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NEWSLETTER

AmSECTOMORROW

Julie Collins is the Cardiovascular Perfusion program director at Rush University in Chicago, Illinois. She graduated from Milwaukee School of Engineering and worked as a staff perfusionist on the East Coast before returning home to the Midwest. After discovering her knack for precepting, she began working in academics, first by doing periodic lectures, then as a part-time instructor before taking an interim position, which led to her assuming her role as program director.

In this issue

THE NEWSROOM.

Interview with Julie Collins

By Christine Stark

Christine Stark: Thanks so much for joining me today, Julie. We will get right to the questions... How long have you been program director and what made you choose Rush University?

Julie Collins: I have been a program director for 4 years, almost 5. My husband and I wanted to be closer to family, so I took a staff perfusionist job at Rush. Then I started clinically training students and I was a little nervous at first but then I found that I loved training students in the operating room. The opportunity came up to teach some lectures, so I taught lessons on LVADs, ECMO, or whatever they needed me to teach. I was more and more involved in the program, and I eventually co-taught the research class which transitioned to me taking a part-time teaching role, then an interim program director, and then I stepped into the director role.

CS: Can you tell me what an ideal candidate looks like for a perfusion program looks like?

JC: Prospective students know what we do as perfusionists, such as the call schedule and the general lifestyle of the perfusionist. We are a small profession so it's not like RT or nursing where there is a job in every city. Usually, you end up traveling or relocating for a job. That was interesting for me and my then-boyfriend, now husband. My career has really dictated where we live and build our life together.

Regarding the call schedule, I try to make sure students have a grasp of what being on call is like, and not having set work hours, you could be at the hospital 2 hours or 36 hours. Having a good understanding of the profession, that perfusion isn't just pumping cases in the operating room.

It's ECMO, VADs, IABPs, AngioVacs, HiPECs, and cell savers. There's a wide variety of different areas that perfusionists cover. I remember when I was a new grad, we were preparing for the first AngioVac at our facility. The sales rep showed up with the pack and I said, "What's that?" and they said, "It's an AngioVac, we are doing one today." So, we opened it up and together we figured it out. We were one of the first facilities to use them nationally.

CS: Obviously, adaptability and flexibility are a large part of perfusion. Are there any other characteristics that you look for in prospective students? Are there any you tend to avoid?

JC: Students that are willing to take constructive criticism and realize that there is so much more in tract than the program. You'll spend three semesters with us, then go on three rotations before taking your first job, which is basically like a fourth rotation. Even after being a perfusionist for years, you're never really done learning. There will still be things that humble you. Be willing to have an open mind and trust the process. We put everything in the order of the curriculum for a reason, we don't want you jumping ahead or falling behind. If you're struggling, everything kind of builds on itself so don't wait to ask questions and don't be afraid to ask for help.

I also try to stress that people can pass away, not everyone lives in open heart surgery. You have somebody's life in your hands, and they are somebody's mother or grandfather. Just realize that each patient each day is someone's loved one and you're making a huge difference by being there.

CS: The application process is still quite competitive. Do you have advice on how prospective students can stand out, especially for those who don't have healthcare experience?

JC: The best thing to do is to be prepared. People without clinical backgrounds are typically the ones who have done a ton of research, they have learned about other healthcare professions. They have shadowed not only perfusionists, but other areas like PAs, or nurses. They are well versed and have given application a lot of thought. When people email me about what they can do to prepare themselves, I tell them to watch open heart surgery videos on YouTube and send them to the AmSECT website. I also recommend they look at perfusion.com or read The Manual of Clinical Perfusion handbook. Searching for all the devices a perfusionist might work with is also a good place to start. Interestingly, the younger applicants are typically the most prepared for program interviews. I don't know if it's because they are more familiar with updates to the profession from their research or because they are just thirsty for knowledge and experience. Either way, they are enthusiastic, and it shows.

CS: Talking specifically about applications, as a program director, do you read all the essays?

JC: Yes, *laughs* I read every single one.

CS: Any advice on writing essays to make them stand out? Can you recall any memorable personal statements?

JC: Some essays relate perfusion to other parts of applicants' lives. One applicant had a job with the forest service. They would mark hiking trails, so they compared perfusion to blazing new trails in healthcare. Another used a very well-written ship analogy where the surgeon was the captain and the perfusionist was an integral member of the crew that keeps the ship sailing. The more typical route applicants take is sharing stories about loved ones. A personal statement is not your grades, cases you've seen, or clubs you've joined, it's an opportunity to make yourself stand out and have a chance to shine.

CS: Rush had almost 200 applicants last year, but only 45 were interviewed for a chance at one of the 20 program seats.

CS: What's the method that goes into picking interviewees?

JC: It's a democracy, not a dictatorship, the whole department has a say in who gets picked for interviews. There is a rolling application process, so we start reviewing applicants as soon as they come in before sending them to admissions to get verified. It's important to get a variety of perspectives. There is a scoring system used for applicants and if someone doesn't make the cut but was a standout for other reasons, we revisit their application and keep interviewing until we have filled all 20 seats.

CS: Do you have any advice on what makes a good interview?

JC: Nerves get the best of people. We realize that you might be nervous, but if you can't communicate sentences during a high-stakes interview, how will you communicate during an emergency? The people who do well are those that are enthusiastic and passionate about perfusion. It's not about searching for high-paying professions and applying just to see if you get in. The students who additionally apply to other professional programs, such as nursing or PA, aren't typically the students who get accepted. We want you to be committed to the field and not be wishy-washy. Interviewees that can express themselves efficiently, effectively, professionally, and confidently are the ones that do well in the interview process.

One of our instructors used to joke that we should have prospective students assemble a barbecue grill during their interview since there is some level of mechanical inclination to perfusion.

CS: Outside of being able to man patio appliances, what qualities make good students?

JC: Having a strong work ethic is important, prioritizing class and attending open labs or staying for extra lab sessions. We intentionally have a good mix of students at Rush. A variety of backgrounds means students will do exceptionally well with some aspects of the program but might struggle in other areas. We encourage students to study in small groups and go over the material together to solidify their knowledge of topics.

CS: That sums up all the questions I have. Any last pearls of wisdom for prospective students?

JC: To the students that apply and might not get accepted, don't give up. Keep moving forward, keep shadowing and if you don't have clinical experience, consider a job in healthcare. For those in healthcare, consider applying for a position as a perfusion assistant or anything that works near perfusionists. It's so hard to get in the first time around and schools are getting more competitive. I know lots of successful perfusionists that didn't get accepted into a program until their second or third round of application.

CS: What great advice. Thank you, Julie.

JC: Thank you, Christine.

PUMP UP THE VOLUME.

What is the AmSECT Student Council?

By Grayce Owens

The AmSECT Student Council exists to promote student involvement within AmSECT. While our current members hail from half a dozen different programs, our goal is to have every perfusion program in the country represented on the council. Our major projects include an annual fundraising event and this very newsletter, with multiple opportunities for student leadership. Our current officer team consists of a president/chief student liaison, vice president, fundraising project lead, communications coordinator, and newsletter editor. The Student Council meets monthly via zoom for one hour, so the time commitment is not excessive.

There are a variety of skill sets needed on any council, and ours is especially diverse in terms of our projects. Have you participated in fundraising events? Do you have experience with graphic design, social media outreach, or student governments? Are you interested in networking with experienced perfusionists and sharing lessons learned from clinical experiences? Each of these skillsets and activities are part of what we do as the Student Council.

Each year we design a perfusion-related T-shirt to release as part of a fundraising campaign. All proceeds from the campaign go right back to the student members of AmSECT to provide a reimbursement fund for annual AmSECT conference registration fees. This year, we are also considering additional fundraising strategies to optimize our impact and increase the benefit to our fellow students.

This newsletter, AmSECT Tomorrow, is also a primary project of the Student Council. While our content is geared towards those who are currently in perfusion school, we hope it will continue to be beneficial to every perfusionist. We regularly feature interviews with experienced clinicians, invite readers to get more involved in AmSECT, and provide a forum for sharing both unique cases and embarrassing goofs (see our *The Vitals* and *Perfusion Blunders* sections). This newsletter is truly a team effort; many hands make light work!

Interested in joining the Student Council? Please email Keith Bryant at amsectstudenthq@gmail.com and be sure to include your contact information. Share your voice, develop your networking and leadership skills, and become invested in the professional development of our field! We look forward to seeing you join the team.

BACK TO THE STACKS.

Didactic Study Tips

By the AmSECT Student Council

Congratulations to all the new perfusion students! Welcome to this incredible field. Perfusion school is at once both challenging and rewarding. As you prepare to hit the books and dive in deep, we thought we'd mark the beginning of this new academic year by sharing some brief words of wisdom. On behalf of the student council, here are a few tips and tricks that helped us make it through the didactic portion of our training.

The Big Picture

Buy a pocket-sized notebook and write out important equations as you learn them. This will serve as a handy resource in the OR, when you're doing a patient workup or preparing for an exam. You can keep it with you at all times to quiz yourself until you know these formulas like the back of your hand.

It's easy to get stuck in study ruts. Sometimes the approaches that worked well for us in the past don't seem to be paying off anymore. Don't be afraid to switch it up! If you normally study on your own, try studying with a group of classmates; if you normally type your notes during class, try handwriting them; and vice versa. Even if you don't consider yourself a visual learning, drawing out circuits and cardiac anatomy by hand can really help solidify new material.

Create quick reference posters! Regularly reviewing material helps improve retention. Write out normal lab values, equations, or sketch anatomy on a large poster board and hang them in your study area or around your home.

Save your PowerPoints and notes in an organized manner to save time when studying. Create folders that divide your learning material into courses or topics (e.g., laboratory monitoring, blood management, pharmacology, etc.). Saving notes on a platform that allows you to search for a certain word or topic and quickly find notes (like Google Drive or OneNote) will also make your studying more efficient!

Getting Back in the Classroom

Bring snacks! I forgot how exhausting it is to be so mentally focused for several hours at a time. A little energy boost between classes always helped keep me in the zone!

Record your lectures (if they aren't already recorded for you)! It is so helpful to be able to go back and relisten to portions of the lecture when you may have accidentally zoned out for a few minutes.

Get into a good morning routine. Whether it is waking up early to exercise, watch the news, or just sip on a cup of coffee, it is important to be fully awake and ready to learn when you show up for classes in the morning. There is nothing worse than starting a day off on the wrong foot by waking up late and feeling rushed to get to class!

Simulation Lab

If you don't have much clinical experience, the simulation lab can be an intimidating place. If you put in the work early on to get over that hesitancy, you'll be much more prepared to tackle challenges down the road. Schedule small bits of time to go in and trace the circuit, explore the pump settings, and practice building a circuit if you're able.

If you do have more clinical experience, offer to help explain different types of equipment and techniques to your classmates. Teaching others will help resolidify what you've learned.

Don't be afraid to make mistakes and to ask questions! Our instructors always tell us that we will never make a mistake they haven't seen before, so there is no reason to feel embarrassed! Making mistakes is the best way to learn - you can see the consequences of your slip-up and you'll be much more careful not to repeat it in the future!

Repetition is your best friend! The more you practice something, the more it becomes second nature. As you learn new skills, repeat them over and over. This will become really helpful when you start building up to more complex simulations because the "basics" will seem like no brainers to you!

Create a supportive environment by practicing with people who you feel comfortable around. Practicing with someone who works at your pace and gives you valuable feedback will help you improve your skills. If you do not feel confident practicing with others at first, try to come into the simulation lab on your own, get a feel for the equipment, and then work with others!

Managing Stress

It goes without saying that perfusion school can be stressful, and hopefully you know by now that the operating room can be a stressful environment too. While you're learning the clinical skills of being a perfusionist, take advantage of this time and practice handling stress well. The habits you build now can stick with you for a career—whether good or bad. Make the most of this formative time! Here are some of our top ideas for keeping your sanity when due dates are looming:

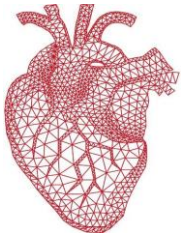
Stay organized! It is always helpful to have a well-kept planner of all of the upcoming due dates. You can easily prioritize your tasks if you have them all laid out in front of you and you can see which ones need to be accomplished first!

Try your best to focus on one thing at a time! Carve out set amounts of time for each course, and stick to focusing on that one subject for the designated time. It is easy to bounce around and then end up feeling like you didn't make progress on anything, so try to stay focused on the task at hand.

Study with friends! As long as you are still able to be productive in group settings, studying with classmates can make working feel a little more fun.

Schedule in self-care time. Take breaks between long study stretches to prevent burnout and avoid getting overwhelmed. Even if you are just watching a new show while eating dinner or taking a quick walk, these breaks will reduce your stress and get your eyes away from a computer or simulation screen.

Again, congratulations new students! As another academic year begins, take a moment to reflect on the hard work that got you to this point. The same drive and determination that got you here will see you through. Happy studying!



THE VITALS.

Stage 1 Norwood By Rabah Alaiwi

Pediatric congenital heart defects are the most common defects present at birth. They range from mild cases like Atrial Septal Defects (ASD) to more complex issues such as Hypoplastic Left Heart Syndrome (HLHS). I observed an HLHS case where the surgical team performed a Stage 1 Norwood Procedure on a newborn. Hypoplastic Left Heart Syndrome (HLHS) is a rare congenital heart defect in which the left side of the heart is severely underdeveloped and incapable of supporting systemic circulation. It is characterized by a malformed mitral valve, an underdeveloped left ventricle, and aortic atresia, causing aortic valve stenosis. For the heart to eject arterial blood systemically and receive blood back from the body, an ASD exists to allow oxygen-rich blood from the left atrium to flow through the atrial septum and mix with oxygen-poor blood in the right atrium. This causes mixed blood to flow into the right ventricle and pump back through the pulmonary artery. The Pulmonary Ductus Arteriosus (PDA) allows some mixed blood to flow into the aorta, which carries oxygen-rich blood to the body.

The patient presented as a 2-month-old female on Veno-Arterial ECMO. As the 1st part of the Norwood Procedure, the patient was placed under Deep Hypothermic Circulatory Arrest (DHCA) while on bypass. An infant circuit and retrograde autologous priming were utilized to prevent hemodilution, and a unit of packed red blood cells was used to prime the circuit. After initiating full bypass, the cross-clamp was placed, then the patient was cooled to 20º C, and the arterial pump was shut off. Antegrade Cerebral Perfusion (ACP) was initiated through the cardioplegia pump. After 76 minutes of ACP, the cardioplegia pump was shut off, and the main arterial pump was fully opened to initiate full flow. After the surgeon's last distal anastomosis was complete, the perfusionist began rewarming the patient back to normothermia. Once the clamp was taken off, the patient began exhibiting hypotension. The perfusionist gave push-doses of Neosynephrine until the patient's Mean Arterial Pressure (MAP) rose >30 mmHg. Once normothermia was reached, the patient was given (20/kg) of FFP to account for the loss of clotting factors. The patient was transferred to the CVICU in a stable condition.

I am grateful for this opportunity, as it provided a valuable insight into my future practice.

PERFUSION GOOFS & BLUNDERS.

In simulation lab I managed to first drain the simulator reservoir into the circuit reservoir and not notice it but wondered why my patient's BP remained zero over zero. Even turned off the pump and computer off without any improvement. I messed with it for probably 5 minutes before I phoned a friend. Who then said first thing, "Did you check the simulator reservoir?" But wait, there's MORE! Pumping the volume back into the simulator reservoir and I left a clamp in the wrong place. I then managed to pump the water into OVER-flowing the simulator reservoir and putting air in the circuit. I learned A LOT of trouble shooting and potential ways to mess up that day! - #lifelonglearner

I was building a pump in the pump room by myself for the first time. As I was attaching the venous line to the top of the reservoir, I bumped several of the caps on nearby ports. They all fell off onto the floor. Thankfully the transducer packs had enough extra caps to replace the contaminated ones, but I learned my lesson to tighten all the caps and connections before manhandling the reservoir! – *The devil's in the details*

I started running out of low K cardioplegia while giving down the root. Instead of switching to the high K I tried to quickly switch out my low K bag. It immediately pulled air and de-primed my cardioplegia system. The surgeon started screaming as I tried to reprime my system with the bubble detector constantly alarming. There was a lot of yelling…-*Always get extra Pleg*

On a multi-vessel CABG being completed by the Chief of CV Surgery (NO PRESSURE there) I was drawing my lab sample from the manifold with a slip tip syringe and it slipped right on off at 5 LPM of flow. Thankfully I reacted quicker in real life than the SUPER slow motion it felt in my head (I think I saw at least half my life flash before my eyes). I plugged the hole with my finger while my brain processed which way I needed to turn the stop-cock, got the syringe back on there and got my labs. Of course, as soon as I got the blood the chief was hollering for cardioplegia, so me and my blood covered gloves contaminated 2 pump knob consoles. Super proud I didn't let it throw me off my game and completed the case and no harm came to the patient. Let's just say that machine got a super deep scrub down after the case was over. - #abloodymess

I too made the mistake of leaving the stopcock turned when drawing a blood sample. The surgeon asked for cardioplegia as I was drawing a sample and I just pulled it out to hand to my preceptor and quickly turned on my 'plegia knob. Similar waterfall of blood ensued except this patient had HIV and Hep C. I got to do a fun deep clean after that. -*Time for some new shoes*

A few weeks ago, I was priming a pump in the OR and going through my checklist to get ready for the case. Right when I went to add the arterial CDI sensor in line, two of my preceptors came to check on me. Of course, now that I was being watched, I immediately got nervous and contaminated both ends of the CDI! Luckily this was something a few alcohol swabs could fix, but embarrassing nonetheless!!

I was recently waiting after a case for the patient to be taken back to the unit before tearing down the pump. The transport team came in rushing to move everything and get the patient on the bed. I quickly tried to help by moving my pump to the side. I then rushed to get the cell saver out of the way with the reservoir attached to the bypass frame. Lines came undone, blood hit the floor and I spent hours scrubbing up the mess in every nook and cranny of the pump. -*Obviously the new guy*

THE RESERVOIR

▸ AmSECT Student Membership

Student members shall pay dues one time and remain student members while actively enrolled in the perfusion education program. http://www.amsect.org/page/students

▸ Have a perfusion blunder you want to share?

Please email owensgr@musc.edu to have your blunder included in the next issue.

Save the date!