



American Healthcare Professionals and Friends for Medicine in Israel

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Dr. Uri Landes flew 6,671 miles to learn how to replace a heart valve with one that, before opening, is about .13 inches -- or the diameter of an infant's pinkie.

Landes, a 2018-2019 APF Fellow at St. Paul's Hospital in Vancouver, is partway through a clinical and research fellowship in interventional cardiology.

"This particular subspecialty has both sides: innovation and technology on the one side and patient care on the other. It's just a great combination for me.

"Interventional cardiology is somewhere between being an internist and a surgeon," says the Tel Aviv resident. "I like physics and manual stuff, also physiology and the cardiovascular system."

Interventional cardiology treats cardiovascular disease and structural defects using multiple non-surgical procedures in the hospital cardiac catheterization laboratory. Procedures usually don't require incisions larger than an inch and many entries are by needle puncture, and so are considered minimally invasive. A cardiologist inserts a catheter, guiding it toward the heart area using real-time X-rays. Pacemakers and defibrillators can be implanted after introduction via catheter; valves and stents can be inserted the same way. General anesthesia is not typically required.

The 40-year-old started in medicine somewhat later than most of his colleagues. After leaving IDF commando service in the highly decorated Golani Brigade, he spent a year traveling the world. "When I came back, because I had such mediocre scholarship, I had to spend time studying to retake my final exams. That was the first time I thought about medicine for myself."

But he had it in his blood. "On my mother's side my grandfather was the first head of anesthesiology at

Hillel Yaffe Medical Center in Haifa. And my grandmother on that side was the first head of gynecology at Beilinson Hospital (joined with Hasharon Hospital in 1996 to form the two campuses of Rabin Medical Center in Peta Tikva). She was a superstar."

The Tel Aviv native actually started out studying physics. "But I changed my mind and decided on medicine, that this was what I really wanted. I'm very close to my grandparents and saw that they really liked what they did and that affected me considerably. What also had a significant impact on me was seeing, through them, how helping others could really lead to a meaningful life."

Landes enrolled in Hebrew University Hadassah Medical School and chose his future almost immediately.

In his second year, even before students rotated through the various specialties, he knew he wanted cardiology. "When we studied physiology I knew I wanted to be involved with the heart, the cardiovascular system somehow. I really didn't like anything else as much. But I puzzled over the question, 'Should I be a surgeon or a cardiologist?'"

Still in medical school, he further narrowed his focus.

"I saw that cardiology is going to take over everything and leave almost nothing for cardiac surgeons. The whole field of intervention is so rapidly advancing, and the combination of technology and innovation is so exciting, that I decided that's what I'm going to do."

Landes continued to an internship at Rabin and later internal medicine and cardiology residencies there. "I got to know the people and the place, especially the cardiology department, during my internship and knew it was the place for my

residency. Rabin has one of the largest and perhaps the finest cardiology department in Israel."

Before leaving for Canada he had already begun interventional cardiology training. At St. Paul's he is studying and completing procedures such as:

- Diagnostic angiograms – when guided catheterization is used to help diagnose cardiac problems.
- Balloon angioplasty – a tiny balloon is inserted, via catheter, and inflated into a blocked artery to create space; plaque is compressed by the balloon against the artery wall to improve blood flow. The balloon comes out after the procedure is complete.
- Stenting – A catheter with a balloon at the tip inflates to stretch the artery open and a stent (small metal mesh cylinder) is placed into the vessel to keep it open.
- Atherectomy – When a burr or rotary shaver at the tip of a catheter eliminates or lessens built-up plaque.
- Insertion of mitral valve clips -- The mitral valve is located between the heart's two left chambers. It has two flaps or leaflets that open and close, allowing blood to flow out of the top chamber to the bottom chamber. If the mitral valve doesn't close tightly enough, blood can flow backwards from the bottom chamber into the upper chamber and towards the lungs. A miniature clip about the size of a large staple, introduced through a catheter, is attached permanently to the abnormal part of the valve, closing it tightly, while the rest of the valve opens and closes normally.

And then there's TAVI – *transcatheter aortic valve implantation* – what Landes came specially to St. Paul's to learn. He has only now begun doing it. His mentor there Dr. John Webb, with his team, pioneered in 2005 the percutaneous heart valve replacement used today.

This minimally invasive procedure repairs the aortic valve without removing the old, damaged valve. Instead, it wedges a replacement valve into the aortic valve's place. Somewhat similar to a stent

placed in an artery, the TAVI approach delivers a fully collapsible replacement valve to the valve site through a catheter. Once the new valve is expanded, it pushes the old valve leaflets out of the way and the tissue in the replacement valve takes over the job of regulating blood flow.

"TAVI has not been around for that long. A decade ago it was not available like it is today," says Landes. "And when it was tested it showed one of the largest reductions in mortality ever reported in the field of medicine.

"People come from all over the world for to see Webb and his team."

Landes, as a physician/scientist, is also researching TAVI. One of several projects "in the pipeline" from his Vancouver work concerns building the world's largest registry of TAVI redo's. "The longevity of many patients could be longer than the longevity of the valves, and we need to collect more data."

Another project deals with in vitro valve studies.

Landes had already published more than 20 articles before coming to Canada, weaving research time between clinical hours. "We have no protected research time at Rabin; you just have to squeeze it in wherever you can."

Now he has a weekly day of dedicated research time and sometimes a couple of extra family hours.

The Landes family – Dad; Mom Michal, 38, an infectious disease physician and son Maayan, 5, arrived in Vancouver in December and will stay two years for Uri's work.

IS IT NECESSARY TO LEAVE ISRAEL FOR THIS KIND OF EDUCATION?

"Yes. I'm afraid so."

WHY?

"Israel lacks the volume of these procedures. Here we cover all of British Columbia and farther. I spend my days from 7:30 a.m. until 6 p.m. doing cases without having to do anything but. One comes in and the other goes out. That's the volume here. Also, in Israel the day ends around 3 p.m. I couldn't do this there.

“But more than that is that there is not enough time to educate with patience and without the pressure the Israeli system is under – the patient load overall and the time constraints.

“Also, the technology I’m exposed to here doesn’t yet exist in Israel, or in most of the world – it’s mainly new valve systems.”

WHY CHOOSE ST. PAUL’S?

“I chose it mainly because of Webb. And I thought Vancouver would be a great place for me and my family to spend two years. “The place is state-of-the-art, the people top-notch. And it’s a very good situation – some fellowships come with days that regularly end at 9 p.m., giving you virtually no family time. I didn’t want that and that’s not the case most days.”

HOW HAS YOUR APF FELLOWSHIP MONEY BEEN OF USE TO YOU?

“We’ve used it for everything – to pay the rent, to buy groceries, warm clothes, a car and more. The cost of living here is very high, almost like New York.”

IS THE FELLOWSHIP INTENSE?

“Very.

“In addition to the three or so days a week’s 7:30 a.m. start time and 6 p.m. end time, I sometimes come in at 5:00 and stay after until 7:30 p.m. to do research. We also have clinic hours (much of which is preventative lifestyle education and post-procedural lifestyle education), follow-up on the wards and my designated research time. I also attend lectures, conferences, meetings and do additional reading.

“I am on call five nights a month in the middle of the week and one weekend a month. During that time I am responsible for the cath. lab and in-patients on the intervention service. If the wards have any issues they call; sometimes a phone call is enough, sometimes I have to go in.”

SPEAKING OF FAMILY TIME – HOW IMPORTANT IS THE PHYSICIAN/PATIENT AND FAMILY RELATIONSHIP?

“It’s probably the most important part of the job. I think that for most of the patients and their families and for the physicians, it’s everything. If you have a good relationship -- if you smile and have a laugh and remember to talk with them, and to be compassionate and friendly and patient, it makes everything different. The whole atmosphere is different and the whole treatment is better. It helps with improving compliance and maybe there’s a little placebo effect, who knows? But it’s also much more fun, which is very important too. You have to have fun at what you do.”

IF WEBB IS YOUR CANADIAN MENTOR, DO YOU HAVE ONE IN ISRAEL?

“Yes, indeed, that is Dr. Ran Kornowski, head of cardiology at Rabin. He is a model for me as a person and as a physician who is incredibly skilled and absolutely dedicated to both medicine and his patients.

“He is a supreme interventional cardiologist but also a leader and an inventor. He invented me in a way. When I came to cardiology he really opened so much possibility for me that I did not imagine existed – research in cardiology and TAVI specifically. He took me under his big wing. And he gave me a lot of freedom and back-up, both mentally and professionally.”

WHAT OF YOUR VANCOUVER EDUCATIONAL EXPERIENCE WILL YOU TAKE BACK TO ISRAEL WITH YOU?

“When I return to Rabin I will be a better interventional cardiologist, making these kinds of services more available to the people of Israel. I won’t, right away, be the quality of the fine people at Rabin, but I will have a good start.

“And I am getting some nice connections which I hope to preserve after I’m back, to promote future research at the international level.”

American Physicians Fellowship for Medicine in Israel

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