Healing the Whole

INTEGRATIVE APPROACHES TO TACKLING GLOBAL HEALTH ISSUES

By Ken Walters
It’s a story that Dr. Jennifer Elliott tells often.

The Duquesne University professor hosts asthma clinics and screenings in schools across western Pennsylvania, where she and her research team have seen thousands of children.

“Whenever a child enters the clinic, I ask them what their goal is,” Elliott said. “One day a boy comes in and tells me that his goal is to play football. I write that at the top of his chart.”

She then begins asking questions about his asthma treatments. Yes, he does have two asthma inhalers—one blue inhaler, for when his asthma is bad. And one orange inhaler, for when his asthma is really bad, the boy tells her.

Then Elliott, an associate professor in Duquesne’s School of Pharmacy, reviews the boy’s chart.

“He had three hospital visits in the last year, with two of them in the ICU,” she said. “And, he had missed 42 days of school.”

A few questions later, Elliott finds the root of the problem. The boy had two other siblings with asthma and they were all sharing the inhalers. When she checked to see if the medication had been refilled, she found that the prescription had not been filled in a year.

“So probably for the last 10 months before we saw him, he and his siblings were getting nothing but a puff of air from the inhalers,” she said.

It was stories like this one that led Elliott and her team to build a model to break down the barriers children and their families faced in treating asthma. She formed partnerships with six school districts and designed a program that annually screens more than 8,000 students for asthma. Working with various medical professionals and pharmacies, the community-based model helps ensure access to needed medication and that the treatment regimen is followed by the child.

“Children in our group are getting to their preventative care visits, with 92 percent of kids attending more than 80 percent of scheduled visits,” Elliott said. “By the child’s third visit to the clinic, we have achieved well-controlled asthma in 88 percent of the children and improved their knowledge of the disease significantly. And finally, we have seen an 84 percent reduction in emergency room visits over the past year and no hospitalizations.”

And the boy who wanted to play football? “He scored his first touchdown last week,” Elliott said with a smile.
Duquesne’s Team Approach

Such success stories are nothing new for Duquesne’s faculty and alumni, who have been scoring touchdowns in hospitals, clinics, research labs and health care institutions for decades. The University’s top faculty and impressive alumni are taking on major global health challenges with unique integrative approaches that focus on the whole person.

Community and personal health take a team approach. At Duquesne, interdisciplinary efforts in integrative health abound. The University’s Chronic Pain Research Consortium pulls faculty from several schools to explore effective pain relief alternatives to opioids. In the labs at Mellon Hall, faculty and students explore new methods to attack cancer cells and ways to identify autism and other neurodegenerative disorders before brain damage occurs.

Preventative community care has always been a staple at Duquesne. Since 2011, the University’s Center for Pharmacy Care has conducted more than 10,000 cholesterol screenings, 12,000 blood pressure screenings and 8,000 body composition screenings. They have also provided more than 8,000 flu shots, along with screenings and immunizations for a variety of other diseases.

University approaches aren’t limited to the health sciences. Duquesne’s liberal arts college nurtures the humanities as its core, and the arts have been known to raise both physical and spiritual well-being in communities. Duquesne’s strengths in law, business, science, education and music have an important role to play in the health of our region, country and world.
In the Doctor’s Office:
You Can’t Quantify Misery

Dr. Julie Futrell, A’14, was frustrated. While earning her master’s degree in health education at the University of Texas at Austin, she disagreed with her professor’s approach that a fear-based campaign would make people stop smoking.

“There are complex reasons for why people smoke,” she argued. “If all it took was showing people a picture of a black lung, then why are people still smoking? Maybe it’s the only joy they have in the day. Or it’s the only way they know how to relax.”

The professor’s response was that they couldn’t quantify such factors for a research study.

“You can’t quantify misery. You can’t reduce people to numbers and reduce their pain,” she said. “We aren’t Pavlov’s dogs—humans are much more complex than that.”

That experience solidified Futrell’s beliefs in integrative medicine, and she soon headed to Duquesne to earn her master’s and doctoral degree in clinical psychology.

“Duquesne excels at the human science approach to addressing the whole person—physically, mentally, emotionally and spiritually,” said Futrell, a Los Angeles-based clinical psychologist. “The psychology program actively endorses incorporating other disciplines, such as philosophy and health sciences, to provide a holistic approach.”

OSTEOPATHIC SOLUTIONS COME TO THE FOREFRONT

Futrell, whose work includes behavioral health services for geriatric patients, notes the University’s decision to launch an osteopathic college comes at a particularly interesting time.

“Osteopathy is the future, especially as the nation grows older,” she said. “We are seeing a shift where Medicare is realizing that they can’t just pay for physical treatments anymore because if the patient is too depressed to be treated, physical outcomes are negatively impacted. They now are emphasizing both physical and mental health treatments because an integrated approach is the best approach.”

At a time when the country is seeing increases in depression, anxiety and obsessive-compulsive disorders, Futrell focuses her efforts on validation and work with the unconscious.

“People need to experience their feelings as real,” she explained. “If someone is in a bad situation and they feel depressed, they want to know it’s OK to feel that way, that it isn’t just faulty ‘brain chemistry.’”

Treating the whole person allows Futrell to not only consider biological factors, but to also explore how societal factors, such as school and family, may contribute to a person’s mental state.

“Duquesne excels at the human health approach of addressing the whole person—physically, mentally and emotionally.”
In the Lab: Making its (Bio)mark on the Future of Health Care

Dr. Mary Walter, S’95, had no lab experience when she came to the U.S. from India for the first time in the late 1980s. So, Duquesne Chemistry and Biochemistry Professor Dr. Dave Seybert put her to work in the lab immediately, developing biomarkers to measure oxidative stress to determine if foods loaded with antioxidants could reduce the biomarkers associated with conditions like diabetes and heart disease.

From those beginnings, Walter now oversees the use of several dozen biomarkers that may help reduce the obesity problem in the U.S. As a clinical laboratory core director of the National Institutes of Health’s (NIH) National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), she works with doctors, biomedical engineers, endocrinologists, mathematicians and a variety of researchers to measure how hormones affect eating habits and diet.

The use of biomarkers has enhanced health care diagnosis significantly. The core laboratory, located in Bethesda, Md., was created to provide doctors with biomarkers that aren’t available in a typical diagnostic lab, said Walter, whose father is also a Duquesne alumnus. One current study is measuring metabolism in different ethnicities to determine if certain people are more prone to diabetes. Another study is looking at the role of environmental factors on good fat and bad fat.

The use of biomarkers has enhanced health care diagnosis significantly. Walter notes that from just two tablespoons of blood, she can quantitate 40 biomarkers simultaneously, measuring everything from glucose and cholesterol to lesser known elements. There is the potential to use 100 biomarkers from one tablespoon of blood, although her team has not needed to do so.

POWER COUPLE

Walter is not alone in her fight to lower obesity. Her husband, Duquesne alumnus Dr. Peter Walter, S’96, also works in a separate division at the NIDDK as a director of the Clinical Mass Spectrometry Core. The couple has jointly co-authored seven research papers at NIH.

Peter’s lab focuses on how the body uses sugar and fat to burn energy. “It’s a great example of personalized medicine,” he said. “We can measure the total energy expenditure a person burns daily and understand how the body processes that energy.”

He referenced a study his group did a few years ago of contestants who appeared on the weight loss show The Biggest Loser, noting six years after their weight loss, exercise and overall energy burn contributed more successfully to keeping the weight off than eating habits.

TAKING ON THE OBESITY EPIDEMIC

“There are 93 million people in the U.S. suffering from obesity, which of course can lead to other health problems,” she noted. “We are studying hormones that send signals from our stomach to our brains, and vice versa. If we can measure these hormones, it could help address obesity issues.”

The obesity epidemic

93 million people in the U.S. suffering from obesity

Obesity may be linked to the hormones that transmit signals from the stomach to the brain

A study has shown that 30-45 minutes of exercise a day helped keep weight off as opposed to those who didn’t exercise and relied on diet alone
The Future of Medicine

The use of mass spectrometry continues to play an important role in Duquesne’s health care expertise. Up on the Bluff, Dr. Howard “Skip” Kingston, who mentored Peter Walter, is now creating his own biomarker measurements that may help identify children who are developing autism.

Kingston’s research team created accurate biomarker readings which relate chemical toxin exposure to behavior in children with autism. These biomarker readings allow doctors to medically assess the trending of a child and enable early intervention in the child’s care to improve the patient’s health in many cases.

“One of the issues was that doctors couldn’t treat autism without a diagnosis, but by that time brain damage had already occurred,” said Kingston, professor of chemistry and biochemistry at Duquesne. “We may be able to intervene and treat patients before brain pathology worsens.”

The Duquesne research team is in the process of validating 21 biomarkers that help identify neurodevelopmental, neuropsychiatric and neurodegenerative diseases.

The team is developing biomarker testing methods in which a mother can draw blood from a finger prick and place it on an absorbent paper in a blood card, which is then measured by a mass spectrometry detector to determine levels of glutathione and other biomarkers, Kingston said. From the instrument’s readings, researchers may be able to identify children at risk of developing autism.

“This is the future of medicine,” said Kingston, noting that several universities and medical schools are following Duquesne’s lead by acquiring extraction and mass spectrometry instruments to conduct biomarker testing following the scientific papers published by his research team.

“We may be able to intervene and treat patients before brain pathology worsens.”

Above: Dr. Skip Kingston working with a member of his research team.
In Hospice: An Art to Dying

It’s said that there is sometimes an art to healing. For Noah Potvin, there is also an art to dying. A board-certified music therapist, the Duquesne professor specializes in facility- and home-based hospice care, engaging patients and caregivers in music experiences that address symptom management, emotional comfort and spiritual resolution.

“Music therapy has no set playlist,” Potvin said. “I can’t take ‘Amazing Grace,’ reduce it down to a 20-milligram pill and say ‘you’re good to go.’ Music therapy requires a personal approach that respects the individuality of every patient.”

Nearly 80 percent of people surveyed say they want to have control over how they are taken care of, their quality of life and where they will die when the time comes, Potvin said.

“End-of-life care prioritizes quality of life and comfort measures, so it looks to minimize physical discomfort and optimize emotional and spiritual resources,” he said. “Music and spirituality often amplify one another, so music therapy plays an important role.”

A GOOD DEATH

Music therapists must have an understanding of what the patient wants and be aware of the stakeholders involved with the patient’s care, including family, friends and caregivers.

“You have to have an intuitive feel in those moments,” he said. “For patients whose spirituality is important to them, it’s my job to conduct a musical and spiritual assessment of health that understands the patient in terms of their relationship with the Divine.”

The power of music, however, isn’t only for the patient’s benefit. Music therapy can help those through the grief at the time of death as well.

“The music functions on multiple levels at all times—attending to the caregiver, attending to the patient—and holding everyone in a singular, shared experience,” he said. “Then depending on the person, they will derive from the music what they need to move through the death.”