

From FAER to K Grant NIBIB Funding

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Career planning in medicine can be a difficult process.

It involves short bursts of intense decision-making followed by sustained education and clinical training. After this, perhaps a specialty speaks to you, as pain medicine did for me, and then you add on fellowship training. Sometimes you have unplanned experiences; this is what happen for me. Walking into Dr. Troels Jensen's pain lab in Aarhus, Denmark, I saw a path I had not considered – research. I experienced an environment of creativity, intellectual curiosity and possibilities. The path to my NIH Mentored Career Development Grant (K08) was paved with rejection letters, stepwise successes, and support from numerous mentors, sponsors and colleagues.

Despite being surrounded by brilliant people doing interesting things at Johns Hopkins, research was not part of my everyday trainee clinical experience. With the support of Drs. Wu, Raja and Ulatowski, I began to understand the basics of research. During my pain fellowship, I formalized my research education through the Johns Hopkins CTSI certificate program. I translated my first formal research idea into an abstract that resulted in a fellow travel award to the American Society of Regional Anesthesia and Pain Medicine. It was this small success that reinforced my desire to continue down this research path.

I had the benefit of being surrounded by experienced M.D. and M.D./Ph.D. researchers in my first faculty position at the University of Florida. I realized my classics major in college had not prepared me for the formal aspects of research and that I would require additional knowledge to be successful. So, with the support of my chair, Dr. Enneking, I enrolled in the M.Sc. in Clinical Translational Science. With the

mentorship of Drs. Vincent and Fillingim, I developed some of the necessary background for translating ideas into hypothesis-driven research proposals. The downside was that the completion of the program took three years as I worked around my full clinical commitment on nights, weekends and during two maternity leaves. Unfortunately, I was not able to translate my “big ideas” to publish in a way that mirrored those of the internal medicine fellows who comprised the remainder of the M.Sc. program. The reality is that many departments of anesthesiology are not set up to prioritize or support this research ambition in junior clinical faculty. It can come down to whether the department leadership is willing to take the time to invest in your success, and my chance came when I was recruited to the Medical College of Wisconsin (MCW) by Dr. David Wartier.

Dr. Wartier supported a day of non-clinical time to pursue research questions, and Drs. Ebert and Fox took part in numerous “I have an idea” meetings with me. The MCW team enthusiastically supported my grant applications. During this time, I was invited to be the pain medicine fellowship director. While my long-term goal involved a different type of project, I designed my initial research work to leverage my regular fellowship education responsibilities. Prior to stepping into this PD role, I was constantly challenged by the “simple” requests from trainees about what references to use for their pain rotations and board studying. Lacking a reliable reference that balanced the depth and breadth of the novice learner, I was able to successfully propose (on the revised application) the development and studies of the impact of a mobile app for pain education. FAER (partially funded by the Society of Academic Anesthesiology Associations) supported me in developing this idea through the Research in Education grant mechanism, which freed up the mental space (non-clinical time) necessary to successfully achieve funding for my next idea.

The more I practice pain medicine, the more I realize how important mood and behavior are in patient experiences and outcomes. Yet this is very challenging to extract from existing data sources. In considering my clinical work through the filter of my CTSI research training, I realized how such key data about people with pain becomes buried in the unstructured free text of clinical records. Knowing why they stop moving, what their goals are and how pain interferes



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with their daily lives is critical. Unlocking this information is a challenge for automated informatics methods because of the subjective nature of pain and the way we record it. Pain is both a symptom and a disease, creating nuances that machine learning algorithms poorly capture. Since computer science was unable to understand pain well enough to answer my questions, I needed to understand these machine learning concepts to build the algorithms, organizational structures and predictive models to fill this critical gap. My plan to accomplish this goal was recently funded by the NIH National Institute of Biomedical Imaging and Bioengineering (NIBIB).

With a blend of luck, persistence and hard work, I am the first anesthesiologist with a K grant funded by NIBIB, perhaps a more surprising outcome for a person with my background. Another key component of my success has been the support of my current chair, Dr. Cynthia Lien. My work focuses on identifying opioid response phenotypes for people with low back pain using informatics approaches in electronic health records. FAER has been instrumental to my success in this endeavor. FAER's generosity funded my first

peer-reviewed project and invested in my career success as well as my idea. My FAER grant not only gave me the time and grant writing experience I needed to develop my career, it was also specifically mentioned as a strength in my K08 review by the NIH.

While I believe FAER plays a very important role in supporting mentored experiences, the foundation takes that a step further by sponsoring the careers of junior investigators. This crucial step provides junior clinician scientists with the ability to highlight our work to the anesthesiology community. Having a FAER grant was instrumental to my success. It has opened professional doors and sparked opportunities that I might not otherwise have been able to experience. I am incredibly grateful for the support and opportunities that FAER has provided and for the gift of time that helped me build toward the next step of my research career. FAER's support undoubtedly is something incredibly precious, as it allowed me to cross this first finish line in a way that will define my career.