

THE EVOLVING ROLE OF THE

CARDIAC PERFUSIONIST

Katie loves her job.

As a staff perfusionist at a leading hospital, she's making a difference in people's lives and performing a vital role in the OR.

But for Katie, life as a perfusionist often means working non-stop, day after day in an intense OR environment, and she wants to know what the future holds for her profession.

Emerging trends are now setting the stage for exciting new opportunities for perfusionists. Their experience, once limited to the operating room, is making its way to the ICU and ED.

If you're feeling like Katie and want to know [what's on the horizon](#) for cardiovascular perfusion, consider how these trends—shifts in mindset, technology advancements, changes in safety culture and procedures—can help expand your skill set and give you more variety beyond your clinical day-to-day tasks.



6 Trends Shaping Perfusion



TREND NO. 1:

ECMO In Cardiac Perfusion Procedures

“One of the trends we’re seeing from an application aspect is more use of a modified heart-lung machine with ECMO outside of the operating room,” said Edward Darling, MS, CCP, an associate professor in the Department of Cardiovascular Perfusion at SUNY Upstate Medical University.



The role of extra-corporeal membrane oxygenation (ECMO) in children and adults has been on the rise since the emergence of the H1N1 virus.

But the increased use of [ECMO](#) doesn’t mean that you’ll be spending less time in the OR. According to Darling, while you may be operating the heart-lung machine during cardiopulmonary bypass, you might also see opportunities to take part in more hybrid procedures between cardiology, perfusion and thoracic surgery, like thoracic endovascular aortic repair.

TREND NO. 2:

Technology Upgrades for Better Perfusion Outcomes

Even if you don’t consider yourself an early adopter of the latest mobile or smart device, you are probably an early adopter of various technologies at work.

According to Bruce Searles, director and associate professor of CHP-Cardiovascular Perfusion at SUNY Upstate, perfusionists are early adopters of technology—like [flow sensors](#)—that can help them understand how they are doing their jobs.

“Using a flow sensor in different ways to measure the circulation during ECMO or measuring central blood volume can allow a greater assessment of adequacy of perfusion,” Searles said.

TREND NO. 3:

A Focus on Safety Culture

Unlike other specialties, cardiac perfusion in the United States does not have a [standard set of safety guidelines](#).

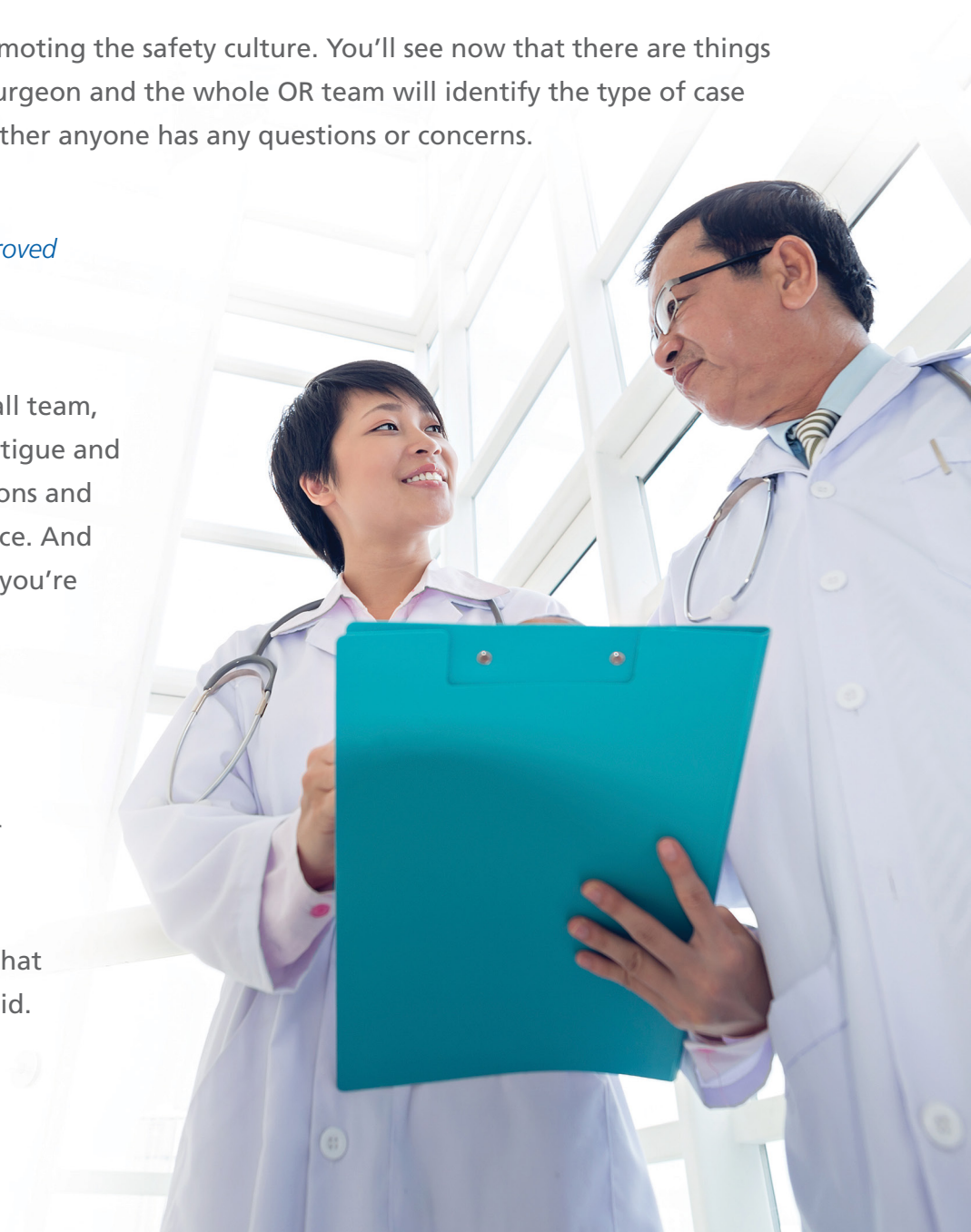
In an effort to [improve safety](#) and communication, some hospitals have attempted to expand the channels of communication within the OR. With this more level hierarchy, instead of the cardiac surgeon being the dominant communicator, everyone—including the perfusionist—can speak up with concerns.

“That’s been a big part of promoting the safety culture. You’ll see now that there are things called ‘time-outs’ where the surgeon and the whole OR team will identify the type of case they’re doing and discuss whether anyone has any questions or concerns.

“A lot of this has to do with improved communication,” said Darling

Because you’re a part of a small team, you’re exposed to the same fatigue and work-life balance issues surgeons and other medical professionals face. And like any medical professional, you’re not going to opt out of a case because of fatigue.

“Now, we’re starting to recognize there’s a reason pilots will not fly a plane after 10 hours, because there’s a connection between fatigue and the ability to perform at that level of judgment,” Darling said.



TREND NO. 4:

Advancements In Skills Acquisition

Pilot safety and perfusion safety have more in common than you might think. In addition to work-hour restrictions, pilots hone their talent using flight simulators. Though still in its infancy, the [simulation environment](#) is beginning to make its way into perfusion programs. Simulators are not just for students: Perfusionists at all levels of practice can benefit from using a high-fidelity simulator.

“Right now, we’re in the process as a profession to actually define the standards of a high-fidelity perfusion simulation. Within a year or two, we’ll start having accredited simulation centers,” Darling said. “If people want to bring a whole team in and do crisis management training, that can be done. If people want to come in and do pump runs and simulated cases for certification credit, that could be done as well. This is an exciting area in our field that is just starting to emerge.”

TREND NO. 5:

Increased Use of Adult ECMO

The emergence of the H1N1 flu virus has led to increased use of ECMO for children and adults who develop severe respiratory complications from the illness. From 2006 to 2011 alone, there was a 433 percent [increase in adult ECMO cases](#).

The simplification of ECMO—with improvements in equipment such as the oxygenators, pumps and cannulas—has also played a role in the increase of cases.

“... There has been movement toward simplification and miniaturization of ECMO circuits. These simplified circuits increase the portability of ECMO systems and require less intensive maintenance and monitoring. In addition, a number of recent advances have occurred in cannula, oxygenator and pump technology that may contribute to improved outcomes,” reports Dr. David Turner the [Respiratory Care Journal](#).

As a result, more and more hospitals want to create adult [ECMO programs](#) in their own facilities.

“With the simplification of ECMO, hospitals are starting to reconsider the idea that they could provide this service, and they can now perform this service without losing money. Those two things together have made it more desirable for hospitals to keep an ECMO program,” said Darling.



TREND NO. 6:

Branching Out of the OR

These days, you can operate the heart-lung machine in the OR and be a part of (or lead) the ECMO team at a facility, setting up, running and troubleshooting the ECMO machine. As a result, Darling says that perfusionists should become familiar with ECMO technology and its increased use. Learning these techniques can allow you to enhance the career's traditional CPB role by expanding your skill set and branching out from the OR.

Like Katie, you know the career ladder is limited. "It's not that there's not a lot of things you can do within the career. Your primary job will probably always be very, very clinical," Darling said. ECMO "would certainly be another option for people. If somebody wanted to expand their horizons, there are probably directions that they can move toward in terms of ECMO coordination that might be interesting."

However, because of staffing constraints, doing both OR and ECMO procedures often means you're stretched thin.

Often, the perfusion team will train a respiratory therapist or nurses to run the pumps because ECMO lasts several days or even weeks, and requires more manpower than the perfusion team has available, said Darling.



Achieving Work-Life Balance

You deal with many of the same work-life obstacles surgeons and other medical professionals face: You're on call and work long, sometimes unpredictable shifts. While surgeons don't usually experience staff shortages, in many hospitals, the perfusion staff is thin, which can mean you are a part of an overworked, fatigued perfusion team.



In a 2010 survey, 68 percent of perfusionists indicated they worked at their hospitals for more than 23 hours straight.

Nearly half of perfusionists reported having bursts of [microsleep](#)—an episode of light sleep lasting five to 10 seconds—during cardiopulmonary bypass.



4 Tips for Work-Life Balance

Physicians Practice recommends trying some of these tips to [balance your perfusionist career with life at home](#).



DITCH THE TECHNOLOGY:

You use a lot of technology while at work. At home (when not on-call), consider creating a “parking lot” for electronic devices. Setting technology aside allows for time to better connect with your friends and family.



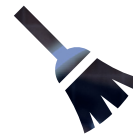
HAVE A GOOD START TO THE DAY:

Being on-call and working long hours can take a toll. Instead of focusing on the long day in front of you, try focusing on something more positive like the difference you are making in patients’ lives.



BE AWARE OF YOUR LIMITS:

Everyone has them, and it’s important to know what yours are. Take time to identify what’s important to you and make sure you have adequate time to enjoy those things. And remember, sometimes it’s important to say no.



OUTSOURCE TASKS AT HOME:

Sometimes the last thing you want to do after a long shift is cook supper or mow the lawn. Hiring a housekeeper or landscaper to take care of things around the house while you’re are at work could lighten the load.

Just 50 years ago, cardiac perfusion was born from complicated machinery and procedures on small animals. As the profession grew, perfusionists spent most of their work days in the OR. Today, you’ve got more career options—and opportunities to branch out of the OR—than your predecessors.

And as technology and procedures continue to evolve, so, too, will opportunities for you. Get started expanding your opportunities now. Discover the latest on ECMO technology and best practices [in this guide](#).



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