



# Pediatric Research and Scholarship Committee: Single Institution Initiative to Enhance Scholarly Activity of Pediatric Residents

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## ABSTRACT

**OBJECTIVE:** We sought to improve scholarly activity of pediatric residents by providing residents with support and guidance from a committee of faculty and staff members dedicated to advancing research within the program while requiring minimal additional funding or resources.

**APPROACH:** Established in 2012, the Pediatric Research and Scholarship Committee (PRSC) ascertained research interests of pediatric residents and matched residents with scholarly activity mentors based on mutual interests and goals. We measured change in scholarly activity of residents after the development of the PRSC by reviewing resident presentations at national/regional meetings and manuscripts published pre- and post-PRSC.

**OUTCOMES:** The average number of conference presentations at regional/national meetings per resident ratio increased from 0.13 over the 2 years prior to the PRSC to an average of 0.34 over the 2 years post-PRSC, with the overall increase sustained over the seven years post-PRSC (0.13 pre-PRSC vs 0.48 post-PRSC,  $P < .01$ ). In addition, published peer-reviewed

manuscripts with resident primary authorship increased after the initiation of the PRSC from 0 publications over the 2 years pre-PRSC to a total of 25 publications over the 7 years post-PRSC ( $P = .01$ ). An average of 27% of graduating residents with limited PRSC exposure (2 graduating classes) had presented at a regional/national conference during residency, as compared to 50% of graduating residents over the first 2 years of full PRSC exposure, and 59% of all graduating residents with full exposure to the PRSC over the last 5 years ( $P = .03$ ).

**DISCUSSION:** Implementation of a research committee comprised of dedicated faculty can play a vital role in stimulating and sustaining productivity in resident research and scholarly activity. Our model can be adopted by other residency programs seeking to advance resident scholarly activities.

**KEYWORDS:** Accreditation Council for Graduate Medical Education; research; scholarly activity

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## WHAT'S NEW

The implementation of the Pediatric Research and Scholarship Committee increased pediatric resident scholarly activity, as measured by conference presentations at regional/national conferences and manuscript publications, while requiring minimal additional resources or staff. This initiative can be adopted by other programs.

activity during their training period.<sup>1</sup> Programs define and achieve this goal through varied methods.<sup>2–5</sup> Numerous barriers play a role in resident participation and productivity in research. These include limited time and funding, lack of a formal research curriculum, and inadequate mentorship.<sup>4,6–8</sup>

Various approaches to meeting these scholarly activity requirements and addressing the barriers have been described. Protected research time, implementation of research curricula or a research track, and the creation of a research day are among the methods utilized to promote resident scholarly activity.<sup>2,3,9</sup> A combination of interventions is often used to improve resident scholarly activity.<sup>3</sup>

THE ACCREDITATION COUNCIL for Graduate Medical Education (ACGME) requires residents to participate in scholarly

We describe an initiative put forth in a small pediatric program of a single institution utilizing a committee to overcome some of the barriers and increase scholarly activity of pediatric residents, while requiring minimal additional funding and resources.

## APPROACH

### SETTING AND PARTICIPANTS

We collected data from the Pediatric Residency Program at Staten Island University Hospital, Northwell Health. The residency program at our institution was initiated in the 2010 to 2011 academic year with 8 PGY-1 trainees and expanded by 8 new PGY-1 trainees each year; the cohort of residents grew from 8 to 24 over the first 3 years. Institutional Review Board (IRB) review was not required, as the project did not meet the definition of human subject research.

### EDUCATIONAL INTERVENTION

In our residency program of 8 pediatric residents per class, we noted that residents often had to navigate their own paths when planning scholarly activity. While all pediatric residents are required to participate in scholarly activity, they face many challenges, including finding projects and mentors, navigating the IRB process, learning how to present, and the process of abstract submission to appropriate conferences. We aimed to increase the scholarly productivity of our residents by creating a sustainable model consisting of a committee of engaged faculty to serve as liaisons between residents, faculty and the IRB, provide longitudinal coaching and feedback on presentation skills, and assist residents in bringing their projects to completion and publication.

Consisting of existing pediatric faculty and a staff member from the Department of Research, the Pediatric Research and Scholarship Committee (PRSC) was established in October 2012 to promote scholarly activity of pediatric residents. During the first year of residency, the PRSC meets with interns to discuss requirements and available projects proposed by faculty, and review scholarly activity proposals initiated by residents, with the goal of identifying a project by mid-intern year. The residents and faculty are matched based on mutual scholarly activity interests. The committee meets monthly for 1 hour to review the progress of ongoing and potential new projects. The group also discusses potential solutions for projects with limited progress and contacts residents and project mentors to assist as needed.

Residents give platform presentations on their scholarly activities periodically to the PRSC faculty as well as to their peers. Each resident gives 2 presentations to the committee during the PRSC monthly meetings, as scheduled by the pediatric chief resident, once during their second year and once during their third year of pediatric residency. The guidance from project mentors prior to presentations varies by the preferences of the mentor-mentee pair. The presentations are generally 10 to 15

minutes in duration and describe the background of the project, objectives, methods, and data collected to date. The presentations also include time to troubleshoot any limitations or roadblocks encountered, and to discuss planning of future steps, including submission to appropriate conferences and journals. This provides a forum for public speaking and feedback from faculty and peers.

Second- and third-year residents are encouraged to submit their work for presentation at conferences, with a further goal of completing a manuscript for publication by residency graduation. The individual project mentors directly supervise progress and provide oversight for abstract submissions to conferences, conference presentations, and manuscript revisions through the publication process.

Due to changes in available resources from the Department of Research, the committee transitioned over time to solely include pediatric faculty members, with a combination of both senior and junior faculty (general pediatricians as well as subspecialists with interests in pursuing and promoting scholarly activity) volunteering to take part. The committee is open to all pediatric faculty; members have varied incentives for taking part, including utilizing time carved out for research, adding the commitment to their CV, and working to help the prestige of the program by making residents more competitive for future endeavors.

The Department of Research staff member initially assisted residents in completing IRB applications, maintained the list of resident scholarly activities, assisted with the scheduling of the annual pediatric academic day, and assisted with general administration duties of the committee. The administrative duties of the staff member then transitioned to the co-chairs of the committee, and the residents and their project mentors submit IRB applications with guidance from the committee provided as needed.

Funding for scholarly travel and conference attendance is provided by the institution; resident funding for conference presentations had been provided by the institution prior to the development of the PRSC. Residents receive full reimbursement for 1 regional or national conference presentation per year. Additional funding can be supplemented (up to \$1500) for presentation of a different project to an additional conference within the same academic year. All pediatric residents are required to present scholarly activity at the annual institutional pediatric academic day each spring. The residents have access to a statistician employed by the health system; access to a statistician also predated the initiation of the PRSC.

### OUTCOMES MEASURES

We compared the scholarly activity by residents pre-PRSC to the scholarly activity of residents since the initiation of the PRSC. The pre-PRSC data include 2 academic years, as the PRSC was started in the third academic year after the creation of the residency program. We compare the resident scholarly activity for the 2 years prior to the PRSC to both the 2 years immediately following the PRSC inception, as well as to the total 7 years of data

post-PRSC that is available to date to determine if the trends were sustained over time.

For the purposes of this manuscript, we measured resident scholarly activity by documenting manuscript publications with resident first authorship based on work performed during residency, as well as abstract presentations at national and regional conferences during residency. We obtained the list of conference presentations by residents from the institution's Department of Research and compared the presentation data pre- and post-PRSC. We documented the publications using the Medical Library database of publications, which is compiled in collaboration with the Department of Research. The database was created by searching the major research databases, including PubMed, Web of Science, Embase, Scopus, and Google Scholar.

As a secondary measure, we also compared the percentage of graduating residents who completed scholarly activity (conference presentations during residency and manuscript publication) from the graduating classes with limited PRSC exposure to the graduating classes with exposure to the PRSC during all 3 years of their residency. As the PRSC was created when the program's first cohort of 8 residents was starting the PGY-3 year, we aimed to compare the scholarly activity between residents with exposure to the PRSC throughout all 3 years of residency (full PRSC exposure) to those with only 1 or 2 years of exposure during their pediatric training. The residency program's first PGY-3 class only had exposure to the PRSC for 1 year, and the PGY-2 class at that time had exposure to the PRSC for 2 years of residency. The following classes of residents were all exposed to the PRSC throughout all 3 years of residency. In the evaluation of published manuscripts for graduating residents, we present the percentage of graduating residents who published

their work as a first author anytime during their residency through the first year postresidency.

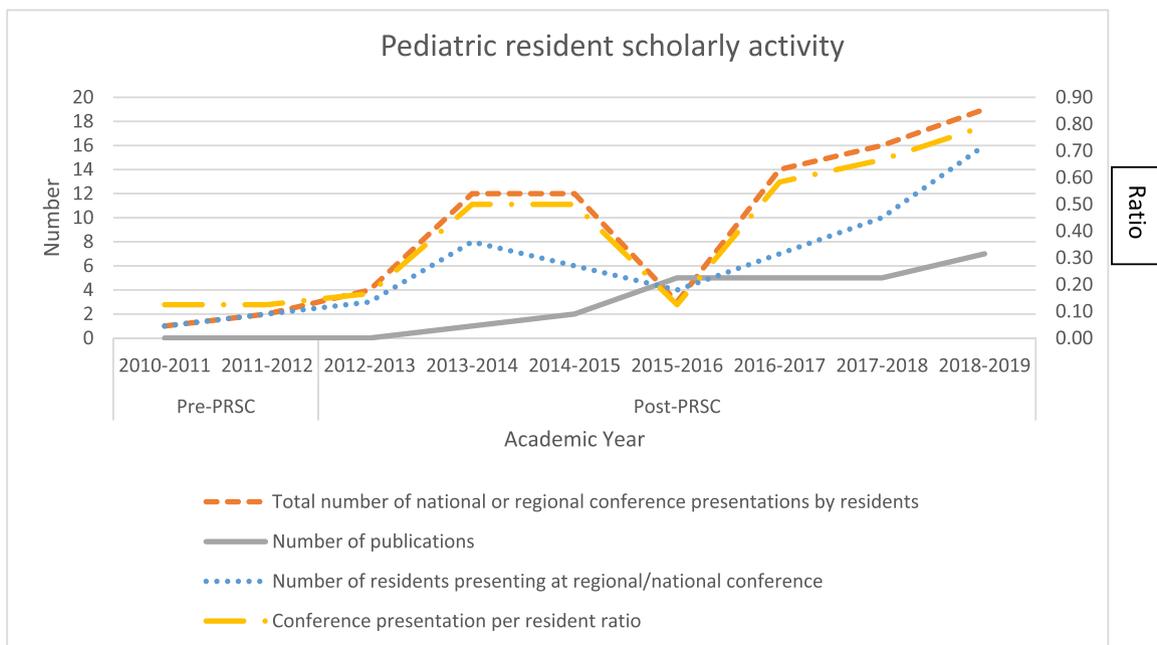
**STATISTICAL ANALYSIS**

Quantitative data are summarized as mean and standard deviations and qualitative data are summarized using frequency and percentage. The Student's *t* test is used to compare quantitative data between groups. A *P* value <.05 is considered statistically significant. SAS 9.4 (SAS Institute, Cary, NC) software is used for statistical analysis.

**OUTCOMES**

Over the initial 2 years post-PRSC, residents presented at an average of 8 national/regional conferences/ academic year and from the implementation of the PRSC through June 2019, residents presented at an average of 11.4 (standard deviation [SD] 5.9) national or regional conferences/academic year, as compared to 1.5 (SD 0.7) conference presentations/year pre-PRSC (*P* < .01).

Figure depicts the overall rise in the number of abstract presentations at conferences and manuscripts published over time. Accounting for a growing residency program, the mean number of conference presentations per resident increased from 0.13 over the 2 years pre-PRSC to 0.5 over the 2 years immediately post-PRSC, which was sustained over the 7 years post-PRSC (mean 0.48; SD 0.25; *P* < .01). In addition, an average of 13% of residents presented at regional/national conferences each academic year prior to the PRSC as compared to 23% residents/year over the first 2 years post-PRSC and an overall average of 31% (SD 15.4) of residents/year during the 7 years post-PRSC (*P* = .02); overall the trend increased over time with 14 of 24 (58%) of residents presenting at 19 regional



**Figure.** Scholarly activity of pediatric residents over time since the inception of the pediatric program at our institution both before and after the implementation of the PRSC. PRSC indicates Pediatric Research and Scholarship Committee.

or national conferences in the last academic year (2018–2019). Furthermore, 25 manuscripts reflecting work conducted during residency were published with residents as first author since 2012 (post-PRSC), with the first manuscript published in 2013, and 60% of the total manuscripts published within the last 3 years (2017–2019).

When comparing the 2 graduating classes with limited PRSC exposure (1 or 2 years of exposure) to the 5 graduating classes with full exposure to the PRSC during all 3 years of their training, we see an increase in the percentage of residents who presented at regional/national conferences by graduation as well as an increase in the graduating residents who had manuscript publications among the residents with longer exposure to the PRSC. An average of 27% (SD 3) of graduating residents with limited PRSC exposure (2 graduating classes) had presented at a regional/national conference during residency, as compared to 50% of graduating residents from the first 2 graduating classes with full-PRSC exposure, and 59% (SD 22) of all graduating residents with full exposure to the PRSC over the last 5 years ( $P = .03$ ). In addition, 7% (SD 9) of graduating residents with limited PRSC exposure had a manuscript published with first authorship during residency or within a year of graduation compared to 19% over the first 2 years of full-PRSC exposure and 32% (SD 22) of graduating residents with full exposure to the PRSC over 5 years ( $P = .12$ ).

## DISCUSSION AND FUTURE STEPS

The ACGME requirements for resident scholarly activity are not well defined, and the implementation of a scholarship oversight committee is not a standard requirement or practice for core pediatric residency, although required for fellowship programs.<sup>10</sup> Resident productivity in scholarly activity, as measured here by regional/national conference presentations and manuscript publications, was noted to increase after the implementation of the PRSC at our institution. This is a testament to the dedication and supervision of faculty mentors who support residents in the development of ideas for projects, track progress, and bring projects to completion.

While initiatives at other institutions have been developed primarily for second- and third-year residents,<sup>11</sup> integration of the PRSC's efforts early during the intern year of training may have a great impact on scholarly productivity throughout residency. The PRSC was implemented during the intern year of the graduating class of 2015. Six out of 8 (75%) residents of this class had at least 1 regional/national conference presentation by residency graduation. This is an increase from the 2 prior classes (25% and 29%, respectively), whose members were in second or third year of training when the PRSC was formed.

Interest in scholarly activity may reflect career interest, as well. The percentage of graduating residents pursuing fellowship or academic medicine varied each year. The percentage of residents pursuing either general pediatrics or a fellowship ranged from 25% to 75% each year. The

average percentage of graduating residents pursuing fellowship from 2013 and 2014 (classes with limited PRSC exposure) was higher (52%) than the average of the groups with full-PRSC exposure (46%).

A 2014 national program director survey found that on average, 13% of residents per program present at a national or international meeting and 8% publish their scholarly activity.<sup>12</sup> In addition, a recent 2018 publication highlighted a program created with the goal that every resident would receive training and conduct a scholarly project.<sup>13</sup> The initiative included 25% to 50% protected time for the associate program director to oversee the program and head the resident research and oversight committee, which consists of 10 faculty members to guide the residents during their scholarly activity. The program also includes faculty development sessions for research mentoring and providing didactics on conducting research. Thirty-two percent to 58% of residents at this program have presented at national or international conferences annually and 11% to 21% have published articles. Using our simplified model with limited resources, we have been able to achieve >60% of graduating residents presenting at a national/regional conference by graduation each year for the last several years. Furthermore, published manuscripts (including both case reports and original research) with residents as first authors also increased over time.

Our data may underreport scholarly activity for several reasons. The list of conference presentations tracked by the Department of Research at our institution may not have included some conferences in which funding was not requested. In addition, for this analysis, we included the residents if they were the first author for conference presentation and manuscript; additional residents did contribute as co-authors on scholarly activity.

Our study has various limitations. While we used the same criteria to rank residents for our program since the inception of the residency program, stronger applicants may have been attracted to a program with a longer track record, as compared with a brand-new residency program. In addition, the successes of residents, graduates, and the PRSC are discussed during recruitment season for the residency program. While advantageous to the program, this may have recruited stronger applicants or specifically those with a vested interest in scholarship, who then contributed to the scholarly activity noted more in recent years.

Our PRSC aims to strengthen its efforts by establishing a formal research curriculum for residents. A dedicated academic rotation with protected time for research and further education regarding research can also advance resident productivity.<sup>14</sup> Increasing faculty involvement to expand the array of research areas, providing faculty development and implementing tools to motivate mentors to bring projects to completion are likely to have a direct effect on resident scholarly activity. Ultimately, the goals are to increase publications with resident authorship and emphasize the institutional value of research.<sup>15</sup>

Our model may work best in a smaller program setting, as our committee was familiar with the scholarly

activities of each resident and could provide closer mentoring and monitoring; the model may need to be modified or expanded for a program with a larger cohort of residents.

While we strive to advance our research curricula and resources for residents similar to those described in larger pediatric programs, with our model, we were able to effectively increase scholarly activity in a meaningful and sustained manner.

## CONCLUSIONS

Implementation of a scholarship and research committee comprised of dedicated faculty can play a vital role in stimulating productivity in resident scholarly activity without the significant addition of often unavailable resources and funding. Our model can be adopted by other residency programs seeking to advance resident scholarly activities.

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