Update regarding the society of American Gastrointestinal and Endoscopic Surgeons (SAGES) grant distribution and impact on recipient’s academic career

Christopher DuCoin1 · Rebecca P. Petersen2 · David Urbach3 · Rajesh Aggarwal4 · Atul K. Madan5 · Aurora D. Pryor6

Received: 20 July 2017 / Accepted: 19 December 2017
© Springer Science+Business Media, LLC, part of Springer Nature 2018

Abstract

Background Small seed grants strongly impact academic careers, result in future funding, and lead to increased involvement in surgical societies. We hypothesize that, in accordance with the SAGES Research and Career Development committee mission, there has been a shift in grant support from senior faculty to residents and junior faculty. We hypothesize that these junior physician-researchers are subsequently remaining involved with SAGES and advancing within their academic institutions.

Methods All current and previous SAGES grant recipients were surveyed through Survey Monkey™. Questions included current academic status and status at time of grant, ensuing funding, publication and presentation of grant, and impact on career. Results were verified through a Medline query. SAGES database was examined for involvement within the society. Respondent data were compared to 2009 data.

Results One hundred and ninety four grants were awarded to 167 recipients. Of those, 75 investigators responded for a response rate 44.9%. 32% were trainees, 43% assistant professors, 16% associate professors, 3% full professors, 3% professors with tenure, and 3% in private practice. This is a shift from 2009 data with a considerable increase in funding of trainees by 19% and assistant professors by 10% and a decrease in funding of associate professors by 5% and professors by 10%. 41% of responders who were awarded the grant as assistant or associate professors had advanced to full professor and 99% were currently in academic medicine. Eighty-two percent indicated that they had completed their project and 93% believed that the award helped their career. All responders remained active in SAGES.

Conclusion SAGES has chosen to reallocate an increased percentage of grant money to more junior faculty members and residents. It appears that these grants may play a role in keeping recipients interested in the academic surgical realm and involved in the society while simultaneously helping them advance in faculty rank.

Keywords Grant funding · Academic advancement · Society involvement · Seed grants

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s00464-017-6014-y) contains supplementary material, which is available to authorized users.

Christopher DuCoin cducoin@tulane.edu

1 Division of Minimal Invasive, Robotic and Endoscopic Surgery, Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, LA 70112, USA
2 University of Washington, Seattle, USA
3 Toronto General Research Institute, Toronto, Canada
4 McGill University, Montreal, Canada
5 Marina Del Rey Hospital, Marina del Rey, USA
6 Stony Brook University, Stony Brook, USA

Interest in pursuing a career of academic surgeon-researcher seems to have significantly dwindled among junior faculty and residents. The previous allure has been overshadowed by an increased difficulty in securing protected research time, universally diminishing funding sources, and high clinical demands [1]. Further, this has logically resulted in a difficulty of academic ascension as it decreases one’s ability to publish high-quality peer-reviewed documents, an essential component required for promotion. Currently, there is a trend forming in funding with an increase in small seed-based grants and independent society awards versus federal funds. This was demonstrated by Pryor et al. in a review article qualifying the importance and success of grants awarded by the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). Since 1992, the SAGES Research and
Career Development committee has been allocating grant funding and has awarded a total of 194 grants to 167 recipients. These grants are worth up to $30,000 US dollars, equating to ~$5.8 million dollars awarded since inception. Pryor et al. demonstrated that the bulk of these were awarded to assistant professors (33%), associate professors (21%), and professors (21%), while trainees received only 13% of funds and that 90% of recipients believed that these grants advanced their careers [2].

SAGES Research and Career Development committee’s mission statement is to engage young researchers and encourage their growth within the society and, in agreement with this, funding criteria seems to have shifted to encourage junior researchers [3]. In order to assess whether this statement holds true, we sought to compare the results of the 2009 Pryor study to current 2016 data. We hypothesize that grant funding has in fact shifted from senior faculty to junior faculty and trainees, and as such is now in concordance with the committee’s mission. We also hypothesize that not only has the grant money assisted in the development and career advancement of junior researchers but has also served to create a reciprocal relationship between recipient and society.

Results

The response rate after four rounds of survey requests were sent was 44.9% with 75 responders of the 167 grant recipients.

Academic appointment

Of the responders, the current academic ranks cited at the time of award acceptance were 32% trainee, 43% assistant professors, 16% associate professors, 3% full professors, 3% professor with tenure, and 3% in private practice or non-tenure track. This differed from the 2009 study which had the following recipient demographics: 13% trainee, 33% assistant professor, 21% associate professor, 8% full professor, 13% professor with tenure, 13% private practice or non-tenure track (Table 1). Of all except trainees, 99% reported being in academic medicine versus 85% in 2009. 41% of responders who were either assistant or associate professors had advanced to full professors since grant endowment (Fig. 2). Almost all of the recipients, 93% (70/75), stated that the award helped advance their careers, which is consistent with the previous study of 90% ($p=0.12$) [4].

Research accomplishments

82% (62/75) completed their project as compared to 73% in 2009 ($p<0.01$). Of those, 89% (55/62) presented their work at national meetings versus 73% in 2009 ($p<0.01$) (Table 1) [4]. The majority presented at SAGES (89%) with the remaining presentations at the American College of Surgeons (2%), Local Chapter Meeting (2%), and other (7%). There was a no difference found in publication rate between years; 62 versus 64% ($p=0.19$) and 95% published in Surgical Endoscopy as it is a grant requirement.

Funding success

Almost half of the recipients, 44% (33/75), believed that the grant helped achieve future funding which was consistent with the prior 2009 results of 43% ($p=0.21$) [4]. Additional funding of <$50,000 was awarded to 53% of respondents (40/75) compared to 33% in 2009 ($p<0.02$). Additional funding >$50,000 was awarded to 47% (35/75), which has declined since 2009 (67%) ($p<0.02$) (Table 1). While similar to the 2009 study, of those that received >$50,000 in funding, 30% (22/75) obtained >$200,000 in extramural funding [4].
Responders remained involved with SAGES as they attended an average of 3.93 of the last 5 meetings which has increased from 3.8 meetings in 2009. Additionally, 89% have presented at least once versus 81% in 2009. There was also an increase in those presenting more than four times, 52 versus 43% \((p < 0.032)\) [4] (Table 1). All responders had active membership with SAGES, and using the SAGES database, it was found that 65% (109/167) of all grant winners were still active members. Of the 109 active members, 47 held leadership positions which consisted of holding chair or co-chair, president of society \((n = 8)\), or held a position on the board \((n = 9)\).

### Society involvement

In 2009, Pryor et al. showed that SAGES grant recipients were subsequently found to be very successful academically [2]. Additionally, recipients were still active within the society, most likely to present their work at SAGES, and commonly published in Surgical Endoscopy. They concluded that, “these grants are an excellent vehicle to support and foster academic success in an era of tenuous funding” [3]. Our data conclude that there is in fact a shift between 2009 and 2016 in funding priorities with increased funding awarded to residents and assistant professors over associate professors and professors (Fig. 1). Furthermore, of those assistant and associate professors who were awarded grants, almost half have advanced academically to the position of full professor (Fig. 2). Thus, it can be assumed that these grants can help promote or identify those who are likely to pursue an academic surgical career as 99% were in the academic field at the time of submission and showed career advancement over time. This has additionally been confirmed in multiple other studies [4–12].

### Discussion

In 2009, Pryor et al. showed that SAGES grant recipients were subsequently found to be very successful academically [2]. Additionally, recipients were still active within the society, most likely to present their work at SAGES, and commonly published in Surgical Endoscopy. They concluded that, “these grants are an excellent vehicle to support and foster academic success in an era of tenuous funding.”

In this study, we sought to evaluate whether the distribution of funding has shifted in order to align with the SAGES Research and Career Development committee’s mission of, "encouraging grant funding to young investigators/candidate members in the hopes that funding…will lead to additional extramural funding" [3]. Our data conclude that there is in fact a shift between 2009 and 2016 in funding priorities with increased funding awarded to residents and assistant professors over associate professors and professors (Fig. 1). Furthermore, of those assistant and associate professors who were awarded grants, almost half have advanced academically to the position of full professor (Fig. 2). Thus, it can be assumed that these grants can help promote or identify those who are likely to pursue an academic surgical career as 99% were in the academic field at the time of submission and showed career advancement over time. This has additionally been confirmed in multiple other studies [4–12].

### Table 1 Comparison of survey data between 2009 and 2016

<table>
<thead>
<tr>
<th>Academic advancement</th>
<th>2009 Pryor et al. Results (%)</th>
<th>2016 Results (%)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainee</td>
<td>13</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>33</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Associate Professor</td>
<td>21</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Full Professor</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Professor with tenure</td>
<td>13</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Private practice or non-tenure track</td>
<td>13</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Award helped advance career</td>
<td>90</td>
<td>93</td>
<td>0.12</td>
</tr>
<tr>
<td>Research accomplishments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project completion</td>
<td>73</td>
<td>82</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Presentation</td>
<td>73</td>
<td>89</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Publication</td>
<td>64</td>
<td>62</td>
<td>0.19</td>
</tr>
<tr>
<td>Funding success</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helped achieve future funding</td>
<td>43</td>
<td>44</td>
<td>0.21</td>
</tr>
<tr>
<td>Additional funding &lt;$50,000</td>
<td>33</td>
<td>53</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Additional funding &gt;$50,000</td>
<td>67</td>
<td>47</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Society involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAGES attendance (avg number of meetings)</td>
<td>3.8</td>
<td>3.93</td>
<td></td>
</tr>
<tr>
<td>SAGES presentation</td>
<td>81</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>SAGES presentation&gt; four times</td>
<td>43</td>
<td>52</td>
<td>&lt;0.032</td>
</tr>
</tbody>
</table>

**Fig. 1** Grant distribution by academic rank between 2009 and 2016
In regards to publications and additional funding, while there was an increase in presentations, there was a slight decrease in publication rate in comparison to 2009. However, the overall additional funding remained the same with 45% of grant winners acquiring additional funds. Of note, most of the additional funding came from grants < $50,000. This is logical as more funding went to younger researchers who are new to the process of grantsmanship and larger government funded grants are increasingly difficult to obtain.

Our study demonstrates that society-specific funding is truly a self-investment as all SAGES grant recipients are required to submit a manuscript to the society’s journal (Surgical Endoscopy) and present at the annual meeting. Furthermore, the results of the 2009 study were confirmed in that grant recipients stay active in the society: all respondents were active members and almost half (43%) held a leadership position post award. With more awards going to young researchers, their resultant commitment to SAGES confers a reciprocal relationship over their lengthy careers that will greatly benefit and advance the future of SAGES. Other opportunities to attract funding and to propel the career and success of young physicians could include collaborative surgical networks either nationally or internationally as well as between surgical societies. The development of such prospects could benefit again both the recipient and the societies.

Interestingly, the mission and funding allocation of SAGES are in direct contrast to National Institutes of Health (NIH)-funded RO1 grants where the average recipient age increased from 37.7 years in 1980 to 44.9 years in 2015 [13]. This shift seems to be the result of a near-continuous reduction in the NIH budget. The budget saw constant increase and matched inflation adjustment between 1998 until it peaked at roughly $27.1 billion US dollars in 2003 [14]. Since then the NIH budget has been on a steady decline, and from fiscal year (FY) 2003 to 2015, the NIH lost 22% of its capacity to fund research secondary to budget cuts, sequestration, and inflationary losses [15]. The Federation of American Societies for Experimental Biology recommended a budget of $35 billion for NIH in FY 2017 which is a $3 billion increase that is supported by > 300 members of Congress with the belief that it will fully reverse losses due to sequestration and subsequent rising costs [15]. Yet, the lack of stability and reliability of federally funded research has led to the dependence, importance, and success of smaller society-based grants and again exemplifies the importance of SAGES grant funding.

**Limitations**

This study has several limitations. We cannot conclude that the grants have caused the success of the recipients. Those receiving grants already possess the skills important for a successful academic career and thus, we cannot definitively state whether obtaining a SAGES grant is a cause, an effect of acumen, or simply one factor in many resulting in academic promotion. Additionally, there was not a 100% response rate which leads to potential for selection bias. It may be that those who did not respond would have felt that the grant support was not helpful to their career.

**Conclusion**

This study confirms that over the last 8 years, there has been a shift in SAGES grant funding towards supporting younger researchers such as residents and assistant professors. These grants support the SAGES Research and Career Development committee’s mission in encouraging young researchers while promoting interest within the society. Furthermore, the recipients complete their projects, present at the annual meetings, and publish their work in the society’s journal. They also not only remain active within SAGES but also successfully advance into leadership positions. Thus it is concluded that these grants are of huge benefit to both the researcher and the society funding the grant and are highly encouraged to continue.

**Compliance with ethical standards**

**Disclosures** Dr. Aggarwal is a consultant for Applied Medial. Dr. Pryor received research support from Baronova and Obalon. She is a speaker for Ethicon, Gore, Medtronic, and Stryker. She is a consultant for Merck and The Medicines Company. Drs. DuCoin, Petersen, Urbach, Madan have no financial disclosures or conflict of interest.

**References**