633	2.03
Parenting	590	1.89
Self-care	578	1.85
Advocacy	404	1.29
Mentorship	282	0.90

launch further education and career advancement opportunities. The blog is a good launching pad for aspiring academics wishing to hone their writing ability due to the constructive feedback provided by the blog subcommittee via its standardized peer-review process. The impact of social media scholarship on academic promotion and tenure has been well-documented.^{31–33} In light of the peer review process provided by the AWS, it seems fair for authors to consider blog posts accepted for publishing on the AWS blog as peer-reviewed publications on their curriculum vitae. Furthermore, Buckarma et al., in 2016 demonstrated the influence of social media to promote dissemination of surgical research.³⁴ For others, the AWS blog may provide the launchpad to attain greater reach with the lay public to raise awareness of the trials and tribulations of being a women pursuing a surgical career³⁵ or even to influence policy.^{36,37}

Limitations

While unique in scope, this study has its limitations. While the AWS blog was introduced in May 2013, the search capabilities of the Google Analytics platform only extended back as far as February 16, 2018. Furthermore, the demographic data on age and gender could only be captured on individuals who were signed into a

Google account in the background. The way writers are solicited for the blog may lend a selection bias toward those who demonstrate initiative and/or attend conferences, which does not seem unlike the bias that currently exists for those who strive to publish traditional scientific literature. There is also the possibility of bias toward blog posts from earlier in the search period being more popular simply because they were available on the blog for longer, though this seems unlikely as one of the posts that made it to the top ten category was posted relatively recently in the search period. Tags were developed by informal consensus among the AWS blog subcommittee and may not be the accurately reflect the complexity of any given post. Pageviews are a best guess estimate of how many times a blog post was read; that being said, simply because a blog post was viewed does not necessarily mean that it was read. Finally, we excluded unique pageviews to the blog's landing home page, but technically, it had the highest number of unique pageviews. Google Analytics lacks the granularity to track how visitors navigated through the blog home page so we do not know if certain blog posts actually had more views than what our available data captured.

Conclusions

In conclusion, we strove to understand the AWS blog's audience and most read content and found that most of the AWS blog readership are young, women, and interested in content related to graduate and postgraduate medical education or family life. In spite of the largely female authorship, the AWS blog content that resonates most with readers is applicable across the spectrum, as evidenced by the 25% male audience. Our study demonstrates that the AWS blog fills a void for topics not covered by traditional scientific literature, such as family life and training-related issues. The AWS blog also provides a reliable source of mentorship and networking for those in isolation—both figuratively and literally. The AWS blog supports previous research demonstrating the importance of social media as an alternative means for achieving career advancement. The AWS blog is an illustrative resource for surgical leaders wishing to enhance the experience of those in training and practice. Our study proves that, in the wheelhouse of social media, the blog is a formidable platform that should not be underestimated in today's modern surgical landscape.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amjsurg.2019.07.028>.

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