Board of Directors Spotlight: Dr. Lara Boyd

ASNR provides Members with excellent opportunities to serve in various leadership roles in the society, including on our Board of Directors. We are excited to feature one of our newest Board of Directors Members, Laura Boyd, PT, PhD. Currently, she is a professor and distinguished university scholar at the University of British Columbia (UBC) in Vancouver, Canada. In this interview, she shares more about her career, her research, her role as a leader in ASNR, and her perspectives on challenges and opportunities in the field.

1) How did you get interested in science, and what steps did you take to get to your current role?

I was recruited to UBC as a Canada Research Chair from the University of Kansas Medical Center in large part because of my MRI-based work on stroke recovery. The steps to get here were certainly not linear. In fact, I view myself as a bit of an accidental scientist; my plan in college was to be an English Professor. However, I suffered a bad knee injury playing basketball in college, and after a year of physical rehab, I became very interested in physical therapy. Knowing I wanted to work in neurorehab after finishing my clinical degree, I took a job at Rancho Los Amigos Medical Center (what a wonderful place to start a career!). Yet, I was immensely frustrated as I worked in the stroke recovery unit. I felt I could not really help my patients recover because I did not understand the brain well enough to know how to help it heal. I was like a car mechanic who had no idea how engines worked. After just two years in clinical practice, I returned to school for my PhD, and I have been working to figure out how the brain functions normally, and after stroke, ever since.

Getting to where I am now was a combination of a lot of hard work and also a bit of luck. I started in neuroscience research just as new tools, including magnetic resonance imaging (MRI) and transcranial magnetic stimulation (TMS), became available; these opened up entire new lines of research focused on mapping brain changes in response to interventions in near real time. Being surrounded by other researchers and talented students has also been crucial to my career success. Science is definitely a team sport, and building a great team has been a key element in my career.

2) What is the focus of your current research, and what are some of your key findings?

I work in the field of stroke recovery with an emphasis on discovering how neuroplastic processes operate in a damaged brain. I tend towards more basic scientific work as I have

always been very interested in how behaviour and the brain interact to produce purposeful movement. I think that gaining a greater understanding of the basic neurobiology of the human brain will allow us to develop more effective interventions and accurately match patients with therapies.

Recently in my lab, we have been very interested in how different populations of interneurons are activated during motor learning. We can test distinct populations of interneurons with transcranial magnetic stimulation. Our work has shown that the relative excitability of the interneurons is shifted by behaviour, and after stroke, the magnitude of these changes is related to motor recovery. Given this finding, we are currently investigating whether this type of transcranial magnetic stimulation mapping might be useful as a biomarker to indicate the likelihood of a positive response to repetitive (therapeutic) transcranial magnetic stimulation.

FAST FACTS

FAVORITE BREAKFAST CEREAL

I AM NOT A CEREAL PERSON—I HAVE YOGURT EVERY MORNING

FAVORITE BOOKS OR MOVIES

EAST OF EDEN BY JOHN STEINBACK. A GORGEOUS BOOK. I RE-READ IT EVERY FEW YEARS (SEE #5).

FAVORITE PLACES TO TRAVEL

I GREW UP HIKING IN THE CASCADE MOUNTAINS IN OREGON AND DESPITE TRAVELING ALL OVER THE WORLD, THEY CONTINUE TO BE THE PLACE I AM MOST DRAWN TO.

FAVORITE SCIENTIFIC JOURNALS TO FOLLOW

I LOVE READING ALL OF THE DIFFERENT ARTICLES IN *NATURE*—THERE ARE ALWAYS BRILLIANT NEW FINDINGS AND IDEAS THAT JUST AMAZE ME.

IF YOU DIDN'T PURSUE A CAREER IN NEUROREHABILITATION, WHAT OTHER CAREER MIGHT YOU HAVE CHOSEN?

I WOULD HAVE BEEN AND ENGLISH PROFESSOR (OR A PROFESSIONAL BASKETBALL PLAYER!).

3) Why did you decide to get involved with the ASNR Board of Directors?

I have been involved with ASNR since I was a graduate student (which was a long time ago) and have always seen it as the leading neurorehabilitation group in the world. It is one of the few spaces that brings together individuals who have dedicated themselves to discovering how to best inform and shape rehabilitation for patients with serious neurology injury or disease. It is an honor to be able to serve this community.

4) What are you most looking forward to in your role as an ASNR Board Member?

Meeting and learning from other people across the neurorehabilitation community is something I'm particularly looking forward to. The field is changing and growing so quickly that it is exciting to get to talk with others and share findings and ideas.

5) What do you see as the biggest challenges or areas of opportunities in neurorehabilitation research right now?

I think our biggest challenges right now are confronting skepticism around science and countering mis-information. The rise of artificial intelligence (AI) only makes this harder as it

presents information in black and white terms. We know that science lives in grey areas, where discoveries help to clarify things. But this happens in small ways that, when combined, advance our understanding. I think that somehow, we need to help the lay public understand this process and be more comfortable with the idea of not always having answers but instead working iteratively to solve problems.

Our greatest opportunity lies in the generation of big data that allows us to combine information from smaller studies into large, open datasets. This is such an advantage for discovering complex relationships and understanding sub-populations within diagnostic groups. In my field of stroke recovery, we have for too long acted like stroke was a unitary condition, when in reality, there are many sub-populations of individuals with stroke. Using big data, we are starting to understand how to best define these sub-populations. In doing so, we can provide the correct therapy at the right time to the patients who are most likely to benefit. That is a really exciting prospect and one that my work is seeking to advance.