OREF Funding and Future Success: Five-Year Update and Expanded Inclusion

Nicholas Peterson, Alan K. Li, Parsa Asachi, Abdulrahman Almalouhi, Jeremiah M Taylor, Michael Le, Christopher D Hamad, Nicholas M Bernthal[1]
[1]UCLA, Dept. of Orthopaedic Surgery

INTRODUCTION: The Orthopaedic Research and Education Foundation (OREF) is the primary nongovernmental source of orthopaedic funding in the United States. A stated goal of OREF is to promote career development for surgeon scientists and serve as a bridge to secure federal funding. A study in 2017 demonstrated the importance of the OREF Career Development Grant in securing future federal funding. This study expands the inclusion of the OREF grants types analyzed and federal funding secured to better predict factors for success of developing academic clinicians.

METHODS: Data regarding OREF grants was generously provided by OREF and included name of principal investigator, institution title of grant project, year of grant, grant amount, and project year. Federal funding searches were performed using the NIH RePorter website, the DoD grant award website, the NSF foundation grant awardee's website, and the AHRQ grant awardee website. Demographic information was collected from departmental websites, including gender, date of completion and type of advanced training. H-index was calculated at different time points using the Web of Science author report. Grant types included were career development grant, directed research grant, mentored clinician scientist grant, new investigator grant, OREF clinical award, OREF clinical research award, prospective clinical research award, young investigator grant, and Zimmer career development grant. Grants from 1994-2019 were included. Federal funding was included only if the federal grant was awarded after the OREF grant was awarded. Data on institutional funding was collected from the Blue Ridge Institute for Medical Research for Orthopaedic Departments for 2021. Only full-time orthopedic surgeons associated with academic institution were included in the analysis.

RESULTS: A total of 357 grants were awarded to 319 individuals. Types of OREF grants awarded are listed in figure 1 and average grant amount is listed in figure 2. Overall, 68/319 (21.3%) individuals were awarded a NIH grant after their OREF grant. 9/319 (2.8%) were awarded a DOD grant. No NSF grants were identified and one AHRQ grant was identified. 19/45 (47.5%) of the Career Development Grant winners, 36/149 (24.2%) OREF Research Grant winners, and 28/163 (17.2%) of all other grant types were awarded NIH funding. First grant value leading to NIH funding was assessed in quartiles with values ≤$50,000 (n=132, 13/132 (9.85%)), $50,001 to $100,000 (n=127, 31/127 (24.4%)), $100,001 to $150,000 (n=30, 8/30 (26.7%)), and >$150,000 (n=30, 10/30 (30%)). There was no strong correlation (R^2=0.17) between top 10 orthopaedic department institutional NIH funding in 2021 and number of OREF grants awarded. Of all OREF grants, 175 (49%) were basic science (cell biology) with 49 (28%) receiving NIH funding, 46 were basic science (biomechanical) with 11 (23.9%) receiving NIH funding, 114 were clinical with 16 (14%) receiving NIH funding, and 22 were epidemiological with 4 (18.2%) receiving NIH funding. Types and numbers of NIH awards are listed in figure 3.

DISCUSSION AND CONCLUSION:

Even when including a larger number of grants and considering initial grant value, the Career Development Grant had the highest success rate in securing future federal funding (47.5%). Overall grant value had a predictable increase in converting to federal funding, ranging from 9.75% at the low end and 30% at the highest end. Interestingly, there was not a strong linear relationship between orthopaedic departmental NIH funding and OREF grant awardees; however, this was only compared to the most recently published departmental funding data. DoD funding represented a minority of federal, all nine grants were awarded after 2016, and all grants were preceded by an NIH grant. This may indicate a trend towards DoD funding of well-established orthopaedic labs in the past five years. Future studies could investigate factors that would improve access to funding pathways in less established orthopaedic departments and the impact of resident funding on transition to surgeon-scientist.

	Title	n	Avg Value
R01	Research Project	35	$658,283.81
K08	Clinical Investigator Award (CIA)	15	$440,025.68
R03	Small Research Grants	15	$283,292.11
R21	Exploratory/Developmental Grants	10	$221,777.20
K23	Mentored Patient-Oriented Research Career Development Award	7	$242,951.74