Doctors in Training Grant

PRELIMINARY REPORT

Cross country skiing for the first time ever on a frozen lake in the Laurentian Mountains north of Montreal!

Dr Ida Whiteman

Paediatric Cardiac Non-Invasive Imaging Fellowship

Montreal Children's Hospital/ McGill University
Montreal, Quebec, Canada

Bonjour! I am a newly-qualified Paediatric Cardiologist from Melbourne, and I have moved to French Canada (Montreal) to undertake a specialised fellowship program in cardiac imaging, which is predominantly focused on fetal echocardiography, with the assistance of the MIGA DIT grant.

I grew up in a small rural town in Victoria and obtained a scholarship to study medicine at Monash University. Since graduating, I have worked for ten years in clinical medicine. During that time, I have been fortunate to have opportunities to work, volunteer or conduct research across multiple countries in the Australasian Pacific region, South Asia, and Africa. Despite this, I have been most affected by the disparate health outcomes that face Australia's First Nation Peoples. As a PGY2, I worked for a year in Darwin, which started a relationship with the Northern Territory that has continued to this day. I was exposed to many cases of rheumatic heart disease, an entirely preventable disease caused by poor living conditions, that contributes to permanent heart damage. Australia's Indigenous children have some of the highest rates of rheumatic heart disease in the world. This is unacceptable, especially in a high-income country with the means to address this health crisis. I decided to become a Paediatric Cardiologist, and sought to learn more about public health, initially through a Masters program at the University of Oxford.

During my Paediatric Cardiology training, I loved echocardiography and communication with families. This led me to pursuing a specialised fellowship program in fetal echocardiography. Furthermore, there is no in-house fetal echocardiography service in the Northern Territory, with services provided remotely. Due to this interest, and a longstanding passion for the French language (since high school), I decided to undertake a fellowship at Montreal Children's Hospital/McGill University in fetal echocardiography.

The fellowship is a full-time clinical role at the Montreal Children's Hospital. I complete fetal echocardiograms (detailed ultrasounds of the fetal heart in pregnant mothers) full-time for three to four days per week, with the remainder of the time filled with research, department meetings, and exposure to cardiac MRI scanning. I started the fellowship in July 2023, and I have already been trained in obtaining relevant images of the fetal heart, detecting abnormalities, making formal diagnoses and counselling parents about the findings and future medical and surgical treatment options. I have also gained experience in the management of abnormal fetal heart rhythms. I participate in the on-call roster, working one in four weekends and doing overnight on calls for the Paediatric Cardiology department.

This allows me to continue to keep up my skills in acute inpatient Paediatric Cardiology. I am supervised by a team of five Paediatric Cardiologists who are all fantastic and unique in their own ways. I have engaged regularly in teaching and have given several lectures to colleagues, residents, medical students and nursing staff on topics related to Paediatric Cardiology.

I also present the fetal cardiology imaging and clinical cases from Montreal Children's Hospital every week in a meeting involving other hospitals, and in doing so I will take responsibility for the images obtained, their interpretation, diagnoses and management plans.

Given my interests in Indigenous health, the local team have arranged for me to accompany one of the Paediatric Cardiologists 'up north' to two remote Inuit communities in April. I am so excited. The communities are called Puvirnituq and Kuujjuaq, and right now it is -30 degrees up there. If I don't freeze to death, I will report back.

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1. Me and the fetal echo machine, we spend a lot of time together
2. A famous mural of Leonard Cohen, who was born and spent his life in Montreal

One of the major differences between the environment I am working in and the environment at home is language. The official language of the Quebec province is French. Approximately 50% of the patients prefer to speak French than English, and many of the staff prefer French. The official meetings for the hospital, and documentation is in English. On my first day, I was in the paediatric intensive care unit reviewing a patient who was day 1 post open heart surgery. I walked into the room to strike up a conversation with his father, only to realise his dad spoke only French. It was an interesting stumble of a conversation, but now 6 months later that conversation would be fairly easy! So improving my French has been an amazing bonus to this experience.

The kinds of cases I have seen as a fetal echocardiography fellow have been fascinating. Here are some examples below (with permission):

Case 1

A 40-year old mother and her husband were pregnant with their fourth child. The patient was referred to us due to concerns that the fetal heart looked abnormal on obstetric scans. The fetal echo revealed that the left side of the heart wasn't forming normally, and there were two possible outcomes for the baby. Outcome A (more favourable) was that the fetal heart would continue to grow such that the left side of the heart would be adequate to support the baby's future circulation, and there would only be one surgical procedure required to 'fix' the heart after birth. Outcome B (less favourable) was that the left side of the heart would stop growing, and the only way for the baby to survive after birth would be to undergo three successive open heart surgeries to create a 'Fontan pathway', which is effectively a circulation that works with only one ventricle (pumping chamber). The parents clearly felt that if outcome A occurred, they would continue the pregnancy, but if outcome B occurred, they would want to terminate the pregnancy. It was impossible for us to predict which outcome would occur until more time had passed, and the parents had to make a choice without the luxury of time. This was extremely difficult for them, and we supported them through the process of making this impossible choice. Ultimately, they decided to terminate the pregnancy due to the uncertainty of the outcome.

Case 2

A patient, was referred to us due to concerns that a tumor had been seen inside the fetal heart at the obstetric scan. Our fetal echo showed a large tumour inside the right ventricle of the fetal heart, and an additional smaller one in the left ventricle. The tumour grew over time and caused compression of one of the heart valves and subsequent regurgitation of blood flow. We had to start a medication (by giving it to the mother) to try to shrink the cardiac tumours in the fetus, which required collaboration and assistance from other hospitals in Canada.

Case 3

A 35-year-old female, pregnant with her first baby, had a background of Sjogren's disease, an autoimmune condition. It is known that maternal antibodies can cross the placenta and 'attack' the fetus' heart during pregnancy. In this case, that had occurred, and the maternal antibodies had crossed the placenta, causing complete heart block in the fetus. We have had to monitor the fetus every week to ensure the heart rate is adequate and the fetus isn't developing signs of heart failure. After birth, the baby may require a permanent pacemaker.

These cases demonstrate that I am learning so much from this subspecialty fellowship, and will bring this learning home to benefit Australian patients.

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