AmSEC***TOMORROW***

TIMEOUT

Staffing Company Spotlight: Keystone Perfusion Services Expands into Normothermic Regional Perfusion, Establishing a New Standard in Organ Recovery

BY: SARAH RAMADAN, TJU

Keystone Perfusion Services, a trusted name in the perfusion staffing world, is expanding its reach into the rapidly growing field of Normothermic Regional Perfusion (NRP). A long-time leader in Perfusion Staffing Services, the company has quickly solidified itself as setting a gold standard in NRP, thanks to a strategic move that began with a single Organ Procurement Organization (OPO) relationship and quickly blossomed into a comprehensive service offering.

I recently had the privilege of sitting down to discuss with Michael Hancock, CCP: Keystone’s Vice President and an Anatomy and Pathophysiology professor at Thomas Jefferson University’s Cardiovascular Perfusion program.

“Keystone’s NRP expansion was driven by a simple idea: no transplant center should be limited by staffing when it comes to saving lives. By providing skilled teams on demand, we help make the gift of organ donation a reality in places where it wasn’t previously possible,” says Hancock, “We aim to maximize donation opportunities and improve patient outcomes by developing an NRP service line that not only helps Organ Procurement Organizations, but also Transplant Centers,”

Since its initial foray into NRP, Keystone Perfusion Services has achieved remarkable milestones, completing over 700 NRP cases in its very first year. Their impressive pace continues, with projections indicating they will exceed 2,500 NRP cases in their second year. Along with this, Keystone anticipates completing over 400 surgical organ recoveries outside of the NRP arena during the same period.

In this Issue:

This growth has been fueled by the leadership of Dr. Scott Silvestry, the company’s Chief Medical Officer for Organ Recovery Services and Chief of Cardiothoracic Surgery at the University of Arizona College of Medicine – Tucson. Under Dr. Silvestry’s guidance, the company has established a world-class roster of recovery surgeons.

“Our expansion into NRP wasn’t just about growth — it was about equity. Too many transplant centers lacked access to this life-saving technology because they didn’t have the surgical teams to perform it,” says Dr. Silvestry. “We saw an opportunity to close that gap and bring NRP within reach for more programs and more patients. By stepping in to fill that gap, we’re not only expanding services — we’re expanding possibility.”

Impact on the Organ Shortage: Increasing the Donor Pool

One of the most transformative aspects of Normothermic Regional Perfusion is its potential to significantly increase the donor organ pool and combat the ongoing shortage. NRP enables the recovery of organs from donors who would otherwise not be suitable for donation, particularly in cases of donation after circulatory death (DCD). By maintaining organs at a near-body temperature and perfusing them with oxygenated blood, NRP helps preserve their function and allow for real-time assessment of their viability for transplantation, even after a prolonged ischemic period.

“As we expand our NRP capabilities, we are contributing directly to alleviating the critical shortage of available organs for transplant,” Hancock noted. “By allowing real-time organ evaluation and improving the physiologic conditions in the tissue prior to preservation, NRP has the potential to increase the donor pool significantly and ultimately save more lives.”

TIMEOUT (CONT.)

Building on Success: Expanding Surgical Capabilities
Keystone’s success in the thoracic recovery space has set the stage for further expansion. The company is actively working to expand their presence in the abdominal organ recovery arena, particularly in the area of machine perfusion.
“As we continue to build our presence across the country, we are excited to explore and expand our capabilities in the abdominal space,” Hancock said. “In the last 18 months, we have seen a tremendous increase in both thoracic and abdominal organs recovered using NRP and machine perfusion. Keystone is committed to working with our OPO and Transplant Center partners to provide the right service for their needs to enable more organs to get to the patients in need.”
Keystone is not just focused on expanding its capabilities – it is committed to setting the standard in comprehensive organ recovery. This includes offering services that cover surgical organ recovery, machine perfusion, and perfusion support. Through this integrated approach, Keystone seeks to redefine what it means to provide top-tier organ recovery services.

Looking Ahead: A Bright Future for Keystone Perfusion Services
The future for Keystone Perfusion Services looks incredibly promising. As they continue to grow and diversify their service offerings, the company is poised to become an even bigger player in the organ recovery and perfusion landscape. With ongoing efforts to expand its surgical capabilities and further refine NRP techniques, Keystone’s commitment to excellence in patient care remains unwavering.

“It’s about making every potential donor count and giving every recipient a fighting chance.” — Dr. Scott Silvestry, Chief Medical Officer for Organ Recovery Services

ANNOUNCEMENTS

Back in March the AmSECT International Conference was held in sunny San Diego! Check out **Pg.3** for some picures!

Congratulations to Ethan Leffler & Clay Strawn for defending Rush University as Perfusion Bowl Champions!

Stay tuned to see who will take over as student council officers for 2025-2026!

HAVE HEART

2024-2025 Student Council @ AmSECT International Conference

Students enjoying the social event sponsored by Keystone Perfusion Services!

Anna Cromer, Aubrey Olson, Zach Roberts, Ian Villavicencio, & Zach Zappa celebrating a successful year for student council!

SPECIAL CONSIDERATIONS

Pregnancy and Cardiopulmonary Bypass

BY: SIMRAN SINDHU, RUSH

Cardiopulmonary bypass (CPB) during pregnancy poses significant risks to the mother and fetus due to alterations in maternal physiology and fetal circulation, despite scientific advancements in CPB techniques. In this paper we will discuss the considerations and precautions to take when performing CPB on pregnant women to maximize maternal and fetal safety. Cardiac surgery is often only recommended for pregnant women if they fall in these **6 categories**:

1- Cardiac conditions requiring CPB causing hemodynamic instability:
• Congenital heart diseases/valvular lesions (Aortic Stenosis (AS) or mitral stenosis (MS)), valvular regurgitation, and prosthetic valve dysfunction
• Acquired cardiac diseases (Aortic Dissection (AD), aneurysm, Endocarditis, and Myocardial Infarction (MI))
• Cardiomyopathy (dilated or peripartum)
2- Coronary and Vascular Emergencies
• Coronary Artery Disease (CAD) or Pulmonary Embolism (PE)
3- Tumors or Masses
• Cardiac myxomas or intracardiac thrombi
4- Aortic Pathologies
• Type A AD or severe Aortic aneurysm (Song 2022)
5- Trauma or Iatrogenic injury
• Penetrating or blunt cardiac trauma or iatrogenic injury (catheter-related vascular damage)
6- Failed medical management and Cardiopulmonary Resuscitation (ECPR)
• Maternal cardiac arrest or failed medical therapy and/or catheter-based interventions.

With these indications, let's list the considerations and precautions to take when dealing with such rare and complicated cases. Firstly, the trimester the woman is in should be taken into consideration since per data collected second trimester is the safest trimester to conduct cardiac surgery both for the mother and the child. Cardiac surgery in the first trimester increases teratogenic risks, risks for miscarriage, and can lead to congenital malformations; therefore, CPB should be avoided unless absolutely necessary. As for third trimester, there is a risk of preterm labor and/or cesarean section prior or post-surgery if fetus is viable (>28-32 weeks).

Perioperatively, perform a detailed evaluation of maternal underlying cardiac pathology, hemodynamic stability, and cardiac function. As well as assess fetal viability, gestational age, continuous fetal heart monitoring (FHR) for fetuses (>24 wks.), and use an ultrasound to look for placental position and amniotic fluid levels. When building the CPB circuit and performing CPB, use a low-resistance oxygenator with minimal tubing length to optimize perfusion pressure. Maintain high-flow, high-pressure perfusion (2.5-3.0 L/min/m2) to support uteroplacental perfusion maintaining hematocrit levels of >30% to optimize oxygen delivery. If available, use pulsatile flow to enhance placental perfusion. Moreover, maintain maternal mean arterial pressure (MAP) > 70 mmHg to ensure uteroplacental perfusion and use normothermia (35-36°C) to avoid reduction in uterine blood flow. These considerations should be practiced in addition to regular patient safety protocols (PaO_2 > 100 mmHg, $PaCO_2$ ~ 35-45 mmHg, SaO_2 > 95%, and ACT > 480 seconds).

Post-operatively, stabilize maternal hemodynamics and extubate early if possible. Monitor fetus using ultrasound and FHR tracing for traces of placental abruption. Use antithrombotic therapy to prevent thromboembolism if need be. Lastly, evaluate neonates in case of preterm delivery or emergency cesarean. In conclusion, because CPB during pregnancy poses significant risks to the mother and fetus it is important to take special considerations and precautions when undertaking this task to maximize maternal and fetal safety.

References:

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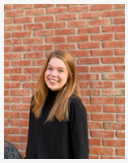
Sepehripour, A. H., Lo, T. T., Shipolini, A. R., & McCormack, D. J. (2012). Can pregnant women be safely placed on cardiopulmonary bypass?. Interactive cardiovascular and thoracic surgery, 15(6), 1063–1070. https://doi.org/10.1093/icvts/ivs318
Song, S., Lu, L., Li, L., Peng, H., & Wu, X. (2022). Antepartum acute Stanford type A aortic dissection: a case report and literature review. Journal of cardiothoracic surgery, 17(1), 73. https://doi.org/10.1186/s13019-022-01817-7

BACK TO THE STACKS



BY: ISABELLE TEASEL, NKU

Positive pressure is generated post-centrifugal pump to propel blood forward for proper perfusion. Throughout graduate programs, students will experience feelings of stress and anxiety which can become overwhelming. Stress can take many forms from quizzes, exams, simulation labs, and clinical rotations. Failures can seem devastating, even in a controlled setting. The perfusion profession will also run into stressful, high-stake situations that come with the nature of the operation room. Tunnel vision can also cloud our surroundings and skew our judgment, and it will be a continuous battle despite the length of experience.

As students, we should strive to recognize these behavioral patterns earlier on for continuous growth and development. Being aware of academic and performance self-handicapping mechanisms and practicing accountability and integrity can enhance performance and attitude. During these trials, why not use “positive” pressure to create positive results? Use the failures, mistakes, and obstacles to your advantage for further improvement upon cognitive and psychomotor skills. Incorporate your learning techniques and strategies to improve recall for future scenarios.

Similar to perfusion checklists, we can perform our due diligence and utilize surrounding resources. Our professional objectives include quality patient care and safety with continuous learning. As students head into clinical rotations, we should rely on our academic foundation, investigate new information, utilize provided resources, and not hesitate to ask questions. With the support of your peers or coworkers, we can gain insight, knowledge, trust, and confidence. Therefore, we use the positive pressure of stress to propel us forward for continuous growth as individuals and professionals.

GOOFS & BLUNDERS

SUBMISSIONS BY STUDENT COUNCIL MEMBERS

I held up cannulation because I accidentally de-primed my circuit during clamp and cut. Felt like the whole room was staring!

Walked into the perfusion office and asked what I should do with some STS forms the surgeon didn’t fill out. Turns out the surgeon was sitting right next to the perfusionist I asked. I totally didn’t recognize him without a mask and scrub cap!

I forgot to close the line from the cell saver bag to a transfer bag and a new bowl ran up and proceeded to drip out all over the cell saver!

I was handing up lines and the tape that keeps the clamshell closed got stuck around my hand. The surgeon had to watch me (for what felt like minutes) struggle to get this tape unattached from me so I could fully open the clamshell sterilely.

Additional Resources:

The AmSECT website has a helpful page with information about different charitable organizations that provide cardiac care: https://www.amsect.org/About/Awards-Designations-Scholarships/Cardiac-Missions/Charitable-Organizations

THE RESERVOIR

AmSECT Student Membership

Student membership is FREE! Register now and become an official part of the perfusion community.
https://www.amsect.org/Members/Student-Corner

Before you go...

The AmSECT Student Council exists to promote student involvement within AmSECT. While our current members hail from over 16 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, the perfusion bowl, 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, pre-perfusion coordinator, events, and perfusion bowl coordinator. The Student Council meets monthly via Zoom for one hour, so the time commitment is designed to be manageable! Don't forget to sign up to come to the annual AmSECT Conference in the spring! It's a great way to network and see the student council in action.

INTERESTED IN JOINING THE STUDENT COUNCIL?

PLEASE EMAIL 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 OUR TEAM.