From chemical engineering to medical school

Engineering training comes in handy in occupational medicine

By Sandra Jordan

Of The St. Louis American

A Wood River, Illinois physician uses her undergraduate degree in chemical engineering to complement her practice in occupational medicine.

At Midwest Occupational Medicine, Dr. Kia Swan-Moore treats work-related diseases, accidents and injuries and conducts any workplace physicals required by the Occupational Safety and Health Administration. She also promotes worker wellness, safety and preventive health.

"What originally I thought I wanted to do was go into public health but I found out what occupational medicine was and it was a perfect fit," Swan-Moore said.

"As an undergraduate, I had this experience with chemistry and there was an opportunity to change residences -- I did that and here I am!"

Swan-Moore said in high school, her goal was to be an engineer:

"I didn't want to go into medicine and it was interesting in math, science and physics," she explained. "But I ended up getting into NSUADT, which is a program for high school students that are interested in engineering, and ended up finding an engineering internship."

"I ended up in electrical engineering and realized that wasn't really where I was headed. I enjoyed chemistry, thought that would be something I would be interested in engineering and ended up switching majors."

Chemical engineers are problem-solvers who use the principles of chemistry to develop products and processes that comply with safety and profitability in mind. They have a breadth of knowledge in chemistry, physics, mathematics and engineering.

Engineering jobs are some of the highest paying occupations in the U.S.

For example, Salary.com has the median salary for an entry-level chemical engineer in the U.S. at $63,410 and in the St. Louis area it’s a bit higher at $64,825.

A Winter 2011 Salary Survey conducted by the National Association of Colleges and Employers reports that for the class of 2011, engineering salaries overall increased a slight increase at 3.5 percent, with some majors growing between 4 and 5 percent.

The University of Missouri system, Washington University and Saint Louis University all have engineering programs offering several different disciplines.

The WUSTL website says chemical engineering involves scientific discoveries to modern technologies and new products that benefit society and minimize the impact on the environment. It also says a bachelor’s degree in chemical engineering is a great launching point for a career in business, law or medicine.

While in undergraduate school at Northeastern University, Swan-Moore decided to change directions. Remember how in high school she wasn’t interested in medicine? What used to be of no interest became new intriguing.

"My undergraduate degree was in chemical engineering, then later in biomedical engineering, and I went to medical school after that," Swan-Moore said.

"I started out in internal medicine and just wasn’t particularly happy."

She went from engineering to medicine and eventually to occupational medicine, which she describes as "a perfect fit" because of her engineering background.

"I understood what goes on in the workplace. I understood the processes of the workplace. Many physicians, they go through their residency and they’ll major in something like biology and never actually be in an industrial-type work environment."

"And more than 30 percent of the population doesn’t work at a desk. They work in either some type of factory making something of some other type of heavy industry, be it making steel or the petroleum industry."

Swan-Moore says having that experience in engineering helps her to understand how those processes work.

"When I see someone that has been off work for say a back injury or some type of illness, I can look at them and say, ‘You know what? You are probably not ready to go back to what is heavy industry; you’re probably not ready to go back to towing a wheelbarrow full of shot back-and-forth across a work floor.’"

"Swan-Moore says engineering is a wonderful field because it provides lots of opportunities. And like medicine, there are challenges, demands and rewards."

"It prepares you to learn, either in a work environment or either in a graduate or post-graduate school environment. The work level is hard, it’s very challenging, but in a lot of ways, it’s very fun," Swan-Moore said.

"And so when I got to medical school (Bush University in Chicago), which was considered hard and a lot of studying, it wasn’t that difficult for me. It was a different way of thinking. Because in medical school there is a lot of memorization, as opposed to a lot of doing that you do in engineering. But the workload was something that I was accustomed to and I enjoyed it."

Within 36 years, NSBE has grown from six members to more than 31,000, and the conference delegation has grown from 48 to more than 8,000.

For information on the organization or to become a member, visit nsbe.org.

St. Louis couple Nicole Adewale and her husband Abe Adewale, who together own ABNA Engineering Inc., Alums like the Adewales aren’t just faces of success for NSBE; youth but also a powerful message to the community.

"We’re like a family," Nicole said.

The benefits don’t stop at scholarships available to NSBE members. Genecis Steele, the St. Louis Community College–Florissant Valley coordinator for the African American Male Initiative and co-advisor to the NSBE program, said, there are a lot of great companies that seek to partner with students that are from NSBE because they know that they are some of the top leaders."

She said the engineering field remains "underrepresented by minorities, and not just African Americans, but by many minorities across the board."

Within the organizational structure of NSBE there is the PCL, the Pre-college initiative, which educates young people on the field of engineering and helps to prepare them for higher education, as well as career opportunities with the help of members and alumni chapters.

NSBE-PCL college and alumni chapters must separately come together each month throughout the state to discuss business. Periodically throughout the year, they gather for socials and workshops.

For more information on the organization or to become a member, visit nsbe.org.