



BABYHEART MISSION VORONEZH, RUSSIA INAUGURAL MISSION

NOVEMBER 17TH THROUGH 30TH, 2013



International Children's
Heart Foundation
Where Hope Comes to Life

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Congenital Heart Disease

A. Definition

Congenital means present at birth. Congenital heart disease (CHD) refers to those diseases of the heart which occur during the development of the heart in the fetus and are then present at birth (*Cannon*, 139).

CHD occurs when the heart or blood vessels connected to it do not develop normally before birth usually involving either an obstruction to blood flow or an abnormal routing of blood through the heart chambers. The structural defect may occur in the heart wall, the heart's main blood vessels, the heart valves, or a combination of these structures (*Topol*, 205).

B. Symptoms

CHD can present itself in a number of ways. Cyanosis, or blue-tinted skin, is one of the most common symptoms in newborns with CHD. Cyanosis indicates that not enough oxygenated blood is circulating throughout the body. Another common symptom is clubbing of the hands and feet. When an infant has clubbing, the ends of the fingers and toes enlarge and bend forward (*Topol*, 206). Heart murmurs, eating difficulties, lack of strength, stunted growth and rapid, labored breathing are all signs of congenital heart defects.

C. Causes

The exact cause of CHD is unknown. However, there are factors that often correlate to the creation of these defects. Some defects may be hereditary and transmit from one generation to the other through genes. CHD can also be linked to chromosomal abnormalities, syndromes, maternal illnesses or even to medications taken during pregnancy.

D. Mortality Rates

The number of children who die each year from CHD is unknown. Per the CIA Worldfact Book, the infant mortality rate for the world is 39.48 deaths per every 1,000 live births. Congenital heart defect affects 8 to 10 of every 1,000 children and are the most frequent congenital malformations in newborns (*Topol*, 205). Congenital heart disease causes more deaths in the first year of life than any other birth defects (*WebbGD*).

E. Treatment

While some congenital defects can be effectively treated with medications, many still require surgery as a primary treatment. In order to properly treat the disease, a doctor must first be able to diagnosis the disease through clinical examinations, X-rays of the chest, electro and echocardiograms and cardiac catheterization. After a diagnosis is made, treatment of the defect will more than likely include open heart surgery. As one can see, treatment of these defects involves a substantial amount of equipment and skill. Many under developed countries lack access to the necessary expenses and knowledge required to save these children.



International Children's Heart Foundation

Where Hope Comes to Life

A Mission

It is every child's right to be born into a world where he or she can thrive, grow to be strong and make their parents proud. It is not, however, every child's destiny.

Approximately one in every 100 children born in the world will have a heart defect.

In the developing world, this number can be even higher. Many of these children will never see their first birthday because of congenital heart disease. Their parents will mourn the loss. They are powerless to save them because the resources required to treat and cure congenital heart disease are not easily accessible in developing countries and remote regions. Medical team skills, money to transport and house patients and their families, medicines, equipment and facilities are scarce.

Since 1993, the mission of the International Children's Heart Foundation (ICHF) is to bring the skills, technology and knowledge to diagnose and care for children with congenital heart disease to developing countries that request our help. ICHF does this regardless of country of origin, race, religion or gender.

Our teams are assembled from world class cardiac care centers. We implement our informational curriculum by operating with and educating local health care professionals. With this training, they in turn can care for the local children. Since inception, over 6,500 operations have been performed in countries that span five of the seven continents.

As a 501(c)3 charitable organization, the ICHF enlists your support to provide hope and life for children throughout the developing world.





Babyheart Mission Trip

International Children's Heart Foundation made its very 1st Babyheart mission trip to the Voronezh Regional Hospital in Voronezh, Russia on November 17th through 30th, 2013.

The Babyheart team, led by cardiovascular heart surgeon and ICHF Founder, Dr. William Novick, consisted of one intensivist, two anesthesiologists, one perfusionist, one scrub nurse, one cardiologist, one respiratory therapist, one PICU nurse educator, five PICU nurses, and one biomedical engineer. The team came from six different countries, all joining together for one cause – to save the lives of children with congenital heart defects.



During our team's first visit to the Voronezh Regional Hospital, 12 children received operations. Additionally, the volunteer doctors and nurses from the Babyheart team worked alongside the local staff teaching them the latest techniques in caring for children with congenital heart defects.

The International Children's Heart Foundation extends its sincere thanks to Russian Gift of Life, USA, and Gift of Life, Inc. of Great Neck, NY, for making this trip possible and for providing hope to these 12 children and their families. The parents of the children that benefited from these operations were extremely happy and appreciative that their children now have a chance to live a normal life.

International Children's Heart Foundation is very excited about the opportunities to return to Voronezh in the future and provide hope to children who have no other options for treatment of their cardiac defects by sending our Babyheart teams to perform on-site life-saving surgeries.



Voronezh, Russia

Voronezh is a city located in the Voronezh Oblast, 250 km from the Ukraine border, in the heart of Chernozemye. It is located on the Voronezh River and is an important railway junction with lines to Moscow, Rostov-on-the-Don and Kiev. Due to its relatively large population (ca. 960,000), it is often considered as the capital of Chernozemye.

Voronezh was founded in 1586 by Tsar Feodor I as a fortress protecting the Russian state from the raids of invaders. However, settlements were present in Voronezh since the Stone Age. The name Voronezh is also very old, with an unknown meaning. Tsar Peter the Great built his great fleet in Voronezh. During his reign the city became the largest southern Russian city and was the administrative center of the large southern region.

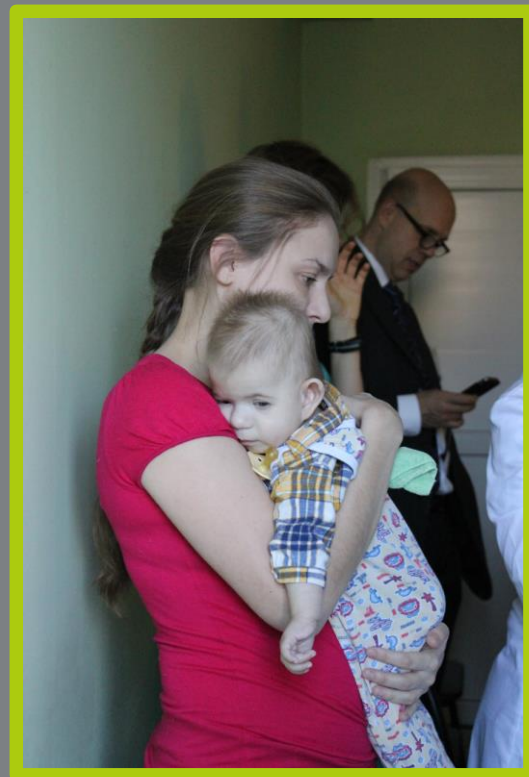
By the end of the 18th century, the region acquired agricultural importance and the town became involved in the processing industry. At the beginning of the 20th century, Voronezh was populated by about 61,000 people and there were 47 plants and factories. During World War II the city was badly destroyed, but by 1960 Voronezh had reached its pre-war status and since then it has kept growing. Today, with a much larger population, Voronezh is an important scientific, industrial, educational and cultural center of Russia.

ICHF's Inaugural Mission to Voronezh, Russia



Late in the evening on November 16th, a Babyheart team comprising of 15 members from six different countries arrived in Voronezh, Russia to heal the hearts of children with congenital heart defects. With the support from our longtime sponsors and collaborating charities, Russian Gift of Life, USA, and Gift of Life, Inc. of Great Neck, NY, our team was introduced to our future companions, the local pediatric cardiac team at Voronezh Regional Hospital. ICHF Founder and surgeon, Dr. William Novick was very excited about the future ICHF, Russian Gift of Life, USA., and the city of Voronezh will have together. Our Babyheart team had the unique opportunity to speak with many influential leaders in the city of Voronezh. ICHF is honored to be able to express our mission to these leaders and the people of Voronezh.





Surgical Operative Patient's List

#	Name	Age	Procedure
1.	Ignat Porublev	1 Year	ASD Closure with Pericardial Patch
2.	Alina Veretenikova	5 Months	VSD Closure & PDA Ligation
3.	Timofei Kuzmichef	2 Years	Cor triatriatum Repair & ASD Closure with Pericardial Patch
4.	Zuhra Salimova	1 Year	Mitral Plasty & Complete AV Canal Repair
5.	Artom Meshkov	9 Days	Arterial Switch, VSD Closure & PDA Ligation
6.	Tatjana Baskakova	3 Months	ASD Closure
7.	Alexey Isheev	6 Months	VSD Closure & PDA Ligation
8.	Lubov Pominova	2 Years	TOF Repair
9.	Polina Lobanova	2 Years	PAVSD Repair
10.	Evgenia Chlon	1 Year	MBTS & MAPCAs Ligation
11.	Elizaveta Voronchuk	8 Months	DORV Repair With RV-PA Conduit Implantation
12.	Dmitry Birukov	2 Months	VSD Patch Closure, ASD Closure & PDA Ligation



Alina Veretenikova



Patent ductus arteriosus and ventricular septal defect

Alina is a five-month-old little girl from Voronezh, Russia who suffers from two defects that, combined together, place enormous stress on her heart.

Baby Alina suffers from a patent ductus arteriosus, or PDA. The ductus arteriosus is a connection between the left pulmonary artery and the aorta. After birth, this connection should become dysfunctional and close itself.

When it remains open or patent, it forms a hole that is situated underneath the aorta and the pulmonary artery allowing blood to move across the ductus arteriosus, like before birth, but now the blood flows in

opposite directions. With this defect, the blood flows from the aorta to the pulmonary artery in the lungs, overwhelming them and resulting in respiratory issues.

Alina also suffers from another congenital heart defect. Her little heart suffers from a ventricular septal defect, or VSD. The heart has two ventricles that are divided by a wall known as the ventricular septum. The ventricular septum develops from four sources in the embryo that grow and meet to form a partition that separates the ventricles. When one or more of the four sources are defective, the ventricular septum fails to form completely and a hole is formed. This particular opening can be very dangerous as it permits blood from the left ventricle to shunt into the right, thereby overloading the right ventricle.

Due to this abnormal blood flow, VSD's typically result in a heart murmur. VSD also causes symptoms such as shortness of breath, rapid or irregular heartbeat, fatigue and weakness, and the swelling of the legs, ankles and feet.

Life-Saving Surgery

Alina's two defects forced her heart to struggle daily. Fortunately, with the support from the Russian Gift of Life, USA, and Gift of Life, Inc. of Great Neck, NY, ICHF's Babyheart team was able to repair both of her defects. On November 19th, the Babyheart team used ligatures to tie off the patent connections of her PDA. The team then located the opening in her ventricular septum and used a patch to seal it off. Alina was doing great after surgery and was able to leave the ICU three days after her surgery. This beautiful little girl can now have a chance to live a normal life. Her family sends their best regards and are excited that the Babyheart team will be returning to Voronezh to cure many more children of their cardiac defects.

Ignat Porublev



Atrial septal defect

Ignat is a handsome one-year-old little boy that suffers from a defect known as an atrial septal defect, or ASD. The atrial septum is the wall that separates the atria, the two upper chambers of the heart. It is formed from two sources in the embryo: the roof of the atrium and the roof of the ventricular septum. Both meet to form the inter-atrial septum. However, the inter-atrial septum does not form until birth because the opening is the only way for the fetus to receive oxygenated blood from the mother.

This atrial opening normally closes after birth, and blood is pumped through the lungs and then to the left side of the heart, thus separating off the non-oxygenated and oxygenated blood for life. When the inter-atrial septum does not form completely by birth, a hole develops resulting in an atrial septal defect.

Ignat's ASD allows blood from his left and right atria to mix, permitting oxygenated blood from the left atrium to be contaminated by deoxygenated blood from the right atrium. The mixture and excessive amounts of blood in the right atrium place increased stress on the right side of the heart. The right heart muscle will begin to weaken as it struggles and will eventually lead to heart failure.

Life-Saving Surgery

Ignat is a curious baby and loves his mother very much. His family was very excited that Ignat would be operated on during the Babyheart team's visit to Voronezh. Thanks to Russian Gift of Life, USA, and Gift of Life, Inc. of Great Neck, NY, Ignat received his surgery on November 19th. The team closed his ASD with a pericardial patch, which is a patch made using a piece of the patient's actual heart tissue. Ignat left the ICU shortly after his operations and was fantastic. This little boy can now have the opportunity to grow up to be big and strong now that his heart is cured.

Lubov Pominova



Tetralogy of Fallot

Two-year-old little Lubov suffers from a complex heart defect known as tetralogy of Fallot, or TOF. TOF accounts for 10% of congenital heart disease and is a combination of four heart defects that are present together at birth.

The four defects are:

- Ventricular septal defect (VSD)
- Pulmonary stenosis
- Right ventricular hypertrophy (RVH)
- Overriding aorta.

VSD results in a hole between the two ventricles of the heart permitting oxygen-poor blood from the right ventricle to mix with oxygen-rich blood from the left.

Pulmonary stenosis is characterized by a narrowing of the pulmonary artery with an abnormal pulmonary valve impeding blood flow from the right ventricle to Lubov's lungs.

RVH is a thickening and enlargement of the right ventricles muscle.

An overriding aorta straddles the wall between Lubov's ventricles, permitting oxygen-poor blood to flow through the VSD into the aorta.

Because of these four defects, Lubov suffers from "blue" spells where she will turn blue due to the lack of blood permitted to her lungs preventing oxygen to reach her body. Without a corrective operation, the lack of oxygen will not only damage Lubov's heart, but also her brain.

Life-Saving Operation

Thanks to the generous support of Russian Gift of Life, USA, and Gift of Life, Inc. of Great Neck, NY, on November 26th, the Babyheart team corrected all four defects by reconstructing Lubov's right ventricular outflow, closing the opening in her ventricle septum and placing a synthetic patch over her VSD, realigning her aorta so that it comes from only the left ventricle and removing the excess muscle from her abnormally enlarged right ventricle. Lubov left the ICU just one day following surgery!

Timothy Kuzmichef



Cor triatriatum and atrial septal defect

Timofei is a two-year-old little boy from Voronezh, Russia. Timofei came to see our Babyheart team because he was diagnosed with cor triatriatum as well as an atrial septal defect.

Cor triatriatum is an extremely rare abnormality characterized by the presence of a third atrial chamber on the left side resulting from incomplete absorption of the common pulmonary vein during fetal development. Rather than the normal, single left atrium, there are two atrial chambers (superior and inferior) divided by an obstructive membrane. The pulmonary veins drain into the superior chamber.

Typically, the membranous partition will be located inferior to the pulmonary veins but superior to the true left atrium. It may vary in size and shape and completely or partially block pulmonary venous flow.

Timofei also suffers from an atrial septal defect (ASD), which is very common with cor triatriatum.

Like one of little Alina's defects, an ASD is a defect in which there is an opening in the septum between the atria. As a result, some oxygenated blood from the left atrium flows through the hole in the septum into the right atrium, where it mixes with oxygen-poor blood and increases the total amount of blood that flows to the lungs.

Life-Saving Operation

On November 20th, Timofei had his little heart repaired. The Babyheart team located the obstructive membrane that caused Timofei's heart defect and excised it. The team then located the ASD in his heart and closed it with a pericardial patch, which is actually a small piece of tissue from Timofei's heart. The success rate is very high for Timofei's procedure and he was able to leave the ICU after one day in the ICU.

Babyheart Team

#	Name	Position	Origin
1.	William Novick	Surgeon	United States
2.	Lindy Liebenberg	Perfusionist	South Africa
3.	Anna Csokay	Anesthesiologist	Austria
4.	Siarhei Liauchonak	Anesthesiologist	Belarus
5.	Jennifer Riportella	Scrub Nurse	United States
6.	Robert Arnold	Cardiologist	United Kingdom
7.	Pavel Shauchenka	Intensivist	Belarus
8.	Diane Gelpi	Respiratory Therapist	United States
9.	Frank Molloy	PICU Nurse Educator	United Kingdom
10.	Nina Hertsouskaya	PICU Nurse	Belarus
11.	Hannah Stapleton	PICU Nurse	United Kingdom
12.	Sarah Lovern	PICU Nurse	United States
13.	Anja Fierens	PICU Nurse	Germany
14.	Dilarom Cleveland	PICU Nurse	United States
15.	David Wieduwilt, Jr.	Biomedical Engineer	United States

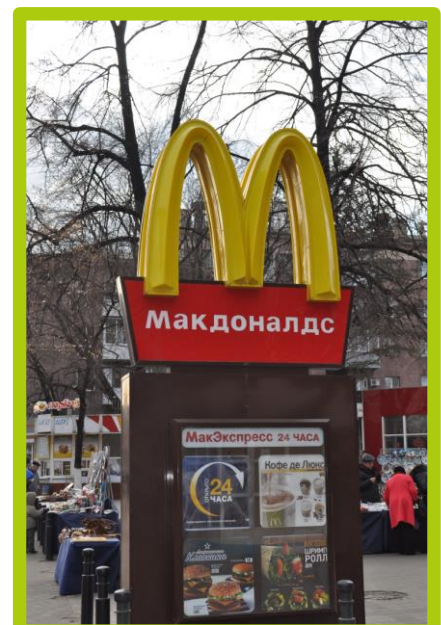
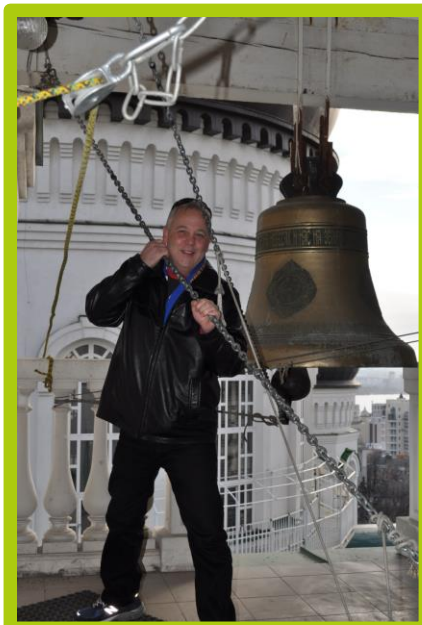
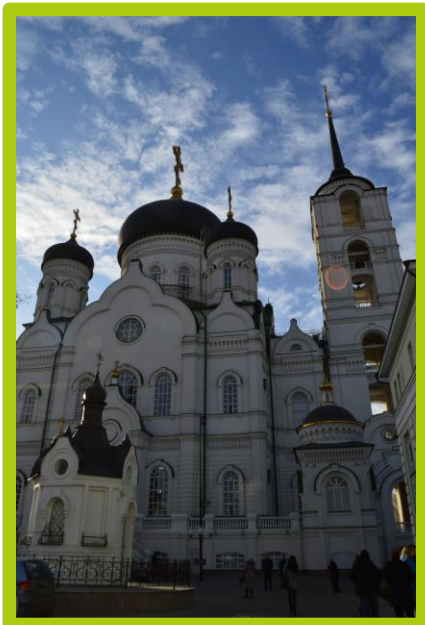






**Thank you,
Russian Gift of Life, USA, and Gift of
Life, Inc. of Great Neck, NY,
for your generous support
of the children with
congenital heart disease in Russia.**





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