

Pediatric cardiovascular surgery: what we must preserve, what we should improve and what we must transform

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Cardiac surgery has been available for many years in several developing countries, thanks to the creativity and hard work of individuals who were able to produce good work in spite of the limited resources.

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It is really evident how the lack of sustainable pediatric surgical services in developing or emerging countries is responsible for a significant number of preventable deaths and complications from heart disease potentially treatable. The more we approach the developed world, the more congenital heart disease contributes to the number of preventable deaths in the neonatal period and first year of life. In this context, pediatric cardiac surgery represents perhaps one of the biggest challenges for our country

Taking into consideration all those facts, we started to ask what should be preserved, which can be done to improve, by whom, and how and what we must transform.

What we must preserve

Scientific contributions in pediatric surgery, as the arterial switch operation, the Teles technique for coarctation of the aorta, the Barbero-Marcial technique for correction of common arterial trunk in the past and more recently, the

Cone technique, by José Pedro da Silva, for the treatment of Ebstein, are examples of the creativity, expertise and innovation of our surgeons. The labor force in our culture of care is very striking and made our surgery, while dependent on individual effort, always stand out in the local and global scenario. Leadership, tolerance, perseverance, dedication and adaptability have been the key to success, but not necessarily ensure sustainability. Making pediatric cardiac surgery a reality in Brazil is the work of “a few men for a great challenge” [1].

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What we must improve

In countries as Brazil, where there are many priorities in public health, pediatric cardiac surgery is often considered a secondary problem to be solved. This explains the number of children undergoing surgery, which does not reach 40% of the demand population scenarios, depending on the region of the country [2]. This situation worsens when analyzing the numbers of newborns operated on the most complex procedures carried out. Few places are prepared

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to perform neonatal surgery and many have limited capacity due to excessive demand. It is hard to imagine the number of children progressing with secondary pulmonary hypertension to a non-operated interventricular communication or a myocardial dysfunction due to an obstructive lesion.

The structural problems are not the only difficulties we have to face, since the shortage of human resources is obvious and concerning in many regions. It is not only the lack of surgeons, lack of pediatric cardiologists, specialist nurses and all other professionals. In a complex system such as pediatric cardiac surgery, the surgical outcome depends not only on technical factors, but it is the result of organizational, personal facts and their interactions [3].

“No human investigation can claim to be scientific if it does not pass the test of mathematical proof.” - Leonardo Da Vinci.

In Brazil, the evaluation of surgical results is only possible through the government data, the DATASUS. A more detailed analysis of these data is very difficult to achieve, both by the procedures terminology used by the government, and the difficulty in risk stratification of procedures performed. We still do not have a national data bank, and there are few centers that participate in international databases or have the culture to analyze their results. Information a bit more detailed, specific diseases, are presented in congresses or scientific articles, but often do not reflect the totality of the operated cases and do not represent the reality of care assistance. In addition, most of them have focused only on the success and rarely discuss the problems and the reasons for unsatisfactory results.

This issue has caused much concern to the population and the government for being ignored for a long time, and especially the cardiovascular surgeon, who lives with the severity of the problem and realize that the current situation is unacceptable. The current system of care for children with heart disease is inefficient.

What we must transform

Transforming the model based on individual performance in a real program of pediatric cardiac surgery in a systematic way may be one of our biggest challenges. Recognizing the reality, accepting our failures and rethink the model seems to be a good start. Go beyond our technical qualities means rewriting our institutions, their processes and way of working in the high complexity health system.

The need for collaboration in solving these problems is increasingly evident. The creation of the Department of Pediatric Cardiac Surgery, within our specialty society in 2003, allowed deeper discussion of the problems and the opportunity to find solutions adapted to adversity and regional differences. Since then, meetings have occurred

in order to discuss the present scenario, education and training. More recently, a struggle in the search for solutions was triggered in conjunction with the Brazilian Society of Cardiology and the Brazilian Society of Interventional Cardiology. In order to build a national program of assistance to children with congenital heart disease to be submitted to the federal government, our society has proved to be in a well-defined and consolidated position.

In this edition of the BJCVS, the article “Treatment of congenital heart disease in Sergipe: proposed rationalization of human resources to improve care,” Milk et al. [4], represents the effort of a group of people to organize and structure the health system of a state, with regard to the care of children with congenital heart disease. It is so exemplary that the authors put into practice some important points, such as optimization of existing resources and the centralization of high complexity care. They present the data in a structured, distributed complexity, and perform a critical analysis of the results observed. They also objectively demonstrate superior results in the number of procedures performed, decreased mortality, increased number of children served and an increase in the number of complexity, after the centralization of surgery at a single hospital.

That is the result of people’s work that was not limited only to their prior technical contributions, but realized that they can go beyond the operating room and act directly in the government health system by creating, suggesting and implementing actions that can surely modify their own technical results.

Unfortunately, solutions based on personal effort cannot be sustained. Only the interdependence of the components listed below can ensure the preservation, improvement and transformation of our current scenario (Neirotti RA, personal communication):

% **Local and federal government:** through the implementation of health policies and ensuring the appropriate resources needed to finance it, considering that most of the patients depend on the Unified Health System.

% **Universities and other educational institutions:** increasing its human capital through improving the quality of education.

% **Specialty societies:** contributing their knowledge and ability to defend the practice of the specialty.

% **Hospital institutions:** promoting the active participation of senior management in support to structural, organizational and personal specialty.

% **Non-governmental paying sources:** understanding that the health system is unique and that the private sector is part of the problem and solutions must be solved together.

% **Health professionals:** recognizing the importance of teamwork, because while knowledge and individual clinical practice are important to a high quality health care system,

we now know that a professionals cannot practice a high quality Medicine working by themselves, even for good doctors.

We can state that only the union of thoughts and objectives, beyond personal interests, can preserve, improve and transform our specialty.

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