Project Title: National Research Sustainability Action Plan for Surgeon-Scientists

Fellows Name and Institution: Daniela P Ladner, MD, MPH, John Benjamin Murphy Professor of Surgery, Feinberg School of Medicine, Northwestern University (FSM/NU)

Name of Collaborators and mentors:

Sponsors: Hasan Alam, Chair of Surgery (FSM/NU); Sorond Farzanah, Vice-Dean of Faculty Affairs (FSM/NU); Robert Lowe, Outgoing Vice-Dean of Faculty Affairs (FSM/NU); Diana Farmer, President American Surgical Association (ASA) [ELUM]; Collaborators: Shelley Hwang (Co-Chair), Vice-Chair of Research Duke University [ELUM]; Allan Goldstein (Co-Chair), Chief Pediatric Surgery, MGH and ASA Research Sustainability Task Force.

Background/Significance of project:

Historic contributions from surgeon scientists have transformed our understanding of human disease with no fewer than 9 Nobel Prizes awarded to surgeons (e.g., Murray). Surgeon scientists have faced unique barriers (e.g., time-intensive practice, RVU-based compensation), which has led to surgeons being disproportionately underrepresented among clinician-scientists and receiving less NIH funding. Despite this, some institutions, and departments of surgery (DOS) continue to provide a fertile environment, with highly competitive surgeon-scientists. A task force with highly funded DOSs offers the opportunity to leverage that knowledge.

Methods/Approach/Evaluation Strategy:

A national Research Sustainability Task Force (Co-Chairs: Ladner, Hwang, Goldstein) was created with the endorsement of the American Surgical Association (ASA). Chairs and VCRs of top NIH sponsored DOSs were invited (N=22, 100% participation). 5 meetings were held between 1/2023-5/2023. A literature review and SWOT analysis was performed, and work groups were formed focusing on actionable items in 7 categories (surgeons, mentorship, financial design and funds flow, structural/strategic support, community and culture, institutions, societies/funding agencies). Results will be published as a white paper by 5/2023.

Results

Important elements for research success and sustainability are listed by category. Surgeons: Mindset (develop research focus, planning for the long game, development of patience and tenacity and embrace of team science) and skillset (align skillset with research, filling of critical scientific gaps, team science leadership skills). DOS/Mentorship: Chairs: Mentors/mentee matching and accountability, providing sponsorship for mentees. Mentors must have relevant scientific expertise, active extramural funding, mentoring training and/or experience. Mentees must be organized, proactive, open to feedback with a clear goal. Topics should include research, professional development, academic guidance, skill development and work-life integration. DOS/Financial support is essential for talent acquisition development and infrastructure development. Diversification of research portfolio (federal (e.g., DOD, PCORI), foundations, societies, industry), understanding the institutions funds flow, and generating philanthropic support are key. DOS/Strategic/Structural Support: Structural (Grants administrative support, biostats/bioinformatics, clinical research support, regulatory support, shared lab space, equipment). Strategic (strategic hiring, faculty recruitment and retention, philanthropy, tracking of progress, mentorship for grant writing, DOS-wide scientific meetings, strategic planning). DOS/Building community/culture: right mix of faculty, connecting surgeon-scientists with institutional scientific community, value placed on science (scientific grand rounds, competitive salaries, division chief IC tied to divisional research success, DOS awards, research requirement for residents). Institutions: foundation (real estate loans, cross-dep appointments, co-location of research space, multi-year flexible start-up packages, grant writing courses, mock
study sections), nurture (grants management, tissue acquisition, allowance for bonuses, bridge funding, promotion w/ consideration of clinical work, appointment of surgeon-scientists as division chiefs), expectations: RVU target relief, competitive salaries, longitudinal salary strategy for surgeon-scientist. Societies/funding agencies: changing training paradigms for surgeon-scientists, offer alternate awards to K-awards, representation at study section.

Summary/Conclusion:
It is imperative that leaders in academic surgery modernize surgical training. We have outlined action items for surgeon-scientists, department chairs and vice-chairs of research, institutions and funding agencies. The committee will pursue these action items to advocate for surgeon-scientists with funding agencies and will engage with key organizations (e.g., ACGME, ABS) to create a sustainable surgeon-scientist training model.