Abstract
Dr. René G. Favaloro moved to the Cleveland Clinic in 1962 and proceeded to reshape the face of cardiac surgery as we knew it. Together with his colleagues at the Cleveland Clinic, Drs. Effler, Sones, Proudfoot, Groves, Sheldon and countless others, he contributed to the double internal mammary artery-myocardial implantation by the Vineberg method, and by May 1967, he reconstructed the right coronary artery by the saphenous vein graft interposition. These landmark procedures paved the way for the aorto-coronary saphenous vein bypass graft in October 1967. Many similar breakthroughs ensued, with the application of the bypass technique to the left coronary artery, the combination of coronary artery bypass graft with left ventricular reconstruction and valve repair/replacement and finally, by December, a double bypass to the right coronary artery and anterior descending branch of the left coronary artery.

In June, 1971, Dr. Favaloro decided to leave the Cleveland Clinic and return to Argentina where he created a medical centre, a teaching unit, a research department and finally an Institute of Cardiology and Cardiovascular Surgery. This was his greatest personal ambition.

Over and above his brilliant mind and craft, Dr. Favaloro was a man of integrity, courage, honesty and humility, whose name will never cease to reverberate throughout the history of medicine.

Key Words
Argentina; history of medicine; 20th cent; myocardial revascularization/ history; coronary artery bypass/ history; heart valve disease.

“... For you to find the truth, in the first place, you have to believe in the truth with all your heart and with all your soul, and believing in the truth with all your heart and with all your soul means saying what you think wherever and whenever, but most especially, at the least opportune moment (...)

Miguel de Unamuno

Figure 1: Dr. René Géronimo Favaloro (1923-2000). This photograph was taken at a symposium held in Cleveland sponsored by the clinic’s Thoracic & Cardiovascular Surgery Department on November 12-13, 1992 to celebrate the 25th anniversary of Dr. Favaloro’s pioneering coronary artery bypass graft at the Cleveland Clinic.

(Photo courtesy of the Cleveland Clinic Foundation.)
"The University of La Plata was deeply involved in secondary education, understanding that in this stage of youth could be found the key and the basis for the moulding of the future man."

He graduated from high school in the upper third of his class and then commenced his studies in the Medical Science faculty of La Plata University in 1941, together with another hundred and twenty students. He presented his thesis and graduated at the top of his class in 1948, with the title of Doctor in Medicine.

In the course of his studies Dr. Favaloro had begun to foster a profound interest in thoracic surgery. The time was ripe for Dr. Favaloro to develop a career as a distinguished thoracic surgeon but the political climate which prevailed at the time, led him to a different path.

"After my graduation, I became a country doctor in the small village of Jacinto Aruz in the southwest of La Pampa. With the help of my younger brother, who was also a doctor, we turned an old house into a clinic, which became the only surgical centre in that area. Thousands of patients were operated on during the first 12 years of my practice...I still remember the beautiful babies I delivered, mostly at night, illuminated by a kerosene lamp. I was following the basic principle that I had been taught at my university- that every graduate has a social commitment."

In 1950, he married his beloved María Antonia (Figure 2) in La Plata. She was to become his lifelong source of courage and comfort.

Cleveland Beckons

By 1960, Dr. Favaloro began to cherish the idea of travelling to the United States to train in thoracic and cardiovascular surgery. His mentor, Professor Mainetti, confidently recommended Cleveland Clinic in Ohio, so that in February 1962, Dr. Favaloro visited the clinic, accompanied by his wife, arriving unannounced.

At the time the Department of Thoracic Surgery consisted of Dr. Donald B. Effler (Figure 3), and his partner, Dr. Laurence K. Groves in addition to a senior and junior resident.

Dr. Effler appeared willing to accept Favaloro as a special trainee.

"In my broken English I managed to explain the reason for my trip. Effler made it clear that not having the proper qualifications, mainly the certificate of the Educational Council of Foreign Medical Graduates, I could only be accepted as an observer, without receiving any payment. Because I had been able to save money, I pointed out that I was not asking for a salary but for an opportunity to learn."

From the very start, Dr. Favaloro was drawn to the work of Dr. Mason Sones Jr. (Figure 4), and his collaborators in the cardiac catheterisation laboratory (the famous B10) located in the basement of the Cleveland Clinic.

"I spent most of my time in B10...I had rented a small apartment across the street. Living so close to the clinic, first, spared me from travelling through the streets and roads covered with snow during most of..."
the winter in the Ohio Great Lakes area, and second, it allowed me to prolong the review of the films in the evening and sometimes until late at night.”

Dr. Favaloro became a junior fellow in 1963 and a senior resident by 1964.

Just prior to Dr. Favaloro’s arrival at the Cleveland Clinic in 1962, two important events had already taken place. Firstly, on 5 January 1962, Dr. Effler and his associates had successfully operated on a severe obstruction at the left main coronary artery using the patch graft technique described by Åke Senning. The first patch operations were produced using a pericardial graft to enlarge the lumen of the left main coronary artery.

Secondly, on 12 January 1962, Dr. Sones examined a patient who had been operated upon by means of the Vineberg procedure in Canada (first described in 1946). Using selective cannulation of the left internal mammary artery he showed that collateral circulation from the systemic artery implanted into the myocardium was sufficient to increase the myocardial perfusion in the territory of an occluded left anterior descending coronary artery.

Therefore, by 1962, myocardial revascularization had started with both a direct approach in localized proximal obstructions with the patch graft technique (pericardium or saphenous vein) and also with an indirect approach with the left internal mammary artery implant. In the light of this, Dr. Effler and the Cleveland Clinic were very strongly motivated towards a surgical solution to coronary artery disease at the time Dr. Favaloro joined the team.

Direct myocardial revascularization by the pericardial or venous patch-graft technique was yielding good results on the right coronary artery but not with left main trunk obstruction where 11 deaths out of a total of 14 patients, was reported.

“In those years, I used to go to the operating room with both the thrill of challenge and fear in my soul. Sometimes when the kidney transplantation team was desperately looking for a donor and they saw in the surgical schedule that such a patient was ready to undergo surgery once more, they would come and ask permission to perform a crossmatch before the operation.”

The greatest limitation of this patch-graft technique lay in the coronary artery remaining untouched, so that the inner surface retained irregularities that could disturb the flow pattern. The turbulence induced thrombosis and consequent occlusion.

“Early in 1967, I thought that perhaps the problem could be solved by use of segments of saphenous vein. At the Cleveland Clinic, we had gathered a broad experience in peripheral and renal artery reconstruction with that kind of graft. Why not use it at the coronary level?”

**Figure 4:** Dr. Favaloro with Dr. Mason Sones Jr. Dr. Favaloro always had a kind word for his dear friend. “...Mason Sones being the indisputable leader. I have always thanked God for having given me the opportunity to share my duties with him.” Dr. Favaloro visited the Cleveland Clinic several times after his departure; perhaps the most important of these trips was in 1985, when Mason Sones was dying of bronchogenic carcinoma.

**(Photo courtesy of the Favaloro Foundation, from the Journal of Thoracic and Cardiovascular Surgery, 58(2):178-185, Favaloro RG, with permission from the American Association for Thoracic Surgery.)**

**Figure 5:** The Principle of Saphenous Vein Graft Interposition. The stitches on the anterior aspect of the anastomosis are placed without being tied. This manoeuvre prevents improper position of the sutures.
The first such operation was performed on 7 May, 1967 on a 51-year-old woman and consisted of a right coronary artery reconstruction by the saphenous vein graft interposition (Figure 5). Shortly after, the concept of aorto-coronary saphenous vein bypass grafting gained ground (Figure 6). A bypass from the anterolateral wall of the aorta to the distal end of a resected segment of the right coronary artery, using an end-to-end anastamosis was initially attempted in a series of patients, before this was changed to an end-to-side anastamosis with the coronary distal to the blockage.5

A self-retaining retractor, was designed by Dr. Favaloro, during this time. With some modifications, is still used today in cardiovascular centres all over the world and goes by the name of the Favaloro Retractor.5

In 1968 coronary artery bypass graft was combined with left ventricular reconstruction (aneurysmectomy or scar tissue resection12) and with concomitant valve repair/replacement.14 In December of the same year, a double bypass to the right coronary artery and LAD was performed, thus opening the door to multiple bypass approaches in patients with multiple vessel obstructions.

In 1970, Dr. Donald Ross invited Dr Favaloro to perform some operations at the National Heart Hospital in London.1 With the help of Dr. Ross, Dr. Favaloro in fact, carried out the first coronary artery bypass in England.

‘You Chose The Easy Way’

This memorable era, dotted with grandiose exploits, the like of which few could have envisaged in Dr. Favaloro’s life, was just about to change:

“In 1970 I decided to return to my home country. It was a difficult decision. I gave serious thought to this matter and finally considered that my work and my duties were needed in Latin America. One day in October, late in the afternoon, I wrote my letter of resignation to Effler. I closed the envelope with tears in my eyes and left it on his desk. I wrote: ‘...as you know, there is no real cardiovascular surgery in Buenos Aires ... Destiny has put on my shoulders once more a difficult task. I am going to dedicate the last one third of my life to build a thoracic and cardiovascular centre in Buenos Aires. At this particular time, the circumstances indicate that I am the only one with the possibility of doing it ... Money is not the reason for my departure. If that would be the main issue, I would take into consideration the offers made constantly to me from different places inside the U.S.A. The main purpose is to develop a well-organized service where I can train surgeons for the future. I know all the difficulties involved because I have practised before in

![Figure 6: The Principle of Saphenous Vein Bypass Grafting.](image)

The distal end-to-side anastamosis starts on the upper portion from the right coronary artery. For the left coronary artery, the anastamosis starts on the medial side. Notice that interrupted stitches are placed before beginning the anastamosis on the distal portion of the right coronary artery and proximal and distal portions of the left coronary artery.

(Taken from the Journal of Thoracic and Cardiovascular Surgery, 58(2):178-185, Favaloro RG, with permission from the American Association for Thoracic Surgery.)

![Figure 7: Dr. Favaloro with his brother Juan José Favaloro.](image)

Photo taken at the Sanatorium Gemes. (Photo courtesy of the Favaloro Foundation.)
in 1978. In 1980, Dr. Favaloro and his team carried out the created the Favaloro Foundation in 1975.

Dr. Favaloro became a physician. Dr. Favaloro and his brother, together surrogate father to his brother's four children, two of whom became physicians.

Departing from the Cleveland Clinic and his beloved colleagues there, was a momentous task.

"My big problem was Mason. It was impossible for him to accept that I would break our common work and brotherhood. Repeatedly he tried to convince me of my 'mistake'. The last 3 months were dreadful. Even though I may look like a strong and commanding surgeon, deep in my soul I am an extremely sensitive fellow."

Dr. Favaloro was welcomed warmly in Argentina as a famous surgeon and soon became a local hero. He initially worked as Chief of Thoracic and Cardiovascular Surgery at a hospital called the Sanatorium Güemes, that was a general surgical clinic. Dr. Favaloro's brother, Juan José (Figure 7), worked with him at the Sanatorium Güemes from 1971 till 1976; the year of his death in a tragic accident. After this time Dr. Favaloro became the chief of thoracic and cardiovascular surgery, deep in my soul I am an extremely sensitive fellow."

Dr. Favaloro resisted every attempt to draft him for high political office, but instead sought to amass the funds necessary for the construction of the Institute. Dr. Favaloro's brother, Juan José (Figure 7), worked with him at the Sanatorium Güemes from 1971 till 1976; the year of his death in a tragic accident. After this time Dr. Favaloro became the chief of thoracic and cardiovascular surgery.

His long awaited research department was made possible in 1978. In 1980, Dr. Favaloro and his team carried out the first heart transplant with long survival in Argentina and in the same year he also succeeded in establishing a medical centre and a teaching unit, both located in the Sanatorium Güemes. Dr. Favaloro resisted every attempt to draft him for high political office, but instead sought to amass the funds necessary for the construction of the Institute of Cardiology and Cardiovascular Surgery. More than ten long years of sacrifice, a piece of land borrowed from the town council, and several loans, one of them from the International Development Bank, were necessary to finish it. The building was inaugurated on the 2nd June 1992 with the motto:

"Advanced technology at the service of medical humanism".

Dr. Favaloro battled all odds to create the Institute and the results he achieved were awe-inspiring:

"At the Cleveland Clinic I always worked on a very modest salary, turning down innumerable profitable offers from private organizations. Approximately 25% of the patients operated upon in our Institute of Cardiology and Cardiovascular Surgery in Buenos Aires have no insurance or social protection. We provide them with the same medical assistance and facilities as we do for everybody else."

By 1999, no fewer than 400 cardiologists and cardiovascular surgeons had been trained in the Favaloro Foundation, witnesses to the enormous bravery and generosity of this one man. The Favaloro Foundation was designed to thrive upon those ten fundamental principles which Dr. Favaloro clung to, at all times, himself:

1. Honesty.
2. Work with passion, effort and unlimited self-sacrifice.
3. Avoid being influenced by dogmatic concepts or prejudices arising personally or suggested by others.
4. An individual's contribution will be of value only if it arises from his free will, exercised without external influences or limitations.
5. Never stray from a strictly ethical attitude.
6. Teamwork is vital. This demands humility.
7. Every action should be directed towards the truth and nothing more than the truth. One should speak one's inner thoughts out loudly. Nothing can be constructed on lies.
8. If in addition to relieving the suffering of our fellow-man we can enrich our knowledge, then our satisfaction will be doubled.
9. Our work is directed towards the patient. Consequently he is the only person to be permitted privileges.
10. We can only enjoy the accomplishment of our work when we realize, preferably in those moments of personal reflection, that the only true prize is that gained from the spiritual pleasure of a duty well done.

Dr. Favaloro regularly featured on the local media and voiced his opinion on matters which listeners may not have been particularly willing to hear in the way of social commentary. Despite his unorthodox Sicilian ways his popularity blossomed relentlessly and he never ceased to intrigue and mesmerise with his outstanding teaching skills.

He was an active member of the National Commission on the Disappearance of Persons (CONADEP), which was established after the restoration of democracy in Argentina. It was chartered to investigate the fates of thousands who disappeared during the junta rule.
Dr. Favaloro was nominated for and received innumerable highly coveted accolades and international awards, and belonged to numerous honorary and scientific societies.

He spent his last few years living modestly in Buenos Aires.

**And Death Will Have No Dominion**

A great institution like the Favaloro Foundation required a budget equal in greatness to maintain it. In the midst of a good economy this was of little concern, but in the late 1990s, when Argentina’s economic standing turned sour, the magnitude of the problem became all too clear. Besides, a subsidy that had been passed by the Argentine National Congress was discontinued in 1998. At the age of 77, Dr. Favaloro was faced with tremendous losses due to default in payments from province-owned and state-owned health insurance programs, estimated at around $18 million. The only hope of survival for the Favaloro Foundation lay in the possibility of making redundant a sizeable number of people, an option which Dr. Favaloro flatly rejected. In the last years of his life, at a time when he ought to have begun reaping the benefits of decades of relentless and dedicated work, he was instead compelled to vie for additional financial help. He tried desperately to rectify the situation and salvage that Foundation, which had become his very soul. A week before his death, he wrote letters to businessmen, colleagues and to the President of Argentina, pleading for the payment of government debts to his institute. But it was to no avail.

The struggle was over. On July 29, of the year 2000, Dr. Favaloro at the age of 77, died by his own hand, according to official reports.

News of Dr. Favaloro’s demise spread as a shock wave across Latin America, the United States and further still. The world’s medical community was suddenly bereft of a singular breed of humankind that was Dr. Favaloro; it was dumbfounded and could not come to terms with the magnitude of such a loss.

As a surgeon Dr. Favaloro, will be remembered for his ingenuity and imagination; but as a man he will be remembered for his compassion and selflessness.

Today his treasured Institute in Argentina lives on; a timeless memento to its colossal founder. After the death of Dr. Favaloro was faced with the time when suffering and sacrifice, death and pain, could not come to terms with the magnitude of such a loss.

He spent his last few years living modestly in Buenos Aires.

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Pharma News

Rabeprazole success in on-demand therapy of symptomatic GORD . . .

Rabeprazole effectively controlled heartburn symptoms in 94% of patients with moderate to very severe gastroesophageal reflux disease (symptomatic but non-erosive GORD), as shown in a recent multicentre European double-blind placebo controlled randomized trial. Moreover, the trial has confirmed the rapid onset of action of rabeprazole (PARIET®, Janssen-Cilag), thereby allowing 10mg to be taken conveniently ‘on-demand’ as needed.

Long-term galantamine may reduce need for institutionalisation in dementia . . .

A recent large, retrospective, multi-centre, international study which included almost 600 patients, has shown that 92.5% of patients with dementia receiving galantamine for more than 36 months were able to stay at home for longer periods, compared with 48-65% of those receiving treatment for shorter periods of time, spanning <12 months up to <36 months. After adjustment for other risk factors for institutionalisation, long-term treatment with galantamine (REMINYL®, Janssen-Cilag) was associated with a 27% relative risk reduction for institutionalisation for each additional year of treatment.

Losartan: a wider range of tablets . . .

Losartan potassium is indicated for the treatment of hypertension including hypertensive patients with left ventricular hypertrophy (LVH), in which it has been associated with a reduced risk of stroke (although this indication has not been proven in black patients). Losartan also offers renal protection in type 2 diabetic patients with nephropathy and macroalbuminuria. Losartan (COZAAR®, MSD) is now available as 50mg and 100mg tablets. Losartan 50mg combined with hydrochlorothiazide 12.5mg (formerly HYZAAR) is now available as COZAAR-COMP. COMP and COZAAR are the only angiotensin II receptor blockers (ARBs) to be indicated to reduce the risk of stroke in patients with hypertension and LVH.

Recently introduced hormones for fertility treatment . . .

Recombinant FSH (PUREGON®, Organon), is not derived from urinary sources, and is indicated in the treatment of female infertility with an ovulation where controlled ovarian hyperstimulation is required as part of an assisted reproductive programme.

The human chorionic gonadotropin (HCG) (PREGNYL®, Organon) induces a surge in LH and results in the release of mature follicles. This will enhance the chances of conception if sexual intercourse occurs or, in the case of in vitro fertilization, if female ova are collected at this time.

Ganirelix (ORGALUTRAN®, Organon) is a potent GnRH antagonist and is indicated for the prevention of premature LH surges during controlled ovarian hyperstimulation.

Protelos: a breakthrough in osteoporosis treatment . . .

The results of two large-scale phase III clinical trials have shown that strontium ranelate (Protelos®) is effective at reducing the risk of vertebral and hip fractures in postmenopausal osteoporotic women, whatever the severity of the disease and the site of fracture. Unlike bisphosphonates and even anabolic agents, Protelos is the first agent of its kind with a dual action on bone metabolism, simultaneously increasing bone formation and decreasing bone resorption. Results published in the New England Journal of Medicine have shown that in both women with and without existing vertebral fractures, the risk of new vertebral fractures is halved within a year and in the longer-term. The second major clinical study has shown that Protelos® also significantly reduces the risk of hip fracture in postmenopausal osteoporotic patients. PROTELOS®, Servier, was shown to be safe, well tolerated and taken as one sachet daily.