Pioneer Perfusionist Interview: Craig Vocelka

Mark Kurusz: Today is Thursday, April 16th, 2015. We're in Tampa, Florida at the AmSECT International Conference. My name is Mark Kurusz, and we're going to conduct an interview with Craig Vocelka—someone who's been in the field for a long time and has been very active in AmSECT over the years. And we really want to find out a little bit about your experiences in perfusion, Craig. The first question I have for you is, what were the circumstances that led you to become a perfusionist?

Craig Vocelka: Wow. Thanks, Mark. I was a Respiratory Therapist. I was working at Ben Taub in Houston. It's the county hospital, the trauma center, and I used to have lunch with a friend of mine who was an anesthesiologist. And a lot of times, we'd have lunch up in the dome in Ben Taub. Ben Taub didn't do a lot of heart cases. They would do one occasionally, and the first heart case I ever saw was [Dr.] Arthur Beall doing a mitral valve replacement. And the thing that I remembered is, there was this guy sitting over on the side, running this machine, and he was the only guy Dr. Beall didn't yell at, the whole time. It was like, he kept going, "Mike, everything fine? Everything fine?" And he kept asking that all the time. And the second thing I noticed is the guy didn't wear socks. And I thought, "This is the perfect job for me." But seriously, it was like, I was just intrigued by this machine. And so, I looked into it and found out about perfusion and started trying out how to become a perfusionist. And this was back in the early 1970s. I was a Respiratory Therapist from 1972 to 1975 when I applied to perfusion school. And so, I started writing letters, and because it was still the time where some people could OJT, but there were schools, and I think the three schools at the time were Ohio State, Texas Heart, and South Carolina—wasn't the university yet. I think it was called Trident or something had a school. And so, I applied [at Texas Heart]. And the first time I got rejected because Charlie didn't want to take anybody from Houston because he didn't want to feel like he had to hire somebody if you were local. And so, I said, "I'll be back." And he told me not to waste my time, and I did it anyway, and the second time I got in. So, I started perfusion school in July of 1975.

Mark Kurusz: And that was at Texas Heart Institute under Charlie Reed's tenure as...

Craig Vocelka: Oh, yeah.

Mark Kurusz: ...the Chief.

Craig Vocelka: Definitely, definitely. Charlie was the man and running the school, and it was Charlie and Diane [Clark] where Charlie was the Director. Diane was the Associate Director, and Terry Crane was the Clinical Associate Director.

Mark Kurusz: Really? Terry was there at that time?

Craig Vocelka: Yeah.

Mark Kurusz: And do you think Charlie, in all fairness to him, remembered that you had previously applied and been rejected?

Craig Vocelka: Oh, Charlie didn't forget anything. I mean, you know Charlie better than I did, and Charlie didn't forget anything. So, yeah, I am damn well aware that he knew that I had. And as I got to know Charlie over the years, I think he had his own way of testing people. And I think, the showing up again proved how much I wanted to do it or something, I think...

Mark Kurusz: Sure. And the training period at that time was how long, Craig?

Craig Vocelka: It was six months.

Mark Kurusz: Six months.

Craig Vocelka: It's funny now because I've talked to students, [and] they're all doing two-year programs. And I remind them that, we didn't know much back then. I said, "Basically, it was pretty simple. You don't pump air, make blue blood red, and you're ready to graduate once you got that down." I said, "We really didn't know anything." I mean, I look back over the years. I mean, the 40 years now, and I mean, nobody talked about inflammation when we started. I can remember people would talk about cytokines and going, "Yeah, it sounds interesting. But we don't really know what they do." Blood, it was like, that was no issue. I mean, you need to transfuse, and it was whole blood. I mean, we didn't split blood back then.

Mark Kurusz: Really?

Craig Vocelka: And so, it's been a really intriguing evolution, both in what we've learned and how we practice over the years.

Mark Kurusz: Sure. We may get into some of those aspects a little later. I want to still focus on your time at THI. One of the great advantages of going to school at THI at that time, of course, was it was probably the busiest place in the world.

Craig Vocelka: Well, it was. I was there the year we did the 5,000-plus cases.

Mark Kurusz: Really? 5,000 cases in one year!

Craig Vocelka: And I remember it because Dr. Cooley was really proud of achieving this. But it was like, "How does a surgeon announce this?" This was before hospitals and surgeons advertised like they do today. So, he had Charlie send out a Christmas card to all the perfusionists, knowing it would get to the surgeons, and that the word would get out that he had done 5,000 cases that year. Back to these six months, I mean, as a student in the six months, I pumped 122 cases and probably, watched another 80 of my classmates because one would watch, and one would pump cases. And so, you did a lot. It was not unusual at Texas Heart at that point in time to do 30 cases in a day. And it was overwhelming in some sense, but

it was a great system. Some refer to it as the heart factory. But I mean, it was down to a science of...there was very little wasted motion, wasted time. I know today, one of the things that drives me and most people crazy is the turnover time between cases, and there were HAs [hospital assistants] ready to come in, and clean the room, and get started again. And so, we were able to do those cases, and everything we were doing then was pretty much straightforward CABGs.

Mark Kurusz: Sure.

Craig Vocelka: And our three-vessel, one on the left, one on the right one, in the middle was the theory. And so, it was like a lot of cases. The patients were younger, not near as sick as we see today. But overall, looking back there, at that time, I mean, perfusion was 22 years-old at that point or [coronary artery bypass surgery] was 20 years-old at that point. And just to look at really, how little progress had been made to that point, when you asked me, or I was asked to do this interview as a pioneer, I said, "I'm not really a pioneer." I consider myself more of a second generation. But when I look back and look at the progress that's been made, it's like, "Wow."

Mark Kurusz: You were a pioneer.

Craig Vocelka: And to hear some of the stories...

Mark Kurusz: Yes.

Craig Vocelka: ...is just great.

Mark Kurusz: Now, with the tremendous caseload at Texas Heart, two questions here, Craig, did you get much pediatric experience?

Craig Vocelka: Lots.

Mark Kurusz: Really?

Craig Vocelka: Lots of pediatric experience. Dr. Cooley was the pediatric surgeon, at least in that area, the south, that area. And I mean, it was not unusual to do three kids a day, and people were coming from all over the world to Texas Heart at that time. I remember one day in particular doing five kids in one day, and they were very short pump runs. In fact, there was more stress and more energy tearing the pump down and setting up for the next case. I mean, there was a couple of primary closures of ASDs, maybe one VSD. And then, there was one big tetralogy or something. But the VSDs, I mean, the ASDs rather, the primary closure, I mean, we'd be on pump six minutes. Dr. Cooley [would] go in and put it in a stitch or two, and we'd be done. And then, we'd tear it down, set it up again. And to watch that man operate was just, I consider one of the great gifts I've had in my life...

Mark Kurusz: Sure.

Craig Vocelka: ...just to say that I worked with him and to watch him operate.

Mark Kurusz: Sure. At that time, did you use any ancillary devices now that are commonly used by perfusionists, namely intra-aortic balloon pump, ventricular assist? Tell me a little bit about how patients were handled if weaning did not go especially well?

Craig Vocelka: To put in a balloon pump at that point was a major decision and a big deal. And at Texas Heart at that time, the research lab [personnel] would come and put the balloon pump in, and it was like this major production as they'd roll this gigantic machine into…it was Avco or...It was big green...

Mark Kurusz: Avco Everett.

Craig Vocelka: …big green machine.

Mark Kurusz: Yup.

Craig Vocelka: And it would come in. And it was like, this big production that we're going to put this balloon pump in into this patient. And it's one of the things as I look back over the years, and now slapping in a balloon pump is nothing. But even that, there were more times where it was decided there was nothing to do. And unfortunately, the patient would not make it. So, balloon pumps, I mean, the VAD, my remembrance of the VAD is, we'd put a VAD in in the cow lab three times. And one day, we had this patient, and bless his heart, wasn't going to make it. And Dr. Cooley said, "We're going to have to try it one of these days, let's go get it." And brought this VAD down that had been placed in three cows that I know of and placed it in this patient. And the first thing that I think of today is, if we did something like that, the FDA SWAT team would be circling the building. There'd be guys that would be repelling down the halls, arresting us all. But secondly, we put it in, and it worked. I mean, we got the guy off the table and got him to the ICU. Unfortunately, he didn't make it. But it was like, I remember being part of that, and I sit there going, "Wow." And then, you look at VADs today, how commonplace they are...

Mark Kurusz: Yes.

Craig Vocelka: …and to realize that I was part of that. Again, I just feel so fortunate to have seen all this over my career.

Mark Kurusz: Sure. Were they doing heart transplants when you were in training?

Craig Vocelka: We were not.

Mark Kurusz: Okay.

Craig Vocelka: 1975 is before the cyclosporin. And so, but right before I left Texas Heart, we did a heart transplant. I don't think we were the first to...after the cyclosporin came in. I think, Stanford was, if I remember. But we did it, and there's a "Life" magazine—that the cover of "Life" magazine has a picture from the dome at Texas Heart. And I can point out my head there because...

Mark Kurusz: Really?

Craig Vocelka: ...I and about 74 other people I think were in that room that night, all trying to make sure that they were part of this case.

Mark Kurusz: Wow. So, as a student, and again, I don't want to focus too much on your training, but I think it was really the foundation for what you were to become later. What was a typical week like, were students required to take call, Craig?

Craig Vocelka: In a sense, I can't say we were slave labor because we, actually, got a stipend when we were a student. So, we wouldn't be considered slave labor. But we did everything. I mean, we took call. We had our academic assignments and our lectures. We pumped the cases. We cleaned up everything. And this is the days where we re-sterilized a lot of equipment, everything wasn't disposable. The most infamous thing as a student at Texas Heart at that time was the Millipore filter [a pre bypass filter]. And these filters had to be all taken apart, washed out to get all the lactate and Ringer's out of it, and any dextrose that might have been on this circuit. And there was a little membrane that you had to place in it, and then you had to line up the O-rings just right, or otherwise it would leak or everything, wrap them, and sterilize them. And this filter medium came in boxes, in between each one was a piece of paper. And, inevitably, somebody would leave the paper in, too. So, as you go to recirculate your prime, the paper wouldn't filter anything, and the thing would blow apart. And the way we set up, you recirculate it in a basin away from the table, not with the lines at the table.

Mark Kurusz: Yes.

Craig Vocelka: And then, you would drain your oxygenator. As a student, you were freaking out because then you had a reprime. Your staff member overlooking you, calling you the biggest idiot in the world, and you were embarrassed. And, as I said, we were doing so many cases. We were moving along. So, it was like—that was wasted time, and would you be ready when the surgeon was ready? And so, you ended up adding all this pressure to yourself.

Mark Kurusz: Yes.

Craig Vocelka: And so, a typical day was, we'd get to the hospital somewhere around 6:00 or so [in the morning] to start getting set up for all these cases. We'd do a case. We'd go to lectures, and we'd come back and do cases in the afternoon. And then, we'd do all the cleanup and the restocking and everything. And one of the things that they taught us was about taking care of your pumps. And I don't know how many times I have sat there and jacked the pump up and

got the wheels to get the suture out of the wheels because there were always the inspections coming and...

Mark Kurusz: Sure.

Craig Vocelka: ...there better not be a drop of blood. And they knew where to look for it.

Mark Kurusz: Sure.

Craig Vocelka: So, we did a little bit of everything there.

Mark Kurusz: Okay. You alluded to textbooks and the didactic teaching, what was your primary textbook at that time, Craig?

Craig Vocelka: I was [in] the first class that got to use the Reed-Clark book, the "red book"…

Mark Kurusz: Okay.

Craig Vocelka: ...it was affectionately referred to. And we were the first class. They had just published that book. And we were the first class to use that. "The Lung", Comroe wrote "The Lung", the brown book. And then, Guyton's "Physiology" were the three books that were on my desk and always opened. And the red book, went with you everywhere.

Mark Kurusz: Sure.

Craig Vocelka: If you had some time between cases, you were out there studying the red book.

Mark Kurusz: Sure.

Craig Vocelka: But I think that was helpful because stories, I heard as classes before Charlie and Diane wrote the book was that they had so many different books that they only needed a chapter or so out of. And so, I felt that was a big advantage to us to have a book...

Mark Kurusz: Sure.

Craig Vocelka: ...to have a reference all in one place...

Mark Kurusz: All about perfusion. Yes. Now, let's transition from the time you finished your training, where did you first go as a staff perfusionist?

Craig Vocelka: I stayed at Texas Heart.

Mark Kurusz: Oh, you did?

Craig Vocelka: I did. And it was funny that on Friday, before I graduated, I couldn't pump a case by myself. And Monday, I'm there by myself, and it was like, "I don't know what happened over the weekend." And then, because I graduated in December, and a week-and-a-half later, I had students that I was supposedly teaching. And one of the people that have remained friends over the years, he says, "We always just made fun of you because you always had the clamp in your hand." I said, "Because I was scared to death," because I said, "I didn't know what I was doing at that point in time." But I knew if I clamped the line, I could save the patient.

Mark Kurusz: It was almost like, "See one, do one, teach one," wasn't it?

Craig Vocelka: It was exactly that, I mean.

Mark Kurusz: That's amazing. So, how long did you stay on staff at Texas Heart?

Craig Vocelka: I graduated in December of 1975 and stayed there through 1977.

Mark Kurusz: Okay.

Craig Vocelka: And then, I went to the University of Iowa, where I had a chance to...My funding was part-time clinical perfusion and part-time research. And I got to do some research with Dr. Don[ald] Doty at the University of Iowa.

Mark Kurusz: You worked with Dr. Doty?

Craig Vocelka: And it was a great experience there. I mean, we did a lot of cases and some of the people...Well, the surgeon there, Dr. Johann 'Hans' Ehrenhaft is in that group from the Midwest that are some of the early pioneers and stuff.

Mark Kurusz: Sure

Craig Vocelka: And my Chief there in perfusion was Dan Wiltfang, who is one of the founding members of AmSECT—he was in that room in Chicago when AmSECT got started and everything. And Dan could tell great stories. And I learned a lot from him about being a perfusionist, dealing with surgeons, being a Chief. He's been a role model for me as I went into management and became the Chief Perfusionist. And just was a great two years I got to spend there.

Mark Kurusz: Sure. So, after Iowa, where did you go? And how did that come about? Did you apply or were you recruited?

Craig Vocelka: Iowa, I was semi-recruited. A friend of mine was working there and said, "Thought you might be good for this position." When I was in Iowa, I had a little epiphany and was going to change my course in life, and I left the University of Iowa to go to the seminary the first time. And so, I left Iowa, ended up back in Houston and worked part-time at Texas Heart

while I did some undergraduate [studies] in philosophy before I went to seminary. So, I did two years part-time at Texas Heart then.

Mark Kurusz: Okay.

Craig Vocelka: While I went to school at the University of St. Thomas in Houston, did two years of philosophy. And then, I left Texas and went to the seminary, went to Berkeley to the Graduate Theological Union and didn't pump for two-and-a-half years.

Mark Kurusz: Really? I had no idea. Somehow, I thought your seminary years preceded your perfusion years.

Craig Vocelka: Nope.

Mark Kurusz: And what was the epiphany that brought you back into perfusion, Craig?

Craig Vocelka: Well, as the joke is with my seminary classmates, as I took a year's leave of absence right before my final vows, and I forgot to go back. And then, being a Roman Catholic, by this point, I've met who's now my wife, and they wouldn't take me back there. It was a joke. I would call friends, and they go, "Are you coming back?" and I go, "If Vic[toria] can come, I'll come back. And they said, "Not yet. We haven't changed that much yet."

Craig Vocelka: And so, obviously, I didn't become a Catholic priest, but ended up in the seminary. And then, when I left the seminary, I called a classmate of mine, Vicky Howard, who was in Denver. And she happened to just have an opening at that time. It was perfect. And so, I left Berkeley and went to Denver and worked there for a while.

Mark Kurusz: Okay.

Craig Vocelka: And then, from Denver ended up back in Houston, again.

Mark Kurusz: Really?

Craig Vocelka: For another year. So, we're now at 1986. I was in Houston for the year of 1986. And then, the job at the University of Washington came up, and I moved to Washington in 1987. I have been there since.

Mark Kurusz: So, tell me a little bit about how you ended up at the University of Washington. Again, was it word of mouth, or did you have to go through a big interview application process?

Craig Vocelka: I was recruited. People that I had taught at Texas Heart, a couple of people were working there and the previous Chief, Gary Tarter was getting ready to retire and they thought I would be a good candidate. And so, I had never been to Seattle, said, "I'll come look at it." I'd never been there. And so, I looked and decided I liked it. And the job seemed to have a good

opportunity for me, a good chance to grow. And so, I took it. I didn't know how it was going to work out or anything. And apparently, it's worked out well. I've been there almost 30 years now.

Mark Kurusz: Sure. Yeah, I'm coming up on 30 years. I think one of the other things that has distinguished you at the University of Washington is that you're on the faculty, aren't you?

Craig Vocelka: We are. We're non-tenure track faculty in the School of Medicine, the Department of Surgery. And so, the term the university uses for us is teaching associates.

Mark Kurusz: Okay.

Craig Vocelka: And so, that way, they don't have to put us in tenure tracks, and it gives them a little leeway to...We get a contract every year, but it's a state job, and it'd be tough to get rid of us.

Mark Kurusz: Sure, sure. And how big is your team at the University of Washington, Craig?

Craig Vocelka: Well, we're growing. This summer, it'll be the first time we're up to 12. When I got there, there were six, and we've slowly grown over the years. Part of the growth has been just the expansion of the university. We cover the VA hospital and a community hospital that weren't doing hearts, when I started, so they contract with the university. And now, the university has acquired the whole hospital, so, it's all part of our system now. So, we have the three hospitals. Our caseload has increased over the years. Transplants, when I got there, they had just started doing heart transplants. We now do heart, liver, lungs, and everything else you can think of, that we're involved in. We've got a pretty active chemotherapy program. So, I've kept trying to find ways to keep us busy and broaden our horizon and our scope and use our expertise in helping, not only the cardiac world, but other departments in the hospital. And the latest is, of course, ECMO, which is in some ways become the new balloon pump, back to that question.

Mark Kurusz: Yes.

Craig Vocelka: Which when you used to think about putting somebody on ECMO, what a big deal it was. And now, it's like, get the ECMO machine, and we put them on ECMO now.

Mark Kurusz: Yes. So, being in a university setting, and I come from university background, was there much competition from so-called community hospitals for the cases in the Seattle area?

Craig Vocelka: In Seattle proper, there are three hospitals. And then, in the Seattle-Tacoma, Everett area, about a 30-mile stretch on I-5, there's probably nine hospitals that do heart surgery.

Mark Kurusz: Really?

Craig Vocelka: And so, there's competition [but] we're the tertiary care center. So, we get a lot of stuff nobody else wants. It's always interesting to read the histories when we're doing redos, that they were operated on at another hospital first, and now they don't want them, they send them to us.

Mark Kurusz: Yes.

Craig Vocelka: Plus, we've got a really big adult congenital practice. I work with Dr. Edward Verrier, and he is just very gifted, and that's his main focus now, [which] is adult congenital. So, we have a very large practice of adult congenitals.

Mark Kurusz: Those are challenging cases, aren't they?

Craig Vocelka: They are. But those are the things that I love, and it's kept me interested in perfusion, I really think.

Mark Kurusz: Sure. You mentioned Dr. Verrier. Are there any other...And you mentioned Dr. Cooley, of course, you mentioned Dr. Beall very early. Are there any other surgeons that you've worked with that stand-out in your mind as memorable or even having influenced you as a perfusionist, Craig?

Craig Vocelka: No, I've been really, really gifted. I've worked, I think, with some of the best surgeons in the world. And I'm sure, everybody's got some biases. But I mean, when I could say that I've worked with [Drs.] Denton Cooley, with Grady Hallman, with George Reul, Don Doty, and Ehrenhaft. And now, Dr. Verrier, I just feel like, you start looking and you look at PubMed, and I mean, those names are...

Mark Kurusz: Sure.

Craig Vocelka: ...well-known, and they all are unique people. All have very many different gifts and stuff. But it's just been amazing to get to work with them. And like most of us that have done this a long time, have also got the other side of working with some people, and we're like, "Whoa." And so, and most of my career has been in teaching institutions. And not only having some research, but training residents and fellows, and to see the residents evolve and become surgeons. And then, to keep in touch with some of them over the years and hear how they're doing. I feel it's been really, really fortunate to have done that.

Mark Kurusz: Sure.

Craig Vocelka: Without a doubt, Dr. Cooley was phenomenal. I mean, I sit there, and I look at some of the stuff we did. I can remember when I was first starting out and looking at some of these poor babies with the congenital defects and looking in that chest that didn't even look like a heart, and he would just go in there and figure it out and know exactly what to do. And

what I've realized over the years is, that to be a congenital surgeon, you've got to see and think in 3-D, which...

Mark Kurusz: Yes.

Craig Vocelka: ...I honestly, don't. I'm pretty 2-D as far as when I see stuff. And that they can see how this empty heart's going to fill up and how the baffles have to be and everything, just still to this day amazes me that they can do that. And I don't do kids anymore. I haven't done kids since I started at the UW. In Seattle, we have one children's hospital that does all the kids. And I miss doing kids because there was nothing better than to see this little blue baby roll in and leave pink...

Mark Kurusz: Sure.

Craig Vocelka: ...and to see the family afterwards. And it was always tough when a baby died. But the beautiful thing about kids is they get well. And when they don't, they die. And they don't linger in the ICU for three months, as we see with adults. And so, as tough as some of those cases were, luckily, the majority of them, they did great. And to know that they were going to have good, productive, and healthy and normal lives was just so rewarding to me.

Mark Kurusz: Sure. I think it's fair to say that nobody wants the surgeon to succeed as much as the perfusionist.

Craig Vocelka: I do. I do. I mean, and that's one of the things that I have just really pushed over the years. And luckily, at the University of Washington, Dr. Verrier has been very supportive. My experience is that cardiac surgery is a team sport. Granted the off-pump thing came in, but he always said, "I can't do this without the pump." And I always had the attitude, nobody's going to come and just say, "Put me on the pump just for the heck of it," and to work with that. And then, the anesthesiologist is such a vital component of the team and the nurses. And so, I mean, it's truly as a team sport that we can do this.

Mark Kurusz: You've anticipated a question later down the list, and that is teamwork. Do you have anything else you would like to say about how teams work together? I mean, obviously, as the Chief Perfusionist, you've got to manage a large team. Have you learned any tricks of the trade over the years?

Craig Vocelka: I have. When you ask that question, I immediately, I smile because I remember when I got to the University of Washington, and there was a lot of changes that needed to be made. I'm the second Chief Perfusionist there. And I hope that I don't do this in my career, but I think my predecessor retired a few years before he actually quit, and I don't think kept up. And I'm not saying that negatively. I think we all get to that point. You get comfortable, and it's working. So, why change anything at that point? And so, I made a lot of changes, and I made them in a hurry. And one of my colleagues who's still there today. He's the only person that's still there from when I got there, and he looked at me one night when we were both on call and

I had been there a couple of years, and he says, “You know boss, everything you did was right. But God, you did it wrong.” And I’ve learned a lot. And I think it’s very important with a perfusion team, especially that you have good communication, that you talk about things. We have a joke at our staff meetings that everybody’s got to vote, and I have 12. But I’ve also learned don’t be stupid. If 11 people are telling you something, and you’re the only one that’s disagreeing with them, maybe it’s you this time, not them.

Mark Kurusz: Sure.

Craig Vocelka: And so, I think, in the OR teamwork is very important that you communicate, that you’re respectful of one another, that everybody knows what they’re doing and can help one another. Not, “That’s not my job.” Pitch in and help because I mean, ultimately, it’s about the patient. It’s not about your job or anything else. It’s about that patient.

Mark Kurusz: Yes.

Craig Vocelka: And then, in the perfusion team, I look around, and I think we’re very weird people to do this. I mean, you think about it, we’re the only people that I know of where somebody totally, literally says, “I'm going to place my life in your hands.”

Mark Kurusz: Yes.

Craig Vocelka: But they don’t know or probably, have never met you. And we get this opportunity to care for people in a way that hardly anybody else does.

Mark Kurusz: Largely, goes unknown.

Craig Vocelka: True, and unappreciated. And so, we do this and maybe, the surgeon says, “Thank you.” And so, I think we’ve got to be unique individuals that can give ourselves our own “attaboys” and realize what we do and take care of ourselves in that way. But then, you put all these weird personality types into a group, and it’s like, “Wow.” And so, just learning how to read people and try to manage people and try to...I think the biggest thing, hardest thing for me, was learning how to listen to people, [which] has helped me a lot over the years. And I hope when I retire, he’ll say, “Everything you did was right. And you learned a lot, too.”

Mark Kurusz: It’s beautifully expressed, Craig. Not an easy thing to do to manage a team that large. One other quick question on teamwork, you mentioned a staff meeting. How often do you...I mean, with the caseload, it must be difficult to schedule staff meetings, but how often do you typically try to bring the team together for a staff meeting?

Craig Vocelka: We have it on the calendar once a month, and probably most of the time they get canceled. We have them when we need them because our schedule is so hectic, and we’ve got three hospitals to cover to get everybody together. And so, I’ve had my hand slapped by the Joint Commission on one visit that I don’t have enough staff meetings. But I also think valuing

people's time is important. And just to have a staff meeting to say, "We did it," I don't always do. But we have other ways of communicating. We have a communication book. Obviously, now email is great. We have our common voicemail that we can leave messages for one another. So, we communicate well, but every once in a while, we do just all have to get together and talk.

Mark Kurusz: Sure. I want to shift gears now a bit, and ask you again from a global perspective, as you look back over the several decades, what major changes that you witnessed stand out in your mind as being truly significant and leaps forward?

Craig Vocelka: Wow, there's been so many. I mean, when I think about it [when] I started, my first oxygenator, it was a Travenol 6LF.

Mark Kurusz: The infamous bag.

Craig Vocelka: And to look at what we use now, and how...So, I mean, obviously, the evolution in equipment is one of the bigger ones. But I think, more importantly than that, because we obviously, weren't killing people using bubble oxygenator and everything else. And I remember all the debates at the meetings, which is better. And people say, "I'll use membranes on the sicker patients and stuff." And I'm sitting here going, "Shouldn't we be giving the same care to everybody?" And all those arguments that we've had. But I just think probably, to narrow it down is just this understanding of what we're doing. What's going on, the physiology of [cardiopulmonary] bypass, how we're triggering inflammation, what we're doing to blood cells, has helped make this a much safer mode of caring for patients. Just looking at the fact that we can do ECMO now and have patients on the pump for weeks.

Mark Kurusz: Yes.

Craig Vocelka: That would've never happened before. Three hours was like the end of the world. I look at cardioplegia, I mean, I talk with residents, and they have no idea what "stone heart" is. And sadly, we saw that way too often. So, cardioplegia is such an advance, some of the instrumentations. And now, I'm looking at this whole deal with the valves that they're going to do them in the cath lab.

Mark Kurusz: Yes.

Craig Vocelka: Nobody would've dreamed of that...

Mark Kurusz: No.

Craig Vocelka: ...40 years ago. And so, it's hard to pinpoint. There's just been so many. But again, as I said, if I had to do some, try to pinpoint it down, I would say, it'd be an understanding of the physiology. As I said, our six months [of training], there wasn't a lot to learn because we really didn't know what we were doing. We got by with it. And now, I think

we have an understanding. And that's where a lot of the improvements have come from, but I also know there is still a great deal to learn.

Mark Kurusz: It's very well expressed. And, if I could paraphrase, blood management techniques are really, very important today, aren't they?

Craig Vocelka: Oh, they are indeed. I mean, as I said, we used to give blood. I mean, I remember priming with blood, and then if you had to give it, give it. And then, it was whole blood. And now, looking at this we understand that blood is a transplant, and all the reactions that come with that is very important.

Mark Kurusz: Sure.

Craig Vocelka: I think, I don't know which one came first. But I mean, the understanding of that, and then trying to miniaturize the circuits, trying to decrease prime, the rapping, all have played…And so, which one comes first and stuff, but we keep learning and adding on, and then we learn something else, and we keep adding on. And I hope that when I retire, that I will still keep up with the field and just continue to see advances made.

Mark Kurusz: I have no doubt that you will. And I have no doubt that you'll be still mentoring people after you hang up your tubing clamp.

Craig Vocelka: I hope so.

Mark Kurusz: Now, you alluded to mini-circuits, which really anticipated my next question. What is your thought on so-called mini-CPB, Craig?

Craig Vocelka: Well, I have publicly said in the past, I have reservations about it. I think there's a part that we can get. And I've given talks on it, and one of the more infamous debates we've had at the AmSECT meeting was Al Stammers and I, pro and con on mini-circuits. The idea of reducing prime, I think is a wonderful idea. But this idea of how little...It's how far can you stretch the envelope, I guess, to where you start compromising safety. And one of my big fears is, if it gets too small, the reaction time, I mean, we're still talking, we've got humans running the pump. And so, you need reaction time. And if you get too small, are you now possibly becoming unsafe that you don't have the reaction time to handle something should it happen? We keep trying to combine things, and if a component for whatever reason, doesn't work in the middle of a case, how can we change that? And so, I think when we start looking at modifying our circuits in any way, we've got to try to think of all the possibilities and scenarios that come with it. And sometimes, I get a little frustrated with the manufacturers that these engineers who have never been in operating room, come up with these ideas and on paper, it sounds great. But clinically, practically, they're not the ones sitting back there. And my line is usually, "It might be good for something, but it's not good for my coronaries."

Mark Kurusz: Sure.

Craig Vocelka: And so, I think that's where the role of the clinicians have to stay involved in making sure that as we make these advancements, they're not only answer one problem, but don't cause more problems.

Mark Kurusz: It's almost as if you've looked at the set of questions because this segues into the next question, and that is, and you've alluded to it a bit in your previous answer, but what is your view generally of the cardiopulmonary industry?

Craig Vocelka: I think it's stagnant right now.

Mark Kurusz: And why is that?

Craig Vocelka: I mean, you go in the exhibit hall, and there's really nothing new.

Mark Kurusz: Okay.

Craig Vocelka: At least, I haven't seen anything. We're at the meeting, and the exhibits just opened. So, I haven't really spent a lot of time. But I mean, I hear of nothing new or anything. And part of it is, I don't have any new ideas to tell them to go make either right now. But overall, I think the clinicians and industry have done a great job in partnering with one another. As I look back, I love the days when we had, what, seven oxygenator companies. And we've seen the mergers, and the buyouts, and the consolidation of these companies, which, at least, we still have enough to have some competition. And hopefully, some research and development going on. But it's a tough business. And when I talked about the FDA earlier, the regulations of the FDA, and this is nothing outstanding, we all know this. I mean, it has made it very hard for a company to bring new products in the market.

Mark Kurusz: Sure, sure.

Craig Vocelka: And so, I think right now, we do have a good relationship with our industry partners. And hopefully, that will continue, and there will be some more innovation coming in the future. But again, I can't blame them because I don't have any great ideas to tell them to go do something, either.

Mark Kurusz: Very good. In your career, Craig, have you personally mentored perfusionists either at your hospital or in a different venue? Are you affiliated as a teaching site or clinical affiliation site for any of the training programs?

Craig Vocelka: We're not. The university right now, currently, is in, and it's a lot of political stuff at the university that they don't want to be bringing in students from other schools. Fortunately, I did teach at Texas Heart for a number of years and got to teach a lot of students, which I love doing.

Mark Kurusz: Okay.

Craig Vocelka: One of the things when I went to the University of Washington in 1987 was the possibility of starting a perfusion school. And when we did the business plan, it ~~just~~ was turned down that it was too costly for the number of students that we would be training. And at that point in time, we weren't sure we needed another school in the country. The idea has recently resurfaced at the university.

Mark Kurusz: Sure.

Craig Vocelka: And so, there's a possibility it would be starting school again.

Mark Kurusz: I think, you would be ideal in that role. And I hope it comes to fruition for you.

Craig Vocelka: It would be great to have something out West. There's nothing on the West Coast...

Mark Kurusz: That's right, there isn't. At one time...

Craig Vocelka: ...schools right now. Arizona is the closest.

Mark Kurusz: At one time, there was a school in Portland, but that's no longer functioning, is it?

Craig Vocelka: Nope.

Mark Kurusz: Now, we're going to get away from the global perspective. I want to prod your memory. Are there any cases that stand out? Without revealing names, of course. Any memorable cases, either bad or good that you'd like to share with those who will view your interview?

Craig Vocelka: There's been a number over the years. And I think, obviously, my first case as a student, being scared to death, I've never forgotten. I think some of the cases that stand out the most are, I've had the... I don't know, if opportunities is the word...

Mark Kurusz: Excuse me?

Craig Vocelka: …But to pump pregnant women, and then to see the mom and the baby both survive and do well—very rewarding.

Mark Kurusz: Sure.

Craig Vocelka: The cases where you get called in the middle of the night, probably, are the ones that in some ways are the most meaningful to me that basically, I mean, we've taken people that would've been dead, and then to watch them walk out.

Mark Kurusz: Sure.

Craig Vocelka: And then, most recently, we've had several patients, young patients, cystic fibrosis that we've bridged to lung transplant with V-V ECMO. And to see these 20-year-olds, who would've died and knew that they were going to die, and to see them, and then these are patients that you really get to know as we stay with the ECLS patients. And to see them walk out and return and living healthy, happy lives is probably some of the most rewarding stuff I'm doing now.

Mark Kurusz: Very moving, isn't it?

Craig Vocelka: Totally.

Mark Kurusz: How did you...This is a bit of a, maybe awkward question, but how did you approach a perfusion case? Let's say, you get the assignment the evening before that it's a double valve or something more than the routine coronary, what is your step-by-step approach to doing a perfusion case, Craig?

Craig Vocelka: My routine mode now is pretty much to read the history and physical, and know what's going on with the patient, and to check their labs. I mean, that's the first thing is to know what we're doing and what challenge I'm going to have as far as hemodilution. I think after that, it's considered who the surgeon is, which will pretty much tell me how we're going to cannulate and how we're going to do this. At the university right now, our routine is pretty similar across the board, but they all have their little idiosyncrasies, as most surgeons have. And so, then it's getting the equipment ready. I always, I am a morning person. I always try to have everything set up before the patient is in the room. Some people go for just got to be ready by the time they saw the chest. I like to have it all ready before the patient goes in the room and be set up. And then, part of that is, it's just, again, part of my routine. And then, I get a cup of coffee before the case, while they're putting the patient to sleep. But it's also gives me the opportunity, if somebody else needs some help or something, I'm free to help them.

Mark Kurusz: Sure.

Craig Vocelka: And then, being at the university, and we'll have several rooms running, I can also help my colleagues, and because we've got a lot of younger perfusionists that will have questions and stuff. And so, I see that as part of my role. And then, it's a matter of, and this was even before we had the timeouts and everything, to talk with the surgeon and just make sure that we're on the same page, and what's he going to do today to make sure that there's nothing that I missed or something that he's got it. And then, it's just being ready and trying to anticipate. I always told the younger perfusionists, I said, "Your goal, really, is that they ought to think you're the laziest guy in this room that just sits there and turn knobs." And I said, "And the reason that is, is because you've anticipated everything that you can possibly need."

Mark Kurusz: Well-expressed, very well-expressed.

Craig Vocelka: And so, that's pretty much part of it. And then, my personal side, I always say a prayer before we go on.

Mark Kurusz: Really?

Craig Vocelka: And I pray for the patient, for the surgeon, for me, that we'll do well.

Mark Kurusz: Thanks for sharing that. So, I think you've touched on it, but I'm going to ask it from a slightly different angle. And that is, what do you...Again, if I was a new perfusionist, new to the field, what would you convey to me as important attributes for being a good perfusionist, Craig?

Craig Vocelka: Yeah, that's a great question. And I really wish, because I keep trying to, as I'm hiring a lot of new grads right now, what to say to them to motivate them. And yesterday, and I congratulate you again on the Gibbon Award, you said something about, "Don't be a... I'll pump your case and go home type of perfusionist." So, that I think is one of the first things. And what I tried to do is, instill into young people that there is so much to learn, and so many possibilities. And just to keep looking around and make yourself valuable—ask where you can help because when you help, you can learn something.

Mark Kurusz: It's also good for job security, isn't it?

Craig Vocelka: That, too. But I mean, I love getting calls from somebody in some other department that will call me at the university. They're doing something, and they heard I run a pump or something, would I have a pump that could do this? And I go, "I don't know. Let me see." And just go see what they're doing in their research lab, and everything has just been great. And I mean, and a lot of the research I did was tag along with other people and either was able to get something else out of it on a different course than they were originally designing their study for, but we could extrapolate that data or just to be with them and learn from them. And I think, that's the key. I mean, I remember hearing George Beshere talk at the Medical University of South Carolina once. And he started his talk as, "Fellow students", and he said something that we've got to always be students. And I've tried to keep that there's always something else to learn and just keep going. One of the goals that I had early in my career was, I wanted to make some type of contribution that would change the world of cardiopulmonary perfusion. And it was like, "Okay, Gibbon beat me to inventing the machine, but what can I do?" And I still think about that. And the work that we did with perfluorocarbons trying to come up with a blood substitute. And the latest thing I was doing was a cytokine filter. Just something that's going to have this big impact. And unfortunately, I haven't come up with it yet. But I think given other ideas, and someday it's going to come. And I think that's part of doing research is that we never know what the results are going to be. If we did, we wouldn't have to do the research. But out of it comes something, it might not have been what we expected, but out of it will come something else.

Mark Kurusz: Sure.

Craig Vocelka: And that's what I try to instill. And then, the other thing is, what we talked about earlier that you're given this opportunity as a perfusionist to do something that nobody else gets to do. There's 3,800 of us in the United States, probably 6,000 of us in the world, and we get to do this.

Mark Kurusz: Yes.

Craig Vocelka: And when you think about, that's just awesome.

Mark Kurusz: It is.

Craig Vocelka: It is. And...

Mark Kurusz: Very eloquently expressed. So, again, segueing into the next question on my list, Craig, what has it meant to you to have been a perfusionist?

Craig Vocelka: Wow, Mark, I look back, and I'm not sure. I don't know.

Mark Kurusz: Is it too immediate?

Craig Vocelka: I don't know how to express it. I mean, it's meant so many things, in so many different ways. As I said, I look at the people I've gotten to work with, that I could say that I worked with Dr. Cooley. And it's truly interesting now to talk to the residents, and they look at me like, "You'd worked with Dr. Cooley?" And it is like, "Yeah." I was like, "No big deal. You better be there." I've been fortunate because of both the research and my involvement in AmSECT. I've traveled the world, and I've met perfusionists all over the world. I've been to hospitals all over the world. And just what I got to learn there, and the friendships that I've made over the years. And I mean, my wife always kids about, how do I know about somebody on the East Coast? And I joke, there's telephone, telegraph, and teleperfusionist. I mean, we are such a small community.

Mark Kurusz: Sure.

Craig Vocelka: And overall, like any family, we've had our battles in perfusion over the years. I mean, I have it in my staff. We've had it in AmSECT. We've had it...But overall, I don't think there's anybody I know that I couldn't call, and they would help me.

Mark Kurusz: Sure.

Craig Vocelka: And I think that is probably, one of the things that has meant the most. But it's a weird profession. I mean, I think about...And you know this as well as I do. The times we get called in and have to leave some family gatherings or something, I mean, the Christmases I've missed because I got called in to go take care of a stranger, but yet, I get to do that. And it's like, I'm not going to say, I haven't cursed in the middle of the night or thrown a pager across a

room or anything. But it's like, when I stop and think about what I get to do, it's just awesome. I just don't know how to really put it into words.

Mark Kurusz: Sure. Well, I have to insert a little anecdote that happened to me a few years ago in Beijing. A city of 20-million plus.

Craig Vocelka: I remember it well.

Mark Kurusz: And I was in the summer palace, throngs of people, thousands of people. And somebody's yelling, "Mark, Mark." And it's Craig Vocelka. I mean, who would've thought that the two of us would link up in Beijing, totally oblivious that each of us were there. It was really an amazing moment that...

Craig Vocelka: It was. I remember looking up and going, "No, no."

Mark Kurusz: Again, moving right along, I think you've expressed this in some aspect, or I want to re-ask it—what have been the most personally satisfying things to you, Craig, over the years in being a perfusionist?

Craig Vocelka: I think...

Mark Kurusz: Was it working with AmSECT? Or was it more on the perfusionist patient aspect?

Craig Vocelka: I really think it was the teaching aspect.

Mark Kurusz: Teaching.

Craig Vocelka: It was working with students at Texas Heart. It has been working with the residents at the University of Washington. Teaching, trying to share some of my knowledge and expertise and experiences with them, and to get that call every once in a while, from a former student or a former resident, calling to ask you a question, because they say, "I know you know this." And that somewhere, I impressed upon them, A, that you can call anytime, B, that we're here to help one another. And just, I think that's been the most rewarding. Some of the cases definitely, had some rewards. Like I talked about some of the pregnant women that we've done and the babies that I used to do. But I think, overall, it's probably been the teaching.

Mark Kurusz: Sure.

Craig Vocelka: And to see the growth and that somebody else is interested and wants to do this has been the most rewarding.

Mark Kurusz: So, we're near the end of this interview. Is there any area that we've not covered that you would like to say some words about? Or are there any comments you'd like to make to the younger generation of perfusionists today before we wind up this interview, Craig?

Craig Vocelka: We haven't talked about perfusionists in professional societies, being at the AmSECT meeting and having this here. And being a past president of AmSECT, I would feel that I left that out. And I would just say that people need to support the professional societies, and I'm not even going to pick one. But they just do, I mean, and nothing else. It's a chance, again, to share knowledge and to share experiences. I keep looking at meetings and where we're going today. I mean, one of the things that we keep talking about, do we need to do more education online and everything? And last night, I was with some friends, and we were talking, it started out as grabbing a beer and just catching up. And then, this guy asked me if I'd ever done this kind of case. We spent an hour, and you learn more, I think, sometimes, in the bar, or at the pool or something, than we do in the lectures, not to say those aren't important and you can skip them. But I just think, this one-on-one communication is so vital. And again, I think that's where perfusion is so good that we are such a small community. It doesn't have to be at a meeting. We can pick up the phone and call. But I would just say, it's very important that people support the professional organizations by attending the meetings, by their membership, so that the field can keep growing, that none of us do this independently, and that we need each other to help grow and take care of people.

Mark Kurusz: Very well-expressed. Now, as a follow up to that, do you think that the PerfList or PerfMail blog is equivalent to exchanging war stories over a cup of coffee at a meeting one-on-one?

Craig Vocelka: Not at all.

Mark Kurusz: Okay.

Craig Vocelka: Not at all.

Mark Kurusz: Expand on that, would you?

Craig Vocelka: First of all, I realize we have to do it, but I hate email because emails get so misinterpreted.

Mark Kurusz: Yes.

Craig Vocelka: You never know what somebody is saying. And we've all read PerfList where somebody says something, then either gets attacked, or everybody goes off on some tangent or something. So, it's not the same at all. You can't clarify, you can't re-express. So, no it's not at all. And then, what scares me the most about PerfList is, people take it as the Bible, "Well, it was on PerfList. So, it's got to be right." And I don't want to sound like an old fogey, but I mean, that's the negative side of all this electronic communication, the internet and everything is just because it's on the internet, it doesn't mean it's true, which in some ways gets back to the professional societies. We need the journals. We need peer review. We need to support each other. And to make sure that what we're saying is true, and that these techniques are tested, that we try and stuff.

Mark Kurusz: Sure. As predicted, we're coming up on 60 minutes. This has been wonderful, Craig. I really enjoyed...

Craig Vocelka: No, it was an honor.

Mark Kurusz: ... asking these questions and hearing. And I will tell you that, of the interviews we've done, everyone is different. Everybody's got a little different take on the same set of questions. And I really appreciate you sharing your perspectives today. And hopefully, these interviews will be available to the wider audience via the AmSECT website. So, are there any closing comments you'd like to make?

Craig Vocelka: No, I think that would be great. I think, what you just said reinforces my thoughts that we're a bunch of unique individuals trying with a common goal is to provide good, safe, care for patients and to grow the field. But we are unique, and we are in many ways, we are to be doing this when you think about it.

Mark Kurusz: Absolutely. Thank you very much, Craig.

Craig Vocelka: No, thank you. It's an honor.