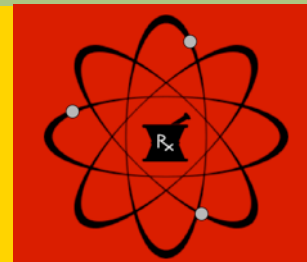


The Nuclear Monthly Missive

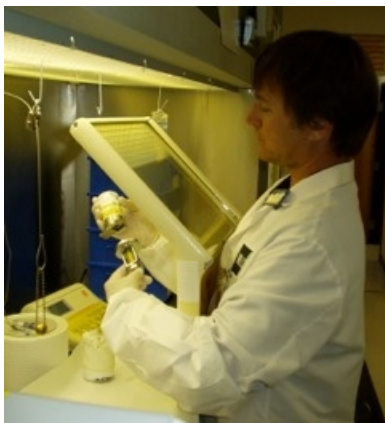


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There's an App for That

With over one billion app downloads from Apple's App Store to date, is it really any surprise that there are apps for nuclear pharmacy? Take a moment to search, and you will actually find several, thanks to Dennis Davis, owner and creator of Atomic Apps, LLC.



Back up about 24 years. Dennis actually got his start in pharmacy on the industry side. His father was a manager for Rexall Drug Company in St. Louis, Missouri, which is where Dennis worked while attending pharmacy school at St. Louis College of Pharmacy. When it came time for rotations, Dennis had already gained more than enough experience on the manufacturing end, and therefore, he was given the opportunity to complete a different kind of pharmacy rotation – a nuclear pharmacy rotation with Mallinckrodt. Dennis tells me he had always loved manufacturing because he was making things and working with his hands, but since his pharmacy school did not offer a nuclear pharmacy program, he really wasn't sure what to expect with this rotation. However, within the required five weeks of the rotation, he had already found something new and exciting that he wanted



to pursue. He tells me that he “loved nuclear pharmacy and thought of it as a blend between manufacturing and the hospital's IV room.”

In 1985, Dennis was quickly approaching graduation, and he had decided that this exciting field of pharmacy was where he wanted to land. At the time, Mallinckrodt was new in the world of nuclear pharmacy, and Dennis's preceptor advised him to gain more experience in nuclear before entering in the workforce. He took the advice, and matched at the Medical University of South Carolina's (MUSC) nuclear pharmacy residency program, which was under the direction of Dr. James Cooper. You know, *the* James

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Cooper that is partially responsible for pioneering the gel-clot Limulus Amebocyte Lysate (LAL) test used for endotoxin testing? Yeah, him. During his one-year residency, Dennis not only served as a nuclear pharmacist for MUSC's in-house nuclear pharmacy, but also was afforded the opportunity to work directly with patients, to conduct research with radiolabeled tetracycline, and to teach nuclear pharmacy classes. Mr. Davis adds that he enjoyed taking classes with the nuclear medicine



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



technologist students and learning the differences between the various imaging systems, as well as learning how to perform the scans.

After completion of the residency in Charleston, Dennis began working for Syncor Pharmacy in Atlanta. Shortly after starting here, the pharmacy underwent a radiation safety audit and received less-than-stellar reviews. Although the company had an extensive Radiation Manual, it was not being adhered to, and because of this, Dennis knew this audit's outcome could be repeated at other nuclear pharmacies within Syncor. To prevent such from happening, he wrote a more user-friendly (and site-specific) Pharmacists Manual. He tells me that he has always had a knack for "taking complicated concepts and organizing them in a way that is easy to understand," a skill that is essential when creating manuals and Standard Operating Procedures (SOPs).

After a year with Syncor, Mr. Davis moved back to St. Louis, where he took a position at the Mallinckrodt pharmacy where he had completed his rotation during school. Not only was his day busy with the ins and outs of production, but also he dedicated time to improving the company's SOPs. Shortly following his start with Mallinckrodt, he moved to Florida to become the manager of the company's newest pharmacy. Dennis tells me that when he landed in Ft. Lauderdale, he arrived to a construction crew and an empty shell – a site that would soon become one of their busiest facilities and a team and business that would earn him manager of the year. Dennis explains that when managing a nuclear pharmacy, "you really have to be a jack-of-all-trades," constantly shifting roles from pharmacist to quality officer, human resources representative, and sales team. He tells me that he loved the variety of roles he was able to fill, and because of the continuous change, he was never bored. However, he adds that his favorite aspect of

all his jobs is team-building. "It is very rewarding to find the right people, to develop good processes and procedures, to create an enjoyable work environment, and to be the best leader you can be." During his time as manager, he wrote several more procedure manuals, and in 1990, he created Mallinckrodt's first Nuclear Pharmacy Internship Program. The pharmacy served as a rotation site to mostly UNM and Purdue students, and Dennis enjoyed mentoring students who were pursuing careers in nuclear pharmacy. I could hear the happiness in his voice as he told me the wonderful feeling he experiences when he sees his former students succeed.

"I am a musician and love to play music."

Mr. Davis remained with the company through various ownerships (from Mallinckrodt to Tyco, Covidien, and now Triad), assuming various titles throughout his career there. His first project as Operations Manager was the creation of the company's first Nuclear Pharmacy SOPs. And in each of his roles within the company, he continued to create more training programs, guides, and procedures to simplify processes and enhance quality across the pharmacies.

So where do the apps come in? Dennis asked, "Do you remember that moly (molybdenum-99) shortage back in 2009?" My heart suddenly started racing as my mind flashed back to a young intern who inadvertently created positive pressure in a tetrofosmin kit that had been tagged with hundreds of precious millicuries of Tc-99m, causing a mini radioactive geyser and a very chaotic day. (Hypothetical story, of course. #oops) "How could I forget," I sigh. Dennis explains the nuances of planning every expected patient dose based on the generators (he hoped) his pharmacy would receive and how often he could elute each generator, so he created a detailed spreadsheet that would use this data to help him maximize the incoming generators' activity. The spreadsheet functioned as expected, and he began sharing it with other pharmacists within his network so that they, too,

could better plan during this stressful time.

Also during this time was the dawn of the iPhone era. Mr. Davis had heard from a friend that these interesting little time-fillers we know as apps that the iPhone was so well-known for could be created by, well, anyone. A light bulb suddenly turns on and Dennis gets to work. “I basically just bought one of those *iPhone Application Development for Dummies* books and started figuring it all out.” Want to create your own? This is how it works: download the software to create an app; create your app; pay Apple to become a developer; and if the app survives a trial run, you can sell it in the App Store. It’s that simple. Dennis continues to tell me that he started basic and would gradually add more features as he learned them, admitting, “If I didn’t know how to do something, I would just Google it.” His persistence and drive to create something useful-yet-simple for the nuclear pharmacy world led to the creation of his company, [Atomic Apps, LLC](#). His first app, NucRx, contains decay charts, a decay calculator, and a list of radiopharmaceuticals with links to their respective package inserts. After the success of this app, he created Elutions, which mimics the spreadsheet he originally created to estimate expected generator yield. The latest app is DecayCalc, which offers more isotopes than NucRx. DecayCalc is similar to Elutions, in that it will calculate decay; however, this app features over 100 radioactive isotopes to choose from. Dennis tells me that the apps have been purchased by people all over the world, with DecayCalc even being used in industries outside nuclear pharmacy. How fascinating!

Because he has always been an avid supporter of a fair work-life balance, he makes time for his love of music. He tells me “I am a musician and love to play music,” adding that he has been playing drums and guitar since childhood. During residency in

Charleston, he played in a band called *The Krushtones*, and every year the band reunites for two nights of performing in Folly Beach, SC.

Mr. Davis is currently the Pharmacy Department Manager at Hoye’s Pharmacy, a traditional compounding pharmacy in Tampa, Florida. He tells me that although he is no longer compounding radiopharmaceuticals, some of the same concepts still apply, especially those surrounding USP 797. At the International Academy of Compounding Pharmacists meeting in Capitol Hill this month, he was able to gather with other pharmacists to meet with Senators, members of Congress, and their staff to address Senate Bill S.959, a bill that will affect pharmacists in both traditional and nuclear compounding. Dennis notes that it was encouraging to rally with pharmacists across the nation to ensure that we have a voice in legislation that will ultimately affect pharmacy practice.

Although he is not in a nuclear pharmacy, his advice to students is the same: “Don’t pass up the opportunity to do summer internships. Do more than one. Work for more than one company. See as much of the field as possible.” Advancing practice doesn’t always come with a fancy title, and Dennis shows us just that. He may not be practicing in nuclear pharmacy anymore, but he is still promoting it . . . one app at a time.

Until next time,

Ashley Mishoe



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