



The Academy NEWSLETTER

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OF
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SUMMER 2009

31st Annual Seminar of The American Academy of Cardiovascular Perfusion

Put it on your calendar. Next year's Annual Academy Meeting will be held in Nashville, Tennessee, January 28-31, 2010. Also known as the Music City, Nashville is noted for its culture and history, great food, outstanding academics, natural beauty and southern charm. In 2008, the Today Show on NBC, named Nashville one of the five friendliest cities in America.

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31st Annual Seminar

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The impact of the economic downturn (and pending recovery) is on everyone's mind these days. Things that we took for granted, like buying a car, owning a home, borrowing for your children's education and having a secure retirement savings can no longer be thought of as a "right".

In a similar vein, hosting a successful national perfusion meeting can no longer be taken for granted. For the Academy to be successful, we need the continued support of the medical industry (and are grateful for our sponsors), we need a strong national office (and are grateful for the work of Jill and David Palanzo) and we need strong leadership from the membership, who are willing to volunteer their time and talents.

At the last Academy Meeting in Dallas, the Council addressed many issues that impacted the financial health of the Academy and made a number of recommendations to maintain or improve the bottom line without sacrificing scientific and educational missions and contemporize communication with the AACP membership, sponsors and the entire industry. I wanted to provide a portion of that list for you at this time, which were approved by the membership:

(1) Recommendation to Eliminate Sponsor's Saturday Night Reception for the 2010 Annual Meeting. Potential AACP savings of \$7,000.00. Continue with the "Hands-On Workshop Event".

(2) Recommendation to enhance the AACP Newsletter and make it "Electronic." Potential AACP savings of \$13,500.00 annually. The cost of an "Electronic AACP Newsletter" is around \$5,000.00. This would allow quarterly newsletter communication and greater manufacturing and sponsor access. More advertising and promotional activity could also be a benefit and access to more people in the industry.

(3) Recommendation to Pursue Alternatives to "Printed Proceedings." Current AACP costs are \$21,000.00 annually.

(4) Recommendation that AACP Program Committee utilizes local or proximal speakers to meeting sites. This allows AACP savings in travel expenses and lodging.

(5) Recommendation that a disclosure form is mandated for all presenters and information to be included in the presentation.

(6) Recommendation to explore or modify breakfast-lunch servings at annual meeting. Cost of one breakfast is around \$4,800.00.

(7) Recommendation to Form an "E" Academy Committee to assist the society and national office with transition to electronic format.

(8) Recommendation to establish an Evidence Based Perfusion Committee. Ensure Academy representation working with the Society of Cardiac Anesthesia and the Society of Thoracic Surgery; writing transfusion and other perfusion-related guidelines.

(9) Recommendation to continue support of the International Committee of Evidence Based Practice (ICEBP) and work to improve committee participation.

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(10) Recommendation for the formation of a Student Liaison Committee to assist students and new graduates and strengthen their participation and inclusion as well as membership of the AACP.

I am confident that these changes will make the Academy even stronger and more relevant during these challenging times. With that said, I also need your commitment to make the Nashville meeting a big success. The abstract deadline is October 15, 2009. All papers that are presented at the Academy are submitted to the journal *Perfusion* for peer review and publication.

So whether you are a student in training, new hire or an experienced perfusionist, I invite you to attend, and more importantly, to participate in our upcoming meeting. It will be an experience you don't want to miss.

With fond regards,

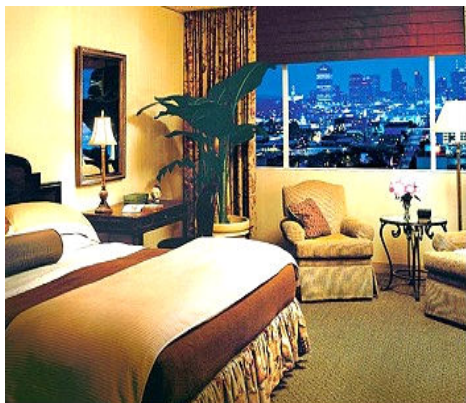
Ian R Shearer, CCP, LP
President, AACP 2009

Our 2009 Host Hotel Loews Vanderbilt Hotel

\$179 per night

Single or Double Occupancy

Reservations: 800-336-3335



In-room Amenities

- Sealy pillow-top mattress covered in 300-thread-count, 100% cotton linens
- 100% combed and ring-spun terry towels and bathsheets
- Lather skin and body care products made from the most unique, effective natural ingredients on the planet
- The "Ultimate Doeskin" robe by Chadsworth & Haig
- Flat-screen TV
- On demand movies
- Iron and ironing board
- Hairdryer
- Wake up calls recorded by Nashville entertainers such as Vince Gill, Amy Grant and Brenda Lee
- 24-hour room service
- Keurig single cup brewer with Emeril's Coffee
- Minibar
- Loews Evening Service
- Complimentary newspaper delivery daily
- In-room safe

In-room Business Amenities

- High-speed Internet access
- Two digital phone lines with voicemail

31st Annual Seminar of The American Academy of Cardiovascular Perfusion

Loews Vanderbilt Hotel

Nashville, Tennessee

January 28-31, 2010

Thursday, January 28, 2010

9:00 AM – 1:00 PM	Council Meeting
10:00 AM – 3:00 PM	REGISTRATION
2:30 PM – 4:30 PM	Fireside Chats
5:00 PM – 7:00 PM	REGISTRATION
5:00 PM	Opening Business Meeting
	<i>Fellow, Member, Senior and Honorary Members</i>
5:30 PM – 8:00 PM	Sponsor's Hands-On Workshop & Reception

Friday, January 29, 2010

7:00 AM – 8:00 AM	Breakfast
7:00 AM	REGISTRATION
8:00 AM – 9:30 AM	Scientific Session
9:30 AM – 10:00 AM	Break
10:00 AM – 11:30 PM	Scientific Session
11:30 PM – 1:00 PM	Lunch
1:00 PM – 3:30 PM	Special Scientific Session (Panel)
3:30 PM – 5:30 PM	Fireside Chats
6:30 PM	Induction Dinner
	<i>Fellow, Senior, Honorary Members & Guests</i>

Saturday, January 30, 2010

7:00 AM – 8:00 AM	Breakfast
7:00 AM	REGISTRATION
8:00 AM – 9:30 AM	Scientific Session
9:30 AM – 10:00 AM	Break
10:00 AM – 11:30 PM	Memorial Session
11:30 PM – 1:00 PM	Lunch
1:00 PM – 3:30 PM	Special Scientific Session (Panel)
3:30 PM – 5:30 PM	Fireside Chats

Sunday, January 31, 2010

7:00 AM – 8:00 AM	Breakfast
8:00 AM – 10:00 AM	Scientific Session
10:00 AM – 12:00 PM	Fireside Chats
12:30 PM	Closing Business Meeting
	<i>Fellow, Senior and Honorary Members Only</i>

All About our Corporate Partners

RETHINKING BLOOD CONSERVATION

Given the current state of economic indicators, hospitals are looking to their providers for innovative solutions that will drive costs out of their systems without negatively impacting the quality of care. One major area that appears to be a common thread not only in the U.S. but also in international markets is a renewed focus on blood conservation. The supply of banked blood as a transfusable resource is dwindling. Allogeneic blood transfusions are also associated with morbidities such as adult respiratory distress syndrome (ARDS), infections, atrial fibrillation and kidney or liver function complications. The problem does not necessarily stem from blood loss during surgery but also from the trauma caused to red cells and clotting factors, and from the dilution of the patient's blood during routine cardiopulmonary bypass procedures.

Perfusionists should consider a variety of opportunities to incorporate innovative devices and modified techniques that lend to less blood trauma. A perfusion protocol that strives to embrace a multimodal-approach can begin with making basic changes in the custom pack design to:

1. Shorten line lengths where feasible to reduce prime volume.
2. Incorporate tip-to-tip bioactive coating.
3. Customize the cardioplegia circuit to reduce hemodilution.

The obvious intent for reducing prime volume is aimed at maintaining a higher on-pump hematocrit thereby reducing the conditions that might warrant transfusing the patient with homologous blood products. A recent study reported patients transfused during elective coronary artery bypass graft (CABG) surgery had twice the five-year mortality as those who were not transfused.¹

The use of pre-configured reduced-prime coated circuits and the closed-to-air "no reservoir" coated circuits is beginning to gain momentum as a means for further reducing prime volume, maintaining higher on-pump and post-bypass hematocrit levels,² reducing the need for homologous transfusions², reducing platelet activation and reducing the activation of the systemic inflammatory response.²

A recent retrospective study compared the records of 2,877 patients who underwent surgery using a conventional open-reservoir cardiopulmonary bypass circuit with records from

1,633 patients using a coated closed-circuit with a collapsible venous reservoir. Any suction blood was processed using cell washing before re-infusing. The results demonstrated a statistically-significant benefit in the following:³

- Lower post-operative peak values for both serum creatinin and bilirubin;
- A significantly-reduced risk for receiving an intra-aortic balloon pump, a lower incidence for atrial fibrillation, ventricular arrhythmias, and cardiac arrest;
- A better regulated coagulation cascade associated with less post-operative bleeding;
- A significantly shorter post operative stay.

The majority of cardiac surgery teams still employ reinfusing shed pericardial blood directly into the extracorporeal circuit via a cardiectomy filter to preserve autologous blood volume.

It is documented the use of cardiectomy suction is associated with a more pronounced systemic inflammatory response and a resulting coagulopathy as well as exacerbating the microembolic load.⁴ Cell salvage using an autotransfusion device, like the Medtronic autoLog®, is recognized as a routine alternative to cardiectomy suction as it attenuates the deleterious effects of the reinfusion of cardiectomy suction blood and preserves the red cell mass.⁴



autoLog®

These studies^{1,2,3,4} demonstrate that a multimodality approach for a blood conservation and transfusion management program aimed at cardiac procedures requiring cardiopulmonary bypass may benefit the patient. The practice guidelines for peri-operative blood transfusions

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Clinical Support Specialist

Medtronic Cardiovascular
Systems

Minneapolis, MN

and blood conservation published by the Society of Thoracic Surgeons and the Society of Cardiovascular Anesthesiologists⁵ depict the following devices and perfusion techniques for aiding blood conservation (p. S45 – S53).

- Open venous reservoirs membrane oxygenators.
- Prefer the use of centrifugal pumps for safety reasons.
- Maintain patient-specific heparin concentrations.
- Use heparin-coated bypass circuits.
- Routine use of red-cell salvaging.
- Use a low prime or minimized CPB circuit.
- Use intra-operative autotransfusion and cell-saving strategies.
- Use retrograde autologous prime techniques.



BioPump® BPX-80

The Structural Heart Division within Medtronic Cardiovascular is well suited for supporting these guidelines and complementing the perfusionists's endeavors at improved management of patient blood. The Resting Heart System® as a minimized closed-to-air cardiopulmonary bypass circuit "provides less hemodilution, platelet consumption, chest tube output, and lower post-operative blood loss than standard cardiopulmonary bypass."² It incorporates the BioPump® BPX-80 centrifugal pump which promotes safety and further compliments the improved blood handling of the circuit by reducing shear and hemolysis. The entire circuit has the Carmeda® BioActive surface which has a long-standing legacy that passivates the surface against platelet activation and prevents the coagulation cascade activation of factor XIIIa.⁶



Resting Heart System®

To prevent or reduce the amount of pericardial-sequestered blood that gets re-introduced into the circuit, the Medtronic autoLog® Autotransfusion System can promote an effective wash out of 90% or greater and consistently produce a hematocrit of 50% or greater, which is in accordance with AABB guidelines.⁷ Anticoagulation management with the HMS Plus Hemostasis Management System creates the patient's heparin dose-response for controlling patient-specific anticoagulation and antithrombotic effects. Measuring only the Activated Clotting Time (ACT) is not always a reliable indication of adequate heparinization or whether an appropriate antithrombotic state has been achieved.^{8,9} Clinical studies published by Hill and Despotis^{10, 11} have demonstrated incorporating heparin management produces fewer complications associated with excessive blood loss and preservation of the coagulation system with fewer transfusions.



**HMS Plus
Heparin Management
System**

As hospitals and service providers continue to look for ways to reduce costs and improve clinical outcomes, a dedicated QI team focused on blood conservation might be a good place to start. It appears that blood utilization and expense is a known problem area but many institutions are looking for assistance in driving team change in a way that has impact.

As a world leader in delivering innovative approaches to medical education, Medtronic offers a comprehensive, evidence-based program for cardiac teams on blood management, called the RBC Initiative; RBC Initiative (Rethinking Blood Conservation). This multi-modality approach to blood conservation was developed in collaboration with key opinion leaders and is designed to facilitate learning and implementation of new techniques to reduce clinical complications and economic costs related to blood use.

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The RBCSM Initiative

advocates a multi-modality approach
to blood conservation

Important Academy Dates

The ACADEMY ANNUAL MEETING DEADLINES

ABSTRACT DEADLINE	October 15, 2009
MEMBERSHIP DEADLINE	November 28, 2009
PRE-REGISTRATION	December 29, 2009
HOTEL REGISTRATION	December 29, 2009
2010 ANNUAL MEETING	January 28 - 31, 2010

Others Meetings

Update on Perfusion Devices

October 22-24, 2009

Medical University of South Carolina

Charleston, South Carolina

Website: <http://sites.google.com/site/perfusiondevices/>

Contact Phone: 843-792-2445

Contact Email: acselljr@musc.edu

CSCP 2009 Annual General Meeting and Scientific Sessions

October 24-28, 2009

Shaw Conference Center

City, State, Zip: Edmonton, Alberta, CANADA

Website: www.cscp.ca

Contact Phone: 1-888-496-2727

Contact Email: eric.laliberte@hotmail.com

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their support of all Academy Programs.*

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TERUMO CARDIOVASCULAR SYSTEMS

Nashville's Key Attractions



Belle Meade Plantation

Once a world-renowned 5400-acre thoroughbred horse farm, the plantation showcases the 1853 Greek Revival mansion filled with original furnishings and a large antique carriage collection.

Country Music Hall of Fame and Museum

The world's largest music museum is also an exciting and entertaining destination with something for everyone.

General Jackson Showboat

— the greatest entertainment afloat

Lunch and dinner cruises with country music shows and a variety of entertainment.

Adventure Science Center

Go on a scientific adventure the entire family will enjoy. Take a journey through the human body and see what goes on beneath the skin at BodyQuest. Blast off into the sky at BlueMax. If you still have energy, visit the Adventure Tower - scale a wall of skin, lift a car and let your imagination go wild.

Grand Ole Opry

The Grand Ole Opry has hosted thousands of prestigious and memorable performance and events from the CMA Awards and the Gospel Music Awards to special appearances by Dolly Parton, Elton John and Bruce Springsteen. See the concierge for schedules.

The Hermitage

Explore the site that former President Andrew Jackson once called home. Wander through the halls of this mansion and visit the formal garden, slave quarters and the original log cabin the Jacksons once occupied. The plantation was home to more than 150 slaves who worked the farms, cultivated livestock and tended gardens. Take a voyage into the past with Stories from the Slave Community and get a glimpse into the lives of those that contributed to the maintenance of the country's most authentic presidential home.

Variety is what awaits you in Nashville: you'll find everything from Tin Pan Alley torch songs to world-class performing arts, from the Cheekwood Museum of Art and Botanical Gardens to the Music Valley Wax Museum of the Stars, from kiddie league to professional sporting teams. So dust off your boots or shine up your opera glasses and experience the excitement of the Country Music Capital of the World.



Nashville Zoo at Grassmere

Explore a wild kingdom with more than 350 species of exotic animals, including Bengal tigers, zebras, cheetahs, ostriches and river otters. Discover the habitats the animals call home and get up close and personal with the critters in the petting zoo.

Ryman Auditorium

The original home of the Grand Ole Opry, the Ryman Auditorium has showcased some of the country's best talent, from Roy Acuff to James Brown and Patsy Cline to Sheryl Crow.



The Student Section

Evidence-Based Medicine: Genotyping for High Risk Polymorphisms Related to CPB

Risk minimization is an important aspect of perfusion, involving the identification of potential harms and addressing these by a thorough analysis of cause and effect, ultimately leading to changes in protocol. Over time, elimination of the majority of known risks leads to improvements in outcome. The success of perfusion has, and will continue to be, at least partially attributed to this important process.

Since the inception of cardiopulmonary bypass (CPB), many risks have been addressed and lives spared because of it. Early open-heart surgery utilizing CPB was plagued by difficulties and resulted in unacceptable mortality, often due to human error. Early patients faced the risk of massive air embolism from high flow rates, resulting in emptying of the venous reservoir. This risk has been minimized by the use of level detectors and in-line bubble detectors, as well as the utilization of techniques that allow for lower flows, such as hypothermia. Similarly, risk of surgery-induced coagulopathy has been minimized by the advent of activated clotting times and point-of-care hemostasis monitoring.

Current risk minimization has become more sophisticated, and will continue down this path as our body of knowledge and use of technology develop. Patients may be screened for hemoglobinopathies, cold-agglutinins, and other acquired or genetic traits that could interfere with their treatment or recovery. Patients with Sick cell trait or disease may go on bypass like any others, using additional precautions to prevent desaturation, acidosis, and resultant sickling. Our sophisticated knowledge of the biochemical processes responsible for clotting, renal and other functions allow us to pinpoint treatments for individual patients based on evidence of their underlying pathology. Thromboelastograms are coming into use more frequently for monitoring patient hemostasis with increased fidelity.

Evidence-based treatment for CPB has great potential in the future, given the completion of the human genome project and increased understanding of genetic and molecular biology. Single-nucleotide polymorphisms (SNPs) are single base-pair substitutions that occur frequently in human genes, often altering the resulting function of any protein derived of that coding sequence. They can even increase or

decrease production when in untranslated regions surrounding genes. SNPs may affect the pharmacokinetic or pharmacodynamic properties of a drug, or change how ligands and receptors interact with one another. Complex traits, such as autoimmune disease, heart disease, and diabetes are thought to be related to numerous genetic polymorphisms.¹

One example of SNPs which hits close to home is in the alpha-1 adrenergic receptor. At least two of these have been found to reduce the binding affinity of agonists such as epinephrine, norepinephrine, and phenylephrine, reducing the potency of these drugs in some individuals.² This could explain why some patients are more or less responsive to vasopressors on bypass and during recovery. Knowledge of these traits beforehand could be used to guide therapies, or at least to increase the information surgical teams have access to in order to more safely base expectations.

Polymorphisms in beta1-adreno- receptors and in platelet receptors also have important clinical implications. Beta1 SNPs have been shown to alter contractility in isolated atrial appendages, as well as alter heart rate and blood pressure response in dobutamine treated subjects.³ Polymorphisms in platelet glycoprotein receptors have been shown to increase inherent activity and predispose to arterial thrombosis, contributing to decreased neurocognitive function following CPB.⁴ Perhaps knowing of these risks in susceptible populations, better care could be taken in prevention. It may be likely that other common CPB-related injuries have genetic predictors which have yet to be elucidated.

In the future our knowledge of polymorphisms and other biomarkers related to CPB morbidity and mortality will improve and screening for them will become more cost effective. Some researchers see point-of-care testing for common biomarkers of cardiovascular disease a reality in the near future.⁵ Perfusionists should be interested in this possibility as a means of improving patient care and as a way to add to our expanding arsenal of abilities and expertise. Imagine having your pump primed and set up in the OR, then drawing blood to use for genetic screening, platelet gel, and stem cell harvesting prior to bypass. These could be a reality, and we should feel empowered to have the

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increasing opportunity to tailor treatments to patient need, and become educated on research in new areas in order to advocate better care for our patients. The future is developing now, and if we keep our eyes open, we can take part in it.

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Excerpts from AdvaMed's (Advanced Medical Technology Association) Revised and Restated Code of Ethics

CODE OF ETHICS ON INTERACTIONS WITH HEALTH CARE PROFESSIONALS

I. Preamble: Goal and Scope of AdvaMed Code

The Advanced Medical Technology Association ("AdvaMed") represents companies that develop, produce, manufacture, and market medical products, technologies and related services and therapies used to diagnose, treat, monitor, manage and alleviate health conditions and disabilities ("Medical Technologies") in order to enable patients to live longer and healthier lives. AdvaMed is dedicated to the advancement of medical science, the improvement of patient care, and, in particular, the contributions that high quality, innovative Medical Technologies make toward achieving these goals.

The Purpose of the Code of Ethics

AdvaMed recognizes that Health Care Professionals' first duty is to act in the best interests of patients. Companies can serve the interests of patients through beneficial collaborations with Health Care Professionals. To ensure that these collaborative relationships meet high ethical standards, they must be conducted with appropriate transparency and in compliance with applicable laws, regulations and government guidance.

VIII. Modest Meals Associated with Health Care Professional Business Interactions

A Company's business interactions with Health Care Professionals may involve the presentation of scientific, educational, or business information and include, but are not limited to, the different types of interactions described in Sections III through VI of this Code of Ethics. Such exchanges may be productive and efficient when conducted in conjunction with meals. Accordingly, modest meals may be provided as an occasional business courtesy consistent with the limitations in this section.

Purpose. The meal should be incidental to the *bona fide* presentation of scientific, educational, or business information and provided in a manner conducive to the presentation of such information. The meal should not be part of an entertainment or recre-

ational event.

Participants. A Company may provide a meal only to Health Care Professionals who actually attend the meeting. A Company may not provide a meal for an entire office staff where everyone does not attend the meeting. A Company also may not provide a meal where its representative is not present (such as a "dine & dash" program). A Company may not pay for meals for guests of Health Care Professionals or for any other person who does not have a *bona fide* professional interest in the information being shared at the meeting.

IX. Educational Items; Prohibition on Gifts

A Company occasionally may provide items to Health Care Professionals that benefit patients or serve a genuine educational function for Health Care Professionals. Other than medical textbooks or anatomical models used for educational purposes, any such item should have a fair market value of less than \$100. A Company may not provide items that are capable of use by the Health Care Professional (or his or her family members, office staff or friends) for noneducational or non-patient-related purposes, for example, a DVD player or MP3 player/i-Pod.

A Company may not give Health Care Professionals any type of non-educational branded promotional items, even if the item is of minimal value and related to the Health Care Professional's work or for the benefit of patients. Examples of non-educational branded promotional items include pens, notepads, mugs, and other items that have a Company's name, logo, or the name or logo of one of its Medical Technologies. Companies also may not provide

Health Care Professionals with gifts such as cookies, wine, flowers, chocolates, gift baskets, holiday gifts or cash or cash equivalents.

For more information, plan to attend the "Impact of Health Care Reform Panel" at the AACP meeting in Nashville.

All About our Corporate Partners

Total Systems Approach From Sorin Group

Jennifer Dasher, Cardiopulmonary Equipment Product Manager, Sorin Cardiopulmonary
 Shanna Schmidt, CPE Technical Sales Specialist, Sorin Cardiopulmonary
 Larry Petree, Cardiopulmonary Disposables Disposable Manager, Sorin Cardiopulmonary
 Christine Wolfe, Pack Tubing Sets Associate Product Manager, Sorin Cardiopulmonary
 Dave Wyss, Autotransfusion Marketing Manager, Sorin Cardiopulmonary
 Leslie Snow, Marketing Director, Sorin Cardiopulmonary

Sorin Group is a Global Medical Device Company and a Leader in the Treatment of Cardiovascular Diseases with three core business units supporting Cardiopulmonary, Cardiac Rhythm, and Heart Valve patients. One million patients are treated every year with Sorin Group devices in over 80 countries. Our product portfolio and support services are continually under development to meet the changing and challenging clinical needs critical to providing optimal patient care and positive outcomes.

Our Total Systems Approach is the factor that differentiates Sorin Group. The creation of products and services that touch all aspects of Cardiovascular Perfusion for not only the Perfusion team but also the entire surgical team, and ultimately the patient, is our focus. A system that delivers solid heart-lung machines and accessories, extensive autotransfusion devices, the widest range of oxygenator choices, customized tubing packs, low prime engineering and innovative endoscopic vein harvesting are at the heart of Sorin Group's goals.

Our Total Systems Approach is developed and designed to align the same focus and quality on all Sorin Group products and services. With the development of each product line, you are ensured that the latest technology offers a full spectrum of benefits to meet the entire scope of your responsibilities while also saving you time and money—without compromising the best option of care for your patients. To better understand the benefits of this approach and share our vision, keep reading to hear more on how each of our product lines come together to offer you a total system choice.

Heart Lung Machines

The heart-lung machine takes center stage for each of your clinical performances. You must have an intuitive and safe system to help meet the challenges you face with each and every patient. Sorin Group's heart-lung machines are unmatched in engineering, safety, intuitiveness,

and flexibility, and also allow you to customize and constantly expand your cardiovascular equipment needs. Our newest S5 HLM can be ordered in an array of sizes with table top and mast mount pump options, to include both centrifugal and roller pump technology. Utilize these pump sizes and options along with our selection of masts to reduce the size of your HLM footprint, move your circuit closer to the patient, and attain your low prime goals. Also choose from our vast accessory device offerings such as DMS, electronic perfusion record; 3T, 3 tank/3 circuit ice free heater cooler; EGB, electronic gas blender; EVO, electronic venous occluder; and Sat/Hct monitor. Customize your operator control desk so that safety and accessory features such as level, bubble, cardioplegia, pressures, temperatures, and timers are exactly where you want them to be. Complete your pump design with many different shelf, pump spacer, drip tray, cable guide, fast clamp cover, and sensor holder options to organize and simplify your operating environment.

Finally, manage your case with the peace of mind that you're using the latest advances in technology including direct drive motors, specially designed micro controller software, and optical encoders. A complete customizable system offering for your needs today and easily enhanced to meet your needs for tomorrow.

Data Management System

At the heart of Sorin Group's cardiopulmonary product line lives our robust electronic perfusion record system, DMS. This user friendly system pulls data into the perfusion record from your other Sorin Group products, as well as importing data from various external devices in your operating room. DMS creates an extensive perfusion case record customized to meet the specific needs of your organization. However, a legible and credible case record is merely one value found when using an electronic perfusion system. DMS allows a perfusionist to eas-

ily monitor operations, track disposable inventory, measure product efficiency and performance, improve technique, maximize productivity and most importantly, re-direct focus back to his/her patient.

Sorin Group's heart lung machines (HLM) connect directly to DMS and automatically records all data variables into the case record. Data parameters may be pulled directly from the HLM (pump flow, pressures, temperatures, alarms, etc), from all HLM accessories (SCP, EVO, EGB, 3T, SAT/HCT), and any other peripheral devices used in the OR (Cerebral Oxymeter, Online and Offline Bloodgas Analyzers, ACT Meters, Patient Monitors, etc.). DMS provides a logical arrangement for easy viewing of all desired parameters. By eliminating the need for a paper record and combining all values into one view screen, this system allows the perfusionist to focus his/her attention on the patient and the circuit keeping that patient alive.

Optimized Circuit

Preserving patient hematocrit is a concern for all perfusionists. While the answer appears simple, just make the circuit smaller, the performance and capability of that circuit cannot be compromised. You should always have the confidence to support a larger than expected patient or demanding clinical situation. Optimizing the circuit for priming volume is still possible by selecting specific components to

match the patient along with using a circuit designed for priming volume displacement techniques (aka RAP and APP) and optimal fit to your operating room. Our PrimOx oxygenator is perfectly suited for this challenge, offering the lowest prime volume available in a full capability adult oxygenator. Sorin Group Clinical Specialists can help design a optimal pack matched to high performance oxygenators, filters and components to meet your clinical needs and practices.

Customized Perfusion Circuit

Since no standard pack design can work for every perfusionist, Sorin Group prides itself in providing dedicated customization support to each of our customers. Applications Engineers, with unique clinical knowledge and device manufacturing experience, work closely with customers to optimize circuit design. They are dedicated to transferring the perfusionist's vision from the OR to the Sorin production floor and back to the OR again.

Customization gives the customer the freedom to select the devices and technologies that best meet their preferences and practice demands. By combining a low prime tubing circuit, highly competitive oxygenators, effective arterial filtration and designed devices to reduce hemodilution, our custom perfusion packs provide preassembled convenience and consistency, while aiding in the achievement of better bypass and improved patient outcomes.

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Total Systems Approach combines:

- Innovative Products
- Exceptional Service
- Extensive Support



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Blood Management Solutions

As a leader in Cardiovascular therapies, Sorin Group has provided Blood Management solutions for over 30 years. Salvaging the patient's own blood to achieve the clinical benefit, as well as addressing the high cost of transfusions has never been easier with the Sorin Group Electa Essential Concept or BRAT 2 autotransfusion devices. Whether the patient is a pediatric or an adult, the procedure is cardiac or orthopedic, Sorin Group has a solution to meet your needs. Sorin Group has the optimal solution for your Blood Management application.

Endoscopic Vessel Harvesting System

Sorin Group's ongoing commitment to the cardiac industry is not only evident through the development of innovative products and services but also our investment in acquiring new products that enhance the cardiac procedure.

Sorin Group recently acquired **ClearGlide** – Endoscopic Vessel Harvesting System -offering:

- Flexibility – System supports a wide variety of clinical approaches, patient anatomies and capital equipment
- Vessel Integrity – Precision bipolar produces a strong seal with uniform coagulation
- Patient Safety - ClearGlide uses an open CO2 system. With no reliance on closed insufflation, ClearGlide carries a lower risk of CO2 embolism
- Excellent Patient Outcomes - Less trauma, reduced wound morbidity and fewer complications

Utilizing Sorin Group equipment, disposables, and accessories together completes the product side of our total system approach but there's another side of our system approach that carries equal weight of the product offering. Support and service teams.

Our sales team specializes in keeping you up to date with the latest technology and product offerings. Locally based Account Executives spend time to understand your challenges and ensure we can match your needs and expectations. Our unprecedented locally based Technical Service Representatives take second position to install and maintain your investments once they get to you. They not only care for your products before during and after purchase but also offer training for your biomedical teams or post warranty maintenance contracts to ensure you always have a technical support option. Next up is our field based Clinical Specialists who will orient and in service your staff, help optimize the use of your products, and offer continued clinical expertise as your knowledge and needs grow. Behind the field teams are a group of Product Managers, Quality, Regulatory, Customer Service Agents, Manufacturers, Engineers, and Senior Managers all working together to ensure that our total system of products is fully aligned with our total system support team.

Total System of products, Total System of support designed to offer you a Total System Approach.

Contact Information for Our Sponsoring Partners

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MAQUET CARDIOPULMONARY

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MEDTRONIC PERFUSION SYSTEMS

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Websites: www.medtronic.com

www.perfusionsystems.com

QUEST MEDICAL, INC.

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