

Alberta Doctors' Digest

The foundation stones of medicine

With this issue of Alberta Doctors' Digest, we are pleased to continue our series on the Foundation Stones of Medicine.

When walking across the floor of a building, we may not be aware of the foundation stones that keep it in place. Similarly, patients travelling across the health care system are usually unaware of the intricate structure of specialty care that lies beneath what they see on their individual journeys.

So we are featuring an ongoing series of articles highlighting some foundational specialties. We think the perspectives of these colleagues will be illuminating for the public and perhaps even for members of the medical profession.

For the current issue, we introduce laboratory medicine.

Most people have never wondered what happens after blood or tissue is taken for a test and how much behind the scenes analysis goes on before they get results back. Yet lab physicians play a crucial role in this process of analyzing and improving everyone's health. They're definitely behind the scenes. But not only do they exist, they're a catalyst for both individual health and sustaining healthy communities.

Before understanding the role of lab physicians, it's important to start with an understanding of labs.

"There are different kinds of labs, which all grouped together are the basis of lab medicine," explains Dr. Humaira Khanam, a pathologist at Grey Nuns Hospital in Edmonton and president of the Alberta Medical Association's Section of Laboratory Physicians. "For example, we have labs which are dealing with human blood abnormalities; there are some which are figuring out what is wrong with your body chemistry, labs which are dealing with the tissues that are biopsied or resected during surgery, labs providing support for blood transfusion and more. All these labs assess body fluids and tissues to find what is wrong or what is going on within the body so as to get information upon which the clinicians can act and treat the patients."



Systems are changing again and again, from centralized to decentralized to centralized yet again, and it isn't necessarily improving patient health says Dr. Humaira Khanam. (Photo credit: Marvin Polis)

Lab physicians and scientific staff run all these laboratories within the lab medicine umbrella. These lab physicians include hematopathologists diagnosing blood related diseases, anatomic pathologists diagnosing diseases in tissue, forensic pathologists finding out the cause of death in unexpected demise, molecular pathologists identifying molecular abnormalities, medical microbiologists working with infections, and clinical chemists identifying the chemical imbalance and toxicities.

There's an incredible amount of analysis that goes on in these labs, and the sheer amount of work is fascinating. It's not as straightforward as having blood drawn and then a family physician relaying the information to the patient. There's a plethora of technical steps that happen before a patient receives a medical follow-up with their family physician. It's clear that lab physicians play a major role in extracting this important information that clinicians then directly act upon by giving appropriate medical advice and treatment to patients. The role of lab medicine is absolutely essential.

"About 70 percent of diseases are diagnosed based on the lab tests," explains Dr. Khanam. "The lab physicians play a crucial role in the care of the patients. Although we are not in direct contact with the patients, we do provide that care that helps in the patient's medical journey in getting better."

In many cases, for example, pathologists like Dr. Khanam conduct extensive analysis to examine tissues from tumour biopsies. Stains and additional testing can be applied to see what type of tumour it is, where the tumour could be arising from and how far it has spread. These are all steps to ensure patients are treated for the correct medical condition.

A case study in communicable diseases

It's not always about the individual; sometimes it's about the community. In 2023, Calgary hospitals treated children following an infectious disease outbreak at daycares across the city. The outbreak was due to a contaminated food supply.

“It was the job of the medical microbiologists and staff to figure out how many people got this disease, helping to find out how it was communicated and how to prevent it from further spreading,” says Dr. Khanam. She stresses the foundational role lab physicians and labs played for the community. “That is something that the labs are able to do in gathering this data and act on it to prevent the disease from further spreading or in the future preventing it from happening.”

Unappreciated challenges of lab medicine

Stability. Dr. Khanam says that’s the number one challenge labs are facing. Staff working on the ground need to be taken into consideration. In the last number of years, there have been many changes that require effort from the staff to keep constantly adapting. Systems are changing again and again, from centralized to decentralized to centralized yet again, and it isn’t necessarily improving the processes for improving patient health.

To combat this issue, she says it would be important to streamline one system and to continue to improve on that system to provide the benefits of stability and forward thinking for both staff and patients.

Dr. Khanam describes this challenge of changing systems. “It has taken its toll on the lab physicians, lab technologists and all the staff which are involved in making these changes happen because once those changes are made, people kind of settle down and then later they have to change again. That is just demoralizing because they have to put a lot of effort into it, and I don’t think that the people who decide to make those changes realize that. I would like for them to think about how it affects the morale of the lab staff.”

Dr. Khanam says consistent change to the systems is one of the challenges that also makes it difficult to retain staff and physicians. This is a major issue that can be easily improved upon by sticking to a system and improving on it, which in turn can play a key role in making it more attractive for physicians to stay onboard.

She says another major area of improvement that needs to be addressed is consistency in recruitment and retention for lab medicine. Right now, Alberta is short of about 1,000 technical staff and a large number of lab physicians.

The path forward

Alberta is a good place to work, says Dr. Khanam, but the ongoing changes and uncertainty that comes with it makes it difficult to attract and retain staff and also to initiate new projects in an uncertain environment. With a greater focus on stability, recruitment and retention, there will be benefits such as a positive morale and an increase in staffing.

Alberta also needs to be competitive with its other comparator provinces that are giving incentives to staff and physicians to join them. These provinces have been quite successful.

Dr. Khanam has additional thoughts regarding increasing technical staff requiring training that's not readily available. "What the government can do is increase the number of spots in the universities and colleges where the lab technicians can train and provide some incentives for their retention." She notes a number of other key opportunities. "Similarly in medical schools they can increase some spots for medical students and pathology residency training. There could be some retention bonuses for technologists or physicians who work in smaller communities."

So what have we learned about lab medicine? Patient wellness is paramount, and lab physicians are definitely a foundation stone to help sustain health. Although they're hidden in the background, they make more of a positive impact than most people know.

"We do help improve your health, and we are partners with your physicians in providing guidance for screening, diagnosis and prognosis for treatment, and health of the patient," says Dr. Khanam. "We would be really happy when you go for your test and remember all of that."

Banner image: Dr. Humaira Khanam (Photo credit - Marvin Polis)