

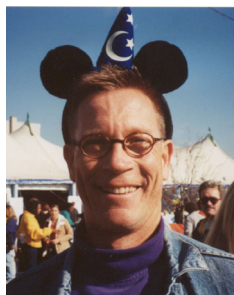
Cardiology 2007 THE SYMPOSIUM DAILY

From Congenital Cardiology Today

DAY 4 - FEBRUARY 24—SATURDAY

Notes from the Course Director – What's on Tap for Saturday

By Gil Wernovsky, MD, RC



"Don't limit a child to your own learning, for he was born in another time."

~Rabbinical saying

Saturday contains some of the most interesting topics; in addition we will introduce the Audience Response System (ARS) in two separate sessions. In the morning breakout sessions, our perfusion faculty will discuss hot topics in intraoperative support, and the nursing plenary session will feature the top two nursing abstracts, as well as tips from the faculty on how to get a project up and running, all the way to publication.

Simultaneously in the Grand Ballroom, we will hold "The World's Biggest Surgical Conference." Participants and faculty will have a handheld keypad to vote on various management options for simple and complex CHD. The audience responses will be compared to the faculty...and lively discussion is sure to follow. Following a short break, our Featured Named Lectures will be given by Dr. Martha Curley, Dr. Phillip Bonhoeffer and Dr. Pedro del Nido, and the winner of the 4th Annual Outstanding Investigator Award will be announced. The winner will receive a travel grant, journal subscriptions and a complimentary registration to Cardiology 2008.

After a short break, breakout sessions will commence—a particularly popular choice has been Dr. Mitchell Cohen providing hands-on advice and teaching on temporary bedside pacing. During lunch, the first Keynote Lecture in Administration will be given by Mr. Gavin Kerr, Chief Operating Officer of The Children's Hospital of Philadelphia—grab your box lunch and join us for an informative lecture that shouldn't be missed!

Finally, after our last breakout sessions of the meeting, the entire faculty and attendees will participate in a session examining practice variability. Using a live audience response system, we will examine the variability in our practice, review ethical issues and practice patterns, ending with our final debate on elective delayed sternal closure between Dr. Tom Spray and Dr. Rick Ohye.

Don't forget to visit the exhibition---Dinner is on your own tonight.

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Highlights from Friday Morning Breakout Sessions

By Anita Szwast, MD; Nelangi Pinto, MD; and Jenifer Glatz, MD

Friday morning's breakout sessions covered a variety of important topics in congenital heart disease. Intensivists enjoyed Session I, featuring talks on pediatric resuscitation and cardiac ECMO. Dr. Charles Fraser spoke first on the latest ventricular assist devices available for infants and small children. Current results and long-term follow-up of cardiac ECMO were discussed by Dr. Chitra Ravishankar. Dr. Peter Laussen highlighted the importance of defining roles in cardiac resuscitation and the early initiation of ECMO in resuscitation efforts. To conclude the session, Dr. Lisa Montenegro provided a compelling argument for the use of isoflurane to sedate pediatric patients on cardiac ECMO.

Session II focused on core topics in pediatric cardiology. Dr. Mark Fogel highlighted the utility of MRI in defining cardiac morphology, function, and myocardial viability. Dr. Brian Hanna expertly reviewed pulmonary hypertension, including genetic and environmental risk factors for the disorder and improved survival with newer anti-proliferative medications. Dr. Daphne Hsu discussed cardiac transplantation, highlighting the importance that the pediatric cardiac transplant registry has played in identifying risk factors for poor outcome. Finally, Dr. Vetter discussed cardiac screening initiatives, proposing a nationwide cardiac screening program in order to decrease sudden cardiac death.

Due to unforeseen circumstances, fetal imaging was unable to be performed at the live fetal imaging session. Instead, Dr. Rychik gave a fabulous overview on "Frontiers in Fetal Cardiovascular Disease." He began by stating that heart disease is the most common congenital anomaly found in the fetus and our technology to screen the fetus continues to improve. Dr. Rychik then demonstrated many normal and abnormal findings found on fetal echocardiogram. He concluded by discussing future directions for fetal heart disease including improved technology for first trimester imaging, improved understanding of complex diseases such as twin-twin transfusion syndrome, and the potential for treating or altering disease progression in the fetus through fetal intervention.

Session IV emphasized the importance of outcomes research in our field from several perspectives. Dr. Craig Greene provided an introduction to the importance of the transparency of outcomes at "Centers of Excellence" to referring physicians who are at the frontlines, and trying to balance multiple factors in deciding where to send families for surgery. The importance of encouraging and recognizing different levels of experience and autonomy in our nursing staff on patient outcomes was presented by Martha Curley, R.N., Ph.D. Dr. Jeffrey Jacobs summarized the coordinated efforts to create the STS Congenital Database as a rich source for outcomes data and also discussed future challenges to looking at long term outcomes in this population. The session ended with a summary from Dr. James Stevens about importance of examining costs and quality of care in the current health climate.

Featured Research Plenary Talks/Young Investigator Competition

By David J. Goldberg, MD

On Friday morning, as the weather outside was warming up, the attendees of Cardiology 2007 were treated to presentations on hot new research in a session moderated by Drs. Lynn Mahoney and Daniel Penny.

First to speak was Dr. Kristin Odegard from Children's Hospital. In 37 patients with HLHS compared to age-matched controls, they found decreased levels of coagulation factors throughout the staged repair and increased levels of factor VIII following the Fontan.

Next was Dr. Jon Kauffman from Children's Hospital Denver. His group studied 20 neonates and infants (7 single ventricle and 13 biventricular). They found that abdominal site neurs correlated well with gastric tonometry as an organ specific, regional index of splanchnic perfusion and postulated that there may be an increasing role for this method of non-invasive monitoring in cardiac intensive care units.

The final oral abstract was presented by Dr. John Costello from Children's Hospital Boston. His group documented a significant decrease in catheter-related blood stream infections in a pediatric CICU following implementation of a series of evidence-based anti-infection measures.

Andrew Redington, the division chief of Pediatric Cardiology at The Hospital for Sick Children, started the featured research presentations by discussing an ongoing study of aspirin versus warfarin for the prevention of clots in patients following the Fontan operation. The data from this study is not yet available, but should shed light on what has been a difficult problem.

Scott Bradley from the Medical University of South Carolina spoke about recurrent laryngeal nerve injury and swallowing dysfunction following aortic arch repair. In the data that he reviewed there was a 10% incidence of injury to left recurrent laryngeal nerve, a 24% incidence of aspiration, and a 50% incidence of an abnormal swallowing study. Patients with aspiration tended to improve while half the patients with vocal cord paralysis recovered.

Dr. Barry Byrne from the University of Florida, the third featured research speaker, spoke on novel therapies for cardiomyopathies.

Clinical trials of enzyme replacement therapies for Pompe disease were summarized, with dramatic improvement in survival and decrease in LV mass z-score.

The last speaker of the morning was Dr. Lynn Mahoney, from the University of Texas Southwestern Medical Center. She re-

viewed the role of the Pediatric Heart Network as a sponsor of prospective research in pediatric cardiology and reviewed the current and recent studies undertaken by the PHN.

Taken as a whole, the research presentations provided an excellent overview of a number of evolving areas within the field of pediatric cardiology and whet the appetite of the attendees just in time for lunch!

Thanks to All the Contributors to the Daily



This is the final issue of the **Cardiology 2007 Daily**, and Congenital Cardiology Today wishes to thank our honorary editors and writers who supplied articles for us each day. Without them, the daily would not have been possible. They are Anita Szwast, MD; Geoffrey Bird, MD; Karl Degenhardt, MD, PhD; David Goldberg, MD; Michael Quartermain, MD; Laura Mercer-Rosa, MD; Julie Davis, MD; Kevin Whitehead, MD, PhD; Jenifer Glatz, MD; Katie Dodds, RN, MSN, CPNP; Erika Wintering, RD; Laura Mercer-Rosa, MD; Julie Davis, MD; Stacie Peddy, MD; David Hehir, MD; Nelangi Pinto, MD; Paul Stephens, MD; and Meryl Cohen, MD under the direction of Gil Wernovsky, MD, RC, Course Director.

Pictured above are some of the doctors and nurses who helped in this project.

Poster Session B—February 23-24 Review

By Michael D. Quartermain, MD

The Friday, February 24th Poster session at Cardiology 2007 provided another excellent opportunity for attendees to view a wide range of high quality abstracts. There were a total of thirty posters on display representing 20 institutions, including 7 international locations from Australia, U.K., Canada, Korea, Saudi Arabia, Costa Rico, and Switzerland.

The field of electrophysiology was investigated in five abstracts. The group from the University of Mississippi showed that amiodarone is both safe and effective in the acute management of SVT in neonates. The clinical and EP characteristics of left and right ven-



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tricular tachycardia in children with structurally normal hearts was presented by Dr. Pinto from CHOP. The group from Costa Rica showed that VDD single lead pacing is an effective and safe method to maintain AV synchrony in 3rd degree AV block.

Fetal cardiology was also strongly represented. Dr. Brooks from RCHM studied the effects of antenatal diagnosis of PA/IVS and found that despite improved oxygenation prior to the initiation of PGE, there was no overall improvement in mortality. Dr. Dummer found that in the Boston experience, the prenatal diagnosis of TOF/PS is highly accurate and it is unusual to see progression to pulmonary atresia. Dr. Szwest from CHOP demonstrated that maternal hyperoxygenation in the fetus with HLHS is a safe and useful procedure to assess the pulmonary vasculature.

Dr. Wise- Faberowski from the University of Colorado presented two abstracts utilizing a chronic hypoxia model in the developing brain to describe the use of NMR spectroscopy, as well as the effects of isoflurane.

There were several posters focusing on single ventricle patients. Dr. Ryerson from the Motts Children's Hospital discussed the role of Heparin therapy in protein losing enteropathy. Dr. Khan from Rainbow Babies described the physiological responses to exercise in children after the Fontan Operation, while the group from CHOP utilized MRI data to study the effects of exercise on power loss after Fontan palliation.

Several abstracts focused on patient care from the nursing perspective, and included a report from Stanford that looked at the importance of continued nursing educational sessions as a mechanism to improved professional autonomy and enhanced patient safety. The CHOP nursing staff described the benefits of an educational resource nurse in the training of new CICU nurses.

This is just a sampling of the terrific research, which will be on display through Saturday. Congratulations to all of the presenters at this year's meeting!

Highlights from Friday Afternoon Breakout Sessions

By Karl Degenhardt, MD, PhD

There was something for everyone in the Thursday afternoon breakout sessions. A wide range of subspecialty topics, as well as administrative issues were covered in the five sessions.

The echocardiography session touched on imaging of a variety of lesions including ventricular septal defects, complex left ventricular inflow lesions and Fontan anatomy. Jack Rychik reviewed imaging of the Fontan patient and what to look for in order to understand the physiology of these special patients. Michele Frommelt showed how to assess ventricular septal defects and associated lesions. Norman Silvermann discussed anomalies of left ventricular inflow. Leo Lopez showed how to evaluate the Left ventricular outflow tract in cases of obstruction. Michael Brook discussed when to use intracardiac echocardiography.

In the session on electrophysiology, biventricular pacing, defibrillators and arrhythmias after cardiac surgery were discussed. Richard Friedman summed up the promise of biventricular pacing, but pointed out that more pediatric studies are needed on resynchronization therapy. Mitchell Cohen showed how ICDs save lives, however, they carry the risk of inappropriate shocks. Ronn Tanel reviewed late arrhythmias after surgery for congenital heart disease. Victoria Vetter discussed the continued need for the thoughtful use of anti-arrhythmic medication, even in the age of ablation.

The postoperative care session reviewed some of the latest tools in the arsenal of the cardiac intensivist. Timothy Feltes showed how patients may respond differently to inotropes based on genetic predisposition. Daniel Penny discussed non-invasive measurement of cardiac output. Troy Dominguez reviewed the bispectral index as applied to patients in the CICU. Lara Shekerdemian gave an overview on the approach to pulmonary hypertension in the ICU. George Hoffman discussed ventilation in the ECMO patient.

The topics covered in the interventional catheterization session included use of biopsies, approach to mitral valve disease and single ventricle patients and neonates. Daphne Hsu reviewed the role of endomyocardial biopsies in pediatric patients. Philip Bonhoeffer discussed the use of catheter based interventions for mitral valve disease. Jack Rome showed how creation of ASDs and fenestrations can help patients with single ventricle physiology. David Nykanen talked about overcoming the technical challenges of catheterization of our smallest patients. Ziyad Hijazi reviewed the use of stents in coarctation.

The real world challenges of funding cardiovascular programs were addressed in a separate session. The complexities of interacting with industry were discussed by Ziyad Hijazi. Attracting and maintaining philanthropic support was also covered.

Closing Plenary Session on Patient Safety

By Geoffrey Bird, MD

Friday afternoon's plenary session, "Improving Safety for Cardiovascular Patients" proved to be an exciting testament to the hard work done, and being done, by so many colleagues in our field to improve the safety of our care delivery systems.

Peter Laussen, Boston, led off the session with his wonderful presentation, "Changing culture for continuous quality improvement." Defining moments were described that required novel efforts to improve governance, management and effect culture change. Dr. Laussen showed the central role of nursing leadership in promoting culture change, and in leading to improved consistency in leadership. Adequate support for culture change can involve significant financial resources, and attending accountability has to be emphasized. We heard about Boston's Program For Patient Safety And Quality, the importance of audits to measuring and improving performance, and the imperative for leadership to promote a balance of work and personal goals. Look forward to upcoming collaborative meetings between Boston, GOSH, and CHOP to promote cardiovascular patient safety.

Karen Harrington, Montreal, gave an absolutely outstanding presentation, "How may we improve communication during patient handover?" The audience were treated to a broad review with ideas of safety as a "dynamic non-event" per Weick, communication breakdowns as a major cause of sentinel events, and that a knock-on effect of working hour restrictions is an increased need for handovers, and an imperative to do them well. Discontinuity leads, paradoxically both to problems and new eyes for solutions. Lessons from other industries were dis-

cussed. Formula 1 and aviation-based handover models pioneered at GOSH reduce errors and require less time. Dr. Harrington implored our field to recognize handovers, as both a transfer of responsibility and accountability, as well as information, and that improvements should be driven by local, gradual change.

Troy Dominguez, Philadelphia, led the audience through his presentation, "Nosocomial infections: are they inevitable or preventable." After reviewing types and mechanisms of nosocomial infection (NI), Dr. Dominguez went into more detail on central line associated blood stream infection (CLABSI), ventilator associated pneumonia (VAP), surgical site infections, the particular vulnerability of our patients with their high number of risk factors, and the crucial role of adopting a team approach for better control and prevention. What followed was a fascinating and whirlwind review of research done with CLABSI bundles, catheters bonded with heparin and antibiotics, tunneled catheters, the use of chlorhexidine, as well as details of VAP and soft tissue bundles. Those who 'stuck it out to the end' learned Dr. Spray's "secret edict" to the ICU staff in Philadelphia, "Take all that stuff out!"

Richard Ohye, Ann Arbor, in an effort towards, "Ensuring patient safety during clinical trials, the ethics of human subjects research," gave the most humorous presentation of the session. The information given, though, was absolutely critical, and gave the audience plenty to sink its teeth into. Dr. Ohye dared us to ask "Do trials help patients, and are they relevant?" He reviewed definition of various clinical trials, problems with historically controlled trials (HCTs), benefits of randomization, and the clever way in which, given the inexorable progress in medicine, HCTs always tend to favor the current intervention at question. We were implored for medicine to be based in, and promoting of, research - with its attendant requirements for respect for persons, beneficence, justice, and equipoise. Humorous cartoons abounded, but, lest I spoil the moment, I'll just leave it that "you had to be there."

John Charpie, Ann Arbor, gave the next presentation on, "Developing and maintaining an effective quality assurance and improvement program." We learned the multiple aspects of quality (safe, effective, patient-centered, timely, etc.), and the details and rationale behind the "Plan-Do-Check-Act" cycle for improvement. Exploring issues in family centered care and rounds, Dr. Charpie issued the behest to keep our staff happy as "job satisfaction" can be directly related to "customer satisfaction." In relaying his own unit's exploration of family presence during medical rounds (but not, due to team consensus, during nursing report), we learned the importance of gradual and locally-driven change in allowing a team to change through evolution, rather than revolution.

Patricia Hickey, Boston, riveted us with her bold opening that mandated nurse staffing ratios are simply not the answer, as they can exacerbate staffing- and work-related stress for staff nurses. Her presentation, "Rational work-hour assignments for bedside nurses: what's the rationale?" described that best practice

in addressing nurse staffing depends on a multifactorial approach. The best models allow staffing-to-patient demand without having a negative impact on staff, is one in which nurses maintain control and choice over their own schedules. Introduced to Florence Nightingale's edict to "put patient in best condition for nature to act," the audience was then led through Ms. Hickey's team's "Nightingale Metrics," and her novel "continuity of care index."

It was an exciting, informative and very well done closure to another outstanding afternoon at Cardiology 2007!



A Final Note: What's on Tap for Sunday

By Gil Wernovsky, MD, RC

"The assurances of dogma, the arrogance of certainty, are enemies of wisdom."
~ Frederick Rudolph

Cardiology 2007 will close tomorrow with a session on Heterotaxy/Isomerism, dedicated to the memory and contributions of Stella van Praagh, MD (1927-2006). Stella was a mentor, teacher and friend to many of us, and served as a role model as a caring, compassionate physician. While she was interested in many aspects of cardiac anatomy and development, nothing sparked her fire more than the complexities associated with complex mal-arrangement of the heart. Drs. Weinberg and Anderson will discuss (? debate) what to call these "abnormalities of sidedness" (and probably could continue to argue for days.....), followed by state-of-the-art lectures on management and outcomes.

Thank you all for coming to Cardiology 2007, and we hope you will join us again next year in Scottsdale, Arizona for Cardiology 2008—our 11th Annual Post Graduate Course. The dates are February 6-10, 2008--we are already in the process of planning the course agenda and speakers. When you receive your attendance credits and CD after the meeting (~4-6 weeks), you will receive a short survey about this year's course, and we will solicit your ideas for next year. Please take a few moments to help us make each year's course better than the last! Hope to see you then.

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