

Cultivating Great Physicians

and the Timeless Art of Physical Diagnosis

Story Highlights

- Technological advances in modern medicine have pushed traditional physical diagnostic skills to the back burner.
- Conducting a comprehensive physical exam before ordering scans or tests minimizes the ordering of unnecessary procedures and the misdiagnosis of laboratory results, saving time and money.
- A thorough physical exam cultivates interaction between physicians and their patients, allowing physicians to express concern and caring and to develop a balanced view of the patient.
- Few health sciences institutions in the country still emphasize the importance of the bedside physical exam; Jefferson is one of them.

Jefferson was the fifth stop for the 18-year-old, who had stopped growing years too early and now was losing vision in one eye. Physicians at the first four hospitals treated him for a heart valve infection, but his health continued to deteriorate. At Jefferson, Joseph Majdan, MD, took his history, listened to his heart with a stethoscope and heard a tumor plop, prompting an immediate diagnosis of atrial and ventricular myxomas rarely found at this young man's age.

Soon after life-saving surgery to remove the heart tumors, the patient grew five inches. Each of the 20 years since, he has repaid his debt of gratitude toward Jefferson as a volunteer at the University Clinical Skills and Simulation Center, where he helps medical students develop and test out their patient interview skills.

Jefferson-trained physicians have a reputation for solving puzzling cases like this — often with little more than a stethoscope, reflex hammer, ophthalmoscope and keen intuition. Even as the medical profession has bemoaned the death of the physical exam, Jefferson has continued to refine and reinvent its nearly 200-year tradition of teaching physical diagnosis skills to integrate the latest medical findings and technologies.

As physicians face mounting pressures to speed up their exams, these skills help clinicians work quickly to formulate a hypothesis based on the patient history. They know what to look for in the physical exam, and then use physical findings to assess which studies or scans will refine their diagnosis and determine an effective course of treatment.

Technician Versus Quack?
“Medicine is truly a combination of art and science. Like conjoined twins, you can't separate them, or you will kill them both,” says Salvatore Mangione, MD, director of Jefferson's physical diagnosis course and associate director of Jefferson's internal medicine residency program. “When the art goes, you have only a technician. And when only the art remains, you have a quack. You need both.”

Unlike some medical schools, where the physical exam is taught by junior faculty, Jefferson deploys seasoned faculty with distinguished publication records and teaching awards to lead intensive training. “We're passionate about the physical exam. We promote it as something that will help you make diagnoses, and we make it fun,” says Mangione. At the University



Clinical Skills and Simulation Center, one of the nation's largest medical school simulation centers, students refine their history-taking and diagnostic skills with guidance and feedback from faculty, former patients, people trained to act as patients and patient symptoms.

Beside instruction is at the heart of Jefferson's approach. "What we do on rounds is an eclectic, cross-sectional experience that demonstrates physical diagnosis as well as interpersonal skills," says Majdan (pronounced "MIE-den"), the Simulation Center's director of professional development and an assistant professor of medicine. "That is our legacy at Jefferson. Students see clinicians talk to each patient as an individual whose humanity has to be touched first and foremost. We demonstrate how taking a

good history and conducting a skilled physical exam will ultimately reduce use of extraneous tests and minimize misdiagnosis of laboratory results and misinterpretation of studies."

Majdan leads weekly diagnosis rounds for all third-year students during their medicine clerkship, fourth year medicine sub-internship and also for residents and MD/PhD students. As he leads a group of residents on hospital rounds, he models the kindness, attention to detail and respect for each patient's individuality that elevates history-taking and the physical exam to the caliber of great medicine.

After warmly greeting the first patient, an elderly woman hospitalized for congestive heart failure, Majdan notes to residents that she is missing the outer third of her eyebrows, an indicator of low thyroid

While leading weekly diagnosis rounds, Joseph Majdan, MD, teaches students and residents not only how to conduct a comprehensive physical exam but also how to establish a meaningful connection with every patient.

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Joseph Majdan, MD

hormone levels sometimes referred to as Queen Anne's sign. He points to a bounding neck vein diagnostic of a leaky tricuspid valve. And when he presses gently on her stomach over her liver, a vein in her neck swells — a sign of heart failure.

Majdan uses a stethoscope connected to infrared headphones that allow residents to listen simultaneously as he listens to her heart. He points out to residents the precise heart sounds, a holosystolic murmur with Carvallo's sign, that correlates with her condition, a leaky tricuspid valve. Each physical finding matches extensive studies and labs in her chart. Then, he thanks her: "We can read about these symptoms a lot. But seeing it with kind people like you helps us remember these things. I wish you a short stay and that you should feel better soon."

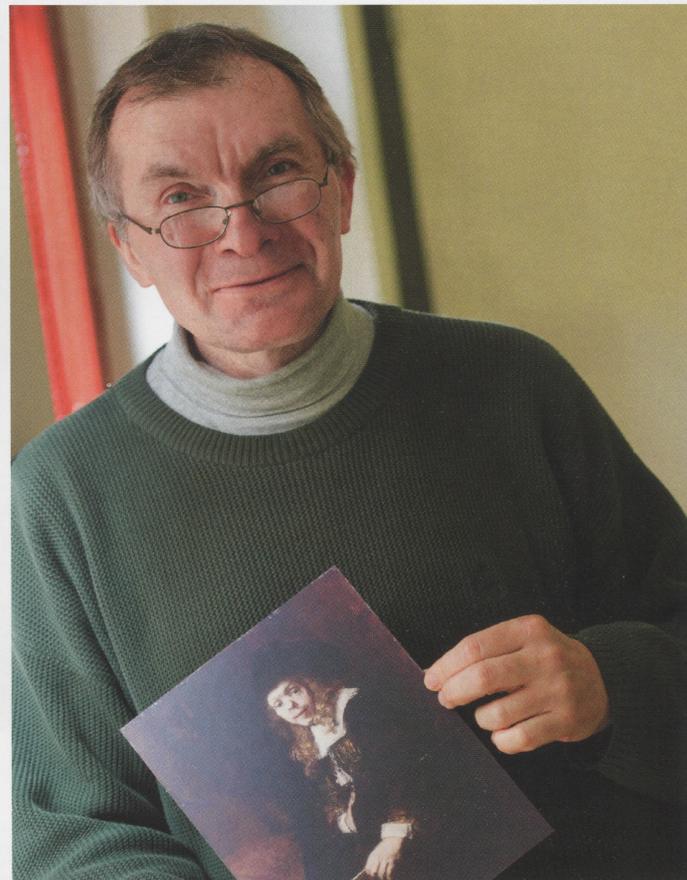
Most Important Person

At the second patient's bedside, Majdan notes her asymmetric pupils, droopy right eyelid and lack of sweat on that side of the face — three signs of Horner's syndrome, an interruption of sympathetic nerve signaling to the eye. While this is sometimes congenital, he urges the residents always to look for other causes. Majdan asks the patient if she is a smoker (she was). This history, along with her swollen right supraclavicular lymph nodes, suggests a Pancoast tumor (named for a Jefferson physician in the 1930s), typically found at the top of the lung. Again, diagnoses obtained in minutes at the

bedside match data in her chart. Majdan thanks the patient for the privilege of her time, invites her to ask questions and tells her: "You're the most important person in this room. We're here for you."

With the final patient, a 64-year-old woman, he again uses a stethoscope — this time to listen for fluid in the lungs. As the residents listen simultaneously on their infrared headphones, the patient says a long "E" sound repeatedly. With the diaphragm of the stethoscope over the affected region of her lungs, residents hear a shift to a long, goat-like "A" sound called egophony. The patient tells Majdan she can barely breathe. Majdan gently holds her hand and shows residents her nearly flat nail beds: her loss of Lovibond's angle, or clubbing, is an indicator of pulmonary disease. Just before leaving the room, he asks where she is from — South Philadelphia. He asks her what her favorite bakery is. She mentions a bakery by name, then smiles and proudly says, "It's nowhere near as good as I can make."

Out of earshot in the hallway, Majdan asks residents: "Did you notice the feeling that hit you as you walked in that room? Overt depression, right? That's appropriate. She has metastatic breast cancer. As the physician, you should always rise to the occasion. When you touch the humanity in each patient, they respond to that. She was smiling at the end." Majdan reminds the residents to address the needs



Salvatore Mangione, MD, uses art and history in his diagnostic lessons. Here, he displays Rembrandt's portrait of painter Gerard de Lairesse, whose "saddle nose" indicated congenital syphilis.

of the whole patient; for this patient perhaps a psychiatric consultation might be of benefit.

Where Rubber Hits the Road

Moments like these are illuminating. "During rounds you revisit what you learned as a student and refine your diagnostic skills," says Rajan Singla, MD '11, a first-year resident. "This is where the rubber hits the road. These experiences help me synthesize knowledge and remember things the way I naturally learn — not alphabetically or by looking it up in a book, but literally with the face of an actual person."

Majdan recently submitted research for publication that demonstrates improved teaching outcomes with use of infrared headphones, which look like a stethoscope in which the chest piece is connected to an infrared transmitter the size of a Band-Aid box. Sheel Patel, MD, a Jefferson resident present for those rounds, appreciates how the device refines her clinical skills: "Listening to the same thing as the attending helps me know specifically what to listen for, where you'll hear it and what you should always think of as a diagnosis."

Majdan believes that infrared headphones linked to a stetho-

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scope should be standard tools for teaching physical findings to all medical students and residents nationally. Majdan developed the use of this device to teach students and residents the use of a stethoscope and to develop their confidence in detecting a remarkable range of pathologic sounds in the gastrointestinal, endocrine, vascular, neurological, cardiac and pulmonary systems.

Jefferson students learn to make a blink-of-the-eye diagnosis by tuning their sensibilities with memorable images in a course on the history of medicine taught by Mangione. A lively raconteur, Mangione illustrates physical findings with vivid examples of diagnostic symptoms from art and history.

“For every disease, I go to great lengths to identify information that can get students excited and allow them to recognize findings at first sight, such as the saddle nose in Rembrandt's portrait of Dutch painter Gerard de Lairese that is diagnostic of congenital syphilis, or the potato nose in a

rare photo of J.P. Morgan, who was mortified by his severe case of rhinophyma,” says Mangione, author of *Physical Diagnosis Secrets*, a compendium of physical exam tips used by medical schools worldwide. “My inspiration has been Plutarch, who famously said that the mind is not a vessel to fill but a fire to ignite. Hence, we're trying to teach students a different and effective way of practicing medicine that they can maintain after they go out in the world.”

Retirements among medical school faculty trained prior to the era of CT scans and MRIs mean fewer clinicians able to pass forward the art of physical diagnosis. Shorter hospital stays for patients and 80-hour workweek limits for residents also compress the time medical students and residents have to confer with more senior clinicians on complex cases. In addition, a longer physical exam is not reimbursable, while insurance payments flow from volume of patients seen and from studies and scans ordered.

Tail Wagging the Dog

Without training in the art of physical diagnosis, says Mangione, “The tail wags the dog. The physician who doesn't have time for a thorough history and a skillful physical exam embarks on a path full of blind tests, where tests beget more tests, and where at the end there is often a surgeon and sometimes even a lawyer. Moreover, when the physical exam is overlooked, patients feel abandoned and typically resent it. Lack of laying on of hands only adds to their discomfort with high-tech but cold and detached modern medicine.”

Jefferson's emphasis on physical diagnostics pushes back against this dispiriting tide and provides a useful model for medical education as the nation's healthcare system begins a shift toward rewarding medical outcomes and quality of care. “When you put your life in a physician's hands, you want someone who knows what he or she is doing, but you also want to connect,” says Mangione. “Physical

diagnosis techniques restore a sense of fun to the practice of medicine and give you the ability to use your wits and senses, while also reducing costs. Besides, treating someone like a person can make a real difference in the healing process.”

According to Majdan, whose open-door office hours sometimes attract 100 or more medical students seeking guidance on complex cases, “Teaching is like throwing a pebble into a pond: the ripples go on and on. You never know how what you said will affect someone, how a moment of compassion will inspire others to become more compassionate. Here at Jefferson, we're training the future generation how to teach the practice of great medicine.” ■