# Organization of Care for Children with Critical Congenital Heart Disease in St.Petersburg: significance of prenatal diagnosis

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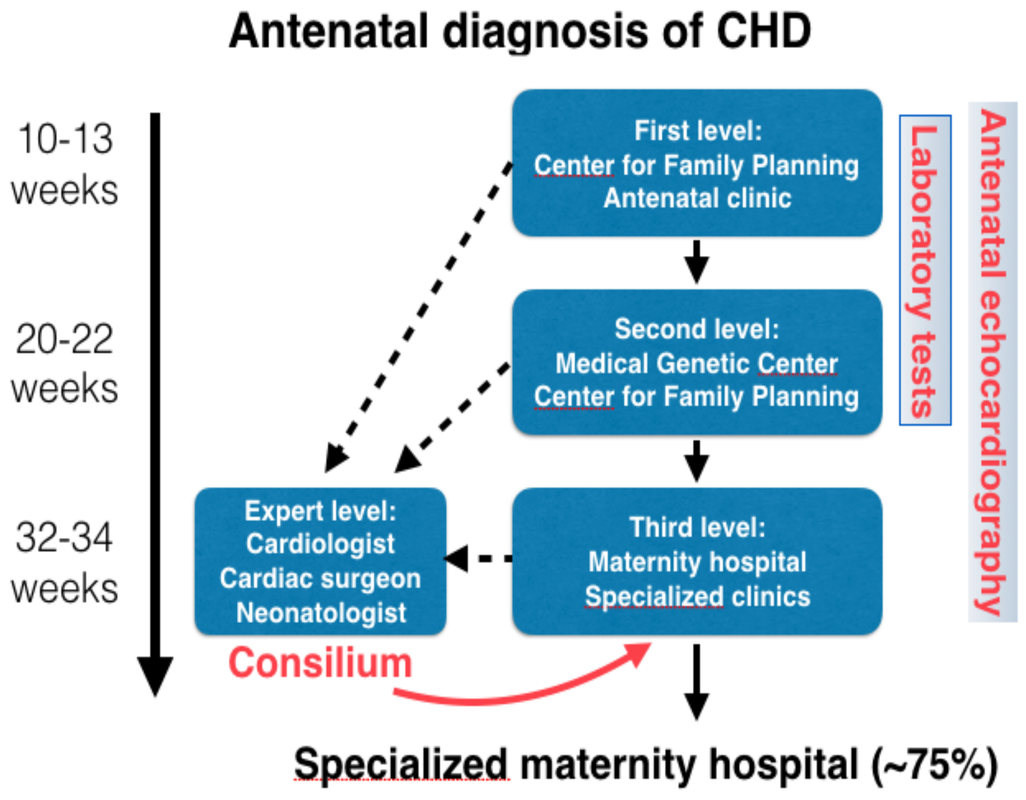
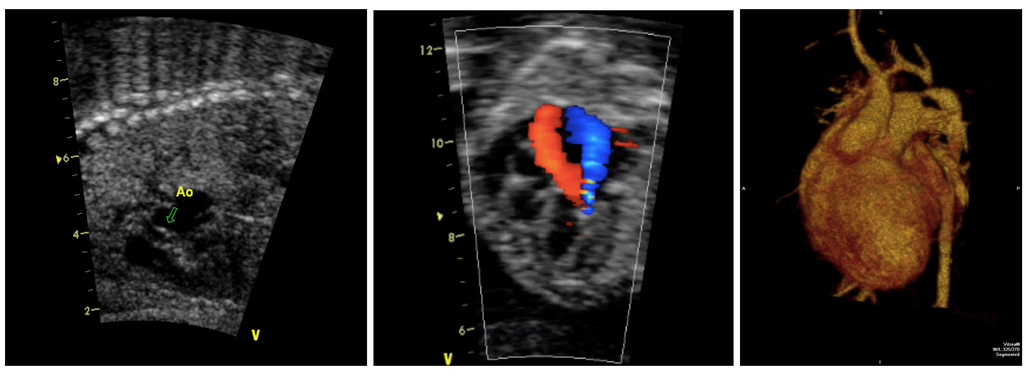
## Introduction

**The timely diagnosis of heart disease with correct delivery and transfer of newborn to a specialized hospital has an important role and affect the results of surgical correction of critical CHD.**

## Methods

**During the period from September 2010 to December 2015 in the Children's hospital #1 performed 1520 ultrasound examination of the fetal heart in pregnant women. A preliminary examination was carried out in centers for family planning, antenatal clinics and Medical Genetic Center of St.Petersburg. delivery of newborns with critical CHD was carried out during first hours of life. In babies with ductus-dependent circulation, IV microinfusion of PGE1 was used. The children were taken to the cardiac intensive care unit (12 beds) or neonatal intensive care unit (70 beds) for detailed diagnostics and preparation for surgery. CHS procedures were preformed by cardiac surgery team of our hospital with subsequent transfer to the cardiology department (30 beds) Children's hospital No.1.**




## Results

**Fetal echocardiography detection rate of CHD ranged from 68 to 70% and was depended on the experience of clinic. Total number of termination of pregnancy in the last year was 23% from all antenatal diagnosed CHD, and less than 15% during last 5 years. Most frequent causes were HLHS, complex single ventricle morphology, multiple congenital malformations with CHD and combination of CHD with chromosomal abnormalities (Patau syndrome, Edward's syndrome). More than 70% of newborns were operated on with previously established prenatal diagnosis. After birth the prenatal diagnosis was confirmed in 98,7% of cases.**

## Results

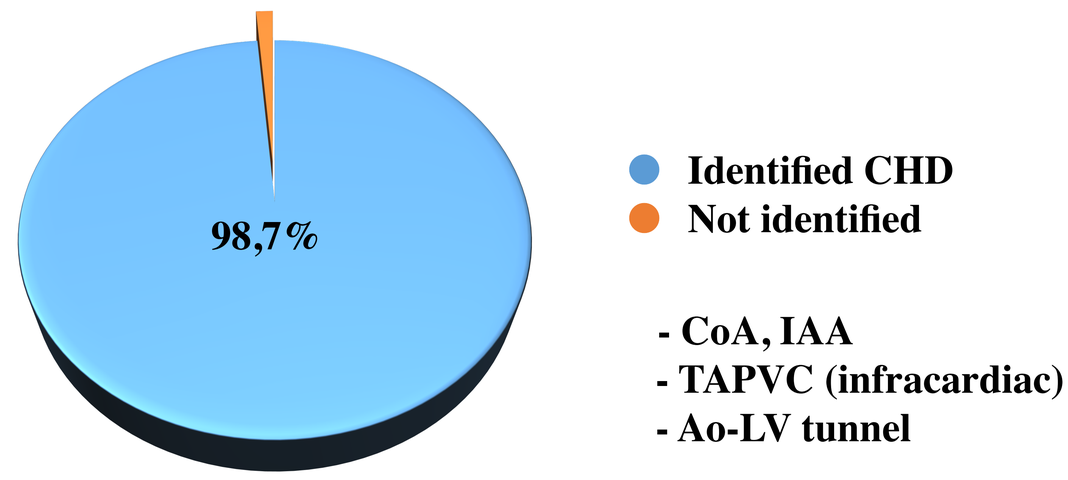



**Figure 1.** Identification of CHD

**Over the last 5 years we carried out 514 – 640 operation per year. Our hospital is the most experienced in surgery of premature babies with congenital heart disease in Russia. The minimal weight of baby who underwent open heart surgery was 1350 grams. It was the baby with TGA and we performed ASO. And in the case of closed heart surgery, minimal weight was 450 grams. Surgical PDA closure in premature infants: 96 - 173 procedures per year.**

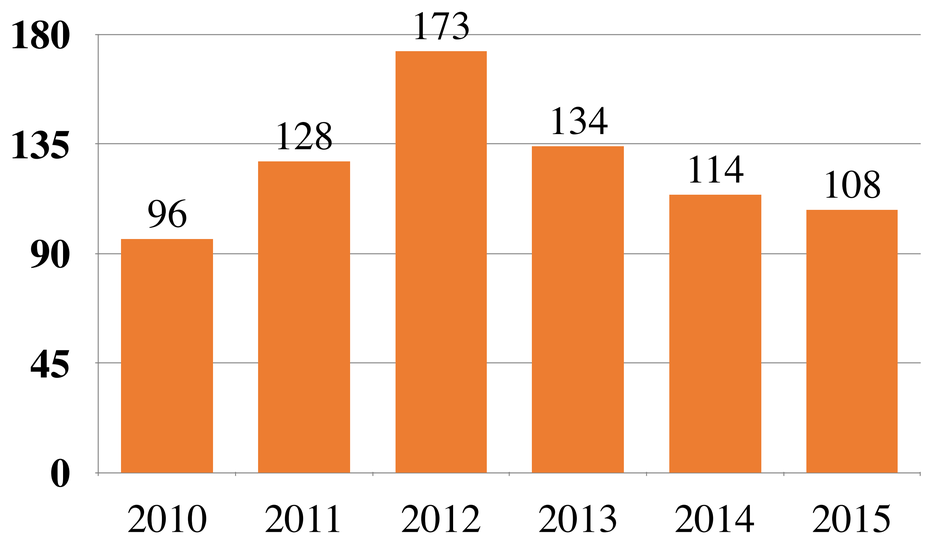
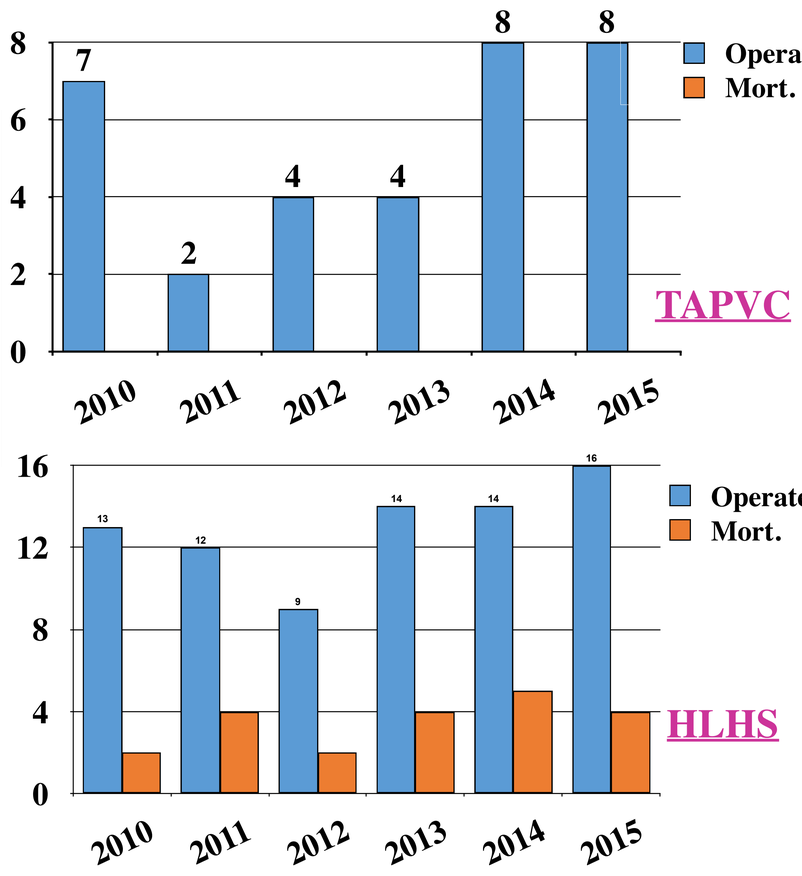



**Figure 2.** Closure of PDA in preterm babies.

**Open heart procedures in newborn babies with critical CHD: 83-85 procedures per year (RACHS score 5-6). Surgical mortality in various critical CHD was: TAPVC (33 children) - 0%. Common arterial trunk (9 children) -0%. simple TGA (87 children) -2.7%. TGA with VSD or TGA with VSD and aortic arch obstruction (44 children) -4.2%. HLHS (75 babies) - 32,2%. VSD with interruption of the aortic arch (12 children) -0%. Pulmonary atresia with intact VS (13 children) - 7,7%.**




## Conclusion

**Early detection of congenital heart disease allows to make decision about the timing of hospitalization in a specialized clinic and provides delivering effective heart care in the region. Close cooperation of various clinics and departments and exchange of experience help to improve the results of surgery of congenital heart disease.**

Authors have nothing to declare