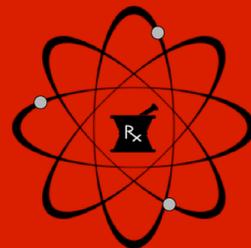


The Nuclear Monthly Missive



CAUTION:
RADIOACTIVIST
AREA



Brought to you by the
APhA-APPM Nuclear Pharmacy Practice SIG New Practitioners Committee

February 2014

Ever Growing, Ever Learning



“My favorite uncle was a pharmacist, and I grew up sitting on his lap while he compounded medicines for the community.” Jim Velez watched as his uncle mixed and poured and served

his neighbors and friends, and he knew pharmacy was for him. He continued his pursuit for learning the art of pharmacy, and years later, he found himself entering pharmacy school at St. John’s University.

During pharmacy school, Jim interned in a variety of settings -- hospital, commercial, and community pharmacies -- but he didn’t find these challenging. He even landed a student position with Pfizer in the compounding department, and while he liked the hands-on approach that it offered, he knew there had to be a different path available. In 1979, Jim stumbled upon an article in *Contemporary Pharmacy Practice* discussing radiopharmacy.

“Radiopharmacy? I had never heard of it, but I was completely taken by it!” This was the new route he was searching for. He immediately took the article to the University’s administration to learn more, but unfortunately (and quite surprisingly), they had

never heard of radiopharmacy either. This didn’t stop Jim.

He contacted Mary Immaculate Hospital in New York, a hospital he had rotated through as a student, and connected with their nuclear medicine department. A few phone calls later (and after some skillful negotiating with the pharmacy school’s administration), Jim had created a clinical externship under the supervision of the hospital’s nuclear medicine technologists. They taught him all of the basics: how to mix a kit, how to perform quality control testing, and how to read the dot matrix printouts.

“Radiopharmacy? I had never heard of it, but I was completely taken by it!”

After finishing his Bachelor of Science in pharmacy, Jim tells me that he started looking for continuing education courses so that he could continue to grow as a budding nuclear pharmacist. He discovered the Masters of Science program at the University of Southern California, directed by Walter Wolf. Mr. Velez’s thesis focused on bromine-77 and the use of liposomes for drug delivery of radiopharmaceuticals. In between studying radiobiology and radiophysics, he focused on perfecting his research, often times going into the school’s lab at eight o’clock at night to continue running tests. Because part of his thesis included



Connect with us on Facebook: APhA Nuclear Pharmacy New Practitioners

Suggestions for next month’s newsletter? Contact Ashley Mishoe at AshleyMishoe@me.com.



developing a hypothetical new radiopharmaceutical, writing his own IND was a necessary step--one Jim considers a “unique learning experience” and one that has helped him immensely throughout his career. As Jim reflects on his time at USC, he tells me he enjoys knowing that he shared this experience with other students who are now leaders in nuclear pharmacy.

At the end of this intense yearlong program, students were required to complete two six-week rotations. Jim was anxious to return to the east coast, and he found rotations at Stony Brook University Hospital and Brookhaven National Labs in New York. While at Brookhaven, Jim interned

“If you’re not learning something new, you’re stifling yourself.”

under Powell Richards and assisted in the development of an agent capable of radiolabeling red blood cells, an agent we now know as

Ultratag. He remembers the pressure of validating the process of this new radiopharmaceutical, and he recalls donating his own blood to prove the consistency of the endpoints. I think you reached a whole new level of dedication, Mr. Velez!

At Stony Brook, Jim studied under Dr. Cliff Hotte, and he was responsible for compounding radiopharmaceuticals for both clinical and research use, while also becoming more involved in the business aspect pharmaceutical production. Stony Brook University Hospital was a state-funded facility, and the nuclear medicine department desperately needed additional funding for research.

One day, he and Cliff had an idea to help the department’s financial situation. “We make all these kits every day; why not supply them to the surrounding hospitals?” Jim explains that they drafted a proposal to the state of New York offering to supply the region with radiopharmaceuticals in exchange for state funding for research. The two thought this was the greatest idea since . . . well, you get the point. But unfortunately, the State did not agree, and the two were quickly sent away. They arrived at a local pub with the intent of drowning their sorrows (in lemonade), when an eavesdropping entrepreneur chimed in. This perfect stranger saw their idea as a profitable venture and offered them a new job opportunity.

Within one year, they were able to raise enough public funds through a stock offer, and Nuclear and Genetic Technology, Incorporated (NGT) was formed. Because Dr. Hotte was a well-connected practitioner in the area, their small business became a rapidly-growing nuclear pharmacy. NGT provided radiopharmaceuticals to the surrounding area for five years, and when they started out-performing the nearby Mallinckrodt lab, Mallinckrodt offered to purchase their business. It was the proverbial offer that could not be refused, and shortly thereafter, NGT became Mallinckrodt’s second nuclear pharmacy in New York.

Mr. Velez remained with the company as the manager of the facility for several years, but in 1987, he was ready for a change. North Shore University Medical Center had just opened a new PET facility in Manhasset, New York, and because they had consulted with Mr. Velez during his years at NGT on several research ideas, they were interested in acquiring his expertise full-time. “It was very appealing, because it was a chance to do something new, something different in the nuclear pharmacy field. It was a new learning experience for me,” Mr. Velez states. This was a clinical and research position, so Jim spent his mornings preparing agents for the nuclear medicine department and his afternoons learning how to operate a cyclotron, performing animal studies, and refining his IND-writing skills.

In 1989, Mr. Velez was contacted by Medi-Physics to write their new pharmacy's state regulatory license. He did such a good job in this single task that the company asked him to become the pharmacy's manager. So he did. You've heard of Oncoseeds, right? Well, did you know that Mr. Velez is the co-creator of the Loading Program associated with this agent? During his 12 years there, Jim researched these I-125 "seeds" that were originally developed by 3M, studying the clinical use, figuring out the stumbling blocks, and determining areas for improvement. He determined that one of the biggest obstacles to using of the seeds was loading seeds into injectors, and through his research with this company, he co-created the Oncoseed Therapy Loading Program.

Jim admits that his career choices have always been driven by learning opportunities and adds that luckily, he has always "chosen promising projects to get involved with." Well, for the most part. In 2000, Jim moved to Seattle for a new learning opportunity with NeoRx. It was a new company, one that was investigating the use of holmium-166 for skeletal-targeted radiotherapy (i.e., sterilization of bone marrow) in the treatment of multiple myeloma. Phase one studies were promising and the company was beginning a phase two study. However, idiosyncrasies in the phase two study's results forced the FDA to require the company to repeat the study. Because of the financial commitment involved, this hiccup in progress ultimately led to the downfall of NeoRx.

In the few years he spent at NeoRx, he had fallen in love with Seattle, and he wanted to stay in the Pacific Northwest. Fortunately, he found a position as the Ambulatory Pharmacy Manager with the University of Washington Medical Center in Seattle. Although he was not working as a nuclear pharmacist, the hospital's nuclear medicine department often consulted with Jim when trying to understand and implement new regulations, and he eventually shifted more and more of his time to nuclear medicine.

Currently, Mr. Velez holds joint appointments as the



Director of Business Development for the PET research center and as the Nuclear Pharmacy Director at UWMC. In this role, he oversees the hospital's dual-purpose research lab, which focuses on PET tracer research. The lab works with both local and international biotechnology companies in the development of C-11, F-18, and Zr-89 diagnostic agents, but Mr. Velez hints that there could be a few therapeutic agents in the pipeline. Although the University has an in-house cyclotron, they contract with Cardinal Health for the day-to-day F-18 FDG and sodium fluoride, leaving the cyclotron free for the development of research agents. Mr. Velez is responsible for the oversight of the radiochemists, ensuring all of the facility's radiolabeled compounds pass quality control testing. In addition, he authors the standard operating procedures (SOPs) for new radiolabeled peptides and writes the facility's INDs.

"I've cherished each one of the positions I've held and the learning process involved."

Mr. Velez serves as the Co-Chair of the hospital's Radioactive Drug Research Committee (RDRC), reviewing protocols, completing applications for new studies, and ensuring that enrolled patients are only exposed to the minimum amount of radiation necessary. Jim is also a part of the hospital's Radiation Safety Committee, and he serves on the Seattle Cancer Care Alliance, which is a joint venture between UW Medicine, Seattle Children's

Hospital, and the Fred Hutchinson Cancer Research Center.

By this point, you're probably not surprised to hear that the learning process is actually what Mr. Velez enjoys most about his job. He insists that with every position he has held, his knowledge base also grew. He says, "I've cherished each one of the positions I've held and the learning process involved." He also loves relaying the knowledge he has gained with the students at University of Washington. Mr. Velez teaches nuclear medicine residents, radiology students, as well as nuclear pharmacy students, and he ensures that the hospital staff stays up to speed with the current regulations by providing regulatory oversight and instruction. He admits that he also learns from the students, adding, "If you're not learning something new, you're stifling yourself."

Throughout his career, Mr. Velez has remained an active member of nuclear pharmacy organizations, including APhA and SNMMI. He has been a member of APhA since starting pharmacy school, and he has been part of the APhA-APPM Nuclear Pharmacy Practice SIG since its inception. With SNMMI, Jim has presented research findings at regional and national meetings, and has served on the Nuclear Oncology Council and the Radiopharmaceutical Sciences Council.

Between the advent of more diagnostic agents and the new ligands and therapeutic agents that are currently being studied, Mr. Velez sees a bright future for our profession. He adds that perhaps we will see more personalized medicine making a segue into nuclear medicine as more therapeutics are brought to market, and he also suggests that we focus on fine tuning of current isotopes to minimize exposure to patients.

Outside his career as a radiopharmacist, Jim is an avid hiker and white water rafter. He has conquered rivers in Washington, Oregon, and Colorado, and he enjoys the thrills of the class 3, 4, and 5 rapids. Taking his pastimes as seriously as his career, one of his dreams after retirement is to raft the Zambezi River in Africa, which he insists is one of the largest and strongest rivers for white water rafting. Sounds like quite the challenge!



To those considering a career in nuclear pharmacy, Mr. Velez urges them to keep an open mind. By this, he means although nuclear pharmacy may seem like a small niche, the options within the field are quite broad, with opportunities ranging from hospital and commercial avenues, to PET facilities and governing organizations. No matter the path you decide, ensure it is one that constantly pushes you to learn more and to grow as both a professional and as a person. Don't stop searching for new avenues after graduation, but strive to be ever growing, ever learning, ever in the pursuit of more knowledge.

Until next time,

Ashley Mishoe



American Pharmacists Association®
Improving medication use. Advancing patient care.

APhA