

Chad Brummett, M.D., Recipient of the 2017 James E. Cottrell, M.D., Presidential Scholar Award

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WHEN I was informed that Chad Brummett would receive the 2017 American Society of Anesthesiologists Presidential Scholar Award, I was very pleased and proud but not surprised. Chad was a graduate of Indiana University (undergraduate and medical school) who chose to venture north to Michigan for residency. Chad was exceptional from the very start. Not simply by being a great resident clinically (he was elected chief resident in his senior year), but because he had a burning passion for scientific inquiry from the beginning. I would step out of my office at any time day or evening to find Chad on the phone or at the computer coordinating a research plan, talking with someone in our research laboratories, or consulting the Food and Drug Administration regarding his translational research.

His first project was to determine whether dexmedetomidine could be used safely and effectively as an adjuvant added to local anesthetics to extend the duration of a peripheral nerve block. This required a small animal study to assess the duration of block and also to determine any potential nerve injury due to the addition of dexmedetomidine. To accomplish this, he had to learn a technique that was unknown in our department at the time. He asked for some time and support for a short trip to another institution to learn the technique. A month or so later, I was presenting grand rounds at Brigham and Women's Hospital (Boston, Massachusetts), when I noticed a young man in the back of the audience who had a striking resemblance to Chad, and then a big smile erupted. This preclinical research, which he pursued assiduously during residency and early faculty years, resulted in four basic science articles published in *ANESTHESIOLOGY* and *Regional Anesthesia and Pain Medicine*.¹⁻⁴ Furthermore, Chad's work moved beyond observation to mechanistic inquiry regarding dexmedetomidine's actions to prolong nerve blockade.

Chad did not rest satisfied with preclinical success alone. Collaborating with colleagues in Europe, he conducted a prospective, randomized controlled trial in humans to fully confirm the clinical relevance of his finding, which was published in *Regional Anesthesia and Pain Medicine*.⁵ Many studies have replicated this finding, with support at the level of meta-analysis. This remarkable sequence of events demonstrates Chad's ingenuity (generating hypotheses as a junior resident), dedication (conducting basic science during residency in his spare time), and commitment to science in the



Fig. 1. Chad Brummett, M.D., recipient of the 2017 James E. Cottrell, M.D., Presidential Scholar Award.

service of benefiting patients (translating his preclinical findings to a prospective clinical trial).

Chad chose to go to Johns Hopkins for fellowship training in pain medicine before returning to our institution. This turned out to be the best decision of his life. Not only because of the excellent training he received at Hopkins, but because he returned with a fabulous Australian wife, and they now have three beautiful Aussie-American children.

Chad returned as a junior faculty shortly after Dr. Dan Clauw, a senior faculty member from rheumatology and world-class pain researcher, joined our department. He was the principal investigator of the University of Michigan's National Institutes of Health (NIH) Clinical and Translational Research Award (CTSA). He said that he was stepping down from the CTSA position and wanted to transfer his research group from the Department of Internal Medicine to our department because we had a greater commitment to pain research. I was struck by his array of NIH-funded

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grants but what made this meeting more amazing was that he said his other great interest was mentoring junior faculty to become NIH-funded investigators. Chad and Dan thereafter became a powerful team, with each contributing unique expertise and skills to outstanding research and NIH success.

Chad's success and commitment to research was recognized with an appointment as Director of Pain Research in our department. Although the studies of dexmedetomidine, nerve blockade, and nerve injury were promising, with the mentorship of Dan, Chad moved into a second and even more impressive phase of his academic career.

Chad has led a research group demonstrating that patients with a centralized pain or a fibromyalgia-like presentation had poorer acute and long-term pain outcomes after total knee and hip arthroplasty. In two parallel studies published in *ANESTHESIOLOGY*, the fibromyalgia survey score was independently associated with increased opioid consumption in both lower extremity joint arthroplasty and hysterectomy.^{6,7} Furthermore, he led the development of the "Michigan Body Map," which is an instrument used to assess widespread body pain to more accurately measure the fibromyalgia survey score and consequently help direct treatment. The acute pain findings for the fibromyalgia measure led to a second R01, which includes neuroimaging, quantitative sensory testing, and more granular follow-up of acute and subacute pain to identify the mechanisms of these associations. More recently, Drs. Brummett and Clauw leveraged the data from their first R01 of chronic pain outcomes for a newly funded program project from the National Institute of Arthritis and Musculoskeletal and Skin Disease (P50). This study includes additional surgical and nonsurgical cohorts and brain imaging to better understand the long-term outcomes found in their previous observational studies. These studies will help improve our understanding of personalized pain care both in the acute and chronic pain settings.

Parallel to the observational data collected from the NIH-funded work, Chad helped develop one of the first consents at the university to allow for broad long-term use of genetic data and health information for future research.⁸ This unique and essential attribute of this consent enabled this study, and ultimately other studies, at the University of Michigan. Chad recruited a research team to collect blood samples and consent patients in the preoperative holding area. Our medical school recognized the quality and effectiveness of his team and requested that he expand and accelerate the recruitment of patients for a larger biorepository (the Michigan Genomics Initiative). His research team now stands at 42 and has enrolled more than 47,000 patients to date.

Most recently, Chad expanded his studies of acute and chronic pain to address a serious public health problem in the United States, the opioid epidemic. Although primary care and pain physicians have been the focus of most of the narrative regarding the opioid epidemic, Chad recognized the importance of improving surgical prescribing

as a means to create a preventative model to address new chronic opioid use and abuse. In collaboration with two researchers in the Department of Surgery, he started the Michigan Opioid Prescribing Engagement Network (Michigan OPEN), which aims to educate patients and prescribers, ensure safe and appropriate prescribing of opioids for acute care, and create pathways and mechanisms for safe disposal of opioids after discontinuation.⁹⁻¹⁴ The program partners with a unique structure of Blue Cross Blue Shield of Michigan-funded quality collaboratives, including multiple surgical specialties, anesthesiology (ASPIRE), and emergency medicine. Michigan OPEN is funded through a large grant from the Michigan Department of Health and Human Services. In addition, Chad is the co-principal investigator of a new R01 likely to be funded this summer (fourth percentile score) to further the reach of this important program.

The team has been academically productive with recent publications in high impact journals in anesthesiology, pain medicine, and beyond, including the *Annals of Surgery*, *JAMA*, and *JAMA Surgery*.^{9,11-14} Chad's *JAMA Surgery* article has enjoyed widespread media attention, thereby giving Chad and our field some positive press, which is unfortunately too infrequent.

Three years ago Chad and his team partnered with the Ann Arbor police to run a "Medication Take-Back Day." This year the program has expanded to six locations throughout the State of Michigan. The Ann Arbor location alone collected almost 600 lbs of pills and patches. Who knows how many lives may be saved by this effort?

In addition to Chad's research contributions, he plays significant administrative roles in our department, in our institution, and nationally. As well as being on the editorial board of *ANESTHESIOLOGY*, he is a senior editor of *Regional Anesthesia and Pain Medicine*. He is our Director of Pain Research, has been the Associate Chair for Faculty Affairs, and is currently the Director of Clinical Research for our department. As stated above, his involvement in the biorepository has made him the Co-Director of the Michigan Genomics Initiative as part of the institution's Precision Medicine Initiative.

Chad has published more than 60 peer-reviewed articles, eight book chapters, and one book (Oxford University Press) while being principal investigator, co-principal investigator, and co-investigator on 33 grant submissions. Chad's intelligence, motivation, collaborative skills, leadership, and work ethic are evident to all who meet him and have virtually assured his success.

In conclusion, it has been an absolute pleasure to watch Chad's career develop from a resident to an internationally recognized academician. I feel we are very fortunate to have him not only as a faculty member here at the University of Michigan but also as a member of our specialty.

Competing Interests

The author declares no competing interests.

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