



**Doctor Raul Abella holds the hearts of 400 children in his hands every year. Literally. These hands are amazing: they belong to one of the world's top-ranked paediatric heart surgeons.**

“Spain has achieved outstanding results in health and medicine in recent years, earning the country the reputation as one of the top destinations in Europe for medical tourism. About 20,000 patients from all over the world come to Barcelona for treatment every year. “Russian Journal” opens a series of articles on some of the most influential people in medicine that have made Barcelona into an international leader in healthcare. Prestigious doctors will be introduced to the readers by Olga Solovieva, General Representative of BMA, the association of Barcelona’s top hospitals, and Director of Barcelona Medical Consulting, the company responsible for organizing service for foreign patients in Barcelona hospitals and the development of international relationships with institutions of other countries”.



**Raul, why paediatric heart surgery?**

- Is there anything more beautiful and more important than that?

**No, I don't think there is.**

- This is the answer. When I was in my fourth year of medical school I read a book by Christiaan Barnard about heart transplants in children. And it has been a love affair for me ever since.

**Do you still remember your first patient?**

- Of course I do! How could I ever forget? I remember both the child and the surgery itself. And I also remember his parents. When I approached them after the surgery was finished they looked terrified; I was 24 years old and looked even younger. No parent would want their child to be operated on by a beginner. This is perfectly normal and understandable: in our specialty we're always dealing with life and death.

**It is also the most daunting one due to the level of responsibility it implies. The mortality rate is only 2% today in the world's top hospitals like Boston Children's Hospital and your Department, but it still means that between 30 to 40 children die each year during heart surgery, even at Boston Children's Hospital.**

- I still find it very hard to cope when a child dies on my operating table. When you know from the start that there will be no positive outcome but you just have to give it a try, than it gets somewhat easier. But it becomes unbearable when you think that you could have done something better during that surgery. Even now. The



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older the child is the more difficult it gets for the parents. When we treat a new-born child it is horribly painful for the parents, but they can still bear it. But when the child is 4 or 5 years old, the bond of love and tenderness is much stronger. That's the worst. Fortunately, there is an extremely small number of such cases. And the opportunity to help and save the child almost always outweighs such outcomes.

**Paediatric heart surgery has seen great progress in recent decades. The mortality rate in paediatric heart surgery was 30% in the '70s, in the '80s it decreased to 10-15%. . . Nowadays, almost any child with a congenital heart defect (CHD) can be saved. How has this been achieved?**

- Eight children are born with a congenital heart defect for every 1000 live births. In western countries this is the leading cause of birth-defect associated infant death. It is the second in less developed countries, after deaths from infectious diseases. Thirty percent of these children born with a congenital heart defect can only be saved by surgery. Today, we aim to perform surgery on infants as early as possible after birth. It has been proven that early surgical repair

benefits the infants, preventing serious developmental delays and lowering the quality of life. This is why 61% of my patients are younger than a year old. Many factors, both technological and organizational, ensure better surgical outcomes for these children. For example, all complex cases in both the USA and Spain are referred to only the most specialized hospitals. The specialists that work there and that have proven to be the best in their field benefit from the "critical mass" of complex cases, which gives them the opportunity to improve their skills. Apart from technological advances, new devices and techniques, medicines and progress in intensive care, an early diagnosis is crucial for the success of the procedure. Here in Spain, more than 95% of CHD cases are now detected before birth. This means that the baby is delivered in the best health care facility where the most qualified and experienced interdisciplinary team will be on hand.

**I know that you and your team pioneered several clinical breakthroughs, for example the development of an effective surgical technique for the treatment of pulmonary atresia.**

- Well, as is typical with medicine, progress is made step by step with

specialists from across the globe working together. The breakthrough with atresia, a condition with a very high mortality rate, happened like this: I was present at an atresia surgery performed by an American surgeon, Dr. Norwood (the same doctor the Norwood procedure was named after) He's a genius! However, the operation didn't end well. But when I was watching him performing that surgery, a number of possible modifications came to mind. My subsequent experience has proven that I was on the right track.

**I often hear from people, who usually aren't medical professionals, about some "unique" techniques used by Doctor X or Doctor Y. Sometimes, even experts from different countries tell me proudly "We also do that". But today what matters most in medicine is not just WHAT is done but HOW well it is done. As almost everything ground-breaking is quickly adopted by other countries; what really sets specialists apart is almost always the HOW, in the OUTCOMES of their performance.**

- Exactly. Paediatric heart surgery differs considerably from most other medical specialties because in most cases you can see precisely how high the standards of the surgical team that is going to operate on a child are.



And this is how it should be. Parents must have maximum guarantees in this situation. In the US the Aristotle Score and survival rate for all heart surgeons are published regularly and a rating of the best experts is compiled. This data is widely available for any user and is perfectly objective. When parents entrust their child's life to a doctor, they have to be totally sure that they will be treated by the highest-ranked specialist.

**Regarding the Aristotle Score: this is a scoring system developed in 2004 that measures the complexity of surgical procedures. This project was initiated by American insurance companies that decided that they would fund extremely expensive heart surgeries depending on the objective complexity rate of the surgery. The eventual outcomes of the operations were also to be taken into consideration. Everybody understood that you can report the survival rate of 99% of all children you operate on, but if you actually perform only basic surgical procedures and never undertake the most complex ones, then your outcomes aren't worth considering at all. In the US, the publication of the Aristotle Score is mandatory. What about Europe?**

- We insist that it should also be mandatory in Europe. The European Association for Cardio-Thoracic Surgery compels top health care centres to do that, but these reports are still not widely available in most European countries. This isn't right. It's different in Spain. You can check the complexity rates for the surgeries performed by the best paediatric heart surgery teams in the country that work for the state. They regularly undergo certification and audit by various boards. This is compulsory. Without this method it would be hard to define which hospital is the top medical centre for the most complex cases. In Spain, particularly here in Catalonia, the entire process is based upon the correct routing paradigm.

**Raul, your Aristotle Score is the highest in Spain, and one of the best in the world: the average complexity rate of the surgeries you perform is 8.1 (the highest complexity cases), with a survival rate of 98%, and the average length of stay in ICU after your operations is 3.5 days. How is this possible? Is it thanks to your talent? Your training? Your organizational skills? Or your team?**

- All of that in an equal measure, I suppose. A perfectly organized and experienced surgical team are key in the most complex cases; for example, 10 transplants were recently performed in 24 hours (2 of them heart transplants) at the public hospital where we operate! This is unimaginable without excellent organization. And that's probably only possible in Spain.

**What do you value most in a heart surgeon?**

- Total commitment. If you choose this path, you have to be all in. To be ready for a very long training process. To be humble and to understand that you will make mistakes in the future. And that they will come at much too high a price.

**What is most important to you when you select a new member for your team,?**

- I think commitment again. If a young man comes to me and says that he wants to end his day at 6 p.m., then he isn't cut out to be a doctor! My father, who was also a surgeon, always treated his patients with utmost care and respect, and one day he gave me the most valuable lesson. It was early in my career as a surgeon, and while away on holiday, the family of a child I was treating came to my office. When my father found out he made me take a plane and come back to follow up with this treatment. I am forever grateful to him for this lesson. When people trust you with their most precious treasure, their child, you just can't pass them on to someone else. It's your personal responsibility.

**Raul, here I can only add that you've been following your father's advice about not going on holiday ever since! As far as I know, your holiday leave is just one week a year, isn't it?**

- It is, but it is mainly because of the Transplant programme that I head in Catalonia. That's how it works here: when you leave the country, the coordinator of this programme must remove the child who is waiting for the organ from the waiting list during the time you're gone: this is the so-called ZERO list. With zero expectancy. Naturally, you have to explain why you are denying the child this chance. Besides, there is another

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peculiar aspect in my specialty: with the current advances in fetal medicine, we can detect any defects in utero. And when a future mother tells you that she is due around 15 August, you're not going anywhere. I come across over 30 similar cases every year. And they cannot be transferred to anyone, because you have already built an honest and trusting relationship with this woman, she believes in you, she didn't terminate her pregnancy because you assured her that everything would be fine, that you will operate on her child immediately after birth and it is going to be OK. This is your personal pledge.

**For a cardiac surgeon, 150 surgeries performed in a year are a perfect score. Your stamina is legendary... each surgery lasts up to 5 to 6 hours. How many children do you operate on personally?**

- Four hundred children every year. In most complex cases, when surgery can last up to 7 hours, I perform one surgery per day. If it lasts up to 5 hours, then often there will be two in a day. Heart surgery is physically challenging, too. To perform such a surgery is like going on a round trip from Barcelona to Madrid on a high-speed AVE train, but standing the entire time. And you have to be totally alert and focused. You can't go anywhere or sit down. But even that isn't the most important thing for a surgeon. It's being human. I always give my mobile number to the parents of the children I operate on. They must trust that I will always be available.

**Raul, this closeness to your patients is legendary. They say that a grandmother of a Russian boy that was first treated in Germany and then was brought to you, couldn't believe that the man who came to visit them in the hotel after discharge was the "celebrated surgeon" that operated on her grandson, and that she mistook you for a social worker.**

- Yeah, it was quite funny!

**By the way, how many international patients come to you for surgery every year?**

- Around 40 of 400 patients are children from other countries. Their cases are usually the most complex ones, since less complex cases can be solved quite easily today almost everywhere else. These operations are usually funded by the governments of the patients' countries or by charities. The parents that have been given this funding are amazing people that would fight for their child until the end and I am in awe of their determination. We can't perform surgeries on overseas patients in the public teaching hospital where I work in the mornings, which is why I always operate on my international patients at Hospital Dexeus, the only private teaching hospital in Barcelona. Here I work with the same surgical team as in the public hospital, but the postoperative care standards are much higher here: each patient in the ICU has a personal paediatric intensivist and a critical care nurse.

**You recently signed an agreement with one of Russia's major and highly recognized charity funds for the medical treatment of the most complex cases for patients from Russia at a special cost, and as the chairman of the Heart of Barcelona charity you will be funding the accommodation costs of these patients after their discharge from the hospital. I know that this idea was inspired by your Cuban roots... Tell me about your special connection with Russia.**

- My grandparents were Catalan, but I grew up in Cuba. It would be impossible to survive on the island without help from the Russians. For me, the Russian people are the symbol of support, nobility and generosity. The Soviet style has brought about many positive things, such as discipline, respect for the common welfare, for the state. Unfortunately, this very style was detrimental for creativity and for competition.



Besides, nobody would agree to transport this child anywhere in such poor condition. I called the Army to try to get him on a military aircraft to Modena, but when they heard my Cuban accent they refused... then I tried to get transport from the state, again to no avail. I was overcome with guilt because I felt that something could be done for this kid but I just wasn't able to organize it! But we weren't willing to give up yet. I finally managed to convince the military and the child was flown to Modena on a military plane, and I could finally operate on him there. I remember that day it was snowing in Modena... and I had this magical feeling in my soul. The child survived. And after that I moved to Rome, and his parents followed me. I performed the second surgery on him there. Now this boy

is alive and well. This family are my friends now. They taught me a valuable lesson: you should never give up, you have to keep knocking on every door and always fight until the end!

**About never giving up... a picture of you with a little girl called Daniela that you were able to resuscitate 39 minutes after cardiac arrest, with no long-term consequences, was recently in all the news.**

- It's a miracle we sometimes come across in our profession. The secret here is not in our team's determination or skills; in this case Daniela herself wanted to help us somehow. I don't know and I don't understand how it could have been possible, because the longest a child can stay alive after full cardiac arrest is 4 to 5 minutes. I'm not a religious person but I've seen miracles, miracles in the truest sense. I've seen several children in an acute coma who were already assigned to be donors for heart transplants who would wake up just before the operation. I have also had the privilege of witnessing the miracle of human love, loyalty and courage. I see so much of all that in my profession.

As I was saying, I like Russian people, I admire them and I will always be grateful to them. When I met the directors of this charity fund I wanted to set up such a programme. My whole team fell in love with this idea, as did the Catalan members of my association who will be bearing the costs of the accommodation of our young patients from Russia. It seemed to me that this project, together with the expertise exchange programme with my fellow surgeons from Russia, is the least I can do. By the way, I find it immoral to call these situations "medical tourism". It's simply medical cooperation, leading experts from both countries coming together.

**Raul, I know that you remember all of your patients, but please tell me about the case that you remember most. Or one that you have learned something from.**

- I will tell you about the case that taught me something important. After graduating in Cuba, I headed to Rome for my specialty training. I worked for years at the Hospital Bambino Gesù, and then in San Donato Hospital in Milan. Then I worked in Switzerland, France, and again in Italy, and, finally, I came to Spain. This country has the best transplant programme in the world. As you see, I travel a lot and usually the most remarkable things happen on my trips. I would sometimes see patients in Palermo when I was just starting out. There we had a little boy who nobody wanted to operate on because his case was considered incurable. I thought that I should give surgery a try but there was no equipment available in Palermo. I called the neighbouring hospital in Modena but they refused to provide an operating room for me.

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