Lights, Camera, Action!

Inova televised special educates audiences about personalized health

Inova Rehabilitation Center helps patients with spinal cord injuries walk again

Targeting tumors with proton beam therapy

Inova’s global relationships expand alternative medicine offerings locally

fall 2017
Inova’s MediMap® testing is a pharmacogenomic (PGx) test that uses genetic information to help understand how you may respond to certain medications. PGx combines the science of how medications work (pharmacology) with the science of how genetic differences can influence health (genomics).

First introduced to babies born at Inova Fairfax Medical Campus (IFMC), MediMap has quickly expanded to additional patient populations. Here is a timeline of developments:

**JANUARY 2016** Tests for babies

IFMC began offering MediMap Baby as part of the standard package of services to all newborns. This free, non-invasive test (done by swabbing the inside of the cheek) provides parents with test results that indicate if certain medications may be more or less effective for their children or if they might cause adverse drug reactions. Parents may also meet with genetic counselors to review the results. The program has since been rolled out to Inova Fair Oaks Hospital, with Inova Alexandria and Inova Loudoun hospitals expected to have the program by early 2018.

**MAY 2016** VIP 360° patients

Following the success of MediMap’s launch, testing became available to patients of the VIP 360° Concierge Medicine program. MediMap VIP 360° analyzes 18 genes that influence response to 100+ medications.

**MAY 2017** Targeting medications for behavioral health

“In May, we started offering MediMap Mind and MediMap ADHD,” says John Deeken, MD, Chief Operating Officer of Inova Translational Medicine Institute. MediMap Mind helps guide physicians prescribing medications for disorders such as depression, anxiety and other psychiatric illnesses. MediMap ADHD does the same for medications that treat attention deficit hyperactivity disorder.

**SEPTEMBER 2017** Expanded gene and drug testing

A few months later, MediMap Plus joined the group. “MediMap Plus is the most comprehensive panel we have of the largest number of medications and genes,” says Dr. Deeken. This test analyzes 31 genes with responses to 145 prescription medications.

Also in September, Inova announced that it soon would roll out MyMap™, whole genome sequencing and interpretation services. “People can have their whole genome sequenced to look at variants of things we know might correlate with health and illness in addition to wellness,” Dr. Deeken explains.

MediMap tests and MyMap, which are ordered by a physician, are available at Inova in the outpatient setting. Patients who are interested in these tests may request them, allowing them to take an active role in their healthcare. “We’re trying to make the dream of personalized medicine a reality for [patients] today,” says Dr. Deeken. 

Learn more about MediMap at inova.org/MediMap.
About 32 percent of births in the United States are via Caesarean section, and while there is no disagreement that C-sections save lives, these surgeries are not without risks. For example, babies born by C-section have higher instances of health issues such as obesity, allergies and asthma.

Some researchers hypothesize that babies born vaginally carry health benefits from exposure to their mother’s vaginal flora, or microbiome, during birth. If this hypothesis is correct, simply swabbing babies born by C-section with that flora may improve their long-term health outcomes.

Inova Translational Medicine Institute’s Suchitra Hourigan, MD, pediatric gastroenterologist and Director of Microbiome research, and Kathi C. Huddleston, PhD, RN, Director of Clinical Research Projects, are leading the nation’s first randomized clinical trial at Inova Fairfax Medical Campus to see if swabbing infants born via C-section with their mother’s vaginal flora will have an impact.

This fall, 50 mothers undergoing planned C-sections at the hospital will be randomized — their babies swabbed with either their mother’s vaginal flora or saline, a placebo, right after birth. “The mode of birth is the very first environmental influence the child goes through,” Dr. Huddleston says. “In a vaginal birth, exposure to the mother’s vaginal flora may be important for the baby’s microbiome development. By swabbing the vaginal flora on the infant’s skin on half the babies in this trial, we hope to explore how this changes the infant’s microbiome.”

The participants will be women who have scheduled their C-sections for medical reasons, usually due to previous C-sections, and have not gone into labor. Drs. Huddleston and Hourigan plan to enroll their first mother this November. The infants will be followed for three years to document the study’s safety, and if the study is successful, the researchers hope to expand it to 800 babies.

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Making Medicines

Conversations
INOVA’S CAREGIVERS IN THEIR OWN WORDS

Milton Brown, MD, PhD, Director, Inova Center for Drug Discovery and Development, searches for cancer cures

Milton Brown, MD, PhD, a physician scientist, is one of only a handful of people in the United States who has a Doctor of Philosophy in synthetic chemistry and a Doctor of Medicine degree. After serving as the founding director of the Drug Discovery Program at Georgetown University Medical Center, he brought a team of scientists to Inova in 2017 to focus on finding cures for cancer. Their aim: Develop new drugs in-house and place those clinical therapies into practice quickly to benefit more patients.

Why is it important to have personalized medicine in the area of cancer?
Personalized treatments are important because no two patients’ cancers are alike. Cancers can be individualized to the point where you can develop medicines that are specific to one person’s treatment. We want to develop tests to tell us which are the right patients for the right medicines. That is the hallmark of personalized medicine.

What are you hoping to accomplish at Inova?
We are going to start using virtual reality in a unique way to help us in drug discovery. It’s similar to opening a lock. The drug molecule is the key, and the protein is the lock. You have to combine the right drug molecule with the right protein to discover the drug.

What kind of drugs is the center seeking to discover or create?
There are so many diseases in cancer that don’t have drugs to treat them. For example, what if a woman has the BRCA1 gene mutation (making it more likely she will develop breast or ovarian cancer)? Angelina Jolie showed us she could be really courageous to have a double mastectomy before she got cancer. But why couldn’t we make a medicine to cause BRCA1 to come back as a tumor suppressor (which helps repair damaged DNA)? Why couldn’t we make a medicine that is supplemented for BRCA1, and all you had to do is take the medicine to get the BRCA1 protective effects and don’t have to have a mastectomy? That’s powerful.

How critical is community philanthropic support to your work?
In the process of bringing a new drug to the clinic, financial support is needed [to fund] required studies [that need] to be completed [and] that are not readily funded by the National Institutes of Health or other governmental agencies. Philanthropic funds accelerate the process of putting new drugs into the clinic by providing available funding to quickly complete required test and regulatory processes.

How can this potentially help patients?
We have some innovative technologies where the molecules we make give off signals to track where they are in the body and if they’ve actually reached the tumor. Sometimes people don’t get well, not because the drug didn’t work for them, but because the drug never really got to the tumor.

How did your work at Georgetown inform your current role?
The concept that you could build a drug discovery center in a medical school and now in a community-based research facility is very unique. The difference is Georgetown was a medical school, and this is a very large community-based hospital that has embraced the idea of using its knowledge and understanding of diseases to develop research that produces some therapy.

Learn more about advancements in cancer at Inova at inova.org/cancer.
Inova Rehabilitation Center offers ReWalk technology for people with spinal cord injuries

Thanks to ReWalk, Luke Jackson, who experienced a spinal cord injury in 2016, can walk again. Behind him are (from left) physical therapists Megan Brooks and Jennifer Melnyk.
At 6’3” tall, Luke Jackson has always commanded a striking appearance when he enters a room. While this 27-year-old Alexandria, VA, resident’s optimistic and charismatic personality is still large, his literal height is now restricted to a seated position. Luke, a U.S. Coast Guard veteran, sustained a spinal cord injury as a result of a motorcycle accident at the end of 2016. Today, he uses a wheelchair.

In February 2017, his potential for movement expanded when he visited the Inova Rehabilitation Center (IRC) at Inova Mount Vernon Hospital (IMVH). That’s when he was introduced to the ReWalk exoskeleton, an innovative new technology that gives patients with spinal cord injuries the opportunity to walk again. IRC’s ReWalk clinic is the first and only clinic in Northern Virginia to offer patients the ReWalk experience.

“ReWalk isn’t a wheelchair replacement yet, but it’s close,” Luke says. “It does let me walk next to people — at eye level. My first steps with the device were pretty emotional, especially for my wife and the Inova physical therapists.”

A Step Forward
ReWalk is a wearable robotic exoskeleton for adults that is custom-fitted for each individual. It provides battery-powered hip and knee motion, allowing individuals with spinal cord injuries to stand upright, walk and turn. The system essentially mimics a patient’s natural gait patterns.

“It’s like a dance — and it takes practice to learn the steps,” explains Megan J. Brooks, PT, DPT, NCS, ATP, Senior Inpatient Specialist, at IMVH. “Patients have to learn the ReWalk’s rhythm, its sounds and what movements trigger a step from the device. For example, the ReWalk has a certain sound when it’s time to move forward and a different sound when it’s time to shift your weight left or right.”

In addition to a commitment to practicing the “dance,” ReWalk patients must fit the following physical criteria:

- A T4 (mid-back) or below spinal cord injury
- Fairly good sitting balance
- Ability to tolerate standing with a standing device
- Full upper-body strength and upper-extremity use
- Healthy bone density
- Certain height and weight restrictions
- Sufficient lower-extremity range of motion to allow ambulation

Learn more about ReWalk technology at rewalk.com. To watch a video of Luke Jackson walking with ReWalk, download the Inova Magazine app at inova.org/mobile or search “Inova Magazine” in the Apple app store.
“Inova is committed to providing the best in rehabilitation technology for our patients,” says Stephanie Larson, PT, DPT, ATP/SMS, Outpatient Program Coordinator at IMVH. “So we opened Northern Virginia’s first ReWalk exoskeleton clinic.”

Holistic Benefits

When recalling his first experience with the device at Inova’s ReWalk Clinic, Luke became enthusiastic. “I’m excited about being able to do things again that I never really thought about before my injury — like standing at the sink and washing dishes or taking a walk next to my wife. I see the ReWalk making a huge impact on my life.”

Improved quality of life could very well affect a patient’s motivation to “rejoin” life, emphasizes Jennifer Melnyk, PT, DPT, NCS, Clinical Rehabilitation Specialist at IMVH. “In some cases, individuals with spinal cord injuries interact less with others after their injury. ReWalk can potentially improve our patients’ overall emotional well-being and, depending on the person, provide the motivation they need to become more involved in community activities. That’s huge!”

In addition to psychological benefits, Melnyk adds that the ReWalk delivers critical physical health benefits. “The device offers a different level of physical activity with standing and walking that you cannot always achieve while seated in a chair.”

ReWalk system study data indicates potential improvements in cardiovascular health, loss of fat tissue, building of lean muscle mass and improved bowel function. Anecdotal feedback from ReWalk users further indicates such benefits as better pain management, fewer medications and potentially reduced hospitalizations.

Melnyk and every patient working with the Inova ReWalk Clinic are just beginning to consider the possibilities. “This piece of equipment is opening more doors than we ever imagined. As a therapist, it is so exciting to be able to offer the ReWalk Clinic right here in our own community,” Melnyk says.

“`It’s like a dance — and it takes practice to learn the steps. Patients have to learn the ReWalk’s rhythm, its sounds and what movements trigger a step from the device.”

MEGAN J. BROOKS, PT, DPT, NCS, ATP, SENIOR PHYSICAL THERAPIST AT IMVH
Harnessing the Power of the Atom

Construction of proton beam therapy facility now under way

Since the first radiation therapy facility to treat cancer was founded in 1896 in Chicago, radiation oncologists have had to strike a delicate balance: Provide high enough radiation doses to kill cancerous cells but leave surrounding healthy tissue unharmed.

There have been few advances in the radiation side of cancer treatment over the years, but the discovery and refinement of proton beam therapy has given physicians and patients new hope. Proton beam therapy is a type of external-beam radiation therapy that uses protons, which are positively charged particles that destroy cancer cells at high energy. Unlike traditional radiation therapy, proton therapy can be more accurate and targeted, and the radiation does not go beyond the tumor cells.
Building a Facility

Inova will be offering proton therapy to its patients starting in early 2020, upon completion of its new facility to be located at Inova Schar Cancer Institute. Receiving approval for the facility took a few years, explains Gopal (Paul) Bajaj, MD, Chairman and Medical Director of Radiation Oncology for Schar Cancer Institute. After passing regulatory obstacles, finding the land and deciding on a vendor were the next hurdles. “The land needed is similar to the size of a few adjacent tennis courts, and the buildings must be about three-and-a-half stories tall,” Dr. Bajaj explains. The buildings must accommodate the gantries (supporting framework for the accelerator), which weigh between 80 and 125 tons and are over two stories tall. The cyclotron accelerator, which generates the proton beam itself, weighs about 220 tons.

Inova is responsible for the site preparation and building construction, after which the vendor takes over to perform the installation. “We chose Ion Beam Applications as our vendor—a Reston, VA-based leader in proton therapy innovation and design,” says Dr. Bajaj. “The equipment installation process takes about nine to 12 months, followed by the commissioning process, which takes another four to six months.”

Despite the huge scope of this project, the timeline is still in place, says Donald “Skip” Trump, MD, CEO of Schar Cancer Institute. “We are now drilling the holes and preparing the ground to begin pouring the concrete,” he says. “Everything is moving on schedule.”

Improved Treatment Outcomes

Building a proton therapy facility requires an enormous amount of planning, work and resources, but the patients won’t see any of the behind-the-scenes work, says Dr. Bajaj. What they will experience is very different. “The patients will see something very modern and aesthetically pleasing, not all the background machinery,” he points out. “They will see a very advanced and comfortable robotic treatment table, soothing ambient lighting and the friendly smiles of our therapy team.”

Dr. Trump says the facility provides a terrific opportunity for the region. Evidence is strong that patients who are treated with proton beam therapy have better outcomes with both improved cancer control and reduced side effects. “This is cutting-edge technology,” he explains. “There are a limited number of proton centers around the country. And when the facility is open, individuals in the Commonwealth of Virginia will be able to seek this cutting-edge, high-quality care right here at Inova without leaving our region.”

Targeting Cancers

Proton therapy isn’t for all types of cancers. It is used to treat solid tumors, particularly those of the head and neck region, central nervous system, chest (lung and breast), abdomen and pelvis. It is particularly useful for patients who require radiation in an area previously irradiated by other means, and for many cancers in children. “The growing bones of a young child where these tumors occur are very sensitive to radiation, so you want to avoid radiation to the normal tissue as much as possible,” explains Dr. Trump. “These tumors can be devastating as they grow, so the ability to deliver a very high dose of radiation safely is a great advantage.”

Women with breast cancer may also benefit from proton therapy, particularly if the cancer is in the left breast, where heart tissue could be irradiated during conventional radiation treatment. “We’re just beginning to understand that even low doses of radiation to the heart can be disadvantageous,” says Dr. Trump.

Dr. Bajaj and his colleagues are excited about the future of cancer treatment at Schar Cancer Institute. “It reflects an astounding commitment to excellence and innovation that Inova, a community-based hospital system in Northern Virginia, had the foresight to look far enough ahead into the future of cancer care to construct a proton therapy facility,” he says.

For more information on how philanthropy will make proton therapy a reality, please contact Katie Coyle, Inova Health Foundation, at 571.472.0211 or mary.coyle@inova.org.
On Sunday, Sept. 17, Inova hit the airwaves with “Genomics: The Power to Predict.” This 30-minute televised special, a project sponsored by Inova and produced by WUSA9, a CBS affiliate, took the concept of “reality TV” to a new level. The special followed the lives of several patients who have benefited from groundbreaking research from the Inova Center for Personalized Health (ICPH). The show’s cast also included Inova researchers and clinicians, and demonstrated ICPH’s role as a unique hub for discovery in the field of genomics.
Keeping It Real
When the human genome, referring to a person’s complete set of DNA, was first sequenced in 2003, it gave genomic researchers what’s often called a “road map” for what makes each person unique. The discovery marked a breakthrough in transforming healthcare from reactive to predictive and preventive.

While this road map is already driving Inova’s clinical decisions in patient care, genomics comes with a learning curve for patients, explains John Deeken, MD, Chief Operating Officer of Inova Translational Medicine Institute (ITMI). “There’s a lot of buzz out there about personalized medicine, but for many it’s confusing,” explains Dr. Deeken. “That’s why shows like this are important. We need to keep explaining why Inova is committed to making the promise of personalized medicine a reality and how our research is already resulting in treatments as individualized as the disease.”

To this end, Inova and WUSA9 strived to make “Genomics: The Power to Predict” both relatable and realistic. “The stories featured are about real people — individuals and families who live right here in our community whose experiences can help others make informed decisions about their own health,” says WUSA9 Executive Producer Wendy Bailey.

Presenting the highly complex topic of genomics from a real-life perspective helps demystify the concept, says Dr. Deeken. “Genomics is still in its infancy, so who knows how many doors research will open? The possibilities are endless. One thing’s for sure: Every new discovery empowers patients and their healthcare providers to know what needs to be done to maximize an individual’s health and wellness as well as their family’s.”

Tuning Into the Future of Health
Here’s a brief look at the stories featured in the TV program and their impact on patients.

Pharmacogenomics
In one segment, the program zoomed in for a close-up on pharmacogenomics (PGx), a field that studies how a person’s unique genetic makeup can produce different responses to certain drugs and dosages. This information helps physicians tailor prescriptions to an individual.

MediMap® Clopidogrel (Plavix®) STAT is an example of PGx in action. The test is available to inpatients with heart problems or receiving cardiac catheterization procedures at Inova Heart and Vascular Institute. The test procedure is fast and painless, involving a cheek swab for DNA followed by a rapid test for the CYP2C19 gene variation. The test data can be lifesaving.

The show uncovered how an Inova patient’s cardiologist performed the test before prescribing the anti-platelet drug clopidogrel, the generic name for Plavix, which is the most common medication prescribed after a heart attack or stroke to prevent blood clots. Patients with the CYP2C19 gene variation don’t react well to clopidogrel and are nearly twice as likely to suffer a second heart attack or stroke that could result in death.

Inova’s clinical application of genomics is taking healthcare to a higher level, explains John Niederhuber, MD, Chief Executive Officer of ITMI. “Researchers and clinicians have to think about patients before [the patients] develop diseases. They have to consider what will influence a patient’s healthcare and how they can tailor their decisions for the best possible impact,” he says.

Molecular Tumor Board
Another segment focused on how the Molecular Tumor Board is driving cancer care into groundbreaking territory — moving beyond traditional, nonspecific chemotherapy drugs and on to highly personalized treatments based on the unique genetic makeup of a patient’s tumor. The board’s goal is to match patients dealing with rare or recurring advanced cancers with a personalized treatment designed to combat the characteristics of their specific cancer. This can include new medications or admission into a clinical trial.

This was the case for Lee Felice, a 70-year-old Ashburn, VA, man who was interviewed for
the program. He was diagnosed with duodenal cancer in 2016, but the disease eluded traditional treatments. “When my case was presented to the Molecular Tumor Board, everyone was so excited because they thought they could help me,” Lee tells Inova Magazine.

Board members already knew that Lee did not have Lynch syndrome, an inherited disorder that increases the risk of many types of cancer, Timothy Cannon, MD, moderator of the board, points out. While they assumed that Lee would not be a good candidate for immunotherapy, when his DNA was sequenced, it was discovered that his tumor harbored a mutation in a gene that controlled DNA mismatch repair. They discussed the fact that even though this gene was not found in Lee’s normal cells and he did not have Lynch syndrome, immunotherapy might work well in him. It turned out that Lee was the ideal candidate for Pembrolizumab. “The board got me onto this drug, and the doctors were right about everything. I’m doing great now,” Lee says. “My digestive system works again, and I have a completely normal quality of life.”

“The Molecular Tumor Board is a forum that aggregates expertise to help patients,” Dr. Cannon explains. “It turned out Lee was a perfect candidate for immunotherapy. His life has changed markedly since we switched to this treatment. He looks more like the football star he was several decades ago.”

**ECHO Grant**

The ECHO grant was also a subject of the program. In 2016, ITMI received a $9.5 million grant from the National Institutes of Health to study how exposure to environmental factors and maternal behavior affect a baby’s health and development from conception through adolescent years.

A little back story: This grant is part of a seven-year research collaboration titled Environmental Influences on Child Health Outcomes (ECHO). Awards were granted to The Icahn School of Medicine at Mount Sinai Medical Center, the consortium’s primary recipient, as well as ITMI, Harvard, Ben Gurion University, Columbia University, the University of North Carolina and Northwestern University.

Kathie C. Huddleston, PhD, RN, CCRC, Director, Clinical Research Projects, ITMI, explains the research: “The ECHO studies look at exposure to air pollution; chemicals in homes, neighborhoods and work places; stress factors; and individual behaviors such as sleep and diet. Then we’ll relate these factors to genomic changes and clinical outcomes in the newborn. The hope is that we’ll tease out the data that influence children’s health — both soon after birth as well as later in life.”

How do moms and dads feel about ECHO? The show interviewed parents who signed on with the study and, as Dr. Huddleston explains, the response is “wonderful.” She adds, “ITMI has the largest cohort of families and newborns being actively followed as part of ECHO, with more than 3,000 Inova families enrolled over the past four years.”

**MediMap Baby**

Finally, “Genomics: The Power to Predict” examined the MediMap Baby test for infants. Inova is the only health system in the U.S. that provides this optional pharmacogenomics test free of charge to all newborns delivered at Inova Fairfax Medical Campus and Inova Fair Oaks Hospital. The one-time MediMap Baby test, which involves a painless cheek swab, looks at seven genes known to affect 24 different commonly prescribed medications.

When asked why they approved the test for their newborns, parents interviewed said the test will help ensure that their children receive the right amount and type of medication while also reducing potential risk for adverse drug reactions.

And MediMap Baby results aren’t just good for a month or year, Dr. Deeken emphasizes. “Your DNA never changes, so these infants’ genetic information will help guide their healthcare providers forever. MediMap testing isn’t just treating disease,” he says. “It’s about how we can personalize health for a person’s entire lifetime.”

A panel discussion, including several Inova thought leaders in personalized medicine, concluded the program. Summarizes Dr. Deeken: “Our vision for the future will make Inova a place where people from around the world will come for excellent clinical care based on cutting-edge research.”

And that, as they say in show business, is a wrap. inova
As the former Director of the White House Medical Unit, William L. Lang, MD, MHA, played a major role in directing comprehensive healthcare services for two U.S. presidents — Bill Clinton and George W. Bush — and thousands of executive staff members. Being in charge of medical contingency planning for the White House meant visiting nearly 90 countries and becoming intimately familiar with various cultures and healthcare systems around the world. A stint helping the Department of Homeland Security create and implement a health preparedness strategy further burnished Dr. Lang’s status as a premier expert in international healthcare inclusion.

Now Dr. Lang, Vice President of International Medicine at Inova, is advising and consulting a consortium that is helping to build the country of Georgia’s first “American-style” hospital. It will have an affiliated nursing program built around a U.S. curriculum. “This hospital is being built from the ground up with the inclusion of professional nursing standards to help deliver the highest possible care,” says Dr. Lang, who earned his bachelor’s degree at United States Military Academy at West Point and his medical degree at Uniformed Services University of the Health Sciences, a university of the federal government.

The 160-bed hospital — to be built according to International Joint Commission standards — is being developed in Tbilisi, the capital of Georgia, a former Soviet Republic country bordered by Turkey. The consortium includes leadership members from Georgia’s largest bank; David Tvlldiani Medical University, founded in 1989 as Georgia’s first private medical school; and Conti Construction, a U.S. company with Georgian ties.

An Inova staff member who has family connections in Georgia became an intermediary. As Dr. Lang explains, the Georgian hospital didn’t want to have an American company just build its hospital but desired to learn how to do it independently for future endeavors. Although there are specialty hospitals, it is difficult to get integrated comprehensive care in Georgia, he says. “It goes back to teaching people how to fish instead of fishing for them,” Dr. Lang says. “We are teaching them how to be fishermen. We aren’t fishing for them.”

According to David Tvlldiani Medical University, the country of Georgia needs at least 45,000 nurses. Currently only 9,000 are practicing and most are over the age of 65, since Georgia has trained very few professional nurses since the Soviet era.

Growing Integrative Medicine at Home
Inova is expanding its global presence in other ways. For example, Dr. Lang is part of a team that worked with Shanghai University of Traditional Chinese Medicine (SUTCM) to launch a Traditional Chinese Medicine Center (TCM) in Arlington, VA, as a first-of-its-kind venture between Inova and SUTCM.

“Inova is moving toward offering more integrated and functional medicine,” Dr. Lang states. “It’s about being responsive to patients who say there’s something out there that’s different from your standard American healthcare system.”

Case in point: A 2012 National Institutes of Health (NIH) study on American approaches to integrative medicine found that 59 million Americans are using integrative medicine.
Americans use some type of integrative medicine. That’s everything from acupuncture, herbal medicines and tui na (a form of acupressure-like massage) to cupping, a treatment for pain and inflammation that produced the much-discussed red circles Michael Phelps sported during his last Olympics.

A Multicultural Partnership
The tremendous out-of-pocket costs Americans pay to pursue alternative treatments — to the tune of $14.7 billion annually, according to the NIH study — is why Inova partnered with SUTCM on the project. The first-of-its-kind TCM Center has started with two practitioners and four rooms in a 2,000-square-foot clinic. Within the next two years, a larger 7,500-square-foot center will expand the initial program and be housed inside the Inova Center for Personalized Health.

“What makes this unique is that we have a major U.S. institution that is doing a joint venture with the leading international research, education and training center for acupuncture and all of TCM,” Dr. Lang says. “There are doctors who say TCM is quackery. Chinese practitioners have very distinctive philosophies to why it works, and that’s very different than Western medicine philosophies. The bottom line is that it helps many people get well. We don’t always know why. I know as a Western medicine practitioner, I’ve had plenty of patients who have had very good results from it. Don’t get me wrong; I don’t believe TCM is a replacement for what is our ‘mainstream’ types of care, but it is an important tool in our toolbox.”

Shakespeare never said it, but “the gut’s the thing.”

Our gastrointestinal system can be the determining factor of whether we live in health or disease. The gut is an intricately interconnected system with a lot of jobs to do. It serves as a protector from invaders, a processing factory for nutrients, a regulator of immune response and a sanitation department for removing waste products.

The gut performs all these functions with lots of assistance. The pancreas and salivary glands provide enzymes. The liver and gall bladder contribute bile acids. The walls of the small and large intestines chip in with muscular contractions to move things along. And, perhaps most importantly, the trillions of bacteria in the gut are vital components in all the processes the gut performs. In fact, without our bacteria, we couldn’t live.

The results of all these gut processes also affect every part of the body. If there’s inflammation in the gut, you can be sure inflammatory factors produced by the gut immune system are circulating to other parts of the body. This can result in symptoms as varied as nasal and sinus allergies, skin rashes, muscle aches, headaches, poor sleep, depression and anxiety, and many more.

If there is a lack of enzymes to break down food, there will not only be symptoms of bloating and irregular bowel movements, but far-reaching signs of nutrient deficiencies that can range from fatigue to skin problems.

If there is an imbalance in the gut bacteria, there can be problems with bowel movements and gas, but also with hormone balance, mood or weight control. As integrative physicians at Inova who use functional medicine as one of our tools, we look at the biology of the interconnected systems in the body to find the underlying cause of a problem. So even though a problem might seem to be limited to the skin, joints, airways or brain, we will look further than those isolated systems. We will ask questions and perhaps recommend specialized tests to find out if the condition of your gut is affecting the expression of disease elsewhere in your body.

The results of the specialized testing can pinpoint areas where intervention might help. Perhaps additional enzymes to help with breaking down food. There may be clues that a food sensitivity is in play and needs to be looked at further. Normal bacteria may be present, but in the wrong part of the intestine, and may need treatment. Pathogenic bacteria may be present that need to be eradicated with antibiotics, and then beneficial bacteria supplied to bring the complement of bacteria back into a more functional balance. Even parasites can be found and treated. Some testing can reveal slow bowel function that can be helped with botanical supplements.

All of these methods can help not only heal the gut, but also quell the distant expressions of disease in other parts of the body.

So the next time you have a gut feeling that something is wrong, listen! Let the physicians at Inova help you find the source and the solution.
WHAT'S NEW IN
INhealth
Check out the most recent issue of Inova’s newsletter InHealth, covering the latest developments at Inova’s five hospitals, plus inspiring recovery stories and tips for overall health and wellness.

FALL 2017
- Specialized emergency services at Inova Alexandria and Inova Mount Vernon hospitals
- How ECMO treatment at Inova Fairfax Medical Campus saved the life of a young U.S. Army specialist
- Inova Fair Oaks Hospital’s innovative treatment for breast cancer
- Fundraising drive supports Master Plan at Inova Loudoun Hospital

Lavender: A Pretty Scent and Good Medicine
When people think of lavender, they usually think of its lovely smell, which is widely used in soaps, creams and cosmetics. Extracts from this beautiful purple flower are even used as a flavoring for foods and beverages …

Turmeric: The Spice of Life
Turmeric, the bold yellow-orange spice that adds color to your curry, has been a staple of Indian cuisine for millennia. Long used in traditional Ayurvedic medicine, we are now confirming in the laboratory the many health benefits of this member of the ginger family …

Are You Getting Enough Antioxidants?
We hear a lot these days about antioxidants, substances in food that help our bodies stop “free radicals” from wreaking havoc on our cells …

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