Impact of Spine Surgeons on National Institutes of Health Grant Funding Awarded for Degenerative Spine Disease Research

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INTRODUCTION: Surgeon scientists remain under-represented among recipients of National Institutes of Health (NIH) grants despite their unique ability to perform translational research. This study elucidates the portfolio of NIH grants awarded for Degenerative Spine Diseases and the role of spine surgeons in this portfolio.

METHODS: The most common diagnoses and surgical procedures for Degenerative Spine Diseases were queried on the NIH RePORTER database (2011–2021). Total NIH funding was extracted for twenty additional clinical areas and compound annual growth rates (CAGRs) were calculated. A retrospective cohort study of principal investigators (PIs) was conducted. NIH grants and funding totals were extracted and compared to those from other clinical areas.

RESULTS: The total NIH research budget increased from $31 to $43 billion over the 10-year period (CAGR=3.4%). A total of 273 unique grants were awarded for Degenerative Spine Diseases totaling $91 million (CAGR=0%, Figure 1). Diabetes ($11.8 billion, CAGR=0%), Obesity ($10.6 billion, CAGR=3%), and Chronic Pain ($5.6 billion, CAGR=7%) received the most funding. Most NIH funding for Degenerative Spine Disease research was awarded through the R01 (66%) and R44 (8%) grant mechanisms. The National Institute of Arthritis and Musculoskeletal and Skin Disease (64%) awarded the most NIH funding. Departments of Orthopaedic Surgery were awarded the most funding (32%). NIH funding supported clinical (28%), translational (37%), and basic science (35%) research. Disease Mechanisms (58%), Imaging Modalities (20%), and Emerging Technologies (16%) received the most funding (Figure 2). Nineteen spine surgeons were identified as PI (16%). There were no significant differences in NIH funding totals by PI demographic and academic characteristics (P>0.05) except for Full Professors who had the most NIH funding (P=0.007) and h index values (P<0.001).

DISCUSSION AND CONCLUSION: Few spine surgeons receive NIH grants for Degenerative Spine Disease research. Future opportunities may exist for spine surgeons to collaborate in identified areas of clinical interest. Additional strategies are needed to increase NIH funding in Spine Surgery.