

THE BIG LITTLE NEWSLETTER FOR THE STUDY ON THE PREVENTION OF CARDIOVASCULAR DISEASE AND TYPE 2 DIABETES IN CHILDREN AND ADOLESCENTS

Interview with Michael Zappitelli

Dr Zappitelli is a very cheerful new collaborator in the great QUALITY team. He is a researcher for the blood pressure project that has recently been added to the QUALITY study. We asked him a few questions to know a little more about the project, and to get to know him better.

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You work as a nephrologist at the Montreal Children’s Hospital. Can you briefly describe this specialty?

Pediatric nephrology is an exciting specialty. As you may know, nephrology is the study of kidney and urinary tract health or disease. I have the privilege of providing care for children with a large variety of kidney or urinary tract problems, including chronic kidney disease (due to congenital kidney malformations or a large number of other conditions), children treated with dialysis or who have had a kidney transplant. I also care for hospitalized children who have kidney problems due to the disease that brought them to the hospital (for example, a child in the intensive care unit with severe infection who develops kidney failure due to the infection). Child nephrologists also specialize in other diseases related to the many functions of the kidney. For example, electrolyte problems, some hormonal

and bone disorders, and of course hypertension. Nephrologists are the “blood pressure specialists”, because of the vital role that the kidney plays in controlling blood pressure.

What brought you to choose this specialty?

When I began my residency in pediatrics, all I knew was that I wanted to be a caregiver for children. However, in my first year of residency, at the University of Alberta, I had the privilege of taking care of a 10 year old girl who had recently had a kidney transplant. I became quite close to her and her parents. She suffered many complications from her transplant and ultimately, she lost her transplant and had to be restarted on chronic dialysis. I cared very much for this patient. However, I also realized that the nephrology specialty is fascinating and exciting, while allowing us to really help children who need it. As a nephrologist, I need to know not only about kidney problems, but all of the other problems that come along with abnormal kidney function (like infection issues, immunology, lung and heart disease, for example). My staff physician at the time was a nephrologist. She saw a “future nephrologist” in me and invited me to a conference. I saw all of the fascinating research happening in this field and I decided this was the right choice for me. I never looked back.

On top of being a nephrologist, you are leading several research projects. What percentage of your time goes into research?

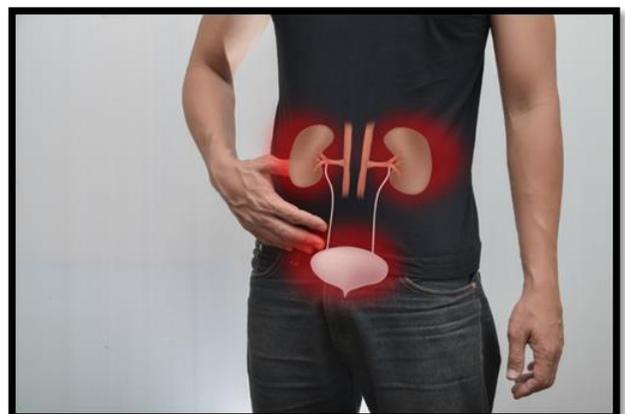
Research plays an incredibly important role in my job. I spend between 55 and 65% of my time performing research activities, including carrying out projects, training research students and attending conferences.

Interview with Michael Zappitelli ...continued**What attracted you towards research in general, and more specifically what is pushing you to study the blood pressure of the participants in the QUALITY project?**

I was introduced to my first research experience in medical school: in the field of child psychiatry! I performed a study in elementary schools to evaluate a program to teach at-risk children about empathy or understanding others' feelings. This has nothing to do with nephrology, but I realized then that I love research: finding something that is unknown but that *needs* to be known, and then figuring out the best way to go about solving the issue, so that we can improve the lives of children and families. As a nephrologist, blood pressure plays an incredibly important role in my work and caring for patients. Also, for many types of kidney research studies, blood pressure is an important parameter to evaluate. Yet, there is still so much we don't know about how to interpret blood pressure in children and youths, and how to predict who *will* versus who *will not* develop high blood pressure. This is important to know, because high blood pressure is a very important risk factor not only for later kidney disease, but also for heart disease. And we can treat it!!! So we should understand it better, like we do in adults. That is why when I found out about this amazing study, the QUALITY study, I realized how important this opportunity is to learn about blood pressure in youth, by working with this outstanding cohort which already exists. Also, the QUALITY cohort study includes many other types of evaluations on the heart, exercise, blood sugar, and body measurements, which are all things highly affected by blood pressure. I therefore thought: "we *have* to work together!"

Which measures are taken in this blood pressure study, and why?

We are measuring blood pressure in different ways. First, the QUALITY study already measures blood pressure first thing in the morning (as the participants know very well!). However, the very best way to measure blood pressure and really know what someone's blood pressure is, is by doing a 24-hour blood pressure study. This 24 hour study can be done anywhere, in the home, while walking around the supermarket, anywhere, using a little machine box and a blood pressure cuff that stays on the arm for 24 hour hours and records blood pressure. The reason it is such a better test than just getting a blood pressure measured in clinic, is because it tells us about blood pressure when the child or teen are in their "normal environment" and when they are sleeping. It also tells us about how blood pressure changes throughout the day. We all know that when we go to the hospital, we get nervous (even doctors!). So, sometimes our blood pressure seems high in clinic. But actually, it may not be high, it's just because we are nervous. On the other hand, sometimes blood pressure in clinic might be normal, but actually, the person may have high blood pressure, and this is missed. This scenario is not desirable because treatment which could help would not be given. So we are performing 24 hour blood pressure tests. We are also doing two other very important tests. One is an echocardiogram (or heart ultrasound). This test is to see if the heart is working too hard because of the person's blood pressure. When our blood pressure is high, our heart has to work harder and gets too thick. That could be a very early sign of heart effects due to high blood pressure. Finally, we are asking participants to consider doing a 24 hour urine collection. Most teens do not like doing that. Why on earth would we want their urine from a 24 hour period? We are not crazy. It's because this urine will tell us two things: a) if the blood pressure is starting to cause effects in the kidney and b) how much salt the person is generally taking in their diet. Salt



Interview with Michael Zappitelli ...continued

intake is a very important part of blood pressure control, and having this information will help us understand our results better.

What research hypotheses do you aim to examine with the data gathered from the participants and their families?

One of the overall goals is to better understand how to interpret blood pressure in young people so that we know who is at risk for heart problems due to blood pressure and how to predict who will versus will not go on to develop high blood pressure. We hypothesize that young people who have subtle abnormalities with blood pressure (which would normally be missed during routine doctor visits) have evidence of effects on the heart (from the echocardiograms we will be taking). We will also figure out what factors can predict who develops high blood pressure by adolescence. We will also try to understand what the “at-risk” blood pressure numbers are for heart effects; at what number should we start to get concerned?



Since the start of this sub-study, a few weeks ago, many youths have accepted to participate. They volunteered to do their bit for the cause. In research, the larger the number of participants, the better the chances of validating a hypothesis or of finding answers. What would you tell the youths that will soon be doing their 3rd visit for the QUALITY project, so that they partake also in your blood pressure study?

First of all, as my years of research experience increase, I become more and more amazed at what children, teens, and their families are willing to do to help advance research which will ultimately help others, by participating in research studies. It is truly remarkable and I never cease to be amazed, and I thank these young people. As you know, the QUALITY study visit day is already jam-packed, isn't it!!!? Well, we have done everything we can to reduce the extra amount of “work” needed of these young participants. I know it's a long day. There is also the participation that we need from home, to do the 24-hour blood pressure test (which can be done at home, or anywhere, really), and if they choose to, they may also perform a 24-hour urine collection. All I can say is that every single QUALITY participant that accepts to be part of the blood pressure sub-study is vitally important. As you stated, having as many youths as possible is so important to make sure our results are valid. Also, I would say, consider how important blood pressure is. It is always measured in the doctor's office, in the emergency room, or anywhere! There are machines for blood pressure measurement in the pharmacies! This is because blood pressure is such an important part of having healthy heart, kidneys and other organs. And yet, how to use blood pressure measurements in children and youths is still not clear! It is well documented in adults, but not in young people. It's because there haven't been enough long-term studies in young people. Now, we have one: the QUALITY cohort study. I think that knowledge on something as important in blood pressure should be just as important in children and teens as in adults. So all I can guarantee is that your participation is important, will lead to really important results that will help guide doctors and other healthcare workers on how to best use and interpret blood pressure in youths, and hopefully, how to better treat it too.

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Should we measure our blood pressure?

Yes of course!!! I am not just saying that because I am a kidney doctor. If high blood pressure is caught early on, we can do something about it and prevent the bad effects on the heart, kidney, brain and eyes that can happen later. It doesn't always have to be medication. High blood pressure treatment can mean lowering the salt in the diet or losing weight, stopping smoking or even just doing more exercise. We always try to do the "natural" things first, when we have a child or teen with high blood pressure, and only use medication when we really think we absolutely need to.



Can you think of simple tricks that might help us keep in mind how to take better care of our kidneys for the rest of our lives?

Kidneys play such an important role in so many aspects of our health, including blood pressure, our heart, different hormones, and many other things. So it is definitely worth taking care of our kidneys. The good thing is that taking care of our kidneys is a lot like taking care of our hearts! Lots of exercise, being at a healthy weight, not smoking, and eating healthily are great for good kidney health. If you have high blood pressure or diabetes, it's really important to treat these conditions early and to not let them go too long without being untreated. Many people also think that drinking water regularly is important; I think at the very least you should drink when you feel thirsty: listen to your body and hormones talking to you! The amount of salt we take in our diet may also be important for blood pressure control, so along with healthy eating, I would recommend trying to balance things out when eating very salty foods (like canned foods, chips, burgers and frozen foods).

In the long run, visit 4!

The third visit for the QUALITY study is coming along smoothly. Already 270 participants have been evaluated and the calendar is booked for the coming months. The QUALITY research being a longitudinal one, collecting data spreads over many years. Seven years separate the first and third visits. What of the future? Will there be a fourth visit? We asked the QUALITY cohort's main investigator, Dr Mélanie Henderson.

Do you intend to prolong the project into a 4th visit? Without a doubt!

Are you sure that this visit will be able to happen? Yes, but we will have to ensure the funding is there for this next stage of the project.

What steps need to be taken to meet that goal?

Right now we are evaluating what emerging risk factors might be important to document among the youths of the QUALITY cohort. We now know that digestive health seems to be an important factor, as yet unheralded, in cardiovascular health. We may focus more attention on these aspects of our participants' health. Obviously, we need to obtain subsidies in order to continue our research, but we remain confident that the funding institutions will see the full potential of the cohort and all that we have already learned from our participants.

What will the 4th visit make possible for the researchers? In other words, why is it important to pursue the QUALITY study?

There exists no other cohort like it. QUALITY has recorded multiple aspects of the health of young children with high quality measurements, and replicated these measurements throughout puberty and into the young adult stage. Understanding the impact life habits have on children's and youths' cardiometabolic health remains a key element in the development of prevention strategies. It is by evaluating the QUALITY participants' health over the course of many years that we will learn which are the most important childhood influences on the long term, telling us therefore which optimal strategies should be adopted.

If a youth has missed the third evaluation, will they be allowed to partake in the fourth one?
Of course! 😊

A raffle for participants!

All youths that complete their third visit are eligible to win one of 2 gift sets, each containing one Ulitmate Ears portable speaker and one iPod Shuffle! Be patient, the winners will be picked once all the participants have had the chance to make their third visit!



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