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Association for Academic Surgery

The positive association of Association for Academic Surgery membership with academic productivity



Nakul P. Valsangkar, MD,¹ Daniel P. Milgrom, MD,¹ Paul J. Martin, BS,
Jordan S. Parett, BS, Mugdha M. Joshi, MD, Teresa A. Zimmers, PhD,
and Leonidas G. Koniaris, MD, MBA, FACS*

Department of Surgery, Indiana University School of Medicine, Indianapolis, Indiana

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ABSTRACT

Background: To evaluate the academic productivity and National Institutes of Health (NIH) funding of members of the Association for Academic Surgery (AAS).

Methods: Academic metrics including, numbers of publications, citations, and NIH funding history were determined for 4015 surgical faculty at the top 55 NIH-funded departments of surgery, using Scopus, NIH RePORT, and the Grantome online databases.

Results: AAS membership included 20.5% (824) of all 4015 surgical faculty in this database. For members of the AAS, publications (P) ± standard deviation and citations (C) ± SD were P: 54 ± 96 and C: 985 ± 3321, compared with P: 31 ± 92, C: 528 ± 3001 for nonmembers, $P < 0.001$. Higher academic productivity among AAS members was observed across all subspecialty types and was especially pronounced for assistant and associate professors. AAS membership was also associated with increased rates of NIH funding and better productivity for equally funded surgical faculty compared with nonmembers. Analysis of AAS membership by subspecialty revealed that AAS members were most commonly general surgery faculty (57.8%); however, only 7.4% of the faculty was affiliated with cardiothoracic surgery. There was also a lack of dedicated science and/or research faculty (0.6% versus 3.4%) among the members of the AAS.

Conclusions: AAS membership appears to be correlated with greater academic performance among junior and midlevel surgical faculty. This improvement is observed regardless of subspecialty. Increased participation of faculty within subspecialties such as cardiothoracic surgery and, a greater focus on increasing the numbers of dedicated research faculty within the AAS may help increase the scientific impact and productivity among members of the society.

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Introduction

Surgical societies are an organizing and productive force in American surgery. Attainment of society membership is

competitive and desirable and demonstrates a degree of professional accomplishment. Scientific meetings organized by these societies provide opportunities to present scholarly

* Corresponding author. EH-534, 545 Barnhill Dr, Indianapolis, IN 46202. Tel.: 317.944.4377; fax: 317.968.1031.

E-mail address: leonidas.koniaris@jefferson.edu (L.G. Koniaris).

¹ Co-first authors.

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works to surgical peers and afford the chance for networking, sharing of ideas, and advancement.¹

The Association of Academic Surgeons is one of the largest surgical association in the United States with over 2800 members. The mission of the Association for Academic Surgery (AAS) is to “stimulate young surgeons and surgical scientists to pursue careers in academic surgery and support them in establishing themselves as investigators and educators.” Active membership is open to senior residents or on accepting a faculty position in surgery or a subspecialty and lasts for 10 y. Both surgeons and nonsurgeon faculty are welcome. There is also a role for senior faculty to remain members to provide mentorship.²

Previously, we have shown that multiple measures of academic productivity can demonstrate relative academic success in surgery.³ Such metrics include numbers of publications, citations, and National Institutes of Health (NIH) funding. These measures have been validated and are impartial, and as such, considered among the best measures of academic accomplishment.^{4,5} We also have found that the H-index, which minimizes reliance on impact factor by evaluating the number of articles that have been cited an equivalent amount, is an effective tool in measuring quality of an author’s publications.^{6–10} These metrics are also frequently considered for promotion within surgical departments and entry into academic organizations, such as the AAS.^{3,11,12}

Others and we have shown that research presented at the Academic Surgical Congress, the combined AAS and Society of University Surgeons produces high-quality journal articles.^{13,14} We were interested to see if academic excellence demonstrated by the research at the Academic Surgical Congress translates into improved academic performance by the members of the AAS. Through various metrics as indicated, we undertook analyzing the academic productivity of junior faculty who are members of the AAS versus nonmembers. As the AAS is inclusive of surgical subspecialties as well, we also analyzed the representation of subspecialties. Herein, we report our statistics and demonstrate that AAS members have high academic productivity but that there may be well-defined areas of potential growth.

Methods

Academic metrics including numbers of publications, citations, and NIH funding history were determined for 4015 surgical faculty at the top 55 NIH-funded departments of surgery. The top 55–ranked NIH-funded departments of surgery were identified using the data available from the Blue Ridge Institute for Medical Research. For each of the programs, demographic data for the surgical faculty were collected from departmental websites. These data included name, academic rank, gender, degrees, divisions, presence of PhDs, and career track such as—academic or clinical. The AAS kindly provided a list of the 3800 past and present members of the association. We cross-referenced the active members to the list of the top-55 NIH-funded departments of surgery and identified 824 members at these departments.

Subsequently, additional data pertaining to metrics of academic productivity were collected using Elsevier’s Scopus

bibliographical database (<http://proxyauth.uits.iu.edu/auth/ulib.pl?url=http://www.scopus.com>). Finally, for each faculty member, funding information was derived using the NIH Research Portfolio Online Reporting Tools (RePORT; <http://report.nih.gov/>) and Grantome (<http://grantome.com/>) databases for the type and number of NIH grants awarded to each of these faculties.

The data were collected in a master database. For total publications, total and 3-y citations, median, and standard deviations were calculated. Continuous variables were analyzed using t-test of means for two groups, and analysis of variance for multiple group comparisons. Differences between categorical variables were tested using the chi-square test and Mann–Whitney U test. Statistical tests with $P < 0.05$ were called significant. All statistical tests were performed using SPSS for Windows, version 15.0. Chicago, Illinois, SPSS Inc.

Results

Overall comparison of academic output between AAS members and nonmembers

The academic productivity of junior faculty was queried through the aforementioned online databases. We found that roughly 20.5% of all faculty, or 824 faculty are members of the AAS, whereas 79.5% or 3191 faculty, are nonmembers. Although there was a wide range in the quantity of publications, AAS members published significantly more articles than nonmembers: 54–31 ($P < 0.001$). Furthermore, the number of overall citations and 3-y citations for AAS members to nonmembers were 985 versus 528 and 283 versus 158, respectively ($P < 0.001$). Although we found AAS members had a trend for higher H-index, this was not found to be statistically significant (Table 1).

Comparison of characteristics of AAS members and nonmembers

We evaluated several characteristics of AAS members and nonmembers to better delineate characteristics of faculty who specifically benefit from AAS membership. First, we evaluated academic rank and found that AAS members tend to be more

Table 1 – Overall comparison of academic output between AAS members and AAS nonmembers.

Parameter	AAS membership status		P value
	AAS member	AAS nonmember	
Overall	824, 20.5%	3191, 79.5%	—
Academic rank			
Publications	54 ± 96	31 ± 92	<0.001
Citations	985 ± 3321	528 ± 3001	<0.001
3-y citations	283 ± 751	158 ± 980	<0.001
H-index	13 ± 15	11 ± 12	NS

NS = not significant.

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