



The Academy NEWSLETTER

THE AMERICAN ACADEMY
OF
CARDIOVASCULAR PERFUSION
515A EAST MAIN STREET
ANNVILLE, PA 17003
(717) 867-1485 PHONE OR FAX
OFFICEAACP@AOL.COM
HTTP://WWW.THEAACP.COM

SPRING 2010

Editor

David Palanzo
Annull, PA

Contributing Editors

Tom Frazier
Nashville, TN

Kelly Hedlund
Hays, KS

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2010 Annual Seminar

This year's Annual Seminar was a big success. The meeting started off on Thursday afternoon with Fireside Chats. There were a total of 19 sessions conducted throughout the meeting covering many topics including aortic surgery, blood management, chemotherapeutics, ECMO, evidence-based medicine, minimally invasive cardiac surgery, pediatrics, safety, teamwork and VADs. The Fireside Chats continue to be ranked among the high points of the conference.

Thursday night's Sponsors' Hands-On Workshop and Reception allowed all attendees to meet and greet with old friends and acquaintances while examining our Sponsoring Partners' newest products.

The General Sessions started on Friday morning with scientific paper presentations. There were a total of 21 papers and a poster presented at the meeting which spanned all aspects of perfusion.

Two panels were held at this year's conference. Friday's session stressed the importance of developing a safety culture within perfusion and cardiac surgery. Members of the panel were Bruce Searles, CCP, Jeff Riley, CCT, CCP, Donald Likosky, PhD and moderator Robert Groom, MS, CCP. Saturday's panel gave the attendees an update on impact of healthcare reform on cardiac surgery. The gtpanel consisted of Terry Chang, MD, Marzia Leacche, MD, State Senator Diane Black and moderator Daniel Fitzgerald, CCP, LP.

The Memorial Session was filled with three very special presentations. Invited speaker, Pia Sprogø, ECCP delivered the Charles C. Reed Memorial Lecture. Pia addressed the audience on the development of perfusion education in Denmark. President Ian Shearer, BS, CCP, LP presented the Thomas G. Wharton Memorial Lecture. The title of Ian's talk was "Teamwork: A Necessary Requirement for Success." Another special presentation entitled, "The Art of Surgery" was presented by David Bichell, MD, Chief of Pediatric Cardiothoracic Surgery at Vanderbilt University.

Sunday morning focused on extracorporeal life support. There were several interesting case reports and a special presentation from John Pietsch, MD, Associate Professor of Pediatric Surgery at Vanderbilt University Medical Center entitled, "What's New in ECMO?"

This year's meeting was filled with excellent educational presentations, group discussions and social events.

The 2010 AACP Annual Seminar As Seen Through The Eyes Of Student Perfusionists

Elise Slack and Marie Fouts

Tucson, Arizona

We always learn a great deal at these meetings and this year's AACP meeting was no exception. As a student this conference allows you to become a part of a great organization and support our future profession. The AACP meetings always motivate us to continue to work hard in school, so that one day we may be a Fellow Member or a repeated presenter. We hope to be able to attend these seminars as a professional and contribute to perfusion in our future career.

Likes

The scientific sessions are always interesting to students because they seem to highlight some of the current issues in the profession. They also broaden the horizon for us students who may not see some of the special situations that were highlighted. Particularly, the ECMO sessions on Sunday introduced us to new applications for support. We also enjoyed the presentation on the new Heparin and some of its possible implications. As a student, these sessions get us to think critically about the current systems and protocols that we are using. They also emphasize new science and forward thinking which is very exciting. We enjoyed the interactive talk on safety and protocols. As a student we are not involved in developing protocols to ensure safety, however this talk helped us realize how important this really can be. Hopefully, in the future we will be able to be part of developing such protocols.

Dislikes

If we were to name a dislike or least favorite part of the meeting, it would have to have been some of the health care reform talks, not because of the content, but because the topic itself is confusing. We did not really get much out of the series of speakers, however, we have little experience with this topic and a more seasoned perfusionist may not have the same opinion. Also, if we were to put together a wish list of sorts for the meeting would say that a student job fair would be on the top of that list.

Favorite Things

The Sponsors' Hands-On Workshop and Reception was one of our favorite things, not just because of the free food! We had just recently acquired a MPS cardioplegia system at our main hospital, and it was nice to speak with the vendor about other applications for the system. They sent us some literature and we were able to present it to some of our instructors. We were able to troubleshoot a problem we were having and come up with a solution. It was also nice to see some of the other circuits and systems in use around the country. Additionally, it was also nice to mingle and network with perfusionists in a casual environment.

The Open Student Forum Fireside Chat was really informative and fun. Rich Melchior and Bill Riley did a great job to motivate us to become a part of the Academy as well as become a larger part of our future profession. They gave us great advice for our future and we truly appreciated the amount of time and thought they put into this fireside chat. It was also great to be able to ask them questions about the job market and future employment in a relaxed atmosphere.



Open Student Forum Fireside Chat

The 2010 AACP Annual Seminar As Seen Through The Eyes Of A New Fellow Member

Philip Fernandes
London, Ontario, CANADA

On Friday January 29, 2010, 3-4 inches of snow descended on Nashville resulting in chaos on the roads, closure of schools, cancellation of buses, and airport cancellations. I would like to thank the organizing committee of the Academy for making us Canadians feel right at home. Despite the wintry start, the meeting proceeded without a glitch. People were able to get to the meeting and home with very little disruptions. The Lowes hotel staff were very helpful and hospitable to the Academy registrants and guests. The accommodation and meals were first rate. There was also plenty of time during the breaks and lunches to network and meet people from all over the world.



Picture was taken from the Loews Vanderbilt Hotel looking out across the street at the campus of Vanderbilt University.

The scientific sessions were as usual very informative with many very good speakers. The fireside chat which is the hallmark of the Academy was always well attended and informative. The moderators were very good at starting interesting discussions on various topics. It's amazing how fast 2.5 hours can pass by. As we all know, perfusionists like to talk. My favorite fireside chat was one on Minimally Invasive

Cardiac Surgery. There were many people in the room who were starting new MICS programs and I found this very exciting. The panel discussion on Developing a Safety Culture was very interesting. It made me question whether our center was doing enough to develop a strong safety culture. As a consequence we are going to practice more timed oxygenator change outs, and communicate equipment issues more effectively. I was also made to work and pay attention during the audience participation presentation. It took some time to get used to the device and press the right buttons. Well done! The session on Healthcare Reform on Cardiac Surgery was also well attended and a timely issue. I will avoid weighing in on the political nature of the issues. However, many people asked for my opinion since we have Universal Healthcare in Canada. I found it very interesting observing the many questions asked by audience members and the struggle they have with this radical change. The meeting had many highlights for me. My wife and I really enjoyed the hospitality of the Academy and the people of Nashville.



Some of our Canadian Delegation.
Left to Right. Mr. & Mrs. Peter Allen,
Mr. & Mrs. James MacDonald and
Mr. & Mrs. Philip Fernandes

The Student Section

Should Ideal Body Weight Be Used To Calculate Body Surface Area (BSA) During Cardiopulmonary Bypass? A Proposed Mathematical Approach To Calculate BSA

Body surface area (BSA) is the total area of a human's skin (1). It is estimated from measured weight and height (in kilograms and centimeters), using either a nomogram or a mathematical equation. BSA has been used in clinical practice to determine dosage of medication and to standardize biological parameters such as creatinine clearance, and cardiac output (2). Perfusionists routinely use BSA to calculate pump flow using the formula $BSA \times CI$ (Body Surface Area times Cardiac Index).

Several formulas have been proposed to define and calculate BSA. One of the early pioneers was DuBois who in 1916, proposed a formula to calculate BSA. Over the ensuing decades, several authors have proposed formulas to accurately assess BSA. These include Boyd (1935), Gehan and George (1970), Haycock (1978), Mosteller (1987), Mattar (1989), Livingston and Scott (2001), Yu (2003), and Wang and Hirara (2003).

Mosteller's formula which is calculated as $BSA = \sqrt{\text{Height} \times \text{Weight} / 3600}$ is commonly used by perfusionists because of its simplicity, ease of use, and its application to both the adult and children/neonate population. Mosteller's formula is strongly supported by Wang and Hirara (3), whose formula is based on mathematical calculations and Verbraecken et. al. (4), whose research includes a review and analysis of all available formulas.

Some authors have been critical of the use of BSA to calculate drug dosage primarily as it pertains to drug pharmacokinetics. Alston et. al. (5) suggested that BSA inaccurately predicts venous blood saturation, may not be a good determinant of metabolically active mass, and thus may not be reliable method for determining pump flow rate during cardiopulmonary bypass procedures.

Many medications are administered on the basis of ideal body weight (IBW). This may be especially important in the morbidly obese patient where certain classes of drugs with poor lipophilicity and narrow therapeutic indexes that are administered on the basis of total body weight (TBW) may lead to over dosage and increased drug toxicity (6).

An alternate method of determining Body Surface Area is thus proposed. This method involves the use of ideal BSA as opposed to actual BSA. Ideal BSA is calculated using ideal body weight but allowing for modifiable factors such as gender, age, and degree of muscle mass. This formula is based on Wang and Hahira's (3) assumption that the exterior shape of the human body is the result of convex and concave deformations from a basic cylinder.

Their formula is expressed as
 $BSA (m^2) = \sqrt{(9\pi VH)}$
 $BSA (m^2) = \sqrt{((9\pi \times M \times H)/D)}$
 Where V = Volume in m^3 , H = height of

Satya N. Chaudhary, MCA
Class of 2011

Department of Perfusion
Technology

Rush University Medical Center

Chicago, Illinois

the body in meter, M = mass in Kg, D = body density in Kg m^{-3} ,

BSA in (m^2) then becomes: $\sqrt{((M \times H)/35.37)}$ considering the average density of a person is $\sim 1000 \text{ Kg m}^{-3}$ (7).

This formula is similar to Mosteller's formula.

Lemmens (6) used the midpoint of the "normal" body mass index (BMI) to calculate Ideal Body Weight (IBW). His formula is $\text{IBW} = 22 \times H^2$

Jayaraman (8) considers the upper range of normal Body Mass Index (BMI) to calculate IBW. His formula is stated as: $\text{IBW} = 26 \times H^2$

The average of these two formulas (Lemmens and Jayaraman) is considered to propose a new formula for ideal BSA.

Thus: $\text{IBW} = 24 \times H^2$.

Replacing actual weight (M) with ideal body weight to calculate Ideal BSA creates a new formula where:

$$\begin{aligned}\text{Ideal BSA} &= \sqrt{((\text{IBW} \times H)/35.37)} \\ &= \sqrt{((24 \times H^2 \times H)/35.37)} \\ &= \sqrt{(H^3/1.5)}\end{aligned}$$

If one uses body density, then:

$$\text{Ideal BSA} = 26 \times \sqrt{(H^3/D)}$$

This new formula is being proposed to calculate pump flow during the conduct of cardiopulmonary bypass. It is applicable to all patient groups. This includes adults and pediatric/neonates as well as patients who are of normal weight, overweight or obese.

A study is being proposed to validate this formula. The proposed research question is stated as: Should ideal body weight be used to calculate the body surface area, cardiac index and pump flow during cardiopulmonary bypass?

IF YOU WOULD LIKE THE ACADEMY NEWSLETTER EMAILED TO YOU DIRECTLY, PLEASE SEND YOUR NAME, CITY, STATE AND EMAIL ADDRESS TO OFFICEAACP@AOL.COM.

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Ian Shearer presenting the Thomas G. Wharton Memorial Lecture

Welcome to New Members

The American Academy of Cardiovascular Perfusion would like to welcome the following individuals whom were voted into membership at the Closing Business Meeting of our annual meeting in Nashville.

Fellow Membership (formerly Active)

Justin Resley
Julie Tinius-Juliani
Joshua Walker
Haven Young

Marc DeCarlo
Elizabeth Adams Dooley
Mindy Duffy
Marie Fouts
Chelsea Griswold
Monique Huynh
Maressa Jonland
Jacoby Jose
Marina Lazic
Kevin McElroy
Andrea Pang
Kristina Schmidt
Elise Slack
Trevor Smith
Chelsea Starrett
Ben Swanson
Nicole Tomasello
Ashleigh Trew
Louis Verdetto
Geoff Willoughby
Stacia Woldorf
Adam Yamin

Member Membership (formerly Associate)

Peter Allen
David Clements
Michael Meenen
Nicole Michaud
Sean Murtha
Joseph Niman
Ryan Price

Student Membership

Marja Applegate
Robert Brown
Dafne Chianella

AACP 2010 Officers and Council

President

Edward Darling
Baldwinsville, NY

Treasurer

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Richmond, TX

William Harris
Luling, LA

Vice-President

Daniel FitzGerald
Winchester, MA

Linda Mongero
Locust Valley, NY

Secretary

Steven Sutton
Dallas, TX

Council Members

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2011 Annual Seminar



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the AACP Meeting.*

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In Memoriam

Mary Lois Martin



Mary Lois Martin was born on April 26, 1927 and passed away on February 24, 2010.

When the word pioneer is mentioned in Texas the first thing that comes to my mind is a person who first came to Texas to settle the region, thus opening it for development by others, but when I hear the word perfusionist with pioneer, I think of Mary Lois Martin, who was considered the **first** perfusionist for Baylor College of Medicine at St. Luke's Episcopal Hospital in Houston, Texas.

During Mary's early career as a perfusionist, commonly referred to as a heart-lung machine operator or

pump technician for younger perfusionists, she operated the heart-lung machine for Denton A. Cooley, M.D. and Michael E. DeBakey, M.D. from 1957 to 1969, and eventually relocated in 1969 to Methodist Hospital with the Department of Surgery at Baylor and worked for Dr. DeBakey until she retired from Chief of Perfusion in 1981.

Mary used a Sigmamotor finger pump before she adapted the perfusion system to various changes in roller pump technology. She also used the DeWall-Lillehei helical bubble oxygenator and Dr. Cooley's "Coffee Pot" bubble oxygenator made from parts at Commercial Kitchens in Houston, Texas. Mary not only used bubble oxygenators, disc oxygenators, but also eventually switched to membrane oxygenators as the technology changed. Dr. Cooley always requests his team to keep things simple and his motto is to modify, simplify, and apply. Mary did that almost every day by working with machinists and other individuals to come up with the devices needed for surgery, because at that time you could not find "off the shelf" pumps, oxygenators, and other items needed for cardiac surgery. Mary was a major contributor to new perfusion techniques and technology, and was instrumental in the design, development, and implementation of these new devices required by perfusionists in open-heart surgery.

Mary had opportunities to travel the world with Drs. Cooley and DeBakey, as a member of their team performing open-heart surgeries, and she carried with her many pieces of equipment required for perfusion cases. She also trained numerous medical personnel in the operation of the heart-lung machine during her career.

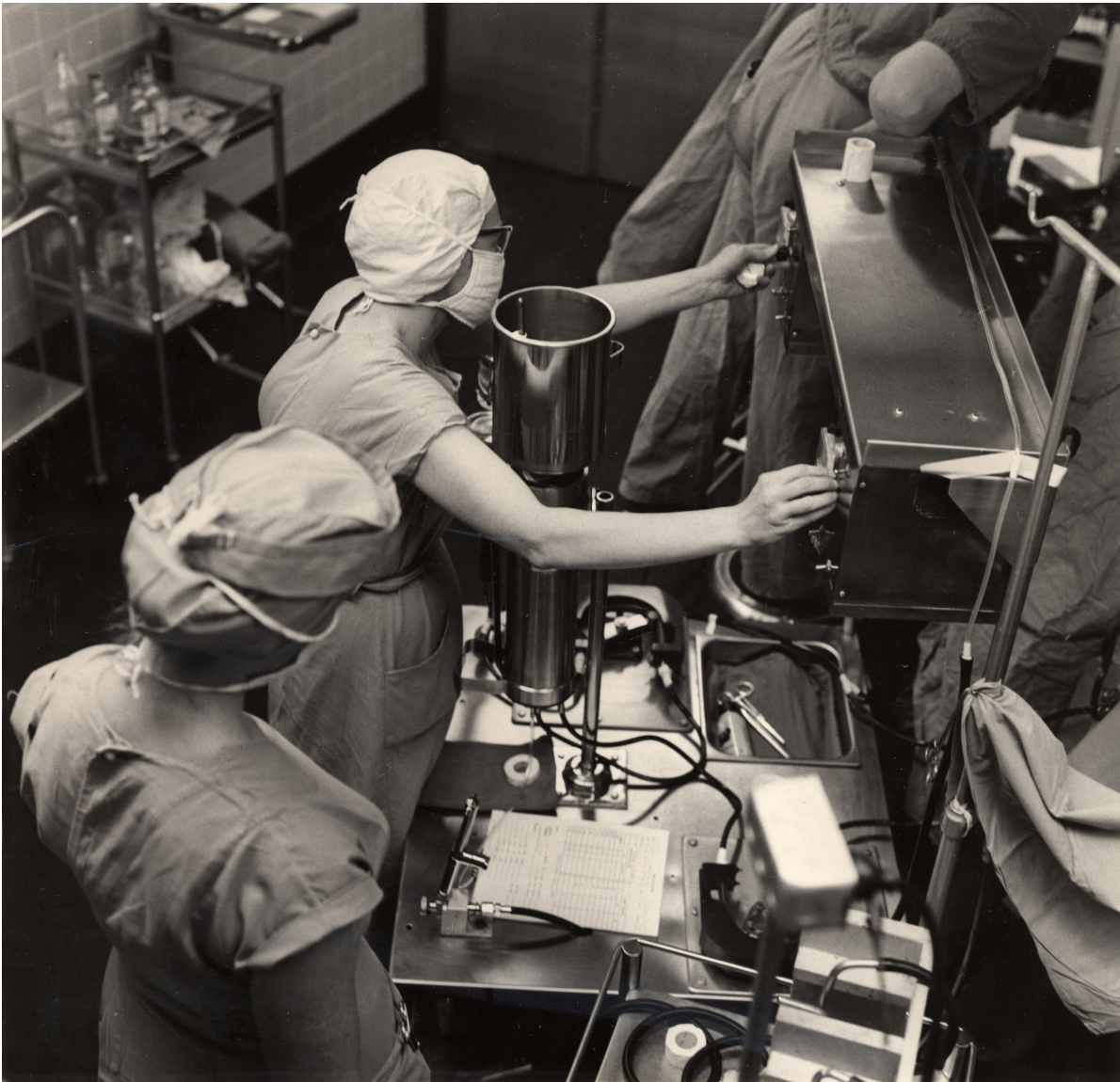
Mary was a guest speaker to a standing-room only crowd at the 6th Current Trends in Cardiothoracic Surgery and joint session with the Michael E. DeBakey International Surgical Society 17th Congress held on May 3, 2008. I recall the room was silent at times while attendees listened intently as she discussed the history of perfusion at Baylor College of

Medicine, but there were also times of laughter as she told us about some of the earlier events in her career.

Mary Lois Martin was Chief of Perfusion at Baylor College of Medicine from 1957 to 1981, and will be missed, but not forgotten for her contributions to perfusion technology.

Information and photographs were provided by family, friends, Texas Heart Institute at St. Luke's Episcopal Hospital, Baylor College of Medicine.

*Submitted by
Terry Crane, Chief Perfusionist
Texas Heart Institute Perfusion Technology Section*



My sincere appreciation for the privilege of being a member of the "First Team". Mary Martin

This is a picture of Mary Martin with the Coffee Pot oxygenator. It actually worked like a coffee pot and blood was oxygenated up the center column (like a percolator), de-foamed in upper chamber where there would be stainless steel sponges coated in antifoam and also a screen filter (like brewing coffee with a filter), the blood would go around a helix inside the main body (like the DeWall-Lillehei oxygenator), and arterial blood would be pumped from the bottom of the device to the patient. They used the glass fluid indicator on the outside, like a coffee pot level indicator, to see the operating level during bypass.

All About our Corporate Partners

Compliance Strategies: Who is Monitoring and How?

In the present healthcare environment compliance and the practice of medicine has become the focus of clinical organizations, insurance companies, hospital administrators, and regulatory agencies.

At issue is how and by whom compliance is measured. The for-profit insurance industry and regulatory agencies have been able to track some of this data because of the requirements they have placed on the medical industry to provide them with the pertinent information. These organizations have also had the size and money needed to collect certain information for use in accomplishing their own organizational objectives.

Clinical programs, on the other hand, have been at a disadvantage. Pressured for time and resources, the clinical specialty areas, in most cases, have not been able to keep up. The irony of this is that, it is at this very level where the gathering and analysis of information is needed the most.

Compliance monitoring and analysis within the clinical specialty will, in the end, provide the greatest return and benefits for the healthcare industry as a whole. Measuring at point of care will not only demonstrate what works and what doesn't work but should also provide the clinical area with the opportunity to make changes and improvements when care is being given.

From this perspective it is obvious that a successful compliance strategy is time related. In other words, compliance delivered or measured in real time is better than compliance delivered or measured at the end of the month or quarter.

Spectrum Medical acknowledges this and has made it its core philosophy to develop systems that help address this need, at the specialty level.

Spectrum Medical believes that clinical specialty areas within the hospital system, such as perfusion and ECMO, need to be able to monitor compliance at three distinct phases. Monitoring compliance should allow them to:

1. Monitor intra-operative compliance and if necessary make changes at the point of care,
2. Have statistics available to analyze post-operative performance on a case by case basis,
3. Easily collect and compile information into reports that factually show the bigger picture of the clinical practice.

In order to efficiently collect and monitor this data to address these compliance strategies, the utilization of electronic medical recording and customizable software is a necessity.

Spectrum Medical believes that the collection of this data, utilizing electronic charting, must be intuitive and easy to use. It should not interfere with patient care, be useful and accurate, and employ web based technology. Otherwise it ends up being an unused, wieldy system that hinders rather than helps the program and patient care.

It is also Spectrum Medical's philosophy that the hospital program should own their own data which means the system needs to be able to communicate with the hospital management system, all the various heart lung machines, and as many operating room devices as

Donna R. Greenwold,
RN, MBA

Sales and Marketing
Director

Spectrum Medical

needed.

The VIPER/VISION systems, developed by Spectrum Medical, are set up to do all of this. In addition they also provide the program with the tools needed to address the three levels of compliance.

The VIPER/VISION system allows the clinician the flexibility to apply an intra-operative compliance profile that pre-defines record configuration, the collection of critical parameters (data) and most importantly active compliance limits that alert the clinician when intra-operative care is outside the agreed compliance objectives. These compliance objectives can be based on whatever standards they have set for that particular case. The clinician can then make changes at point of care or note them so that future limits can be adjusted.

The compliance profile can also be used to pre-define the end-of-case statistical analysis that will allow the surgeon or other clinicians to immediately see variances that may have occurred during a particular case and apply corrective action. The ability to identify when changes need to be made during a case and on a case by case basis is very important to premium patient care.

Also, very important, is the ability to monitor care

over a period of time and document trends. Spectrum Medical allows the clinical program the flexibility to generate the reports they need at any given time. Reports on quality indicators, use of blood products, supply and equipment usage can all be tailored to give the program what it needs to meet its compliance strategies. Standard naming conventions also give the program the security that the information is accurate and consistent.

In summary, Spectrum Medical believes that the clinical specialty areas will have to start demanding access to the systems that give them the flexibility to configure the EMR and database to their needs and compliance strategies. The need is for systems that will give them the freedom to monitor and report on issues of particular importance to the specialty but also ultimately facilitate the improvement of the overall practice of patient care.

Ultimately the goal is to allow the accurate reporting of information at the clinical specialty level to be communicated to the larger system. Information can be a very powerful tool to help identify and obtain appropriate resources and to change healthcare practices for the better. We all need to work toward making sure the information is accurate, useful, and benefits healthcare where it matters the most, at point-of-care.



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Important Academy Dates

The ACADEMY ANNUAL MEETING DEADLINES

ABSTRACT DEADLINE	October 15, 2010
MEMBERSHIP DEADLINE	November 27, 2010
PRE-REGISTRATION	December 27, 2010
HOTEL REGISTRATION	December 27, 2010
2011 ANNUAL MEETING	January 27 - 30, 2011

Others Meetings

6th International Conference on Pediatric Mechanical Circulatory Support Systems & Pediatric Cardiopulmonary Perfusion
Joseph B. Martin Conference Center at Harvard Medical School
Boston, Massachusetts
May 6-8, 2010
Website: <http://www.hmc.psu.edu/childrens/pedscpb/>

Denton A. Cooley Cardiovascular Surgical Society 17th Symposium will meet in joint session with the Michael E. DeBakey International Surgical Society 18th Congress
Barton Creek Resort
Austin, Texas
June 10-13, 2010
Website: cme.texasheart.org

Canadian Society Clinical Perfusion
Palais des Congrès de Montréal
Montréal, Quebec, CANADA
October 23-27, 2010
Phone: 1-888-496-2727
Website: cscp@cscp.ca

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