An Unexpected Lesson in Global Nephrology

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In the spring of 2017, I received an invitation to teach the 5th edition of the Scientific Writing Academy (SWA) at the Mario Negri Institute. My task was to guide young scholars in writing a scientific paper using real data; the stated objective was to equip researchers with the tools to publish high quality papers in top international journals and to prepare grant applications. I was concerned about the time commitment, since the course lasted a week, but accepted, anticipating that this would be relatively straightforward.

I arrived at the course site, the Villa Camozzi in Ranica (just outside Bergamo, Italy) in September 2017, and met with the SWA program developers, Profs. Ariela Benigni and Giuseppe Remuzzi. Among other things, they explained that by working, eating and sleeping in the same building, my students and I might develop connections and insights beyond the formal classroom experience. Buoyed by their enthusiasm, I went to meet the students: Bhawesh was a clinical pharmacologist at the B.P. Koirala Institute of Health Sciences, Nepal; Addisu was a nephrologist at Addis Ababa University in Ethiopia; Anil was a pediatric nephrologist with molecular genetics training working at St. John's Medical College Hospital in Bangalore, India; Timothy was a nephrologist with a

Masters in Epidemiology at the University of Ilorin in Nigeria; Niji was a Nephrology Resident from Obafemi Awolowo University Teaching Hospital Complex Ile-Ife, Nigeria; Megan was a nephrologist at Groote Schuur Hospital in Cape Town, South Africa; Anna was a nephrologist from Catania, Sicily; Francesca was a Nephrology Resident from Bari, Italy; and Matteo (genetics and bioinformatics) and Paola (microscopist) were researchers at the Mario Negri Institute.

We began by reviewing the data collected under the leadership of Dr. Barbara Ruggiero at the Mario Negri Institute. My plan was to give an informal lecture on the section of the manuscript we would be writing, followed by breaking up into small groups for about 2 h, and then the class and I would synthesize the small groups' contributions into a final product. This format would be repeated each morning and afternoon for most of the week. Finally, we would conclude by talking about grant funding.

During the first full day, I tried to assess each student's unique needs and circumstances. That night, I tiredly sat in my room and seriously questioned my classroom plan in general, and my ability to be an effective mentor and teacher in particular. It was not that the research paper

topic was terribly difficult; rather that, other than a few students who fit my familiar researcher phenotype, most of these students were far outside my experience with junior investigators climbing the U.S. academic ladder.

I did not think that I was terribly naïve about the challenges of nephrology care in developing countries, but hearing it first hand was game changing. Some of my students worked in countries with a massive shortage of nephrologists (~0.1 nephrologist per million population compared to ~34 nephrologists per million in the U.S.). In some countries, chronic dialysis was almost unavailable (<10 chronic dialysis patients per million vs. ~1,450 per million in the U.S.). Patients from these countries had extremely limited access to acute dialysis and minimal chance for a renal transplant; dialysis dependency lasting more than a week or 2 was a death sentence for most. I tried to imagine counseling these patients about their dismal future. How, with such huge patient demands, minimal therapeutic options and depressing outcomes, could many of these students find the time and energy to conduct studies and obtain research funding? Would my “teaching pearls” be relevant to them? Did they really want to publish in top journals? Did they even possess the skills to incorporate my teaching into future papers and grant applications? Why were they here?

Regardless of their personal motivations, it became evident that whatever writing skills these students lacked, they thought as critically as any class I have taught. Everything was challenged, from hypotheses to data collection to statistical analysis to relevant literature to conclusions.

Arguments, sometimes a bit heated, erupted. I think we kept the Mario Negri statistician much busier than she had anticipated. And throughout this process, the questions never stopped and the enthusiasm never dimmed. None of the students would get their name on this paper, so why were they so engaged?

The simple answer is that they are passionately committed to a brighter future for patients with kidney disease in their countries. They want to publish in top-tier journals but care most about leveraging what they learn into publishing studies that help with, and increase awareness of, preventing and treating kidney disease in their homelands. They unfailingly continue their pursuit of significant research support despite severely limited available funds. They get frustrated with seemingly insurmountable obstacles but are not defeated.

I did not give my students a test; I hope that they have a better understanding about how to design, conduct and write a good study. However, while they had one main teacher, I had ten. They taught me that talent and drive can be found anywhere, that but for the circumstances of our births we could have interchangeable lives, and that they are the future of global nephrology.

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