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ACC.13 American College of Cardiology

Mar. 9-11, 2013; San Francisco, CA USA
accscientificsession.cardiosource.org/ACC.aspx

9th Workshop IPC International Workshop on Interventional Pediatric and Adult Congenital Cardiology

Mar. 20, 2013; Milan Italy
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The 60th international Conference of the Israel Heart Society

Apr. 22-23, 2013; Jerusalem; Israel
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Critical Complex Congenital Heart Disease (CCHD)

By Mitchell Goldstein, MD

Critical Complex Congenital Heart Disease (CCHD) refers to a number of congenital heart diseases that are characterized by anatomical variations capable of causing severe morbidity or mortality within the newborn period or beyond. These are a number of different conditions that characteristically require intervention during the first year of life for survival or have a chance for survival.¹ Seven to nine babies per 1,000 live births have some form of Complex Congenital Heart Disease (CHD).¹⁻³ Before the advent of modern surgical techniques, there was little possibility of intervention even if the diagnosis was clear. Regardless of the time of discovery, many of these complex congenital heart diseases were deemed fatal or associated with a markedly diminished life expectancy. Along with the ability to intervene, it has become abundantly clear that late diagnosis is associated with a worse prognosis for surgical correction, as well as increased risk for complications associated with a failing circulation prior to the intervention. The interest in achieving earlier intervention is largely mediated by wanting to assure the best possible outcomes.^{1,4-6}

A number of studies focused on the strength of the physical exam in diagnosis of CCHD.⁷⁻¹¹ A suspicious murmur or a decreased femoral pulse were hallmarks of the "at risk" neonate or small child. Physical exam alone has failed to identify approximately 50% of the CHD cases.^{6,9,12-14} Fetal ultrasound and associated echocardiography could readily identify lesions that were not associated with a normal four-

“Seven to nine babies per 1,000 live births have some form of Complex Congenital Heart Disease (CHD). Before the advent of modern surgical techniques, there was little possibility of intervention even if the diagnosis was clear.”

chambered heart anatomy, but a number of lesions, especially those involving extra cardiac vessels, are still difficult to detect antenatally.⁵ Distinguishing between the benign heart murmurs associated with the normal closing of the Patent Ductus Arteriosus, and that associated with the unmasking of an Aortic Coarctation was not for the faint-of-heart. Increased utilization of pediatric echocardiography could help make this determination, but frequent false positives on the physical exam made this a costly proposition.¹⁴ Moreover, many birthing centers and community hospitals did not have ready access to a pediatric cardiologist.¹⁵ Not every baby with a heart murmur could be transported for evaluation. The referral process was not standard, and many infants left the hospital undiagnosed. As

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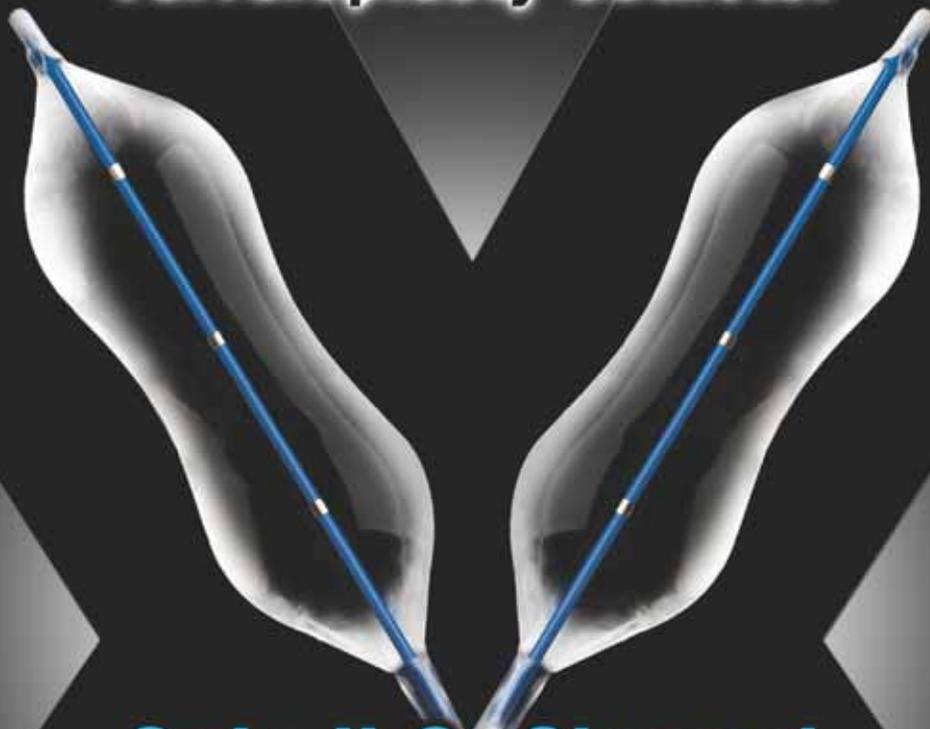
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inpatient maternity length of stay declined, many more babies with duct dependent pulmonary circulation left hospitals undetected. Of babies that died from CHD, studies have shown that up to 30% of infant deaths from CHD occurred before diagnosis.^{1,9,13,16,17}

Pulse oximetry was thought to hold promise in helping to screen for CCHD. Early pulse oximeters were not designed to read through motion and low perfusion, which are frequently present in the hours following

birth. Frequent alarming, dropping out of the signal, and freezing of the waveform were frustrating at best. Repositioning of the sensor, quieting the baby, waiting for the signal to transduce were very time-consuming^{12,14} These devices were not designed to be used for neonates. The potential cost of using individual disposable sensors for each screen was thought not to be cost-effective.¹⁸ Although the technology to read through motion and low perfusion had been developed and validated in CCHD by the early 1990's, these devices were not readily available.¹²

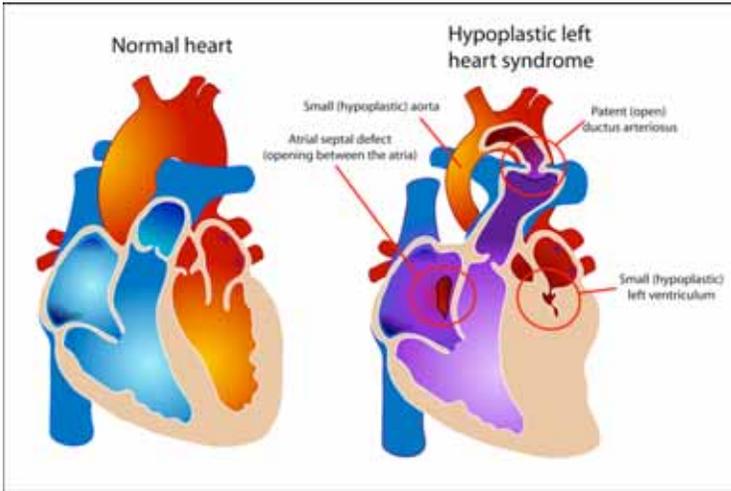
The depth of the problems was described by Chang who looked at a series of missed diagnosis of Critical Congenital Heart Disease. In this study, close to 900 patients from the California 1989-2004 statewide registries were investigated. There were an average of 10 patients with missed CCHD diagnosis, and 20 patients with late diagnosis per year. The overall incidence of missed CCHD diagnosis was 1.7 per 100,000 live births. "Although many screening strategies have been studied, none have proved effective in detecting newborn CCHD."⁹

The sentinel study was performed by Granelli and her associates using a Swedish cohort in a very large collaborative multicenter study (n=39,821). Using a newer pulse oximetry technology capable of reading through motion and low perfusion, Granelli suggested that pulse oximetry could be cost-neutral in the short-term, but with the probable prevention of long-term neurological morbidity. The reduction in pre-operative care costs of a child presenting at extremis cost analysis could favor pulse oximetry screening. Adding pulse oximetry screening (Masimo SET) before discharge increased detection of CCHD by 28% (from 72% to 92%). No babies died from undiagnosed duct-dependent lesion in the pulse oximetry group. Five babies in the control group died during the same period of time. There was an improved rate of detection of duct dependent circulation of 92% as shown in Table 1.¹⁷

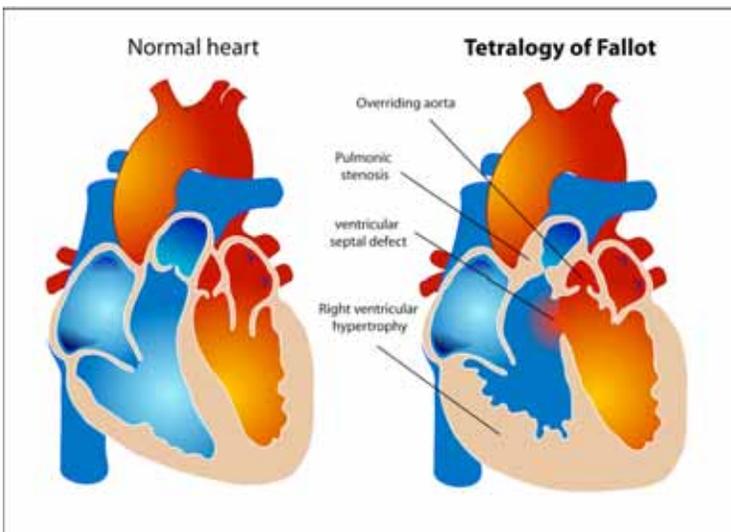
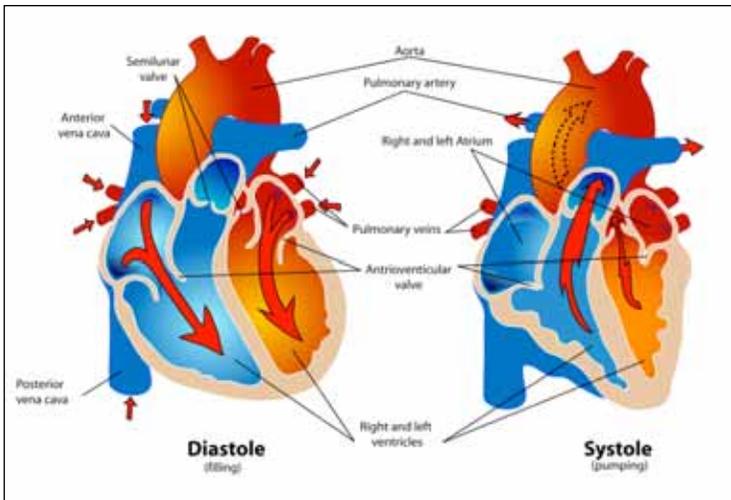
Table 1		
N= 39,821 babies	Physical Exam Alone	Physical Exam + Pulse Oximetry Screening
Sensitivity	63%	83%
Specificity	98%	99.8%

Ewer (2011) performed a large accuracy study (n=20,000) in the UK studying the use of pulse oximetry in the detection of babies with CCHD. He found that pulse oximeters produce saturations that are not only accurate, but stable in active individuals with low perfusion making these instruments ideal for screening newborns in the first hours of life. The Ewer study used a saturation cutoff of less than 95% in either limb to indicate the presence of a positive screen test or a difference of more than 2% between the limb saturations versus the 3% difference used by the expert panel. The median age at testing in the Ewer study was 12.4 hours, while the expert panel and/or Granelli suggested greater than 24 hours or before discharge. In Europe, an earlier discharge is the norm.^{1,17,19}

Roberts studied the issue of cost-effectiveness in the UK. Their objective was to conduct a cost-effectiveness analysis comparing pulse oximetry as an adjunct to clinical examination or examination alone in newborn screening for congenital heart defects (CHD). In a study that involved six large maternity units in the UK, the study showed that pulse oximetry as an adjunct to current routine practice of clinical examination alone is likely to be considered a cost-effective strategy in the light of currently accepted thresholds for medical needs justification. The clinical examination alone strategy detects 91.5 additional cases of clinical significant CHD per 100,000 birth at an estimated cost of £614,100 (app. \$964,700) for the strategy. Using the intervention Strategy of Pulse Oximetry as an adjunct to Clinical Examination would detect 121.4 cases of CHD per 100,000 live births at a cost of £1,358,800 (app. \$2,133,900). An additional cost of £744,700 (app. \$1,169,900) would be



Normal heart vs. Hypoplastic Left Heart Syndrome - http://en.wikipedia.org/wiki/File:Hypoplastic_left_heart_syndrome.svg



Normal heart vs. Tetralogy of Fallot http://en.wikipedia.org/wiki/File:Tetralogy_of_Fallot.svg

required to detect app. 30 additional cases of a timely diagnosis per 100,000 live births. The incremental cost-effectiveness ratio (ICER) which represents the additional cost per additional case of timely diagnosed case of CHD per 100,000 live births is approximately £24,900 (app. \$39,100). The cost-effectiveness acceptability curve presents the

probability that a screening strategy is cost-effective with society's willingness to pay (WTP) for a timely diagnosis of a clinically significant CHD. The WTP threshold used by the National Institute for Health and Clinical Excellence (NICE) in the UK is £20,000 per quality-adjusted life year (QALY). QALY has been described as the only acceptable threshold used by decision making institutions or payer. Up to this threshold, a society is willing to pay £20,000 per QALY per annum of life in good health. For society to pay £100,000, a newborn with timely diagnosis of a CHD, and thereby good health, would need to gain five QALYs. If the majority of these children reach early adulthood in good health, at £100,000 WTP threshold proposed, the probability that 'pulse oximetry as an adjunct to clinical examination' would be cost-effective is greater than 90%.¹⁸

Kemper proposed a series of national standards based on the recommendation of a panel of pediatric and cardiac experts from the American Academy of Pediatrics (AAP), American College of Cardiology (ACC), and American Heart Association (AHA). They also defined CCHD as including, but not limited to: Hypoplastic Left Heart Syndrome, Pulmonary Atresia (PA), Tetralogy of Fallot (TOF), Total Anomalous Pulmonary Venous Return (TAPVR), Transposition of the Great Arteries (TGA), Tricuspid Atresia (TA), and Truncus Arteriosus. According to the algorithm, newborns are eligible for screening at 24-48 hours of age, or shortly before discharge if under 24 hours of age. If the screen identifies saturation less than 90% in the right hand or foot, the newborn has had a "positive" screen, and is referred for additional testing. A 90% to less than 95% screen in the right hand or foot or a greater than 3% difference between the right hand and foot is considered an equivocal screen and requires re-screening in an hour. Saturations greater than or equal to 95% in the right hand or foot or saturation difference of 3% or less between the right hand and foot defines a negative screen. For equivocal screens, the three-prong decision tree is repeated for a second iteration in one hour as shown in the diagram. For equivocal screens, re-screening occurs again after an hour. If the screen is equivocal a third time, it is considered a positive screen. It is essential that those newborns who have what is considered a positive screen have a complete work-up for congenital heart disease prior to discharge home. Although ready access to a pediatric cardiologist may not be available, it is mandatory to at least document a negative echocardiogram prior to discharge given the high sensitivity and specificity of the screen. Other recommendations were made as well. Chief among these were the use of disposable or reusable probes and probes with close coupling to skin (i.e., taped rather than clamped), which can improve oximetry monitoring in newborns. Because of minor differences in the calibration of the LED signals, third party sensors should not be used. Although this seems trivial on the surface, hospital buying practices can often times focus on the lowest cost, as opposed to quality of the signal. The work group noted that performing a typical physical examination alone for CCHD led to almost 10 times more false-positive results compared with using similar screening protocols in Sweden and the United Kingdom. Further, the group suggested a 5-point implementation strategy and follow-up procedures including screening, diagnostic confirmation, electronic results reporting, primary care follow-up, as well as surveillance and tracking.^{1,3,5,7,8,17,19,20}

An earlier Granelli study published in 2007 looked at 10,000 normal Swedish infants along with 9 confirmed with CCHD. Another parameter, the perfusion index (PI), was described. The PI is the infrared component of the pulse oximetry signal. In neonates, they established reference values for PI using the right hand and foot in normal infants between 1 and 120 hours of age. Values lower than 0.70 may indicate illness. PI may indicate abnormal blood flow from the heart in babies with CCHD. In all of the babies with a confirmed left heart obstructive disease CCHD, newborns had either pre or post ductal PI values below the interquartile cut-off value of 1.18 and five of the nine had a value below the recommended cut off of 0.70. PI is not included in the Kemper recommendation, but it is reported in all stand-alone pulse oximeters that have been validated by the FDA to read through motion and low perfusion and may be beneficial to consider in evaluation for CCHD.²¹



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In 2010, the Secretary's Advisory Committee on Heritable Disorders in Newborns and Children recommended adding Critical Congenital Heart Disease to the Recommended Uniform Screening Panel. In 2011, Health and Human Services Secretary Kathleen Sebelius agreed with the Committee and recommended that Health and Human Services agencies "proceed expeditiously" with the implementation of newborn screening for critical congenital heart disease. In a letter dated September 21, 2011, she outlined the decision to adopt expert panel recommendations for universal CCHD screening by pulse oximetry for all newborns into federal Recommended Uniform Screening Panel (RUSP) Guidelines—the national newborn screening system standards and policies.²²

State Laws have been passed to incorporate the federal mandate. Although HHS has defined the expectation that newborn CCHD screening be incorporated into state newborn screening as soon as possible, the implementation process has been left to each individual state, along the lines of the original newborn screening.^{2,22}

New Jersey passed legislation requiring each birthing facility licensed by its Department of Health and Senior Services to perform a pulse oximetry screening for CHDs on every newborn in the state that is at least 24 hours old (P.L. 2011, Chapter 74, Assembly No. 3744). The act went into effect August 31st, 2011. New Jersey was the first state in the nation to enact legislation.²³

Maryland passed legislation (Chapter 553, HB 714), in May 2011. This required the state Department of Health and Mental Hygiene to adopt the federal screening recommendations if the HHS secretary issues recommendations on critical heart disease screening of newborn.²⁴

Indiana passed legislation (SB 552) requiring pulse oximetry screening of newborns for low oxygen levels beginning January 1st, 2012. This requires the Indiana State Department of Health (ISDH) to:

1. develop procedures and protocols for the testing, and
2. report to the Indiana legislative council, by October 31st, 2011, certain information on the screening (SB 552).²⁵

New York passed Assembly Bill 7941 of the 2011 New York Legislature. The bill requires the commissioner of the state health department to establish a newborn screening program using pulse oximetry screening to detect CHDs. Since May 22nd, 2012, the bill has been held for consideration in the health committee.²⁶

Pennsylvania introduced legislation which was introduced in the Pennsylvania General Assembly on July 25th, 2011. The bill amended the state's Newborn Child Testing Act by adding a requirement that each health care provider that provides birthing and newborn care services perform a pulse oximetry screening a minimum of 24 hours after the birth of every newborn in its care (SB 1202).²⁷

New Hampshire introduced Senate Bill 348-FN. Section 132:10-aa Newborn Screening; Pulse Oximetry Test Required. The physician, hospital, nurse midwife, midwife, or other health care provider attending a newborn child shall perform a pulse oximetry screening, according to the recommendations of the American Academy of Pediatrics, on every newborn child. This act was to take effect 60 days after its passage.²⁸

Missouri introduced House Bill No. 1058 – Newborn Screening. This bill establishes Chloe's Law which requires, subject to appropriations, the Department of Health and Senior Services to expand by January 1st, 2013, the newborn screening requirements to include a pulse oximetry screening prior to the newborn being discharged from a health care facility.²⁹

Georgia introduced House Bill No. 745. The Department of Public Health was to undertake a study to determine whether pulse oximetry screening should be implemented as a standard test for newborn infants in this state to aid in detecting congenital heart defects. The code section shall stand repealed on January 31st, 2013.³⁰

Florida introduced House Bill No. 829. By October 1st, 2012, congenital heart disease screening must be conducted on all newborns in hospitals in this state on birth admission. When a newborn is delivered in a facility other than a hospital, the parents must be instructed on the importance of having the screening performed and must be given information to assist them in having the screening performed within 10 days after the child's birth.³¹

Virginia introduced House Bill No. 399. Congenital cyanotic heart disease, critical; Virginia Department of Health to implement program for screening infants. The bill was to require the Department of Health to convene a work group to develop a plan for implementation of a program for screening infants for critical congenital cyanotic heart disease. The bill passed both state house and senate assembly but was vetoed on 4/09/12 by the Governor because Virginia had already implemented a work group.³²

West Virginia introduced House Bill No. 4327. A Bill to amend the Code of West Virginia, 1931, as amended, by adding thereto a new article, designated §16-44-1 and §16-44-2, all relating to requiring pulse oximetry testing for newborns. The purpose of this bill was to require each birthing facility licensed by the Department of Health and Human Resources to perform a pulse oximetry screening for congenital birth defects on every newborn in its care, a minimum of 24 hours after birth.³³

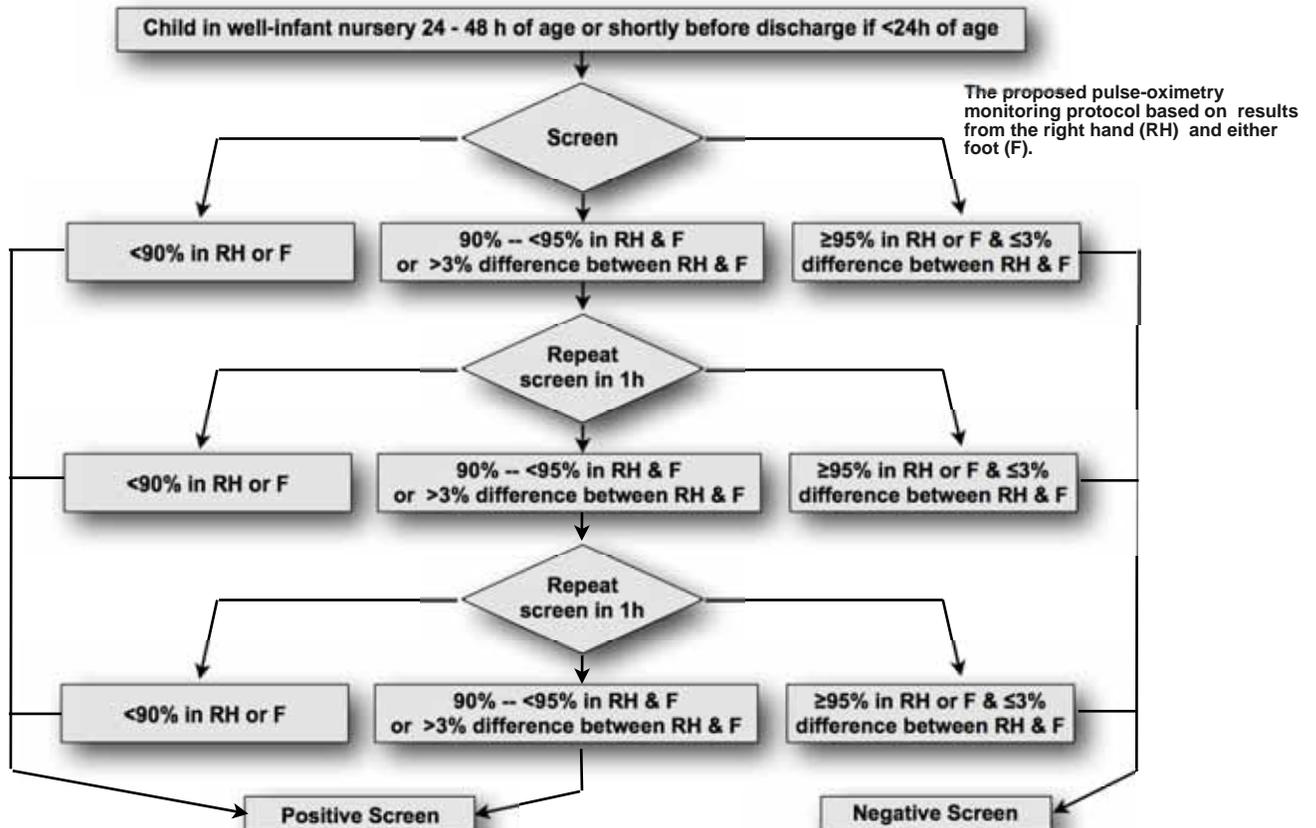
Tennessee proposed legislation requiring the state's genetic advisory committee to develop a program to screen newborns for critical CHD using pulse oximetry. House Bill 373 and Senate Bill 65 were signed into law by the governor in April, 2012.³⁴

Connecticut passed an Act Concerning Pulse Oximetry Screening for Newborn Infants, revising Section 1. Subsection (b) of section 19a-55 of the 2012 supplement to the general statutes (repealed) and the following was substituted in lieu thereof (effective October 1st, 2012). This act established testing requirements, and directed the administrative officer or other person in charge of each institution caring for newborn infants shall have cause to administer to every such infant in its care a screening test for cystic fibrosis, a pulse oximetry screening test and a screening test for severe combined immunodeficiency disease. Such screening tests shall be administered as soon after birth as is medically appropriate.³⁵

Minnesota introduced H.F. No. 3008, in the - 87th Legislative Session (2011-2012) Posted on Apr 20, 2012. This section was to be effective the day following final enactment. Screening shall take effect 180 days following final enactment or by December 31st, 2012, whichever was sooner. This screening must be done no sooner than 24 hours after birth, unless earlier. According to the provisions, screening is deemed clinically appropriate, but always prior to discharge from the nursery. If discharge or transport of the newborn occurs prior to 24 hours after birth, screening must occur as close as possible to the time of discharge or transport. For premature infants who are less than 36 weeks of gestation and newborns admitted to a higher level nursery, such as special care or intensive care, screening must be performed when medically appropriate prior to discharge. Any newborn that fails the screening must be referred to a licensed physician who shall arrange follow-up diagnostic testing and medically appropriate treatment prior to discharge from the hospital.³⁶

California identified a clear need for congenital heart screening prior to HHS involvement. Many hospitals were screening using Kemper's or related study as paradigm for screening prior to 2012.¹ AB 1731 was introduced by Marty Block and amended Sections 124977 and 125001 of the Health and Safety Code, relating to public health. This modified the newborn screen to include CCHD screening. AB 1731 required the California Department of Public Health to expand statewide screening of newborns to include pulse oximetry screening for critical congenital heart disease in addition to metabolic and hearing screens. "The department shall expand statewide screening of newborns as soon as possible to include pulse oximetry screening, when feasible between

Proposed Pulse – Oximetry Monitoring Protocol by Expert Panel¹



1. Kemper AR, Mahle WT, Martin GR, et al. Strategies for Implementing Screening for Critical Congenital Heart Disease. *Pediatrics* 2011; (10.1542/peds.2011-1317)

24 and 48 hours after birth, for critical congenital heart disease.” AB 1731 passed into law on September 17, 2012.³⁷

As of the end of January, 2013, 44% or 22 states had not enacted screening laws in accordance with the national mandate (cchdscreeningmap.com). Twenty percent had passed legislation, 20% had legislation introduced and 12% had legislation pending. 24% or 12 states had introduced some form of Multi Center Screening and/or plots.^{38,39}

Pulse oximetry is a noninvasive, simple test that measures the functional percentage of hemoglobin in blood that is saturated with oxygen. When performed on a newborn after birth, pulse oximetry screening is often more effective at detecting critical, life-threatening congenital heart defects than other screening methods. Newborns with abnormal pulse oximetry results require immediate confirmatory testing and intervention. In a duct-dependent circulation, pulse oximetry screening performed both preductally and postductally detects nearly 100% of infants with pulmonary duct dependent circulation. Many newborn lives could potentially be saved by earlier detection and treatment of congenital heart defects if all birthing

facilities in the country were performing this simple, noninvasive newborn screening.

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- oximetry screening for critical congenital heart disease. *Pediatrics* 129, 190-192, doi:10.1542/peds.2011-3211 (2012).
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www.chimsupport.com

HOW WE OPERATE

The team involved at C.H.I.M.S. is largely a volunteering group of physicians nurses and technicians who are involved in caring for children with congenital heart disease.

The concept is straightforward. We are asking all interested catheter laboratories to register and donate surplus inventory which we will ship to help support CHD mission trips to developing countries.

CookChildren's

Cardiologist Opportunities!

- *Pediatric Non-Invasive Cardiologist*
- *Adult Congenital Cardiologist*
- *Pediatric Transplant Cardiologist*



Cook Children's Medical Center is a non-academic, 457-bed tertiary care pediatric hospital. Cook Children's physicians enjoy a collegial relationship with more than 300 specialty and primary care associates. Cook Children's Physician Network is the employed physician component of Cook Children's Health Care System, a pediatric system of care where physician leadership is fostered and physicians actively participate in the strategic goals as well as the mission of the organization.

Knowing that every child's life is sacred, it is the promise of Cook Children's to improve the health of every child in our region through the prevention and treatment of illness, disease and injury.

Cook Children's (located in Fort Worth, Texas) is growing its Heart Center Team and has opportunities for a pediatric transplant cardiologist, an adult congenital cardiologist, and a non-invasive pediatric cardiologist (preferably with experience in transthoracic, transesophageal and fetal echocardiography). This is an exciting opportunity to join a 15- person cardiology group consisting of 2 invasive pediatric cardiologist, 3 electrophysiologists, 2 pediatric heart surgeons and 8 noninvasive cardiologists. The program is chaired by Deborah Schutte, MD. Cook Children's has an integrated heart center consisting of cardiac catheterization labs, two cardiovascular operating rooms and echo labs with full digital capabilities.

Apply online:
www.cookchildrens.org

Please contact:
Debbie Brimer
Physician Recruiter
1/877-532-6657 or
debbie.brimer@cookchildrens.org

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Pediatric Interventional Cardiologist

The Boston Children's Heart Foundation of Boston Children's Hospital and Harvard Medical School is recruiting a pediatric interventional cardiologist to join a large, academic, and innovative practice. Candidates should be at the instructor or assistant professor level, should be board certified in pediatric cardiology, and should have completed advanced training in congenital heart catheterization. This position will focus on clinical activity and will offer the opportunity to lead clinical research projects and train fellows. We are particularly seeking individuals with a track record of an active role in helping develop new devices/procedures.

**Please send letters of application
and CV to:**

**Audrey C. Marshall, MD, Chief,
Invasive Cardiology, Boston
Children's Hospital
300 Longwood Avenue
Boston, MA, 02115**



Boston Children's Hospital
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Archiving Working Group

**International Society for Nomenclature of
Paediatric and Congenital Heart Disease**

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Tricuspid Atresia Form of Single Ventricle – How to Translate into Diagnosis Codes Is Often Complicated

By Julie-Leah J. Harding, CPC, RMC, PCA, CCP, SCP-ED, CDIS

Tricuspid atresia may be defined as congenital absence or agenesis of the tricuspid valve. Due to limited pulmonary blood flow, surgery is required to establish a connection between the arteries to the body and the arteries to the lungs. A Modified Blalock-Taussig (BT) shunt procedure is performed which requires a shunt to be placed between the subclavian artery and the pulmonary artery. A Pulmonary Band may be needed if there is a large VSD to control the blood flow. A Bi-directional Glenn may also be needed where the superior vena cava is directly connected to the pulmonary artery. Almost all patients will have an ASD.

Often providers will list Tricuspid Atresia as a specific type, they are as follows:

- ▶ Type I - Normally related great arteries
- ▶ Type II - D-Transposition of the great arteries
- ▶ Type III - Great artery positional abnormalities other than D-transposition of the great arteries *

* These cases are complex and rare.

So How Does This Translate into ICD-9 Codes for Those Responsible for Reporting and Billing These Cases?		
TYPE	ICD-9-CM CODES	DESCRIPTION
Tricuspid Atresia Type Ia	746.1 + 746.01 + 745.5	Tricuspid Atresia with Pulmonary valvar atresia with an ASD
Tricuspid Atresia Type Ib	746.1 + 746.02 + 745.5	Tricuspid Atresia with Pulmonary valvar stenosis with an ASD
Tricuspid Atresia Type Ic	746.1 + 745.5	Tricuspid Atresia with Normal Pulmonary Arteries with an ASD; there is no obstruction. Likely the patient will be in congestive heart failure (+428.0)
Tricuspid Atresia Type IIa	746.1 + 745.10 + 746.01 +745.5	Tricuspid Atresia with D-Transposition of the great arteries with Pulmonary valvar atresia with an ASD
Tricuspid Atresia Type IIb	746.1 + 745.10 + 746.02 +745.5	Tricuspid Atresia with D-Transposition of the great arteries with Pulmonary valvar stenosis with an ASD
Tricuspid Atresia Type IIc	746.1 + 745.10 +745.5	Tricuspid Atresia with D-Transposition of the great arteries with no pulmonary valve obstruction with an ASD; patient may have congestive heart failure (+ 428.0), Coarctation (+747.10), or SubAortic Stenosis (+746.81)

All types are subdivided into the following subgroups:

- ▶ Subgroup a - Pulmonary valvar atresia
- ▶ Subgroup b - Pulmonary valvar stenosis or hypoplasia
- ▶ Subgroup c - No pulmonary valvar stenosis (normal pulmonary arteries)

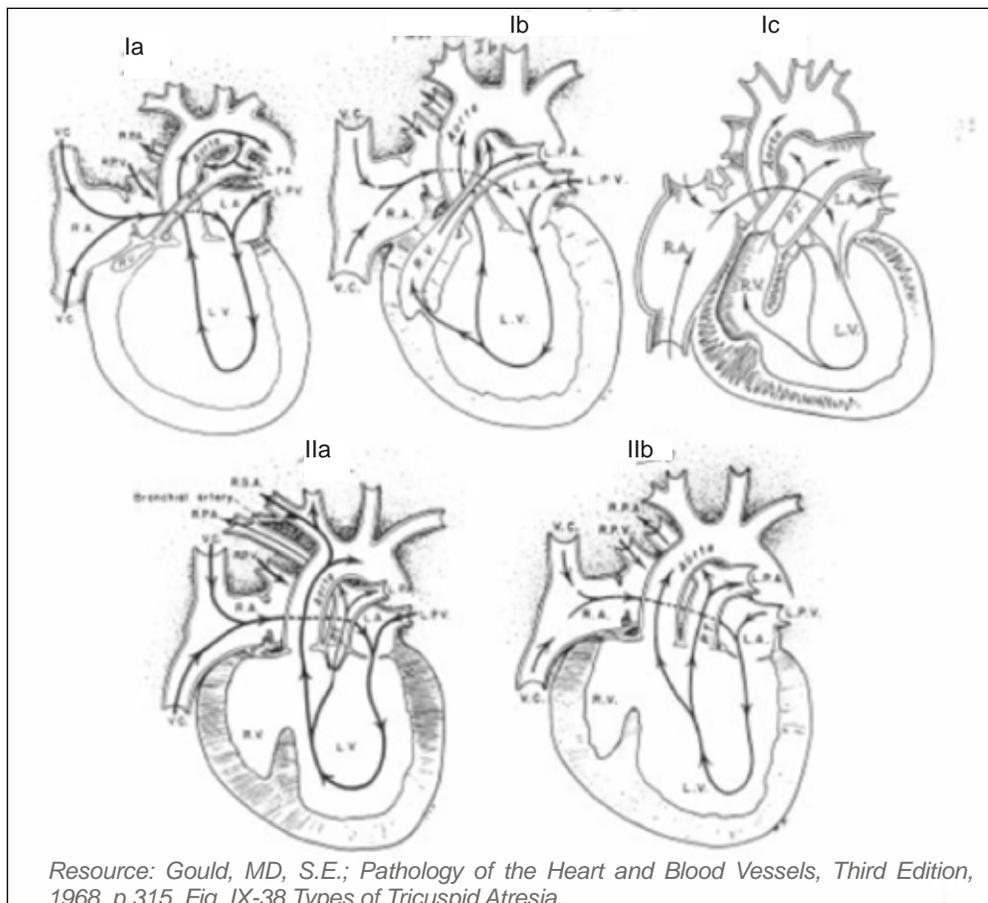
A common difficulty with documentation is the lack of clarity and specificity. Many surgeons omit the word valve or valvar when describing pulmonary valvar atresia or stenosis. It is likely stated as pulmonary stenosis or pulmonary atresia. There are always opportunities to improve documentation capture which will aid when trying to assign the appropriate diagnoses to these surgical cases.

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Resource: Gould, MD, S.E.; Pathology of the Heart and Blood Vessels, Third Edition, 1968, p.315, Fig. IX-38 Types of Tricuspid Atresia.

Master Class on Congenital Cardiac Morphology Provides Comprehensive Review of Shunt Lesions and Treatments

By Vivek Allada, MD

The fifth annual *Master Class in Congenital Cardiac Morphology* provided a diverse group of attendees with a unique perspective and rich understanding of Congenital Heart Disease. Hosted by the Heart Institute at Children's Hospital of Pittsburgh of UPMC at its John G. Rangos Sr. Conference Center in Pittsburgh, Pa., the fall symposium offered three days of intensive, interactive learning for medical professionals and trainees from across the U.S. and around the world.

The program used didactic presentations, live video demonstrations, and hands-on examination of cardiac specimens to cover a range of congenital cardiac malformations. There was an emphasis on imaging and surgical correlations for each lesion, giving participants an understanding of the usefulness and practicality of the sequential segmental analytical approach to the examination of congenitally malformed hearts.

The 2012 event focused on left-to-right shunts, while helping to familiarize participants with the morphology of a full spectrum of congenital heart lesions.

Attendance at the 2012 program typified the diverse turnout of past events. Participants comprised representatives from North and South America, the Caribbean and Europe, and included cardiologists, pathology residents, cardiothoracic surgeons, cardiac intensive care specialists, cardiac interventionists, nurses and nurse practitioners, and device makers.



Bill Devine, BS explains anatomic features of a pediatric heart specimen.

While the program is always particularly beneficial for trainees and those learning cardiac anatomy, the 2012 program marked the first year a significant number of adult cardiologists took part in the program. Many of our children are now successful survivors of Congenital Heart Disease and grow up to be adults, so the adult cardiologists are quite interested in learning about congenital morphology.

The annual program is sponsored jointly by Children's Hospital's Heart Institute and Division of Pediatric Pathology and the University of Pittsburgh School of Medicine's Center for Continuing Education in the Health Sciences. In keeping with tradition, the premier highlight of the 2012 program were lectures by one of the world's leading experts in cardiac morphology, Professor Robert H. Anderson, MD, FRCPath, Professorial Fellow at Newcastle University's Institute of Genetic Medicine and visiting Professor of Pediatrics, Medical University of South Carolina (MUSC).

Professor Anderson's didactic lecture on heart anatomy included a thorough review of normal heart anatomy to illustrate how to use sequential segmental analysis. His engaging review included basics, such as understanding how to properly describe and characterize a heart according to its attitudinally correct orientation, as well as a discussion of the morphological method, an explanation of how to distinguish the highly nuanced segmental features of the heart, and examination of the conduction tissues that are so vital for surgeons to understand.

Each of Professor Anderson's presentations of pathologic heart samples was complemented by correlations with multi-modality imaging. Imaging specialists Lizabeth Lanford, MD; Mark DeBrunner, MD; and Vivek Allada, MD, all of the Heart Institute at Children's Hospital, and MUSC's Anthony Hlavacek, MD, FAAP,

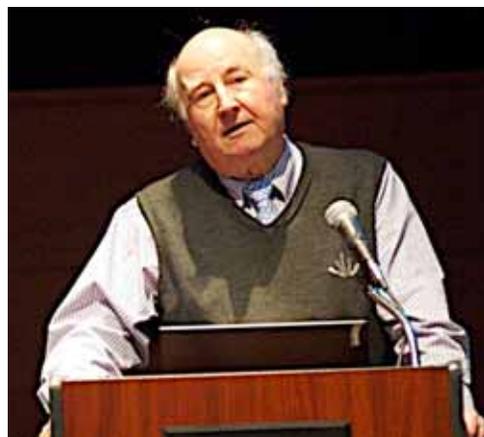


Victor Morell, MD discusses success rates of AVSD surgical procedures.

reviewed the same structures in motion and toured the heart structures using CT angiography and 3-D echocardiography.

Presenters, including Professor Anderson, built on this grounding in the structure and orientation of the heart, with additional didactic presentations and video demonstrations of interatrial communications, ventricular septal defects (VSDs), atrioventricular septal defects (AVSDs) and unbalanced AVSDs and other complex associations.

William Devine, BS, of the Department of Pediatric Pathology at Children's Hospital of Pittsburgh of UPMC and Diane Debich-Spicer, BS, PA (ASCP), curator of the Lodewyk Van Mierop Archive at the University of Florida, Gainesville, presented dozens of heart



Professor Robert Anderson, MD, FRCPath, lectures at the fifth annual Master Class in Congenital Cardiac Morphology at Children's Hospital of Pittsburgh of UPMC.



Steven A. Webber, MBChB, MRCP, Chair, Department of Pediatrics, Monroe Carell Jr. Children's Hospital at Vanderbilt, helped direct the Master Class.



In a hands-on session at the Master Class, Diane Debich-Spicer, BS (on right) points out a VSD on a pediatric heart specimen.

samples via video projection, showing each type of defect and nuanced variants. On the third day of the program, attendees were invited to examine the various specimens during an intensive hands-on workshop.

In all, more than a dozen presenters shared their considerable expertise. Leading members of the Heart Institute at Children's Hospital participated, including myself, interventionalist Jacqueline Kreutzer, MD, FACC, FSCAI, cardiothoracic surgeons Victor Morell, MD, and Peter Wearden, MD, PhD, who added important clinical perspective on management and treatment of each lesion. Helping lead the program was former chief of Children's Heart Institute, Steven A. Webber, MBChB, MRCP, who now serves as chair of the Department of Pediatrics at the Monroe Carell Jr. Children's Hospital at Vanderbilt, and who with his colleagues at Children's Hospital of Pittsburgh of UPMC founded the *Pittsburgh Master Class* series.

This *Master Class* provided an incredible opportunity for attendees to bridge pathology, imaging, and clinical management.

Dr. Kreutzer's presentation, "How Morphology Predicts Suitability for Device Closure," reviewed criteria related to secundum atrial septal defects, such as size, number of defects and characteristics of surrounding tissue to determine which type of closure device to use.

Drs. Wearden and Trucco provided the surgeon's and cardiologist's perspectives, respectively, on working with the interventionalist to determine the best approach for treating VSDs. "Like everything we do in cardiology, it's a team approach and a team outcome," Wearden emphasized to attendees before discussing rationale supporting both surgical approaches and the

use of closure devices. Complementing Dr. Wearden's presentation, Dr. Trucco reviewed studies documenting success rates, as well as complications from using closure devices in pediatric cases.

Following the presentations on VSDs, Professor Anderson provided a didactic lecture on AVSDs, followed by a review of pediatric heart specimens by Debich-Spicer and spectacular video presentations by Dr. Hlavacek using 2-D and 3-D echocardiography to show AVSDs. Dr. Morell then reviewed surgical techniques for repair of AVSDs, including the single-patch technique, the two-patch technique, and a modified single-patch technique known as the Australian method.

Additional sessions followed on unbalanced AVSD's and other complex associations, patent arterial ducts and the aortopulmonary window, including didactic presentations and video demonstrations followed by echocardiography, magnetic resonance and CT imaging and hands-on sessions.

Program participants were also invited to a Pediatric Grand Rounds presentation which preceded the second day of the program and also covered a cardiology topic. The lecture by Ferhaan Ahmad, MD, PhD, from the University of Pittsburgh School of Medicine's Division of Cardiology, addressed the "Mechanistic Insights and Clinical Implications from Genetic Studies of Hypotrophic Cardiomyopathies."

What sets the *Master Class* apart from other educational programs is its multimodal approach and the degree to which it exposes participants to pathological specimens and compares them to how hearts appear using modern imaging equipment.

2013 Master Class to Focus on Embryology

Plans are already underway for the *Sixth Annual Master Class in Congenital Cardiac Morphology* sponsored by the Heart Institute and Division of Pediatric Pathology at Children's Hospital of Pittsburgh of UPMC and the University of Pittsburgh School of Medicine's Center for Continuing Education in the Health Sciences.

The 2013 class will highlight anomalies of the arterial and atrioventricular valves, and coronary arteries, and will again provide a multimodality view of all aspects of the developing heart using the latest imaging technologies and hands-on demonstrations. Continuing education credits will be provided. Based on feedback from attendees, the 2013 conference will incorporate discussions about developmental embryology of each lesion. The conference is scheduled for Oct. 2 to 4, at the John G. Rangos Sr. Conference Center, located on the campus of Children's Hospital of Pittsburgh of UPMC in Pittsburgh, PA.

Complete program details will be available this summer. For more information in the meantime, contact Lynda Cocco, 412-692-3216, at the Heart Institute at Children's Hospital of Pittsburgh of UPMC, or visit www.chp.edu/masterclass.

Professor Anderson, who is known for a generation of exhaustive work in the study of heart specimens, commented on the quality of modern imaging technologies to session attendees. "What is fascinating to me, and also very rewarding, is that the morphologic concepts that we've been putting forward now for more than 30 years are now matching entirely what you see when you're treating and imaging the patients yourselves," he said. "To me, what is fortunate is that now you can see all the anatomy just as well with echocardiography, with computer tomography, and magnetic resonance imaging."

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A Counselor's Experience at Camp Odayin

By Konstantin Kravchenko, MS II

I was excited to volunteer at Camp Odayin because of my previous childhood experiences as a camper. I remember the counselors always being fun and energetic, making any activity easy to enjoy. I was ready to be that silly, caring, and responsible person that I remember my counselors being. I had also just finished my first year of medical school, and was ready to ride boats and build sand castles, instead of memorize biochemical pathways and look in microscopes. I was thrilled to have the opportunity to teach songs, give hints in team building activities, and have a positive impact on the kids, many of whom have survived extraordinary circumstances to be here today. Little did I know, it was the campers who had a positive impact on me.



The campers were phenomenal. Seeing kids with scars on their chest running around and playing was a sight to see. Many of the kids have gone through numerous open-heart operations, and have been very sick at times. Seeing them playing basketball, jumping up and dancing, and doing other physical activity, truly reinforced why I have chosen medicine as my career path. As a future physician, I will be seeing these kids when they are sick and not doing so well. At times I will be overwhelmed with all of the presenting symptoms, puzzled at arriving at a diagnosis, and in the worst-case scenario, in fear that they won't make it. Seeing these kids build bonds, play games, and just simply be kids outside a healthcare setting, has been one of the most rewarding experiences for me.

The Camp Odayin experience also made medical school more relevant. For example, cardiovascular and respiratory systems were covered a few weeks after my time at Camp Odayin. Learning about heart defects,



such as Tetralogy of Fallot, seemed much more relevant now. No longer was the anomaly just a picture in a textbook with a list of presenting symptoms. It was a disease to which I could put a face. It was a disease that I knew with the right procedures, could turn a list of presenting symptoms into a child who is running into the water about to do a polar plunge.

It is easy to get bogged down when you spend countless hours studying to do well on a test. It is discouraging at times to know that you have been in school for what has seemed to be an eternity, and still have an even longer way to go. But to know that the same people that are responsible for significantly prolonging and increasing the quality of life of these kids, have gone through a similar process, and have done the same hard work that I am currently doing, motivates me to keep pushing. It inspires me to work even harder, and be the best physician that I can be.

My experience at Camp Odayin also reinforced the need to improve the field of medicine. As I lay in the top bunk of my "cubby," I could hear one camper's heart pounding loudly, as if it was out of his chest. Another camper was coughing, due to fluid buildup in his lungs secondary to his heart condition. Although, the health care system has prolonged and improved the quality of life of these kids with severe conditions, we have a long way to go. New therapies are needed so that Frank can sleep better at night and not have to cough. New anticoagulative medications are needed so that George does not suffer a stroke, and can dance with both legs in the talent show.

I would like to thank Camp Odayin for giving me the opportunity to be a camp counselor. Not only was it a great experience to meet fascinating individuals, but it also had a significant impact on my life and career path.

For more information on Camp Odayin, visit: www.campodayin.org

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Medical News, Products and Information

Southwest Healthcare System Selects Digisonics CVIS

California-based Southwest Healthcare System recently selected Digisonics as the Cardiovascular Information System (CVIS) Solution for Inland Valley Medical Center in Wildomar, Calif. and Rancho Springs Medical Center in Murrieta, Calif.

The Digisonics CVIS will enable clinicians at the facility to quickly create structured reports for their adult and pediatric echo studies. Users will also have fully functional remote reading capabilities through the secure web-based DigiNet Pro application for anywhere, anytime access to the complete CVIS. Southwest Healthcare will also implement the Digisonics Search Package, a comprehensive, user-configurable search engine. This powerful tool allows the facility to quickly set up search criteria to extract clinical information for use in research, compile statistics required for accreditation and generate management reports to target areas for productivity and efficiency.

HL7 interfaces for Orders In and Results Out will create a fully electronic workflow between Digisonics and the hospital's Cerner Millennium System. DICOM Modality Worklist and DataLink modules will automate transfer of patient biometry to and from the Medical Center's Philips ultrasound machines with the Digisonics CVIS, significantly reducing manual data entry time. Digisonics DigiServ, a multi-site server, will provide storage and communication management for the enterprise-wide system. As a result, Southwest Healthcare will benefit from a seamless cardiology workflow with improved efficiency, accuracy and turnaround times.

The DigiView Cardiology PACS and Structured Reporting System, ranked *Best in KLAS* in the 2008, 2009, 2010, 2011 and 2012 *Top 20 Best in KLAS Awards: Software & Professional Services* reports for the Cardiology market segment, combines high performance image review workstations, a powerful PACS image archive, an integrated clinical database, comprehensive measurements and calculations package, and highly configurable reporting for cardiovascular modalities. The DigiNet Pro add-on option provides users with fully functional web-based access to their cardiovascular studies from anywhere at any time. For further information, please contact: James Devlin at Digisonics, Inc. jdevlin@digison.net or visit www.digisonics.com.

BPA Linked to Potential Adverse Effects on Heart and Kidneys in Children and Adolescents

Newsweek — Exposure to a chemical once used widely in plastic bottles and still found in aluminum cans appears to be associated with a biomarker for higher risk of heart and kidney disease in children and adolescents, according to an analysis of national survey data by NYU School of Medicine researchers published in the January 9, 2013, online issue of *Kidney International*, a Nature publication.

Laboratory studies suggest that even low levels of bisphenol A (BPA) like the ones identified in this national survey of children and adolescents increase oxidative stress and inflammation that promotes protein

Pediatric Cardiology Division Chief

The Department of Pediatrics at the Wake Forest University School of Medicine (WFUSM) in Winston Salem, North Carolina, is recruiting a full-time section head (chief) for the division of Pediatric Cardiology. The ideal candidate will be a board certified cardiologist with training and experience in providing leadership, as well as clinical, academic and service excellence. The candidate should have already achieved the rank of associate or full professor, or be qualified for promotion to the rank of associate professor in the department of Pediatrics. In addition to proven leadership abilities, a strong record of research or academic success is required.

The Children's Heart Program at Brenner Children's Hospital functions as a service-line enterprise with support from the hospital administration. The chief of cardiology will be responsible for providing clinical oversight and supporting the academic growth of the current faculty of eight and will also function in collaboration with the director of the Children's Heart Program (one of the two CT surgeons, who is ABTS certified in congenital heart surgery), the vice-president of Brenner Children's Hospital, and the chair of the department of Pediatrics, to formulate the strategic vision for growth of the program. This is a major leadership position for our Children's Hospital and consequently, the successful candidate will receive appropriate support, including an opportunity to recruit other essential team members as needed and develop required programs. We want this important recruit to be successful in helping us achieve our strategic goals of becoming the recognized center of excellence for congenital heart care in Western North Carolina, as well as their own goals to be recognized as a successful leader in academic pediatric cardiology. An interest in and track record of teaching medical students, residents and fellows is required. We are in the process of submitting our PIF for a pediatric cardiology fellowship.

Winston Salem offers a lifestyle that is tough to beat...a short commute, low cost of living, excellent school choices, diverse cultural amenities...a wonderful place to live and raise a family. The city is home to Wake Forest University, one of the country's top academic institutions. We are conveniently located close to beautiful recreational lakes, just over an hour to the NC mountains and three to four hours to the Carolina beaches.

Wake Forest University Baptist Medical Center is an affirmative action and equal opportunity employer with a strong commitment to achieving diversity among its faculty and staff.

Interested candidates should contact:

Bill Selvey
WilliamLaine, Inc.
direct 404-495-9411, toll free 877-231-8379
bselvey@williamlaine.com



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Adult Congenital Heart Disease (ACHD) Specialist

Opportunity

The Heart Center at Akron Children's Hospital seeks a second adult congenital heart disease (ACHD) specialist to join an established, yet rapidly expanding program. Candidates with training or expertise in the care of adults with congenital heart disease and with appropriate board eligibility will be considered. This outstanding opportunity is an academic/clinical position with appointment at Northeast Ohio Medical University available.

Ranked a best children's Hospital by US News and World Report in Cardiology and Heart Surgery, the Heart Center at Akron Children's Hospital provides advanced cardiac care from the fetus to the adult with congenital heart disease. Join a dedicated team of 10 pediatric cardiologists and 2 cardiovascular surgeons who are committed to providing extraordinary patient care and service to patients throughout northeast Ohio.

Hospital Overview

Akron Children's Hospital is the largest pediatric healthcare system in Northeast Ohio, serving over 600,000 patients each year. With two free-standing pediatric hospitals and 20 primary care offices, the Akron Children's Hospital system provides services at nearly 80 locations across an urban, suburban and rural region of Ohio. The services and subspecialties at Akron Children's Hospital span the entire scope of medical services available today – from routine and preventative care to emerging technologies in surgery and patient care.

Akron Children's is dedicated to family-centered care, and improving the treatment of childhood illness and injury through research at the Rebecca D. Considine Clinical Research Institute. Quality is a strategic focus of Akron Children's Hospital through the Mark A. Watson Center for Operations Excellence, using tools such as Lean Six Sigma.

Community Overview

Akron Children's Hospital is set in the beautiful Cuyahoga Valley, just minutes south of Cleveland. From major league attractions to small-town appeal, the greater Akron area and Northeast Ohio has something for everyone. The area is rich in history and cultural diversity, and provides a stimulating blend of outstanding educational, cultural and recreational resources. This four-season community will have outdoor enthusiasts thrilled with over 40,000 acres of Metro Parks for year round enjoyment. Northeast Ohio is gaining a reputation as a world-class center for research and development in a variety of high-tech industries, and has become a premiere destination to work, live, play, shop and dine!

Candidates may submit their curriculum vitae to:

Lori Schapel, FASPR
Akron Children's Hospital
One Perkins Square
Akron, OH 44308
(330) 543-5082

or via e-mail to: lschapel@chmca.org



Akron
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leakage into the urine, which is a biomarker for early renal impairment and future risk of developing coronary heart disease, according to Leonardo Trasande, MD, MPP, associate professor of pediatrics, environmental medicine, and population health, and co-lead author of the study.

The study adds to the growing concerns about BPA, which was recently banned by the U.S. Food and Drug Administration but is still used as an internal coating for aluminum cans. Manufacturers say the chemical provides an antiseptic function, but studies have shown the chemical disrupts multiple mechanisms of human metabolism.

"While our cross-sectional study cannot definitively confirm that BPA contributes to heart disease or kidney dysfunction in children, together with our previous study of BPA and obesity, this new data adds to already existing concerns about BPA as a contributor to cardiovascular risk in children and adolescents," says Dr. Trasande. "It further supports the call to limit exposure of BPA in this country, especially in children," he says. "Removing it from aluminum cans is probably one of the best ways we can limit exposure. There are alternatives that manufacturers can use to line aluminum cans."

Children in the United States are exposed to the chemical early in life and surveys have shown that by age six nearly 92% of children have some trace of BPA in their urine. Its use has been banned in the European Union and Canada, and in the United States for use in baby bottles and sippy cups. Last September Dr. Trasande's group published a study showing a significant association between obesity and children and adolescents with higher concentrations of BPA in their urine in the Journal of the American Medical Association.

In the new study Dr. Trasande, Teresa Attina, MD, PhD, MPH, and Howard Trachtman, MD, of NYU School of Medicine's Department of Pediatrics, analyzed data on 710 children and adolescents aged 6 to 19 collected in a national survey to assess the health and nutritional status of adults and children in the United States. The data was from the 2009-2010 National Health and Nutrition Examination Survey (NHANES), which contained measurements on urinary BPA, and a protein called albumin, which is not normally found in urine because the spaces in the glomerular membrane of the kidney are too small to allow protein molecules to escape. If there is membrane damage as in some kidney diseases like glomerulonephritis, albumin can leak through into the urine.

The researchers controlled for risk factors such as hypertension, insulin resistance, elevated cholesterol, exposure to tobacco smoke, race/ethnicity, caregiver education, poverty to income ratio, age, weight and gender in these children. Children with the highest amount of BPA in their urine, compared to those with the lowest amount, had a higher albumin to creatinine ratio, a potential early marker of renal impairment and future risk of developing coronary heart disease, according to the study.

"While we excluded children with pre-existing kidney disease from our analysis, I am concerned that BPA exposure may have even greater effects on children with kidney disease," says Dr. Trachtman, co-lead author of the study. "Because their kidneys are already working harder to compensate and have limited functional reserve, they may be more susceptible to the adverse effects of environmental toxins. We clearly need further study of BPA exposure and its effects on the kidney both in healthy children and in children who have pre-existing kidney disease."



Do You Use Medical Apps on Your Smartphone or Tablet?

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Send them to: apps@CCT.bz



The researchers concluded their analysis by emphasizing the need for further research on environmental chemicals and cardiovascular disease, noting that further study may well transform our understanding “from one that focuses on dietary risks to an approach that recognizes the role of environmental chemical factors that may independently impart the risk of ... future cardiovascular disease.”

Authors: Leonardo Trasande, MD, MPP, Associate Professor, Departments of Pediatrics, Environmental Medicine and Population Health, NYU School of Medicine, Associate Professor of Health Policy, NYU Wagner School of Public Service and associate professor of public health, NYU Steinhardt School of Culture, Education and Human Development; Teresa Attina, MD, PhD, Departments of Pediatrics, and Medicine; and Howard Trachtman, MD, Professor of Clinical Pediatrics, Department of Pediatrics.

Funding: Funding was provided by KiDS of NYU.

Most Physicians Don't Meet Quality Reporting Requirements

Newsweek — Washington, DC — A new Harvey L. Neiman Health Policy Institute study shows that fewer than one-in-five healthcare providers meet Medicare Physician Quality Reporting System (PQRS) requirements. Those that meet PQRS thresholds now receive a 0.5% Medicare bonus payment. In 2015, bonuses will be replaced by penalties for providers who do not meet PQRS requirements. As it stands, more than 80% of providers nationwide would face these penalties.

Researchers analyzed 2007-2010 PQRS program data and found that nearly 24% of eligible radiologists qualified for PQRS incentives in 2010 — compared to 16% for other providers. The Neiman Institute study is published online in the *Journal of the American College of Radiology*.

“Near term improvements in documentation and reporting are necessary to avert widespread physician penalties. As it stands, in 2016, radiologists collectively may face penalties totaling more than \$100 million. Although not a specific part of this analysis, penalties for nonradiologists could total well over \$1 billion,” said Richard Duszak, MD,

Chief Executive Officer and Senior Research Fellow of the Harvey L. Neiman Health Policy Institute. “Compliance with PQRS requirements has improved each year, but more physicians need to act now: their performance in 2013 will dictate penalties for 2015.”

To read the study, visit: <http://bit.ly/UmOQ3o>

American College of Cardiology to Partner with Hospitals Nationwide for National Heart Health Screening Day

Through its CardioSmart patient initiative, The American College of Cardiology (ACC) is collaborating with hospitals nationwide to offer free heart health screenings to local residents. The ACC's CardioSmart Initiative is a patient-centered program that encourages patients to play an active role in their own heart health.

“To reduce their risk of heart disease, people need to learn what the risk factors are, know their individual numbers associated with those risks and know how to improve those numbers if needed,” said CardioSmart Chief Medical Expert JoAnne M. Foody, MD, FACC. “Lifestyle changes, like eating healthy and being active, that are implemented today can make a measurable difference in a person's risk for heart disease in the future.”

In each screening location, CardioSmart educational materials will be available and nurses will be on hand to offer body mass index measurements, glucose (non-fasting) level testing, cholesterol tests, blood pressure tests and waist circumference measurements. Participants will also have the opportunity to speak with a local cardiologist.

For more information on CardioSmart, visit www.CardioSmart.org.

Standard Written Checklists Can Improve Patient Safety During Surgical Crises

Newsweek — When doctors, nurses and other hospital operating room staff follow a written safety checklist to respond when a patient experiences cardiac arrest, severe allergic reaction, bleeding followed by an irregular heart beat or other crisis during surgery, they are nearly 75% less likely to miss a critical clinical step, according to a new study funded by the US Department of Health and Human Services' Agency for Healthcare Research and Quality.



BE/BC Non-Invasive Pediatric Cardiologist

Lancaster General Health Pediatric Specialist is seeking a second BE/BC non-invasive pediatric cardiologist to join our expanding team. The practice has state-of-the-art equipment including digital echocardiography, exercise laboratory and electronic medical record. The ideal candidate will be skilled in Cardiac MRI, Transesophageal and 3D echo. Skill and interest in Fetal Echocardiography is desirable. Clinical services are provided at the free standing Lancaster General Women and Babies Hospital and the in-patient pediatric unit at Lancaster General Hospital. The Women and Babies Hospital does over 4,200 deliveries per year and has both NICU and MFM services. Outpatient practice is supported by a Nurse Practitioner. On-call responsibilities are supported by remote technology.

Located 65 miles west of Philadelphia, Lancaster, PA. was named by USA Today as the US city where people had the best overall sense of well-being in Feb. of 2012. The historic mid-sized city is known for excellent school systems, easy commutes and low cost of living and has an active arts community. Central East Coast location provides easy access to Washington, D.C., Baltimore and New York.

This employed position receives complete benefits package including 100% provided malpractice insurance, free long term disability and life insurance, low cost wellness focused medical insurance and PTB package. Family relocation services are provided including moving cost.

For further information please review www.LancasterDoctors.org

or contact
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Chair, Department of Pediatric Cardiology

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The Cleveland Clinic, one of the world's most distinguished academic medical centers, announces the search for Chair of Pediatric Cardiology. The Chair would oversee active programs in intervention, non-invasive imaging, electrophysiology, outreach, fellowship, training, and in-patient pediatric cardiology and administratively report to the Chair of the Pediatric Institute. Applicants should have an excellent record of clinical service, teaching and scholarship with experience in leadership, administrative skills, mentoring of faculty, fellows, residents and medical students and program development. Certification by the American Board of Pediatrics in Pediatric Cardiology and eligibility for licensure in the State of Ohio is required.

A faculty appointment at a rank commensurate with experience is available at the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University. The Cleveland Clinic Children's Hospital is consistently ranked as one of the best in the United States by US News & World Report and has 429 staffed beds, of which 121 are on the main campus, 25 in our Children's Hospital for Rehabilitation on Shaker Campus, and 283 in 5 other satellite hospitals across Northeast Ohio. Our staff includes more than 300 physicians in 55 pediatric medical and surgical specialties providing over 650,000 outpatient visits, 17,000 inpatient admissions, 11,000 surgeries, and accepting over 1,400 transports per year. Significant opportunities exist for cooperative program development with the adult Cardiology program ranked #1 in the US News and World Report since 1995.

**Interested Candidates are to submit their cover letter, curriculum vitae
and names of three references to:**
<http://www.clevelandclinic.org/physicianrecruitment>

**Direct Inquiries can be made to: Mark Froimson, M.D., Cleveland Clinic
Chair, Search Committee for Chair, Department of Pediatric Cardiology;
froismm@ccf.org 216-692-7785**

Cleveland Clinic is an equal opportunity employer and is committed to increasing the diversity of its faculty. It welcomes nominations of and applications from women and members of minority groups, as well as others who would bring additional dimensions to its research, teaching, and clinical missions. Smoke/drug free environment.

While the use of checklists is rapidly becoming a standard of surgical care, the impact of using them during a surgical crisis has been largely untested, according to the study published in the January 17th online and print issue of the *New England Journal of Medicine*.

"We know that checklists work to improve safety during routine surgery," said AHRQ Director Carolyn M. Clancy, MD. "Now, we have compelling evidence that checklists also can help surgical teams perform better during surgical emergencies."

Surgical crises are high-risk events that can be life threatening if clinical teams do not respond appropriately. Failure to rescue surgical patients who experience life-threatening complications has been recognized as the biggest source of variability in surgical death rates among hospitals, the study authors noted.

For this randomized controlled trial, investigators simulated multiple operating room crises and assessed the ability of 17 operating room teams from three Boston area hospitals – one teaching hospital and two community hospitals – to adhere to life-saving steps for each simulated crisis.

In half of the crisis scenarios, operating room teams were provided with evidence-based, written checklists. In the other half of crisis scenarios, the teams worked from memory alone. When a checklist was used during a surgical crisis, teams were able to reduce the chances of missing a life-saving step, such as calling for help within 1 minute of a patient experiencing abnormal heart rhythm, by nearly 75%, the researchers said.

Examples of simulated surgical emergencies used in the study were air embolism (gas bubbles in the bloodstream), severe allergic reaction, irregular heart rhythms associated with bleeding, or an unexplained drop in blood pressure.

Each surgical team consisted of anesthesia staff, operating room nurses, surgical technologists and a mock surgeon or practicing surgeon.

"For decades, we in surgery have believed that surgical crisis situations are too complex for simple checklists to be helpful. This work shows that assumption is wrong," said Atul Gawande, MD senior author of the paper, a surgeon at Brigham and Women's Hospital and Professor at the Harvard School of Public Health. "Four years ago, we showed that completing a routine checklist before surgery can substantially reduce the likelihood of a major complication. This new work shows that use of a set of carefully crafted checklists during an operating room crisis also has the potential to markedly improve care and safety."

Hospital staff who participated in the study said the checklists were easy to use, helped them feel more prepared, and that they would use the checklists during actual surgical emergencies. In addition, 97% of participants said they would want checklists to be used for them if a crisis occurred during their own surgery.

The practice of using checklists is borrowed from high-risk industries such as aviation and nuclear power, where checklists have

PEDIATRIC HEART FAILURE/ TRANSPLANT CARDIOLOGIST OPPORTUNITY



The Departments of Pediatrics at the University of Louisville School of Medicine and Kosair Children's Hospital are recruiting for a medical director of heart failure and cardiac transplantation for the Congenital Heart Center at Kosair Children's Hospital in Louisville, Ky.

The primary responsibilities for this position focus on directing and expanding current clinical programs in pediatric heart failure and transplantation to include collaborating with very successful clinical programs in adult heart failure, mechanical assist devices and transplantation. The Kosair Charities Pediatric Heart Research Program at the Cardiovascular Innovation Institute in Louisville and a broad array of basic science research programs at the University of Louisville provide outstanding research infrastructure and collaborative opportunities, with active programs in basic science and translational research involving tissue engineering, stem cells and ventricular assist devices.

An excellent multi-year compensation package is available, commensurate with expertise. Contact Christopher L. Johnsrude, M.D., chief of pediatric cardiology, at cljohn02@louisville.edu or (502) 852-3876, or Amanda R. Bailey, physician recruitment manager, Norton Physician Services, at (502) 439-5144 or amanda.bailey@nortonhealthcare.org.



Kosair Children's Hospital (a part of Norton Healthcare) and the University of Louisville are Affirmative Action, Equal Opportunity, Americans with Disabilities employers, committed to diversity. In that spirit, we seek applications from a broad variety of candidates.

been tested in simulated settings and shown to improve performance during unpredictable crisis events.

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Congenital Cardiology Today welcomes and encourages Letters to the Editor. If you have comments or topics you would like to address, please send an email to: LTE@CCT.bz, and let us know if you would like your comment published or not.

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CALL FOR CASES AND OTHER ORIGINAL ARTICLES

Do you have interesting research results, observations, human interest stories, reports of meetings, etc. to share?

Submit your manuscript to: RichardK@CCT.bz

CONGENITAL CARDIOLOGY TODAY

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