



Children's Heart Center

THE HEART BEAT

Goryeb Children's Hospital
Morristown Medical Center
100 Madison Ave.
Morristown, NJ 07962

Goryeb Children's Center
Overlook Medical Center
99 Beauvoir Ave.
Summit, NJ 07901

Newton Medical Center
175 High Street
Newton, NJ 07860

Flemington Specialty Ped. Care
194 Route 31
Flemington, NJ 08822

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Suzanne Mone, MD
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Aparna Prasad, MD
Leonardo Liberman, MD-EP
Consultant

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Megan Dickinson, RN, BSN
Andrea Winner, RN, BSN

Technologists

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PE-FE, Lead Clinician
Alexis Terlaje, RCS, RDCS-PE-FE,
Lead Technologist
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Ashley DeRosa, RCCS
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Edited by: Margaret Micchelli &
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THE DIRECTOR'S CUT

CHRISTINE DONNELLY, MD

Nature's Lessons: Seeing Anew with Sound-The Birth of Echocardiography

In 1794, an Italian biologist, Lazzaro Spallanzani, discovered that bats navigated in the dark by means of reflected high frequency sound waves (echolocation) which eventually formed the basis of ultrasound physics. It would take a century or two, however, before the application of the bat's methods of using sound waves was used in medicine to "locate" and image the heart.

After Spallanzani's work, the next significant events came in the 19th century with the discovery that the frequency of sound varied with the speed of the source (Doppler effect) and that certain substances could generate electricity in response to sound waves (the piezoelectric effect discovered by the Curie brothers). These two discoveries paved the way for creating instruments (transducers) to generate and receive sound waves, to process these into an image and to measure flow. The initial applications of these discoveries were in the military world during WW I with the development of technology using sound waves for the detection of submarine locations (SONAR) and in WWII with the development of techniques using reflected radio waves for airplane detection (RADAR).

It was the team of Inge Edler and Carl Hellmuth Hertz in the early 1950s that gave birth to the use of this tool for investigation of the heart. Edler, a Swedish cardiologist, had surgical colleagues who needed a more accurate way to assess mitral valve disease in adult patients before surgery. This was prior to the widespread use of cardiac catheterization and prior to the heart lung machine so accurate diagnosis and surgical time was critical. Consulting with Hertz, a physicist, they borrowed a sonar device from a local shipyard and

Hertz began to experiment on himself, placing the transducer on his chest and recording the received echoes. Hertz's development of a recorder, creating a graph of cardiac structures, ushered in the era of M-mode, or single dimension echocardiography. The memorable collaboration of Elder and Hertz would have the most profound impact on the diagnosis of heart disease and resulted in both receiving the prestigious Lasker Award in 1977 for their



medical achievement.

The initial equipment was large and clumsy with limited resolution which

restricted its scope, but the technical improvements over the subsequent decades from Edler's and Hertz's pioneering work resulted in echocardiography becoming the most widely used diagnostic tool in the armamentarium of cardiologists, adult and pediatric alike. Innovation resulted in the development of 2 and 3 dimensional echocardiography for precise delineation of cardiac anatomy and Doppler echocardiography for evaluation of cardiac blood flow. The impact of echocardiography on pediatric cardiology became so profound that it has virtually replaced cardiac catheterization and its potential risks by the 1990s as the ideal diagnostic technique for detection of heart disease in children, reserving cardiac catheterization for more therapeutic interventions or unanswered questions. The exponential refinements in echocardiography resolution that have occurred in the last 2 decades has resulted in its ability to detect heart disease prior to birth and has created a whole new field in the world of pediatric cardiology, i.e. fetal cardiology. But that is another story!

NURSES' NOTES

Preventing Errors with Liquid Medication

Maria Lawton, RN, BSN

- ♥ Know the concentration of the medication prescribed, for example 20 mg/5 ml. Liquid medications come in different concentrations.
- ♥ Always know both the milligrams and the milliliters (volume) to be administered to avoid errors due to general statements like: "I'm giving .5 twice a day".
- ♥ Do not use a medication cup to administer liquid medications. Their general markings can lead to over or under dosing.
- ♥ Use an oral syringe for precise measurement and administration of liquid medications. Syringes have exact markings for accurate dosing.
- ♥ Double check your prescription at the pharmacy to ensure that what you receive is the right prescription.
- ♥ Bring medications to your MD appointments so your child's medication can be verified.
- ♥ Always ask questions if you're unsure. The pharmacist, doctor or nurse can help. Being informed fosters medication safety.



STAFF HIGHLIGHT KELLI VRANCH, RDCS, AE, PE, FE



In August of 2010 I became a pediatric echocardiographer here at the Goryeb Children's Hospital. Previously, I had worked full-time for a local adult cardiologist. The transition from Adult to Pediatric was a ride!!! I have learned so much here at Goryeb Children's Hospital. Since my start date I have become registered in pediatric and fetal echocardiography through ARDMS. I have also become an instructor at the School of Cardiovascular Technology where I teach Introduction to Pediatric Echocardiography. What do I like about my job? I love the fact that I see different things every day. The most awesome thing is that I get to watch these children grow!!! I have established many relationships with the children and their parents.

What you may not know about me is that I married my high school sweetheart. I am 37 years old and I have been with my husband for 21 years!!! I have a smart, beautiful but sassy 8 year old girl who is a constant reminder of why I work so hard in life. In my spare time, in between running from sport to sport with my daughter, I ride ATVs with my family and like to watch the New York Giants. I love animals!!! I have one very large boxer dog named Toby and two cats named Simba and Lady. Lastly, I have fought the great fight against cancer and have won!!! I also had open heart surgery in 1983 for an Atrial Septal Defect repair which is why I do what I do today!!!

What to Expect From the Cardiac Neurodevelopmental Follow-Up Program Tara Gleeson, DNP, APNC, CPNP

When your child is born with heart disease, it can be an overwhelming experience. The initial priority is his/her physical health and making sure your baby gets the best medical care. As your child starts to grow and develop, you may have questions or concerns. Also, the American Heart Association, with an endorsement from the American Academy of Pediatrics, issued a statement in 2012 recommending early and regular neurodevelopmental monitoring for children with heart problems.

At Goryeb Children's Hospital, Pediatric Cardiology and the Child Development Center collaborated to develop a comprehensive neurodevelopmental outpatient clinic to evaluate infants and children who have been diagnosed with heart disease and may have had surgery. It is not unusual for some of these babies to need a bit of extra help along the way. We guide and support caregivers at every stage of development to help your child reach his/her full potential.

The cardiac follow-up clinic is on the first Friday of the month at the Child Development Center. The morning program focuses on infants through age 3 years. Each child is seen by a board-certified pediatric nurse practitioner and an occupational therapist. Initial visits may take up to an hour while follow-up visits are around 30-40 minutes. The youngest age at which we typically see a child is at 4 months of age. Identifying developmental delays as early as possible allows us to provide intervention and support for younger children and it ensures a solid foundation for later learning and future development. Your child will have a physical exam, as well as developmental screening that actually looks a good deal like play. Depending on the age of the child, he/she will be introduced to developmental activities and will be observed playing with blocks, books and toys and interacting with parents, as well as the examiner.



Our afternoon program is for preschool age and older through age 18 years. Children are screened for fine and gross motor skills, cognitive ability, language skills, emotional concerns and attention/behavioral issues. School issues are addressed and often you, as well as their teacher, may be asked to fill out rating scales that assist us with the evaluation. The evaluation typically takes at least 1 hour and does not involve any intrusive activities.

If there are any issues or delays identified, we assist families with referrals and support to provide appropriate interventions. At each visit parents are given immediate feedback regarding their child's strengths and weaknesses and we provide a written plan for the best way to ensure optimal outcomes for the child.

Girls on the Run



We're very happy to congratulate 9 year old Jenna Gianuzzi who completed her first 5K run as part of Girls on the Run. This is a non-profit organization established in 1996 "dedicated to creating a world where every girl knows and activates her limitless potential and is free to boldly pursue her dreams".

Jenna participated in the twice a week program taught by certified Girls on the Run coaches for girls in 3rd, 4th and 5th grades. As part of the curriculum, Jenna and her group participated in two service projects, one to help people with developmental disabilities and one related to animal rescue. Also, valuable social, psychological and physical life skills are taught through interactive lessons and running games. In particular, running is used to promote a healthy lifestyle and to build confidence through achieving goals. As a culmination of the program, the girls compete in a 5K running event.

Jenna's determination and spunk was on full display. Even two heart surgeries could not keep her down. "Jenna is a great kid and an inspiration for others in striving for a healthy heart", said Dr. Suzanne Mone, her pediatric cardiologist.

FAMILY CONNECTION



We are the proud parents of two incredible boys, Michael and Matthew. We experienced a normal pregnancy, no issues or complications, when our first son was born, and we just assumed that's the way having a baby goes for everyone. That thought process changed at our 20-week ultrasound for our second son, when we unknowingly entered into the world of congenital heart defects (CHD). The thought of something being wrong started to creep into our minds when the ultrasound tech was taking a long time to review the images. That feeling was confirmed when we asked if everything was OK, and her response was, "the doctor will be in shortly to discuss." They explained there was something wrong with his heart and we should head immediately over to Goryeb Children's Hospital for a fetal echocardiogram and to meet Dr. Kaufman.

Matthew was diagnosed with TGA (Transposition of the Great Arteries), which is where the pulmonary artery and aorta are connected to the wrong sides of the heart. Frankly, we didn't even know what a CHD was until we realized we were having a child who had one. We didn't know anyone who had a CHD and, honestly, it was scary to talk about.

In September 2015 we welcomed Matthew into this exciting world at Morgan Stanley Children's Hospital in New York where we chose to have the delivery. However, our bluish toned baby boy started his amazing life much differently than his older brother. He was 1 of 3,300 babies born every year with this heart defect. On day 6, he had surgery by Dr. Jan Quaagebeur, which were the longest hours of our lives.

Since waking up after surgery, Matthew has never looked back. Today he is a thriving little boy, with an incredible future ahead of him thanks to the amazing doctors and nurses who are dedicated to treating CHDs. We were able to bring him home after only 13 days and he is considered "repaired" with life-long monitoring.

As we left the hospital, we received a "Heart Bag" from the CHD Coalition and we realized just how big the heart community was and we were not alone. Entering the CHD world isn't something you choose or can prepare for - honestly, nothing can prepare you for the news that your baby has a problem with his/her heart, but there are people along the way to help support the families through this journey. What we realized from our experience was that while relatively unknown, the CHD community is strong and filled with inspiring families.

As parents of child with a CHD, we have chosen to be very open about our story in an attempt to spread awareness and help those who get thrust into this world, so they don't feel alone. The birth of our heart warrior has refocused our family on what is really important to us and now we are using our experience to make an impact with the CHD community through funding, research, and support. Ultimately, all we ever wanted to hear was, "things are going to be ok," and with some luck and a TON of blessings, we are not only ok, but better today than before we knew what a CHD was.

Mike and Rachael, parents of a 15 month old son

Did you know??

Cholesterol Quiz

♥ Myth: Only adults should check their cholesterol because children can't have high cholesterol.

Fact: The American Academy of Pediatrics recommends that children who are overweight, have hypertension or a family history of heart disease have their cholesterol tested.

♥ Myth: Cholesterol is bad for you.

Fact: Cholesterol is good in moderation. It's naturally produced in the body and needed for the structure of cell membranes, as well as the production of hormones and Vitamin D.

♥ Myth: Thin people don't have to worry about high cholesterol.

Fact: Anyone can have high cholesterol, depending on their dietary choices.

♥ Myth: You should stop eating eggs to control your cholesterol.

Fact: The new federal dietary guidelines (issued Jan. 2016) now include eggs as a good source of protein without saturated fat. Use in moderation.

♥ Myth: The only treatment for high cholesterol is medication.

Fact: Eating a healthy diet, exercising regularly and losing excess weight can positively affect your cholesterol level.

Cholesterol Friend or Foe



SOCIAL WORK CORNER MARGARET MICCHELLI, LCSW

New CHD Discussion Group

A monthly discussion group for families of a child with a CHD, as well as families with a prenatal diagnosis of a CHD will be starting on Wednesday evening, February 1, 2016 at 7:30 pm. It's a chance to meet others who have similar concerns and questions. How has this affected family life? How do I talk with my child about it? What should I expect at different developmental stages? It will be facilitated by pediatric cardiology social worker Margaret Micchelli and volunteer parent Mike Luteran who is a board member of the CHD Coalition. We'll meet on the 2nd floor of Goryeb. Upcoming dates: March 1, April 5, May 3 and June 7. Please call for more information (973) 971-8689.

Healing Hands Gold Award

We want to congratulate Dr. Christine Donnelly who recently received a Healing Hands Gold award. This selective award is the result of many patients acknowledging the excellent care she provides. The Healing Hands Gold award was started in 2009 by the Foundation for Morristown Medical Center as a way for patients or family members to express their appreciation for a staff member who provided outstanding care. By making a donation, it's a way to say thank you and to pay tribute to that person who made a difference. If a staff member receives 10 Healing Hands citations, he/she is honored with a gold Healing Hands pin. If you would like more information, please call (973) 593-2400.



The Heart Throbs: Pediatric Cardiology Team

It was an amazing sight to see over 1,200 people in attendance at the 9th annual CHD Coalition Walk and Family Fun Day on September 25, 2016. Darlington Park in Mahwah was filled children, families and friends in team tee shirts. The division of pediatric cardiology showed up in force, 22 people strong, in our red "Heart Throbs" team shirts.

This annual fundraising event is an opportunity for the heart community to come together and show their sup-

port, raise awareness and generate funds for CHD research, scholarships and hospital programs. The division of pediatric cardiology was especially proud this year because the Atlantic Health System was a platinum level sponsor and had a table at the event, thanks to the efforts of Mike Luteran, whose son is followed here by Dr. Kaufman.

