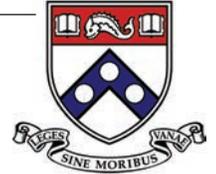




Orthopaedic Student Interest Group and Departmental Collaboration



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Background

Consistent with the competitiveness of matching in orthopaedic surgery, research productivity has become almost a prerequisite for medical students applying to competitive training programs. Specifically, matched orthopaedic surgery applicants have almost twice (11.5 versus 6.7) the number of research abstracts or publications as unmatched applicants, illustrating that research is an important metric through which students may be distinguished academically during the residency application cycle.¹ The summer between the first and second years of medical school represents an opportune time for students considering orthopaedics to establish research mentors and execute projects. Up to one-third of orthopaedic-bound students have identified an interest in orthopaedics prior to the start of medical school, with many individuals searching for research opportunities early in their education.² Unfortunately, opportunities for funded summer research in orthopedics are scarce. As a result, many students are drawn to paid temporary positions in other departments at the University of Pennsylvania Health System (UPHS), the Children's Hospital of Philadelphia (CHOP), or at other institutions rather than within the orthopaedics community at Penn. Despite the prevalence and positive effects of orthopaedic interest groups around the country for increasing student interest in, exposure to, and education about the field of Orthopaedic Surgery, research opportunities associated with funding are still difficult to find.^{3,4}

Initial Program Proposal

Therefore, the Leo Leung Orthopaedic Surgery Society (LLOS)—Penn's medical student interest group—proposed in 2017 a summer fellowship for interested and motivated students. In the summer of 2019, and through the collective efforts of LLOS and Dr. Jaimo Ahn, that idea came to fruition with the creation of the Penn Orthopaedics Summer Scholars (POSS) program. The idea for the proposed fellowship program has its roots in several other programs at both Penn and CHOP (Table 1). This program will allow students to defray summertime expenses while purposefully connecting students to the department bringing benefit to both parties. The only comparable established program known to the authors is an 8-week summer research fellowship at the Hospital for Special Surgery. The creation of POSS has, therefore, pushed Penn orthopaedics to the forefront of student education and engagement as one of the only university-based orthopaedics department to offer such a summer research program. Beyond the immediate benefits of increased research output from

fellowship-sponsored projects, such a program will facilitate relationships between students and faculty/residents, leading to potential future projects and the nurturing of leaders in the field.

Basic Program Structure

As part of the program, Penn medical students interested in orthopaedics are tasked with identifying a faculty mentor and research project for submission. Applications are due in mid-February, with final selection taking place in early March. The application consists of a participant's prior research experience (though prior experience is not a prerequisite), brief description of the applicant's interest in orthopaedic surgery, and a 2-page project proposal. In collaboration with the advisors of LLOS—Drs. Jaimo Ahn, Joseph Bernstein, and Kathryn O'Connor—the upperclass students (MS3 and MS4) of the interest group review individual applications and decide upon the award recipients. The initial program is composed of three funded positions, with each fellow receiving \$1,000 for 8-10 weeks of research in the summer. Faculty mentors are encouraged to host their fellows in the clinic and the operating room in addition to hosting regular (e.g. every 1-2 weeks) meetings with the student to review progress and to assess project roadblocks.

Program Outcomes

Scholarship recipients are required to (1) present the work from their primary research project at the Penn Orthopaedics Research Day and (2) submit an article to the University of Pennsylvania Orthopaedic Journal (UPOJ). Awardees will also be expected to be a co-author on at least one project submitted to a national conference and/or a peer-reviewed journal for publication.

Travel Grant

In addition to the challenge of finding summer research funding, many students find it difficult to fund travel to national orthopaedic conferences. With the creation of the POSS program, it will be important to support these students as they submit projects to conferences. Therefore, the Department of Orthopaedic Surgery has also generously contributed funding for the creation of an Orthopaedic Student Scholar Presentation Award. The award funds three \$500 travel stipends for Penn medical students providing them with the opportunity to present their research findings at a national orthopaedic surgery conference. Priority is given to abstracts accepted at larger conferences such as AAOs,

Table 1. Example Summer Research Programs at Penn and CHOP

Program Name	Department	Institution	Length	Funding	Spots
Agnew Society Fellowship	Surgery	Penn	6 weeks	\$500 (+ \$500 travel)	7
Anesthesia and Critical Care Fellowship	Anesthesiology and Critical Care	CHOP	8 weeks	Available	1
Center for Clinical Epidemiology and Biostatistics (CCEB) Fellowship	CCEB	Penn	Summer	\$3,000	2-4
Center for Emergency Care Policy Research Summer Fellowship	Emergency Medicine	Penn	8-10 weeks	\$2,000	2
Center for HealthCare Improvement and Patient Safety (CHIPS) Internship	CHIPS	Penn	6-8 weeks	\$3,000	NA
Clinical Neurosciences Training (CNST) Program	CNST	Penn	6 weeks	\$2,400	4
Diagnostic Radiology Summer Fellowship	Radiology	Penn	6 weeks	\$1,500	5
Infectious Disease Diagnostics Summer Internship	Infectious Disease	CHOP	8 weeks	\$5,000	2
Institute for Translational Medicine and Therapeutics (ITMAT) Internship	ITMAT	Penn	Summer	\$3,000	1-2
Interventional Radiology Summer Scholars	Interventional Radiology	Penn	6 weeks	\$1,500	5
Joseph Woo, MD Fellowship in Cardiovascular Surgery	Cardiovascular Surgery	Penn	Summer	\$2,000	1
Medical Student Health Services and Policy Research Summer Research Fellowship at Penn	Leonard Davis Institute of Health Economics	Penn	Summer	\$3,000	1-3
Otorhinolaryngology Summer Research Fellowship	Otorhinolaryngology	Penn	8 weeks	\$2,000	2
Pathology Summer Internship	Pathology	CHOP	Summer	\$5,000	1-2
Pediatric Cardiology Summer Program	Cardiology	CHOP	6-8 weeks	Available	1-2
Pediatric Center of Excellence in Nephrology (PCEN) Summer Research Scholars Program	PCEN	CHOP	8 weeks	\$4,000	NA
Robert L. Mayock Student Fellowship	Allergy, Pulmonology, Critical Care	Penn	8-10 weeks	\$3,500 (+ \$1,500 travel)	1
Women's Health Innovation Summer Fellowship at Penn	OB/Gyn	Penn	8 weeks	\$1,500	1

ORS, and primary subspecialty society meetings (POSNA, OTA, ASSH, etc) as well as to more senior medical students (although medical students from all years can apply).

Conclusion

Penn Orthopaedics stands to benefit from increased medical student involvement in various capacities. Historically, Penn medical students interested in orthopaedics have struggled to find funded, productive research opportunities for the summer between their first and second medical school years. The leaders of LLOS and our faculty advisors believe that the establishment of the POSS program will fulfill the needs of both Penn medical students and the Penn Department of

Orthopaedic Surgery. This program has the potential to spur meaningful research and improve trainee career development.

References

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