Canadian Anesthesiologists' Society Presidential Interviews
Dr. Robert Seal, interviewed by Archives & Artifacts Committee Chair Dr. Mike Wong
March 2nd, 2022

Mike
Today I have the pleasure of speaking with Dr. Rob Seal, a pediatric cardiac anesthesiologist and clinical professor at the University of Alberta. He served as President of the Canadian Anesthesiologists' Society from 2000 until 2002 and has been involved in numerous other roles and committees in the CAS. He was a founding member of the Canadian Pediatric Anesthesia Society, and also served a term as president of that organization. Additionally, he is esteemed in the world of high-level motor sports in Canada and abroad.

Welcome Dr. Seal and thank you for joining us.

Let's start from the very beginning. Can you describe your family background and childhood?

Rob
Sure, so I actually grew up in several places in Alberta as a child. My dad was a United Church minister and my mum was a schoolteacher. I initially lived in a small town called Forestburg and it was a coal mining, electricity-generating, and farming town. It is significant in that one of my childhood friends there ended up being one of my medical school classmates. We lost each other for a lot of years and then we met again on the first day of med school.

After that, [I spent] four years in the west part of Edmonton. From grade 6 to the end of high school [we lived] in sort of the Ukrainian capital of Alberta, which is Vegreville. [It's a] French name because the town was initially a French settlement, but [the community had] mainly a Ukrainian background. By the time I finished high school, I had about a 3000-word vocabulary in Ukrainian. Not very good at putting together sentences, but I could name most things.

[My] high school was mixed, academic and vocational. 3/8ths of my final year was in electronics. It was essentially a television and stereo repair course spread over three years and it was quite fun. Proved to be handy. So, if you got any antique TV's or stereos, I can fix them, if I can find [the] parts.

Mike
In anesthesia we seem to have a knack for "MacGyver'ing" solutions when options are limited. Did that education come into play [in your career]?

Rob
Oh, constantly. There was such a strong physics component in it. That, and electronics. [I developed] the depth of understanding I have of even how an arterial line transducer actually works and what can make it unhappy. It does prove clinically relevant.

Also, a lot of things in terms of understanding how syringe pumps actually work. One of my pet things to do is when I get critical care or pediatric anesthesia trainees in with me is to set up a series of physics experiments on the side to show them the shortcomings of their equipment.

Yeah, so it spilt over quite well. Also, even just the ability to understand the true nature of electrical hazards in the OR, and what that really means. It's proved pretty handy that way.

Mike
And how about your university years?

Rob
As was typical of almost 70% of my medical school class at that time, we were all young folk who did two years of premed and then, boom! Suddenly entered med school. Although we kinda had ideas and thought we knew everything about the world, we really were still starting out and just immersed in it. It didn't strike you as weird because that's just what you did then, right? So, I went straight into med school, had a great time in Edmonton. I ended up marrying one of my classmates. Actually [there were] 11 marriages in our class of 120. Almost all of them are still together.

After that, the only thing you ever had to match for in those days was the internship year, your first post-med school year. It was pretty rare to have people do what they call "the straight," which was going directly into a specialty.

Most people did either family medicine, residency, or general rotating internship. [My wife and I] ended up on a joint match. After doing a little bit of traveling around with interviews – nothing like what people are doing with CaRMS now – we ended up at the Royal Columbian in New Westminster, which was our first choice.

Mike
Then, after your intern year, you also did some locum tenens work around in British Columbia?

Rob
Yeah, we both did. Out of our cohort there 20 of us interned together at the Royal Columbian. Sixteen out of 20 did locums for the first year after internship. Eventually, 16 out of 20 became specialists out of the cohort. I wasn't the only anesthesiologist. My wife chose pediatrics, I ended up in anesthesia, but the year of locums was interesting.

I initially started out in Burnaby, which was close while we still lived in New Westminster. The locum there [ended up being] just prescription renewals and soft psychiatry. Really nothing too edgy, and the Royal Columbian was a very edgy hospital [in comparison], right on the TransCanada Highway, with lots of trauma. Really busy with ICU, trauma, and obstetrics. And there were no residents or med students in the hospital at that time, so the interns did everything. There were still some rotations in that era that were 1-in-2 call and stuff. You got used to being kind of wound up all the time, so suddenly to be sitting in an office with problems that you felt like anybody with broad shoulders could have solved, it felt really strange.

Most of my patients would be admitted to Burnaby general, but I ended up with one in the Royal Columbian. So, I went there to visit them. Then, I went through the doctor's lounge and met up with one of the younger cardiologists, a guy named Dr. David Hilton. If you look him up, he is famous [from quite a while ago] for being kicked off an Air Canada plane in Toronto for a verbal altercation with the flight attendant; he got out of his seat to get his briefcase from the overhead bin while they were stuck on the apron [tarmac]. Anyway, David was a neat guy who had an influence on all of us as interns. And he asked me how I was liking general practice stuff. The first thing that came out was, "Well, you know, I haven't intubated anybody in months or put in any central lines. It's really kind of dull." [He asked if I ever] thought about being an anesthesiologist. My first thought was no. I'd never entertained that thought in my life.

But I did come to the realization that I was [interested in anesthesia]. I loved procedures so much.

When I [previously] did my surgical rotations, I'd always make sure to be in early. I'd start the case with the anesthesiologist, I would do the intubation, put in the IVs and any lines that were necessary. And, then, go scrub in. And I got a kick out of it. I'd been taught how to do [subclavian lines] when I was a med student, so I ended up attached to the guy doing the TPN. Even when I was on a different rotation, I would go around the hospital putting in subclavians for TPN. Maybe there some endorphin or adrenaline I got from procedural stuff. It might have been a need that could be met by doing the [anesthesia] residency.

I went home and thought about it overnight. The next day I phoned the UBC [University of British Columbia] department. I think I had a day off, so I went down to their offices in VGH [Vancouver General Hospital], met a couple of people, and that was it for the application process. I got a phone call a few days later and I was going to start the residency the next July! That was all there was to it. I've had both daughters go through the CaRMS match, so it was a totally different set up to what they've had to go through.

Later, I'd end up doing general practice in smaller communities and smaller cities, in both, in Summerland just outside Penticton, and then Prince George and Quesnel. There we did a lot of real medicine. It was fun and rewarding. You know, if by chance I'd started out with that, I may have had more job satisfaction and not looked for something else.

Mike
It's interesting where life takes you. I see how your experiences as an intern really helped steer you in that direction. [Anesthesia] seemed to be a good fit, with the procedures. Particularly with cardiac anesthesia.

Where does the pediatric anesthesia side of it come into play?

Rob
In residencies then, your time on internal medicine was usually set up as a bit more as a discrete chunk of time. I was lucky enough to do a year and a half of anesthesia and then have my year of internal medicine right in the middle and then the remaining portion of anesthesia afterwards.
I liked [pediatric anesthesia] in general. [And it was] the pediatric cardiac stuff who really energized me.

I ended up spending a lot of time with a guy named Dr. David Steward who's still alive and living in Bellingham. He was the anaesthetist-in-chief at Sick Kids for quite a while. At the time I knew him, he was the chief at British Columbia Children's [Hospital]. Then, he went on to finish his career at as the Chief at [Children's Hospital Los Angeles]. He was a big influence on my life. I think he could tell I was really into it, and he indulged me. I had quite a bit of independence even then, on the pediatric cardiac cases I was doing and he energized me to an even [higher] level. The physiology was fascinating.

As much as I got a charge out of [placing] central lines in adults, there's nothing like putting in a central line in a baby to give you a little boost for the day. I liked the finicky procedures. I [also] liked working with kids because adults could be a little bit of a slog – [often] they're at the point where they've multi-system problems. No matter what you did, you'd fix one thing then something else would be going wrong. Whereas the kids generally had something they didn't deserve, but just ended up with it [through] no fault of their own, and they generally did really well. It is a bit more of a positive environment.

There were no jobs on the horizon in pediatric cardiac in Vancouver, at that time. It was a fairly young, middle-aged cohort that was doing it. It's the fault of yet another CAS past-president that I ended up in Edmonton – although I became CAS President before he did. And that's Dr. Doug Duval.

My classmate from med school, Dr. Brent Bucyk who is also an anesthesiologist, was getting married. We came back for the wedding and ended up meeting Doug Duval. Doug's quite an engaging guy. He asked me what [I was going to do with] my career and I said I was going to be working at Vancouver General doing adult cardiac. I was going to the [Royal Brompton Hospital] in London, England and then I'd come back and do adult cardiac. I was also going to be involved in the Capilano College respiratory therapy training program, which was going to need a medical advisor. That's what I was gonna do. [Duval] said, "Well, how do you feel about that?" I said, "It's fine, but I'd really rather be doing pediatric cardiac." The following Wednesday, a letter arrived at our house in Vancouver from Doug, who I didn't realize was the acting chair, offering me a job doing pediatric cardiac in Edmonton.

I was tempted to immediately jump on it, but I thought that I should at least properly check it out. After being at the Brompton I came by around Christmas when we came back to Canada. It was a second, similarly quick interview process to what I had for with my residency application. I met [another CAS past president) Dr. Ron Gregg for the first time. Ron was so refreshingly straightforward. In Vancouver at that time, there was a sort of cautious language and political correctness that really was emerging, whereas Ron was a guy who just kind of spoke his mind. I found him really refreshing. I thought I could work with this guy and that was that. That following June, we moved to Edmonton. It's just funny, a chance meeting at a friend's wedding is how we ended up there. No regrets.

The other thing I really noticed as I was coming in, having a little tour around the [University of Alberta Hospital] was just how much more well-resourced they were than the hospitals in British Columbia! Both in terms of physical plant, equipment, and staffing. It was just, like, wow! It was pretty luxurious compared to the environment that I was training in. It was even in things that these days you'd find hard to believe. In Vancouver at that time, people were still sharing pulse oximeters. [There weren't] enough pulse oximeters for every theater, whereas Edmonton had pulse oximeters all over the place. MRI [magnetic resonance imaging] and CT [computed tomography] were still a little hard to come by in Vancouver, whereas they were all over the place in Edmonton. It was an interesting change that way.

Mike
Absolutely. You mentioned a number of individuals that have helped to steer your path. Were there any other influential mentors or sponsors that you want to talk about?

Rob
Yeah, there's a lot. I've listed a few and I could probably list more. [Back to] internship, that was significant I was lucky that my first anesthesia rotation was back at the Royal Columbian. To correct what I said earlier, they did have anesthesia and orthopedic residents there. The anesthesia residents just had to do one week of nights at some point during their rotations, so it wasn't like they were there to back up the interns at night. They were there for their own reasons. One of the first guys I worked with was a guy named Dr. John Crosby.

John had a huge influence on me in that he was such a meticulous guy. The way he would label his syringes stuck with me for my entire career. He would always make you put the labels on in such a way that when you were looking at the gradations on the barrel that you could see the label. To this day it drives me nuts when I see labels that are on the opposite side so that, when you're looking at the label, you can't see the markings. Or inconsistencies in [label placement]. Anybody who's worked with me as a trainee has been forced into the John Crosby method of labeling. He was meticulous about other things. Meticulous, but efficient about his pre assessments. He was very focused and quick, but he wouldn't miss any details. His anesthetics were [also] nice. Simple, clean, uncomplicated. Very safely and nicely done. So, he had a big influence. [Dr. Terence] Queree, one of the CAS presidents, he was a good friend. He was lots of fun and he was a fearless anesthesiologist. He thrived on trauma, ruptured abdominal aortic aneurysms, thoracic cases. It was fun to do those kinds of cases with him.

I should mention one other guy from the Columbian, Dr. Patrick Low Ah Kee. Again, he was a fastidious guy.They were a good bunch there. A lot of others. There were two husband-wife anesthesiologist couples who were superb clinical teachers Drs. Mark and Ellen Foulkes, along with Drs. Feike Bylsma and Margaret Bylsma-Howell. It was a super strong anesthetic department. I should probably name all of them. Drs. Grace Bergman, Peter Scoates and onward. They probably set a lot of how I did things, and it was a good basis. Then, when I went and did the other rotations after that it was pretty easy because they gave me a good foundation.

The other people who were really significant out of other rotations, particularly at Saint Paul's Hospital, would be Dr. Brian Warner. Brian, one of the most distinguished anesthesiologists in Canada, and just a lovely human that everybody who met him loved [him]. Some really good clinicians, like Drs. Mats Tholin and Adrian White at Vancouver General who indulged me a lot and taught me a lot. I think a lot of my anesthetics got further refined from the Royal Columbian style by them. And then Dr. Ed Goften was my first program director and Ed had a special relationship with all our residents. And yeah, some of those same guys like Mats and Adrian, they indulged me in the cardiac. I did two months of cardiac in my first year of residency and they ended up scheduling me in cardiac more frequently than normal. I did more cardiac than any of my other cohort all the way through residency. Those guys had a very good approach and a lot of stuff that could spill over into pediatric cardiac work.

Some of it's like that even now. I'm almost more comfortable with a trainee in my pediatric cardiac room, who's got a solid background in cardiac, then with one who's solid background in pediatrics, because with that background in cardiac you understand the flow of the case and you can build on it. It's a little harder to build on it if you know a bit about kids, but you really don't get the feel of a cardiac room.

Mike
Switching gears a little bit, it seems like you were starting to get involved in the CAS fairly early on in residency. Can you talk a little bit about your earlier experiences with that?

Rob
Yeah. In residency most of us joined [CAS]. It wasn't like it [is now]. You know, it was during mine and Dr. Tony Boulton's watch, with Serge [Lenis] in the middle, where we introduced the program where all the residents in Canada were enrolled into the CAS almost automatically.

Mike
Thanks for that.

Rob
You're welcome!

But I think my interest in [CAS] took off when I ended up in Edmonton. Again, it was good ol' straight-shooting Ron Gregg. It was probably my first week there, when he took me aside. He pointed at somebody who was walking into the department, just carrying a brown bag with their lunch. And, he says, "Rob, you don't want to be a brown-bagger." And this was why it started. "Every day that you walk in here, you should look around, think, and realize that everything that's good about this place is here because somebody cared. They cared enough to put more of their own time into it than just walking into the building doing their anesthetics, leaving there. The brown-baggers! Don't be a brown-bagger! Get involved!" Actually, Ron's son Kevin is now an anesthesiologist in the city and he's Ron Junior [in that way]. He's carrying on that tradition of being involved.

And so, it happened both in terms of hospital committees and the Alberta Division of CAS stuff. I ended up on, like, every position in the Alberta division from being the person chairing the Fees Committee through to being in the presidential stream. Each of those steps was a two-year term.

During that time, I ended up as the Alberta Rep on the CAS Board. Well, it was different then; it was the CAS Council. You may have come across this in your archives stuff. It was a bit more of a representation by population model, so they didn't just have one rep from each province. The bigger provinces had multiple reps. And actually – Tony Boulton and Serge [Lenis] would probably tell you the same thing – it was a little dysfunctional, in that you had so many people in the room, and so many of them were kind of new to the process, that generally the reps were [too] intimidated to say anything. They had also had a much larger executive because there were multiple levels of vice-president before you became president. The meetings were really dominated by the executive and the information flow was [just from] the executive to the Council members who then would feed it back home.

I was one of several Alberta reps at that time, I think we had two. But I ended up getting involved in committees, mainly Physician Resources, which was a complicated one at that era. Somehow early on, Dr. John Cowan was the chair of the Nominating Committee at that time. We were still in the Council system where there would have been multiple vice-presidents, but John phoned me one evening and said that the Nominating Committee met and wanted me to get into the presidential line up. So, I think I was the last person brought in under the old Council structure.

They did some creative thought on the sequencing of who would be president, to time it with the World Congress of Anesthesiologists in Montreal, in 2000. They wanted to have a bilingual person from Montreal, and that the obvious choice with people involved at the time was Serge Lenis , one of my dearest friends. We timed things so that Serge would be president at that time. He and I were kind of in lockstep with our involvement in Council at that time.

It's sort of, you know, one of these things. One thing kind of leads to another.

You just get involved in it, and suddenly you're doing this! It was not something that I aggressively pursued, it just kind of flowed naturally.

Mike
It seems like one of those things where people with motivation and the ability to get things done sort of end up falling into those paths.

Rob
There's no question that there are people that are good task completers. I always like to look to surround myself with people who are good at task completion.

Mike
Now, about your time as president, there were a number of challenges and changes within CAS and the specialty. But which issues do you think resonated most with you?

Rob
I started making a little list, but it is probably bigger than that. Yeah, you'd identified some of them [on prior correspondence before this interview].

[First], the identity change [CAS rebranding]. Tony Bolton would probably be the guy who gets the most credit for this. When it came right down to it, Tony really hated the old logo. [laughs]

Mike
The crest with the naked Greek god.

Rob
He actually ended up with a number of [items with the old crest]. Some CAS artifacts that had the old logo on it, but they were just giving them away at that time. He was a guy who kind of led that charge. We were presented both at the Executive and at the Board with a number of potential logos. We spent time looking at our mission statement, our motto, and our name. The name went through with some fighting over there. Especially the people that were British, who really hated the idea that we were getting rid of being called "anaesthetists" and that we were getting rid of the diphthong. David McKnight's been such a big player in the comings and goings of the CAS, [and] he did write a short piece called, "The Euthanasia of Anaesthesia" with the diphthong in the anesthesia. At the annual general meeting, where the general membership had to vote on the final change, he was the most vocally opposed person. Of course, that change didn't take away one little bit from energy and enthusiasm that David put into the to the CAS. I'm sure as you look through the history of the CAS, he's got to be one of the most important players that we've had.

People eventually got over it, but it was contentious and interesting. And again, a lot of it was driven – in addition to Tony's dislike for the logo – by the arrival of the internet. So many people younger people can't remember that there was ever a world before the internet. But as it came and people were starting to do searches, they thought, "Well, if we want to be found as specialists in anesthesia practice, we better call ourselves 'anesthesiologists.'" That was more the norm around the world, especially with our neighbors to the south. That was another big drive towards changing it. A lot of these things are shared things. This was a big, shared thing again with Tony Bolton. This really was a Tony and Rob thing.

We were approached by Drs. Stu Iglesias and Brad Armstrong of the Society of Rural Physicians of Canada and the problem at that time was that the training for people who were going to go into that kind of practice was very inconsistent. There were some places that were still only offering them six months of training, others were offering a year. There was no standard curriculum. Some places just wouldn't offer it, period. They had trouble getting support in practice; a guy named Dr. Neil Donen from Winnipeg published a paper long ago looking at how long people in rural anesthesia would stay in practice after their training. It was a super short [time]. By three years out, you'd lost a lot of them. By seven years out, you had very few of them left. So, they also wanted to look at what you could do to nurture and sustain them in practice. We got with them in terms of bringing all the players together and getting the College of Family Physicians of Canada heavily involved. Because it involved training, we involved ACUDA [Association of Canadian University Departments of Anesthesia] and to some degree the Royal College [of Physicians and Surgeons of Canada]. Dr. Dave Parsons came in and represented the Royal College and sort of the ACUDA side of it, for quite a few years in that process. We then formed up what essentially is a collaborative committee. It's still in existence, and it was a thing that we started. I think it was really good.

Another guy named Dr. Hal Irvine, a family physician from Alberta, was heavily involved and he was one of the early chairs. A number of us then got involved in the committee that met in Calgary to develop the curriculum for the PGY-3 year [family practice anesthesia]. That got adopted so that any program in Canada, if they were going to offer that as part of their family medicine residency, would follow that curriculum. There was some standardization. We also convened a huge summit in Kananaskis in 2001 which involved people in government as well. We were looking at rural anesthesia in Canada and what you need it to be. A lot of the things that came out of that summit were enacted, which is unusual.

I've been involved in lots of other summits where there are a lot of good words, but nothing changes!

You read some of the stuff, including stuff recently published by Bev Orser and you realize that 20 years later, some of these problems are still out there. Bev's stuff could have been written back then as easily as now. In fact, some of us wrote similar things back then.

In Quebec, they had a different approach to it. At that time, and I think to this day, [they] feel very strongly that the practice of anesthesia should be a specialist act, not a generalist act. They were fairly opposed to [family practice anesthesia]. It took quite a bit of meeting with them and cajoling to get to a compromise position, where they would recognize that this could be a model in other parts of Canada, even if it wasn't what they wanted.

I ironically, one of the leaders in the Rural Physicians of Canada was the brother-in-law of Serge Lenis, and so they sat on opposite sides of the table on that argument. Dr. Keith McLellan was his name. I think he's still alive. It was kind of interesting to know both of them and to hear their opinions over the supper table.

The human resources [issue] is a bit of a frustrating one. ACUDA contracted a lady named Eva Ryten, who came up with this huge report. She did a way of analyzing the age distribution of people in anesthesia practice and then projecting them into the future using sort of a low, medium, and high models of demand. [It was] showing the peril that you would get into if you didn't alter it, and what you would need to do to try and flatten the shape of the curves of the age distribution in our specialty.

Unfortunately, to do that, you need to make so many changes! You need to make changes at the input level: changing numbers in medical school, in residency, in fellowship, and **then** the job situation. All this stuff was coming on at the time that where there are cuts happening in places, the famous [Premier Ralph] Klein cuts in Alberta. A lot of job insecurity. When it came back down to the grassroots, there were pockets where they were really opposed to the idea of bringing more people. They thought, "No, ORs are going to be closed. We're going to be out of jobs. We don't want to bring more people in." In the end, that never really happened. The work just continued to grow, so we've ended up finding ourselves right in Eva Ryten's prediction. Now, the people that are just a little bit older than me – or even a little bit younger than me – have retired or are retiring! There are all those baby boomers, which were the biggest bump of anesthesiologists in practice, disappearing from the job market, right?

In Quebec, they tried harder. At the consultative table, they would try and get people at the universities, and the hospital level, and the government to all try to come up with a rational distribution of training slots across the specialties [with respect to] the projected needs. But even that proved to be imperfect.

Mike
It seems to speak to the complexity of the situation. You know, the degree of cooperation required among so many levels to make this line up?

Rob
There it is.

I personally don't see the end of it.

What is interesting now, is to follow the time pattern of [physician resourcing] in other specialties. You watch, you see the supply-demand things change. Even just the surgeons we work with, depending on which specialty or subspecialty they're in. There are times when there are no jobs for cardiac surgeons or where you have orthopedic surgeons working in restaurants in Calgary, right? Right?

Now, as president, my term spanned 9/11 and that had a big impact. As president you end up going to the IARS [International Anesthesia Research Society] meeting, the ASA [American Society of Anesthesiology] meeting, and number of others. You often meet with some of the other groups. The Americans, British, Australians, and us, would meet together and that we would invite each other to our [respective annual] meetings. I was going to the AAGBI [Association of Anaesthetists of Great Britain and Ireland] in London [for example]. Plus, you could do a lot of connecting with the provinces and going to regional meetings. [I'd] been brought in actually as a consultant on certain issues for some of the provinces. There's a lot of travel, and suddenly it became really complicated: new screening processes, long lineups, spending an awful lot of time having to get to the airports early and stand in line. Going to the ASA immediately after 9/11, there was nobody flying. Flying was complicated, and there's no drink or meal service on the planes. All of a sudden, the concourses when you were changing flights, all of their food services were closed, all the stores. It was a really pretty weird time.

Some other [issues during the presidency], talking about things that sort of spin around, that don't end, and seem to go in circles, rather than going forward. The Anesthesia Assistants was a big thing back then, and it still is. Even when I was first on the Council, there was actually a really well-crafted paper that looked at the model for taking people from multiple backgrounds; you could come at it from a nursing or respiratory therapy background, as long as you met certain prerequisites which you might have to achieve before you entered the program. Then, [you'd] have to go through a fairly well-defined training program. [There was a] well defined scope of practice document. I remember reading it in Ottawa before one of the Council meetings, and it pretty much had everything that you'd still want in the document today.

But again, it's the actual implementation. [It's] the fact that there's a lot of politics. There were pushes from some of the nursing organizations to go in a direction that the CAS was not happy about. There was the fact that respiratory therapy at that time – and, to this day – is not a regulated profession in every province in Canada! Each province handles that differently. How can you come up with something that's going to be nationwide and portable!

So, that's why I think we've seen lots of local solutions where there are a few programs around, that would be following that template perfectly, whereas others are still no further ahead. The human resources, the supply-demand have always been a driver on it as well. That was an interesting [issue], but I don't think it's solved.

[During my presidency], the journal [Canadian Journal of Anaesthesia] became an online thing, or at least a hybrid [print and online]. There was a lot of anxiety about doing that. We spent a lot of time looking at different companies that would host the journal online. I also was involved two of the journal editor recruitment processes and learned a lot about how that business side of it worked. It was a big part of the [CAS]. It was almost financially about half of the business of the CAS, and suddenly also revenue streams were drying up because we were trying to get advertisements in an online version of the journal. We've seen lots more change in how journals work since then. And this became even more familiar to me because my wife is a subspecialist in pediatric infectious disease, and she's editor in chief of Pediatrics & Child Health. She's held that position for quite a few years, and quite loves it. But she had some of my friends who were editors of the Canadian Journal of Anaesthesia, who then were some of her advice-givers, as she approached that in her career.

Hmmm, what else happened during that time? There were always some maintenance things. I have to give a lot of credit again to Tony [Boulton]. Tony was a guy who's never complacent, and also led the charge that a lot of us got heavily involved in, where we actually had to change our executive director. That was an interesting and a bit of a contentious process, but it in the end it worked for the best.

Mike
It was an eventful two years by the sounds of it. Out of it all, was there any one thing that you think you'd say stuck out as what you're most proud of?

Rob
Well, I think the rural anesthesia thing. I mean, I grew up in a couple small towns. I did, you know, practice as a general practitioner in smaller places. I've been the only guy running an emergency department in Quesnel, BC, in the middle of a snowstorm. I kinda first-hand get the isolation thing. They need to have somebody with additional skills. I really think of how anesthesia skills can really benefit a community like that. If you've got things happening where somebody would have the extra airway, vascular access, and resuscitation skills, it is valuable. I'm glad that one worked, and I think that's probably the most proud.

Mike
Not long afterwards, you went on to be president at the Canadian Pediatric Anesthesia Society [CPAS; 2002 to 2004]. How did your time there compare?

Rob
That was an interesting one because, again, there was also another close friend, another [CAS] past president who was heavily involved in that process. That was Pierre Limoges. There was a small group of us that really crafted this [in the 1990s]. There was Pierre, myself, Drs. Larry Roy from Toronto and Gerry Goresky from Calgary, Elliot Rhine from Ottawa as well. We were the executive of this Section of Pediatric Anesthesia within the CAS. We were looking at what we were doing, and I think the thing that drove it to become CPAS was that it was actually growing up to the point where their meetings were becoming more complicated.

Initially, the meetings were mainly organized by a guy named Dr. John Muir who was from Halifax and had a big influence on the formation of CPAS. Their meetings were kind of informal. They meet at a hotel. It was a bit more fireside chat style.

And there was a need to make something a little bit more complicated. So, in 2002, Gerry Goresky and I organized the first sort of formal-style, multi-day conference at the Rimrock in Banff and [took a] business approach to it. We felt it was more important to be organized as a proper society. We crafted initial bylaws for that society that would try and keep the peace.

There was definitely opposition [to the formation of CPAS]. There were people in the CAS that thought we were going to steal members, that there were people that just wanted to be CPAS members but not remain with the CAS, and that would water it down. Pierre and I were pretty good at smoothing that out. We crafted bylaws that described how the organization at that time could form dual roles, and how we could be both functioning as a Section of the CAS and function as our own organization at the same time. It's in the bylaws, in terms of our operational agreement, how we could share resources with the CAS, which was really helpful. Gotta say, CPAS started with really not much in the way of fiscal or human resources. [Its formation] was helped by a precedent of the provincial divisions [of CAS] that fulfill more than one role. They're not only a division of the CAS, but they're often the Section of Anesthesia of their provincial medical association and then tie into the CMA.

Having something that had a bit of duality or more to it, we had precedents. That was how we kind of nudged it into existence, but I think Larry Roy and I did most of the crafting of the bylaws. The other four or five of us signed off on them and we brought it into play in 2002. It's been fun to see that organization grow. I think most of us that were involved early on felt that our role was to nudge it but to then let the people who followed us carry on and take it in their own direction. We've sort of stood by back and

watched, I think with a fair bit of pride. I think the people that have succeeded us have done a really good job in the directions they've taken the Canadian Pediatric Anesthesia Society.

Mike
Moving on to a bit more of a general question, can you think back to what a "typical" anesthetic might have looked like during your first year of practice and then compare it against your most recent OR list?

Rob
Well, that's a really interesting question. You can make an extreme version of it. You could sort of talk about having pentothal and then succinylcholine to induce a patient and intubate them, and then run them on enflurane or something. Which, I have done.

No question, propofol has made a big change in in my practice. It came in starting at the end of my residency, but I actually used more propofol while I was in the UK than I did in Vancouver. It was still actually not as prevalent even in my first few years in Edmonton. There were tons of pentothal around and propofol was still making its way in. People were worried about the cost of it. In fact, as we branched into working outside the OR, they wanted to make diagnostic imaging pay for their own propofol! It was a big deal.

And then, the change to desflurane and sevoflurane. That really revolutionized wakeups. But a lot of us had learned how to do nicely timed wakeups, even with some of the harder to wield agents. I think it would be pretty hard to time like a crisp wake up with methoxyflurane, which I've only used a few times but you certainly could do it with halothane and isoflurane. It certainly makes your job easier having sevoflurane and desflurane, so those were big changes. Remifentanil was a big change, too, on the pharmaceutical side.

On the equipment side, massive change. Like I alluded to, in Vancouver when I was in residency, if you had a case where you wanted a pulse oximeter, you had to be the first guy there to go and grab it. There was one for the cardiac OR and then there was one other, to be shared in the other ORs! If you wanted it for your case, you better get there and grab it!

And then, respiratory gas analysis – huge, huge change. I've done tons of anesthetics as a trainee where all we had was an oscilloscope-style EKG monitor and a manual blood pressure cuff. No oximetry, no gas analysis. [Nowadays], we'd feel really naked not having our respiratory gas analysis or at least end-tidal CO_2. I think in addition to end-tidal CO_2, the ability to measure the volatile agents was another safety leap and decreased the number of inadvertent anesthetic overdoses.

I work mainly in pediatric cardiac, the changes there have been [huge]. I remember even mid-career thinking that, every five years, we'd look back at what we did five years ago and cringe! There was a period, especially through the mid-1990s where things really changed: the ability to actually do good surgery with good outcomes on neonates! In Edmonton, we ended up with a new cardiac surgeon who was sort of the Wayne Gretzky of cardiac surgery. We had a decade where our mortality on arterial switch was zero, and that was at a time when a lot of places were having 40% mortality on their arterial switches. The good centers were doing about 2%.

A lot of changes – the realization that you needed to consolidate those types of services so that there were fewer centers doing them, so that everybody had a higher volume. A lot of changes technology-wise. For the surgeons, in terms of their cannulas. It used to be that for an aortic cannula, the surgeon would often custom make their own out of various things. Like, chest tubes, or you'd see some made from other different pieces of plastic, right? They were often problematic. Sometimes you'd have a kid where you couldn't come off pump and it was because what they used as an aortic cannula was partially occlusive!

You'd be struggling, but as soon as they pulled it out you were fine. Whereas now they've got really nice cannulas.

A lot of that is similar to what's happened with us and [vascular] lines. It's been the changes in the technology for plastic extrusion and how they can actually manufacture these things. That's been a big change in surgical technique. Myocardial protection really changes things. TEE [transesophageal echocardiography] is huge. Yeah

Mike
When was [TEE] introduced over in Edmonton?

Rob
We were lucky and had echo from about 1993 onwards. We were doing TEE relatively early on. As soon as we got it, that confirmed our suspicion that a lot of times when you had a patient struggling the [weaning from cardiopulmonary bypass], it was because you had a significant residual lesion. [We saw that] if you went back on pump and dealt with it – maybe it was a tetralogy [of Fallot] and there was still some residual right ventricular outflow tract obstruction, and you go back on pump, take a little bit more muscle or deal with the pulmonary valve deal, then the next time you come off pump you'd fly. Echo really changed not just morbidity but [also] mortality for kids and adults having congenital cardiac surgery. I would say it was a huge leap.

Nowadays, we feel pretty naked without [TEE], just like we'd feel naked without end-tidal CO_2.

Mike
Now, this could be a whole separate interview all to itself, but would you speak about the extensive role you've had within the medical response teams in motorsports?

Rob
Sure. I'll start up by saying that that also had a CAS origin. It was back when I was still on CAS Council. We were meeting at the Sutton Place Hotel in Toronto. After our dinner, a bunch of us had gathered and a past president Jean Taillefer was there. Jean had been installed as a member of the medical team at the Canadian Grand Prix, and he was regaling us with stories of working trackside in Montreal. It sounded really interesting. At the end of it, I ended up talking to Jean on his own, and he asked if I would like to come and join [them]? I said, "Well, of course!" At that time, I was very lucky to be able to join them, because there were a lot of people who wanted to be part of that medical team. In fact, you almost had to wait for somebody to die or move away in order for a spot to come free on that team.

I went there and really fell in love with it immediately. They had a good sort of apprenticeship system; in the first year, they just assign you to their medical center. With them being on an island, they had to have the ability to do resuscitations [on-site] because the road ambulance transport to any of the Montreal trauma hospitals was not easy. They had helicopter transport to Sacre Cœur [Hôpital du Sacré-Cœur-de-Montréal], and that was their means of evacuation of critical patients. Being in the environment of the medical center for the first year, you got to talk to a lot of people, and learn a lot about both the sport and about the kind of injuries they see.

They did a lot even in that era, a lot of simulations and drills. It was really cool to see. The next year, I branched out and worked in the pitlane a bit. I got to see what that was all about and, after that, assigned into rescue vehicles. I worked every rescue corner on that track. Eventually, I ended up as a physician in the pursuit vehicle. They have one fairly fast vehicle. Lately it's been a Mercedes-AMG E-63, and [you're there with] the driver. I've had two different drivers, both good friends of mine. They both had backgrounds as paramedics, but also with racing experience. So, you line up on the grid and follow the

cars on their first racing lap. You're there, mainly in a spotting and triage role. If something big happens, you are the first on scene.

Most laps just go along. You pause for the people that spin off, make sure they give you a thumbs-up, and carry on. Occasionally, you do end up at quite a bit of a catastrophe.

I'll say another CAS president was heavily involved in that whole process, Dr. Pierre Fiset. Pierre and I have been friends for ever, and he is still hugely involved in the Canadian Grand Prix. He's not the chief medical officer, but he's probably their most important person. He does most of the recruitment and scheduling. Though, I have a lot of the dirty work in the organizing.

During that time I got interested in what things would be like on the other side of the guardrail, so, I went to racing school. First, I did a Formula Ford school for three days in Tremblant, then went back and did their school in the Formula 2000 cars, which was a full downforce car. That was really fun. Then, I did a series of paid lapping days with a coach to improve my technique. For a few times, we would have a small Formula 2000 race as part of that experience. That was the limit of my racing experience, but it gave you a lot of appreciation for how a driver looks at it.

Coincident with that, Vancouver got rid of their Champ Car race, [which was] politically not correct – having cars racing around False Creek and making a bunch of noise. They left [Vancouver, which was] Edmonton's benefit. They moved the race to Edmonton and I got involved. They brought in a guy named Dr. Hugh Scully, a cardiac surgeon from Toronto who was the medical director of the Toronto Indy, and they brought him in to help get it organized. But he needed somebody from Edmonton to help him do that. I ended up as his deputy. For three years, we had Champ Car. Then, when Champ Car got acquired by IndyCar and became IndyCar, I ended up being the medical director for that event.

I got to learn a lot more about event medicine and the infrastructure set up, which is really more complicated than you think! I think Hugh and I tallied it up with the Edmonton Indy. Once you count all the support races and so on, there were forty-nine different organizations that you had to liaise with as you developed your plan for the event. It was really interesting stuff.

All these things kind of happen at once, in a way. The other thing that happened, was that the organizers of the [Canadian Grand Prix] were not happy with the group that was providing the on-track rescue services in Montreal. They approached myself and a friend named Bruce MacDonald and asked us if we would be interested in forming a new group to provide all of the on-track services: equipment, staffing, personal protective equipment, and so on. For the rescue vehicles situated around the circuit, they have one at Turn 2, one at Turn 7, one at Turn 9, one at Turn 10, and one at Turn 11, plus that rapid response one that I'm in. We formed a company called the Canadian Motor Sports Response Team Inc., and we've covered the Canadian Grand Prix every year since. We then covered the last few years of the Edmonton Indy, and it just slowly grew.

We then ended up with the Grand Prix de Trois-Rivières and eventually the Toronto Indy. Over time, it kept growing. We cover all the club racing and the lapping days in Edmonton, which is now about 70 days of racing a year in Edmonton. And then there's this series in Ontario, the United APC Late Model Series, which races at a number of the smaller tracks in Ontario; we cover that. That just – one little bit at a time – grew and [I] ended up involved in being the chief medical officer at Trois-Rivières when they brought in an international series, which was Rallycross in 2014. That's been one of the most fun ones to be involved with. [Trois-Rivières is] the oldest street race in Canada. Not their rallycross part, but their regular street race there. It's probably the oldest continuously or almost-continuously running street race in North America. A lot of history there, and a lot of civic pride and energy that goes into that event. They needed a rebuild on their medical team. It made for a really fun thing, because I managed to recruit a

bunch of young people into it, and they're all really enthusiastic. We have an anesthesiologist, Dr. David Hakim, who's involved in it, and he's now one of the co-owners of the Canadian Motor Sports Response Team, as well. I'm pretty really proud of that group. They still always want me there, but they actually don't *need* me anymore. They could do it on their own. They're really good. Yeah, but it's probably my favorite event of the year.

I got involved in other things through my friend Hugh Scully. We ended up involved in the International Council of Motorsport Sciences [ICMS] and then for a span of about six years, I was the chair of their curriculum committee. That initially was a two-day Annual Congress in Indianapolis each year. For a few years it was attached to a large motorsports trade show in Florida. There is also at that same time another big trade show in Indianapolis. They ended up both being owned by an organization called SEMA [Specialty Equipment Market Association] and they merged it into a single event in Indianapolis. Then, the ICMS Congress ended up in Indianapolis ever since. With a group of friends, we organized an additional bit called the Race Track Safety Program, which we added as an additional day following the two days. The first two days are all a mix of scientific lectures, panels, and stuff. Then we have this Race Track Safety Program, which is a bit more practically oriented with hands-on training sessions, simulations, and a chance for people to use hydraulic rescue tools, cut up cars, and learn how to use fire extinguishers to put out fires. It's quite a lot of fun. Anyway, I've ended up being the chair of that organization. It's smaller than the CAS, but it's an interesting and challenging group to chair.

The last venture is that I've ended up as a part-owner and shareholder, and [board of directors member] in a company called [OSS Motorsports Inc.] out of Montreal. In the first version our company, we were involved in track design. One of our colleagues designed the tracks for Formula E, in both Zurich and in Bern. We developed a pretty good relationship with Formula E. Plus, a lot of us had been involved when Formula E came to Montreal in 2017. I was the chief medical officer for that event as well. So, then Formula E wanted us to host a Canadian event. So, we went into event promotion! We're the promoters for the upcoming 2022 Formula E race in Vancouver, the Vancouver E-Prix, which is part of a bigger three-day event called the [Canadian E-Fest]. I'm the sporting director for that one, which means I'm responsible for all trackside activity, not just the medical. Let’s just say it's another career shift.

Mike
I think that it just goes to show the versatility of the anesthesia background, or of people who go into anesthesia.

Rob
Yeah, you can really take your skills and organization all over the place. I think it has to do with, you know, the organizational nature of our brains. The people that go in there are fastidious, our thinking, our ability to look at things, having some pre-planning. [It’s like] the preparation of how you set up your room and conduct the case, seeing things through to the end. It's kind of in our nature, right?

I should mention one other thing that's kind of fun for me. I've got my youngest daughter now as one of our R3's in our program, so that's kind of interesting to see. She'll be the third anesthesiologist in the family. My youngest brother, Doug, is a cardiac anesthesiologist in Calgary. It's a family endeavour now. So, now that we're all on a provincewide electronic medical record, when you pull up Dr. Seal, you gotta make sure you choose the right one!

Mike
Absolutely! I think the future looks very bright, and very fast as well. Thank you, Dr. Seal, for participating in our interview. This will be an important to contribution to our archives. I really appreciate your time.