



CONGENITAL CARDIOLOGY TODAY

Timely News & Information for Congenital/Structural Cardiologists & Cardiothoracic Surgeons Worldwide



PICS-AICS

Pediatric and Adult Interventional Cardiac Symposium

Daily Briefing

Thursday, September 6th

PICS~AICS 2018 to Showcase the Future of Device Development For Congenital and Structural Heart Disease Interventional Therapies

By Karim Diab, MD



Greetings from MGM Grand Las Vegas and PICS-AICS 2018, the 21st annual scientific sessions of this meeting which is solely dedicated to interventional therapies for congenital and structural heart disease in children and adults. After repeated successful meetings, PICS-AICS returns to Vegas with a comprehensive program that will cover various aspects of interventional therapies together with advanced imaging modalities applied during interventional procedures in congenital and structural heart disease, from the neonate to the adult. The Daily Briefing from Congenital Cardiology Today will follow the events of the meeting and brief you on major

sessions and topics and the latest news discussed during the meeting. It will also keep taking photos of the sessions and attendees (and possibly of you!) throughout the meeting. **Make sure to check it in the app every day!!**

This year's meeting focuses on how to decisions in cardiac interventions can affect outcome. Hence, you will notice sessions that focus on native RVOT, novel approaches to stenting, new device development, ductal interventions, and registries and how those can impact outcomes.

This year's meeting was preceded by a full day of imaging in collaboration with 3DI3 focused on Advanced Imaging Modalities for Congenital and Structural Interventions (if you missed it, check out a summary in this issue of The Daily). The live cases remain the focal point of the PIOCS-AICS meeting. After the successful format adopted since 2012, PICS~AICS continues with a similar format this year with the morning sessions being dedicated to the live case transmissions and the afternoon sessions dedicated to didactic and break-out sessions.

This year, live cases will start the first day of the meeting! Live cases will be beamed from nine national and international venues with experienced operators that will demonstrate the latest in medical device technology using approved and investigational devices/valves/stents. The live cases this year will be transmitted live via satellite from: Riyadh, Doha, Sao Paulo, New York, Columbus, San Diego, Seattle, Cincinnati and Memphis.

The popular Taped Case Sessions will also continue with taped cases presented and discussed on both Friday and Saturday. In the afternoon, there will be a special Global Summit on device development and determining whether there are pathways to simplify international device approval. This will discuss the challenges to bring devices into the market, strategies introduced by the FDA to streamline device approval and how to use registries to support new device approvals. In addition, representatives from regulatory bodies in North America, Europe and Asia will be present that will bring more international input into this matter.

The afternoon will also include a session on Registries, Decision making, Quality and Outcomes. It is obviously essential to look at outcomes when making decisions during interventions and this session will go over the data generated from registries and their impact and how to utilize these variables to allow interventionalists to plan interventions with riskier cases.

The immensely popular breakout for the Spanish-speaking attendees will also take place later in the afternoon. In addition, a session on ductal interventions will take place discussing standardized approaches to PDA stenting, dealing with PPS, and PDA closure in premature infants.

The afternoon sessions on Friday will also include a session with CCISC Case Presentations focusing on topics such as abnormal venous anatomy in pre-Fontan, pre-stenting the native RVOT for tPVR, ECMO cannulation and the role of the interventionalist. The day will end with the PICS~AICS Gala dinner at the MGM Splash Pool with live entertainment and announcement of the Best Oral Abstract, Kleinman Award and Young Leadership Award.

On Saturday 8th September, live cases will again take place in the morning. This will be interposed by a session on Developments in Structural Heart Disease, including a taped case from the NIH. A session featuring various hybrid cases will take place in the afternoon focusing on hybrid approaches in coarctation and PA stenting, hybrid in small infants and PVR. Other popular sessions, including "My Nightmare Case in the Cath Lab" ensure opportunity for discussion and learning from each other's experiences. A session focusing on pushing the boundaries in Asia will include topics such as trans-catheter VSD closure in smaller infants, self-expanding PVR and PDA closure in severe PAH. The final afternoon will provide a competitive feel

as "Battle of the Continents," a quiz-based session on all aspects of catheterization, will return for its third year with other continents vying to knock North America off its winning run over the last two years.

Of course, the Poster Abstracts will be displayed throughout the meeting. PICS will continue its support for younger interventionalists with the Young Leadership Program with the winner receiving faculty status and involvement in the meeting. Additional awards include the Charles S Kleinman, MD Scientific Scholarship Award in memory of Dr. Charlie Kleinman who was so close to the PICS family. The winner will receive a \$5,000 grant towards their research endeavor. The Terry King Traveling Fellowship Award will also continue to sponsor a colleague in a developing country to ensure the meeting continues its philosophy of developing congenital and structural catheterization throughout the world.

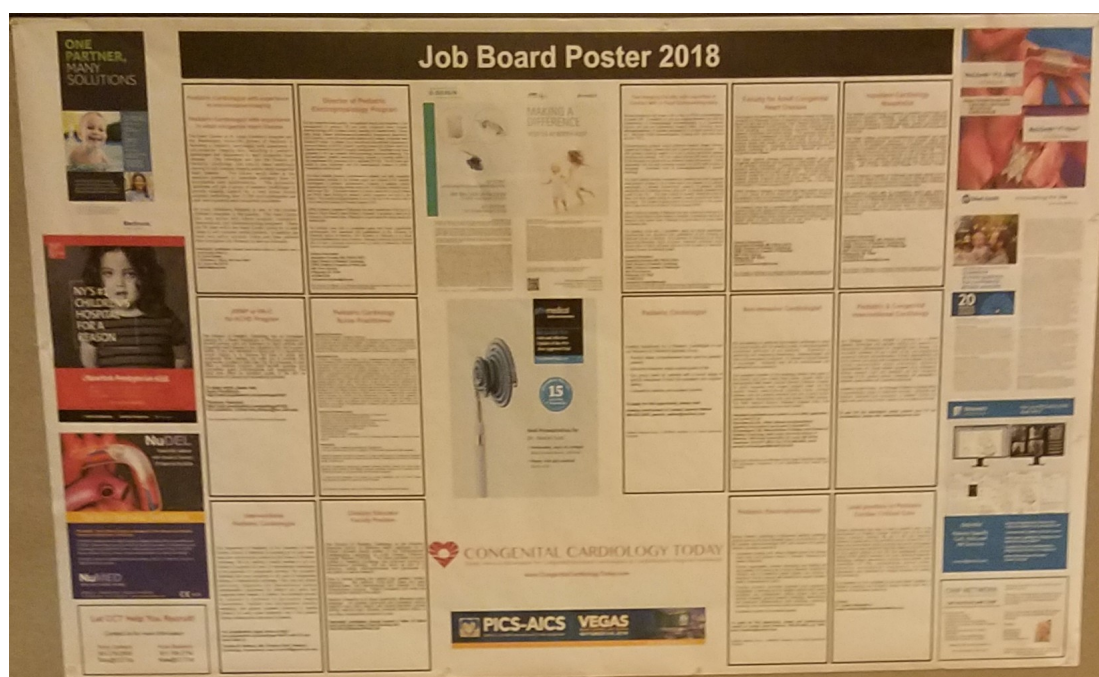
Hence, this year PICS-AICS promises an extensive educational program that goes beyond ground-breaking science and interventional device technology with multiple sessions presented in a variety of formats, and discussing emerging technologies and learning from specialists in both congenital as well as structural heart disease.

Please don't forget to get in shape for the 5K Run. It supports a great cause: providing funds for equipment for mission trips to the developing world. Your participation is what makes the meeting the success that it is, and we look forward to learning with you and from you.

For more on the meeting's events and hot topics, keep checking the Daily Briefing from CCT on your app!



Don't forget to stop by and see CCT's Job Board Poster located near the top of the escalators.



Recap of the International Symposium on 3D Imaging for Interventional Catheterization in CHD at PICS

By Karim Diab, MD and Alyssa Vermeulen, MD

The one-day pre-PICS symposium focusing on imaging for interventions for congenital and structural heart disease proved to be a must have activity during PICS. PICS in collaboration with 3DI3 provided a full day focusing on various advanced imaging modalities used in cardiac interventions. Dr. Krings from The Netherlands and Dr. Armstrong from Nationwide Children's Hospital brought 3DI3, an international conference on 3D imaging, to the first day of PICS imaging symposium. For those of you who just joined the symposium, this will provide a brief recap of what you missed during yesterday's pre-PICS activities.

The morning started with a 3D Rotational Angiography (3DRA) boot camp to give an overview about this technique. 3DRA brings a sophisticated modality that provides a thorough anatomic evaluation with 2D CT-like images and 3D reconstruction of complex structures and interactions, with views from various angles. It also provides image-guided therapy with overlay of the 3D reconstruction on live fluoroscopy. It can also allow decreasing radiation exposure by limiting the number of required 2D angiograms.



After an introduction by Drs. Krings and Armstrong, Dr. E. Zahn went over the advantages of this technique with various applications such as for TOF/ MAPCAs to be able to see all MAPCAs in one view and help surgeons with planning unifocalization. Dr. Armstrong then explained how to obtain 3DRA from preparing the dilute contrast (60 % contrast, 40 % saline) and setting up the system, where to inject proximally to the structure of interest, using a dose program, collimating manually and optional pacing to improve the picture quality followed by post processing. She went over some pitfalls such as artifacts that can affect 3DRA images from surgical clips or pacer

wires (though not from stents) and the fact that the image is averaged over both systole and diastole which does not give the largest diameter of a structure.

A debate then took place to showcase three versions of 3DRA post-processing systems available from three vendors including Philips, Siemens, and Canon Medical. Some tips and technical steps were also discussed including using 3DRA of the airway and esophagus by Dr. Molenschot, the role of the cath lab technician by Dr. Laurence, and how to perform measurements using 3DRA by Dr. Fagan.

The second session of the day went over collaborating with the non-invasive imaging team during cardiac interventions with incorporating 3D echo imaging with 3DRA during cardiac interventions. Dr. Sathanandam gave some tips and tricks for such multi-modality image fusion and how Digital subtraction RA as a modality can reduce contrast volume. Fusion can help with device positioning, fenestration, transeptal approach. IT is fast and accurate, has many utilities and can potentially improve outcomes.

Dr. Jone from Children's hospital of Colorado presented a taped case demonstrating the use of echo fusion with fluoroscopy in creating a fenestration in a 6 y.o. patient with single ventricle s/p Fontan who developed PLE.

Dr. Cheatham went over the use of 3D ICE imaging and its advantages during various interventions including PVR, ASD closure, and LAA closure. Dr. Srivastava talked about intraventricular blood flow dynamics including intraventricular blood flow and vortex patterns in normal subjects as well in patients with complex CHD such as TOF, SV, and transplanted hearts giving an insight on shear wall stress and energy loss in such patients. She emphasized that Vortex could be a novel index for assessment of diastole and systole.

Dr. Armstrong discussed the importance of good collaboration and communication with the imaging team to improve safety and outcomes during interventions.

A live case example was transmitted from Nationwide Children's Hospital in Columbus of using 3DRA for transcatheter PVR in a patient s/p TOF repair. The afternoon session of the imaging symposium focused on imaging and intervention in TOF that featured some hot topics in caring for patients with this lesion. Dr. Valente tackled the question of when to replace the PV in TOF emphasizing the need for modified criteria for PVR in order to improve clinical outcomes and highlighting that we are likely still waiting too long on these patients. Dr. McElhinney discussed predicting coronary compression in TVPVR highlighting some limitations of balloon angioplasty coronary artery balloon testing and introducing a simulation methodology with Finite Element Analysis to better assess the risk. Dr. Hanley discussed what surgeons need to know before TOF/PA/MAPCA repair going over an institutionalized protocol for surgical management of these patients. Dr. Benson then talked about 3D printing and its use for surgical and interventional planning in unusual cases. He also discussed 3D stereoscopic and holographic imaging which provides visual depth, spatial information, allow to move, slice and measure structures and guide intracardiac procedures.

The third session of the imaging symposium discussed the use of biomedical engineering techniques in assessing coarctation of the aorta. Dr. Armstrong talked about the use of computational fluids dynamics for aortic interventions and discussed the CFD feasibility study in progress generating data with virtual stenting. Dr. Krings discussed the use of 4DRA by applying ECG gating to 3DRA allowing high spatial and temporal resolution in complex morphology as well as measurements in dynamic geometry. Dr. Collins discussed the use of 4 D MRI specifically in coarctation which helps evaluate re-narrowing, peak velocity, and quantification of collateral flow. The symposium also featured a hands-on session in the late afternoon with vendor rooms for 3DRA post-processing from four vendors. By bringing this imaging symposium to PICS, attendees learnt how to use 3DRA, obtain high quality images quickly, get introduced to fusion of

CTA and MRA data with the x-ray system, and how to understand vessel-vessel and vessel-airway interactions to enhance procedural success and safety in pulmonary artery stenting, aortic arch interventions and TPVR. The imaging symposium highlighted why and how to bring 3D into your cath lab to improve your safety, efficiency, and therapeutic decision making.

Finally, the day ended with oral abstract presentations and a welcoming reception.



Rign up now for the 5th Annual PICS~AICS 5K RUN Friday, September 7th at 6 AM

You'll be making a difference and supporting CHIMS - Congenital Heart Intervention Mission Support

PICS 2018 marks the Fifth Annual PICS~AICS 5km Run/1 mile Walk. This run/walk is to support the Congenital Heart Intervention Mission Support project that was launched during PICS 2013. The organization has been very active in providing a coordinated and sustainable benefit to interventional catheterization for structural heart disease in developing countries through centralizing and consolidating pre-existing charitable mission work. It focuses on three main approaches:

1. Centralizing all unused and donated equipment relevant to cardiac catheterization from catheter laboratories in North America to a central repository with provision of an online inventory facilitating those involved in mission work to pre-order required equipment to support the intended procedures for their mission.
2. Developing channels for bipartisan educational support with the ultimate aim of ensuring a sustainable self-sufficient catheterization program in emerging countries interested in developing local programs.
3. Developing a registry of missions involved in congenital catheterization in the developing world and also a registry of interventionalists, nurses and technologists who would like to support this work.

The project has organizational support through the PICS foundation as well as from the International Children's Heart Foundation and the PICES group, an organization supporting younger interventionalists internationally.

The work at CHIMS is far from imaginary and many steps have already taken place on the ground. Since CHIMS inception, over 20 centers have shipped equipment to a centralized repository in Memphis through a cost-free shipping service supported by the International Children's Heart Fund. Beginning in June 2013, a CHIMS volunteer traveled to the warehouse to begin the process of sorting, categorizing and shelving the 60-plus boxes of donated equipment. An inventory system has been purchased which helped facilitate instant access to continually updated available equipment. Financing from this has been supported through the annual CHIMS run at PICS like the one taking place this year which continues to be kindly supported by Siemens and the PICS Foundation and people like you. Eventually, the aspiration is that mission organizations will be able to access these data directly through the website and order equipment for their mission trips that will be shipped directly.

To date, CHIMS has been able to support **21 mission trips and over 70 catheterization procedures**. It is clear that many of us feel a further urge to assist those less fortunate children and adults with congenital heart disease who have limited access to the care we take for granted. For some this will involve travel to these areas through mission trips to disseminate knowledge and skills. However, for others, this may not be possible due to time constraints. The CHIMS endeavor provides an opportunity to help and contribute by simply sending the equipment that your laboratory is no longer using to a central repository so that it can be acquired and used by those who can for those who need.

Finally, when getting started with this project, the decision was to accept all donations and we will continue to do so. That said, we are particularly interested in non-coronary balloon expandable stents, occlusion devices of all sizes and makes, and balloons and delivery sheaths. Please log on to the CHIMS webpage www.chimsupport.com if you have unused equipment which you are willing to donate or if you would like to request product for a mission trip. Volunteers are also welcome to help with the inventory management at the warehouse. In the meantime, while at PICS 2018, enjoy a fun run to support this charitable cause!!

The \$30 donation includes:

Technical t-shirt (Men & Women), digital chip timing, registration, finish line and post-race refreshments.

All race packets can be picked up at the PICS-AICS registration desk, MGM Convention Center, 3rd level foyer

The race will take place rain or shine. All fitness levels are welcome!

The 5K Run will be held on the Las Vegas Strip starting at the MGM

Come have some fun in the sun while doing something healthy during the PICS~AICS Symposium. TO REGISTER FOR THE RUN/WALKGO TO: <http://pics5krun.ezregister.com/>

