The funding landscape for Women in AAPM: Trends and Outlook

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Learning objectives
- To share my own journey toward grant funding
- To review three decades of federal funding for female AAPM members and highlight overall trends
- To learn about the barriers and opportunities in increasing research funding support for female medical physicists
1\(^{st}\) (2013) and 2\(^{nd}\) (2015) NIH R01 grant I submitted: Both “Not Discussed”

- Several key areas were missing:
  - My publication record was not in the area that I was proposing
  - I was seen as too junior for the proposed work

- The PI seems to have no publication record on MRI:
- While the list of collaborators is long (see above) and is a strength of the proposal, it seems that many of the co-investigators were listed for symbolic reasons to boost the PI’s reputation for this
- The principle investigator has limited experience and has not led a project of this complexity before.

My least favorite comment of all time

Although she may not have been able to cover all areas, there is a doubt about her potential to handle the huge amount of data from the multiple imaging modalities.

After eating a gallon of chocolate ice cream in one sitting, I got to work...

I took 1.5 years off from grant writing to:
- Study grant writing, attend seminars (RSNA), watch webinars
- Build outside collaborations with others who would later become co-investigators
- Hire a talented Research Scientist (Weili Zheng, PhD) who was instrumental in my productivity and data analysis
- Produce manuscripts to prove my expertise: Published three 1\(^{st}\) author, three co-author, & three senior author during this timeframe
- Submitted June 5, 2015 and importantly, continued working toward the specific aims
And then... Nov, 2015, I got a score!!

The score came with a caveat...

If you choose to submit a resubmission application for the next review cycle under this policy for new investigators, your amended application must be received at NIH no later than Thursday, December 10, 2015.

<1 month!! To recover from a 37th percentile!!
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Full Members w/PhD Degrees

5:1, Males to Females
In 2015,

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Currently, pay rates for National Institutes of Health (NIH) grants are at a historical low. In this climate of fierce competition, knowledge about the funding situation in a staff field like radiation oncology becomes very important for career planning and recruitment of faculty. Unfortunately, these data cannot be easily extracted from the NIH’s database because it does not discriminate between radiology and radiation oncology departments. As the start of fiscal year 2013, we contacted records for 922 individual grants, which were active at the time of analysis from the NIH database. Proposals originating from radiation oncology departments were identified manually. Descriptive statistics were generated using the RMP statistical software package. We randomly selected 197 grants to evaluate faculty. These proposals came from 714 individual investigators in 43 academic institutions. The majority of the grants (51%) were awarded to principal investigators at the full professor level, and 32% principal investigators held a PhD degree. In 39% of the grants, the research topic fell into the field of biology, 30% to the field of clinical physics. Only 39% of the proposals were clinical investigations. Our data suggest that radiation oncologists are making a strong case that the current level of support does not match the importance of radiation oncology to cancer patients or the potential of the academic work force.
National NIH Statistics

- ~90,000 NIH applications per year
- ~30% of submitted NIH applications are from females, 30% of awarded to females
- 30% of all CSR reviewers are females
- 38% of only chartered study section members are females
- Success rates for men and women track similarly

Data courtesy of Maryellen Giger, PhD

What about within the AAPM?

- **2017 Research Seed Funding Grant:** $25,000, 1-year grants
  - “To provide funds to develop exciting investigator-initiated concepts, which will hopefully lead to successful longer term project funding from the NIH or equivalent funding sources.”
- Junior Investigators <5 years from PhD Degree
- Since 2005, AAPM has awarded $550,000 to 22 Junior Investigators through this mechanism
- Only 3 of the 22 have been to female members
- Caveat: need to mine data to determine the number of women who have applied

Career advice from one of the highest funded women in the AAPM: Maryellen Giger, PhD

1. Start early: Apply for predoctoral grants, student grants, etc. to get grant writing practice
2. Use rejections/critiques to improve your work
3. Bring your children into your career. Her 4 children grew up attending AAPM meetings and it helped them gain an appreciation for her career
4. Find mentors at each stage of your career
5. “Don’t complain if you don’t ask.”

What can we do as Medical Physicists?

- Learn the art (and science) of grant writing
- AAPM: Commit resources to train grant writing skills
- Share our grant writing experiences and knowledge to help others
- Find a mentor, be a mentor

Thank You!