STS/EACTS Latin America Cardiovascular Surgery Conference
September 21-22, 2017 | Cartagena, Colombia

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Legend from South America: The History of Cardiac Surgery in Latin America

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The Society of Thoracic Surgeons

EACTS
European Association For Cardio-Thoracic Surgery

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No disclosures

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Latin America is not a geographical area or continent, but rather an expression used to refer to the countries and dependencies of America that were colonized by Latin countries, as Portugal, Spain and France

20 countries

- Area: 19,197,000 km^2
- Population: 626,741,000
- Population density: 31/km^2

Name	Area (km²)	Population [2]	Population density (per km²)
Argentina	2,780,400	43,417,000	14.4
Bolivia	1,098,581	10,725,000	9
Brazil	8,515,767	205,573,000	23.6
Chile	756,096	17,948,000	23
Colombia	1,141,748	49,120,104	41.5
Costa Rica	51,100	4,808,000	91.3
Cuba	109,884	11,390,000	100.6
Dominican Republic	48,442	10,528,000	210.9
Ecuador	283,560	16,144,000	54.4
El Salvador	21,040	6,127,000	290.3
French Guiana*	83,534	269,000	3
Guadeloupe*	1,628	468,000	250
Guatemala	108,889	16,343,000	129
Haiti	27,750	10,711,000	350
Honduras	112,492	8,075,000	76
Martinique*	1,128	396,000	340
Mexico	1,972,550	122,435,500	57
Nicaragua	130,375	6,082,000	44.3
Panama	75,517	3,929,000	54.2
Paraguay	406,752	6,639,000	14.2
Peru	1,285,216	31,377,000	23
Puerto Rico*	9,104	3,683,000	397
Saint Barthélemy*	53.2	9,000[29]	682
Saint Martin*	25	39,000	361
Uruguay	176,215	3,432,000	18.87
Venezuela	916,445	31,108,000	31.59
	20,111,457	**626,741,000**	

RANGING

Area

25 (St Martin) → 8,515,767 km² (Brazil)

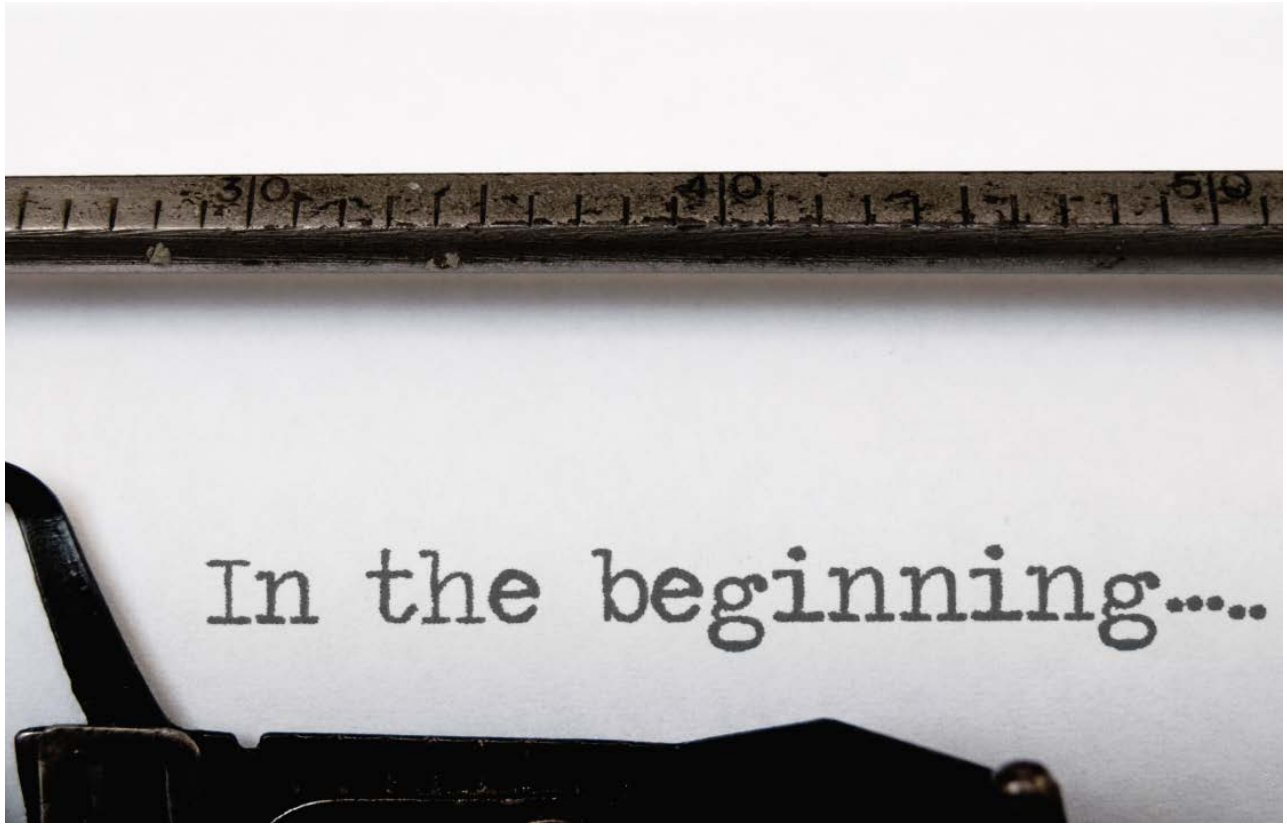
Population

9,000 (St Barths) → 205,573,000 (Brazil)

Population density

3 (French Guiana) → 682 (St Barths)

Latin America =
Financial, Cultural, Political Diversity


In the beginning.....

Cardiac surgery began in the second half of the 20th century, so far only isolated cases of heart wound suturing, mitral valvuloplasty and some cardiac congenital correction attempts had been reported

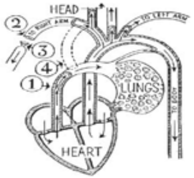
Blalock Taussing shunt
Nov 1944

Dr. Helen Taussing

Dr. Alfred Blalock

Vivien Thomas

Switching Arteries Sidetracks Blood and Oxygen to Otherwise Starved Lungs



The "Blue" Babies' Blood Lacks Vital Oxygen Because the Artery (1) From the Heart to the Lung Is Constricted. By Severing an Artery of the Arm (2), Tying It Off (3) and Attaching It to the Lung Artery (4) the Constriction Is By-Passed.

Saving Our Doomed 'Blue' Babies

By Robert D. Potter
Science Editor

A WOMAN physician's courageous research and imagination, and the skill of one of the world's great surgeons have combined to bring hope that many "blue" babies—hitherto considered doomed to early death—may be saved.

These babies are blue because they are suffering from a lack of oxygen in their blood streams, in a condition known as cyanosis. The artery from their heart to their lungs is so constricted that their blood never gets oxygen to make cheeks rosy.

Their lips are blue. Their toes are blue, and they can walk only a few feet without exhaustion. Doctors used to give them only a few tortured years to live.

But now medicine can give hope . . . and more . . . for since Nov. 20, 1944, Dr. Blalock, Professor of Surgery at Johns Hopkins University in Baltimore, has been conquering the "blue" baby malady by rerouting an artery from the arm and making it carry blood to the lungs where it can receive its vital oxygen.

Nearly 70 operations have been performed on "blue" babies. In many cases almost miraculous recovery has come.

It is Dr. Blalock's fingers that wield the knife in the delicate operation that exposes the heart and transplants its vital arteries. But behind the brilliant operation he has perfected are years of painstaking research by Dr. Helen B. Taussig.

Daughter of the late Prof. F. W. Taussig, world-famous Harvard economist, Dr. Taussig had watched "blue" babies come to her heart clinic at Johns Hopkins Hospital.

In many cases she discovered that the artery leading to the lung from the heart was narrowed so that an insufficient supply of blood was reaching the lungs to receive its vital oxygen. Dr. Taussig reasoned that a surgical operation might be able to short circuit the constriction and sidetrack blood into the lungs. On paper, when the diagram of the art-

the blood would pick up its life-giving oxygen. Then it would go back to the heart again to move outward through the body.

But could it be done? It is one thing to have a plumber re-arrange a piping system and something quite different to lay bare the human heart, sever one of its main arteries, splice it to another main artery and sustain life in the patient in the process. Dr. Blalock said he would try.

Since the pioneer attempt the operation has been largely successful, although it is one filled with danger. Among the first 70 patients, 14 died. The odds are 5 to 1 for success.

Now that the news of Dr. Blalock's operation is known through the country the list of patients grows daily. Blue little Bonnie Stewart of Florida, daughter of a daddy killed on Saipan, went to Baltimore with her grandmother. Today Bonnie walks and plays like other children.

The case of six-year-old Mike Schirmer — the boy with the "itchy zipper" — shows what can be done.

Little Bonnie Stewart of Florida Is Another of the 70 Children Saved by the New Johns Hopkins Surgery.

Six-Year-Old Mike Schirmer of Baltimore Could Walk Only Five Feet Without Resting Before the Operation. He Shows His "Itchy Zipper" — the Incision for the Operation.

Mike's "itchy zipper" is the healing incision over his heart where Dr. Blalock went in to do the operation. But let his mother tell his story:

"Michael could only walk five feet and then he'd have to squat down on the sidewalk and rest.

"I had to wheel him everywhere. Strangers would stop his carriage and

was no hope that Mike could grow up. But then came new hope, for Dr. Mansderfer told us about the operation of Dr. Blalock.

"They took him to the operating room and brought him back two hours later. It was a miracle.

"After only two weeks of convalescence he came home and he has been on the go ever since. If anyone wants anything he'll run and get it. He's up and down stairs 75 times a day. He climbs on bureaus and tables just for the joy of jumping off. He wears me out. But I love it."

The Blalock-Taussig operation is not a simple one. It takes from an

branches of the pulmonary artery (to the lungs) are two large blood vessels. One connects the heart and the arm, the other the heart and the head. Dr. Blalock chooses the most convenient — usually the arm artery — and severs it. One end is clamped off and the other closed permanently.

The end nearest the heart is then spliced to the nearest branch of the pulmonary artery. The clamps are removed and the blood that would ordinarily flow to the arm goes into the lung. There it becomes enriched with vital oxygen and the baby's blue lips quickly begin to turn red.

What happens to the arm?

Nature has provided other blood vessels which take up the blood load

First steps of cardiovascular surgery in Cuba

In **1941**, in the Hospital Municipal de la infancia de La Habana, Dr. **Manuel Carbonell Salazar** operated 2 children to close the Persistence of Ductus Arteriosus

Digital Commissurotomy
Charles Bailey, 1949

DISEASES *of the* CHEST

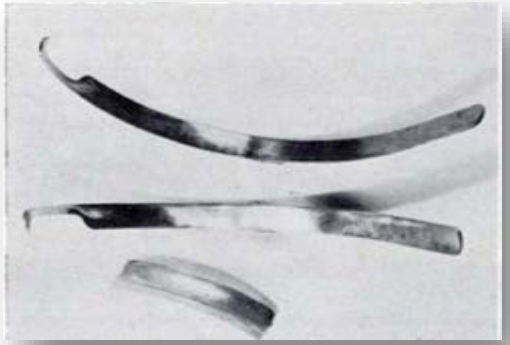
VOLUME XV APRIL, 1949 NUMBER 4

The Surgical Treatment of Mitral Stenosis (Mitral Commissurotomy)*

CHARLES PHILAMORE BAILEY, M.D., F.C.C.P., F.A.C.S.**
Philadelphia, Pennsylvania

Stenosis of the mitral valve has long challenged the therapeutic ingenuity of the medical profession. It has seemed unreasonable that young persons in otherwise satisfactory health should be condemned to a life of invalidism and early death. Success in treating strictures and stenoses in other organs has suggested that such a simple mechanical defect should not present an insuperable problem.

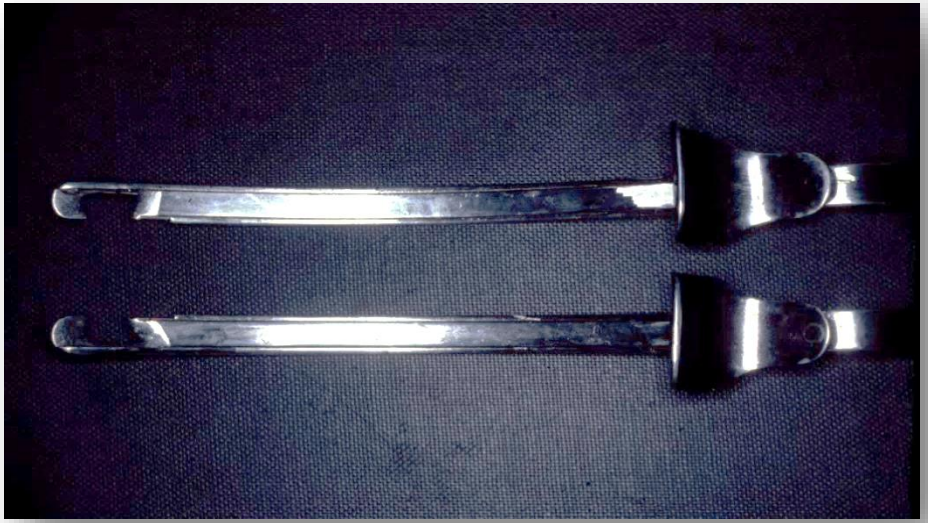
However, fear of surgical attack upon the heart, discouraging results of early attempts, and a general lack of appreciation among the medical profession of the extreme seriousness of this disease

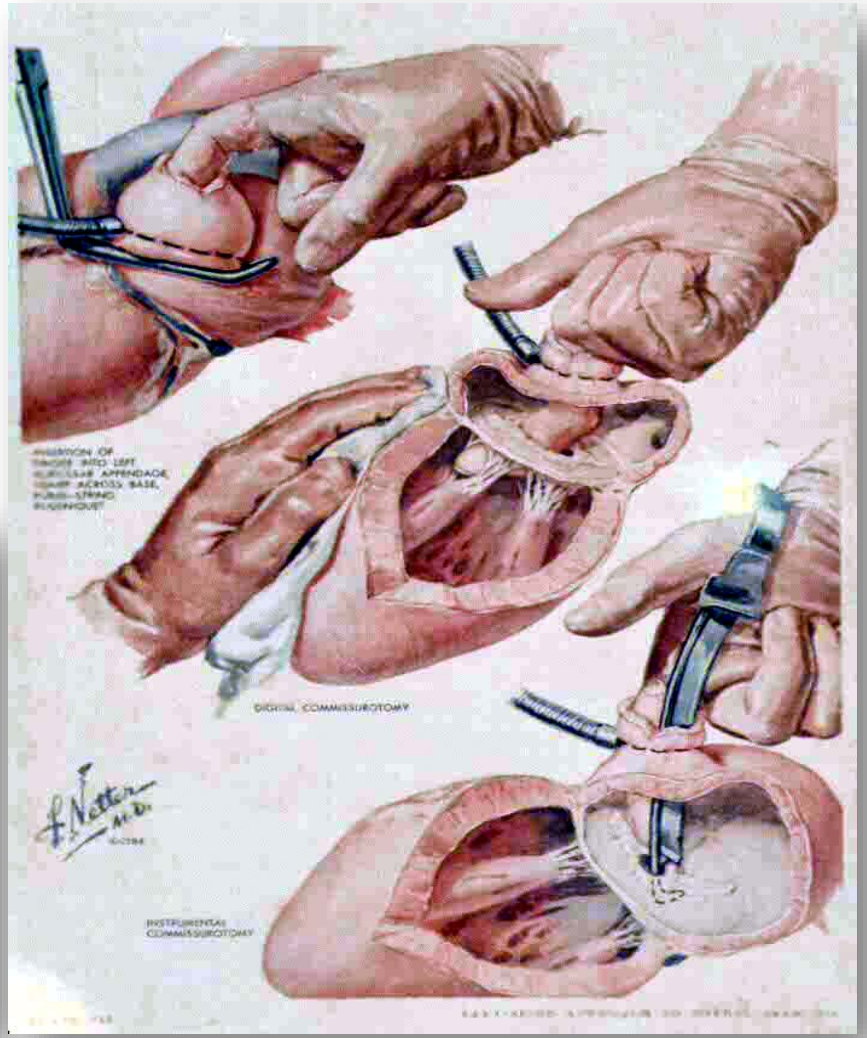


Svante Tórnvall and Pedro Uribe performed the first mitral commissurotomy closed in Chile in December 1950

Digital Commissurotomy 1951

- First closed digital commissurotomy for mitral stenosis at HC-USP





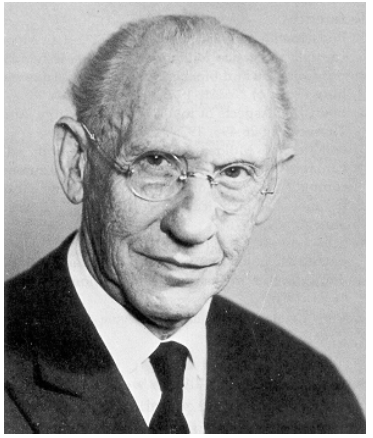
In Peru, the cardiovascular surgery was started at Hospital Obrero, in Lima, 1953

The procedure was a mitral valvulotomy in a patient with rheumatic mitral stenosis

The surgeon was Dr Marino Molina coming from Sweden

the onset of pediatric cardiac surgery in South America

Visita de Crafoord y su equipo al Hospital de Clínicas en 1953. En una azotea del Piso 17, de izquierda a derecha: Olle Friberg (anestesista sueco), Ake Senning (cirujano sueco), Alejandro Victorica, Clarence Crafoord, Bengt Jonsson (cardiólogo sueco), Alberto Barcia, Margaretta Hamenberg (secretaria de Crafoord), Nicolás Caubarrère, Ruben Franco (periodista) e Inga Ericsson (instrumentista). *(Mundo Uruguayo,* 7-1-1954, FDAN).



A Swedish cardiovascular surgeon, best known for performing the first successful repair of aortic coarctation on 19 October 1944, one year before Robert E. Gross.

In the late 40’s and early 50’s occurred simultaneous initiatives in several countries, with surgery to correct congenital defects and treatment of mitral stenosis, without the use of cardiopulmonary bypass. The basis for the development of cardiovascular surgery was already being drawn: involved people, organizing in groups and teams and hospitals preparing for implementation of the new procedures.

Advent of Extracorporeal Circulation

In 1953, John Gibbon performed his first successful operation using an extracorporeal circuit in an 18-year-old woman who had a large atrial septum defect with an important left-to-right shunt

Since then the way was open for the real beginning of the cardiovascular surgery and it started to be explored in different countries.

Drs. Arengüren, Lillehei, Pisanú en Argentina 1956

On March/**1956** at Hospital de Jesús, the **first open-heart surgery** was performed in **Mexico** using surface hypothermia by **Raúl Baz Iglesias, José Roberto Monroy and Marcelo García Cornejo**

The surgery performed was correction of an atrial septal defect in a 8 year old girl

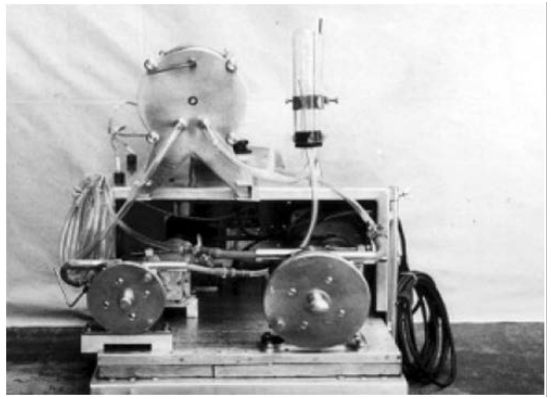
Fig. 2. Fotografía tomada en 1954 en el Departamento de Cirugía Experimental del INC de derecha a izquierda, con batas blancas, los Drs. Raúl Baz Iglesias, José Roberto Monroy y Marcelo García Cornejo, médicos que participaron en la primera cirugía de corazón abierto en el año 1956.

In Chile, the first open-heart operation with hypothermia was performed at Hospital Van Buren de Valparaíso, in 1956, for a mission of the British Council headed by Thomas Holmes Sellors and consisted in the closure of atrial septal defect

First steps of cardiovascular surgery in Cuba

- At the Cardiovascular and Thoracic Surgery Institute, Antonio Rodríguez Díaz and Hilario Anido Fraguedo, with the acquisition in 1956 of a CPB machine, known as the "Lillehei Pump", started open heart surgery in the country

In Brazil, **Hugo Fellipozzi** performed the 1st cardiac surgery with full use of CPB in **Dec/1956**



CPB machine used in the 1st heart surgery

the onset of pediatric cardiac surgery in South America

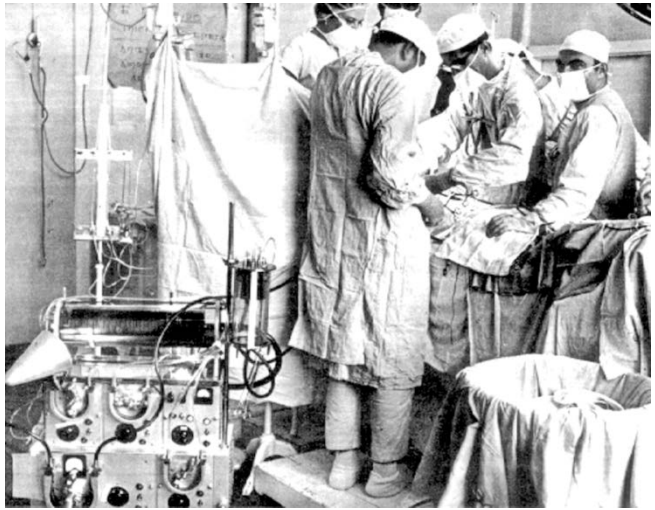
Bogotá , Colombia

31 de julio de 1959

Condecoración a científicos. En la clausura del Symposium del Corazón, al cual asistieron cardiólogos de todo el mundo, varios fueron condecorados por sus méritos. En la foto, el coronel Alfonso Rueda impone la condecoración a los doctores Walton Lollehey y Demetrio Sodi.

Brasil

Zerbini used the 1st CPB in 1958



1st CPB with hemodilution in 1960 (Domingos Junqueira)

Zerbini Caravan

With better results, the number of pts who underwent surgery by Prof. Zerbini was growing alongside his prestige in Brazil and Latin America. The influx of surgeons, mainly from latin America, looking for training was increasing

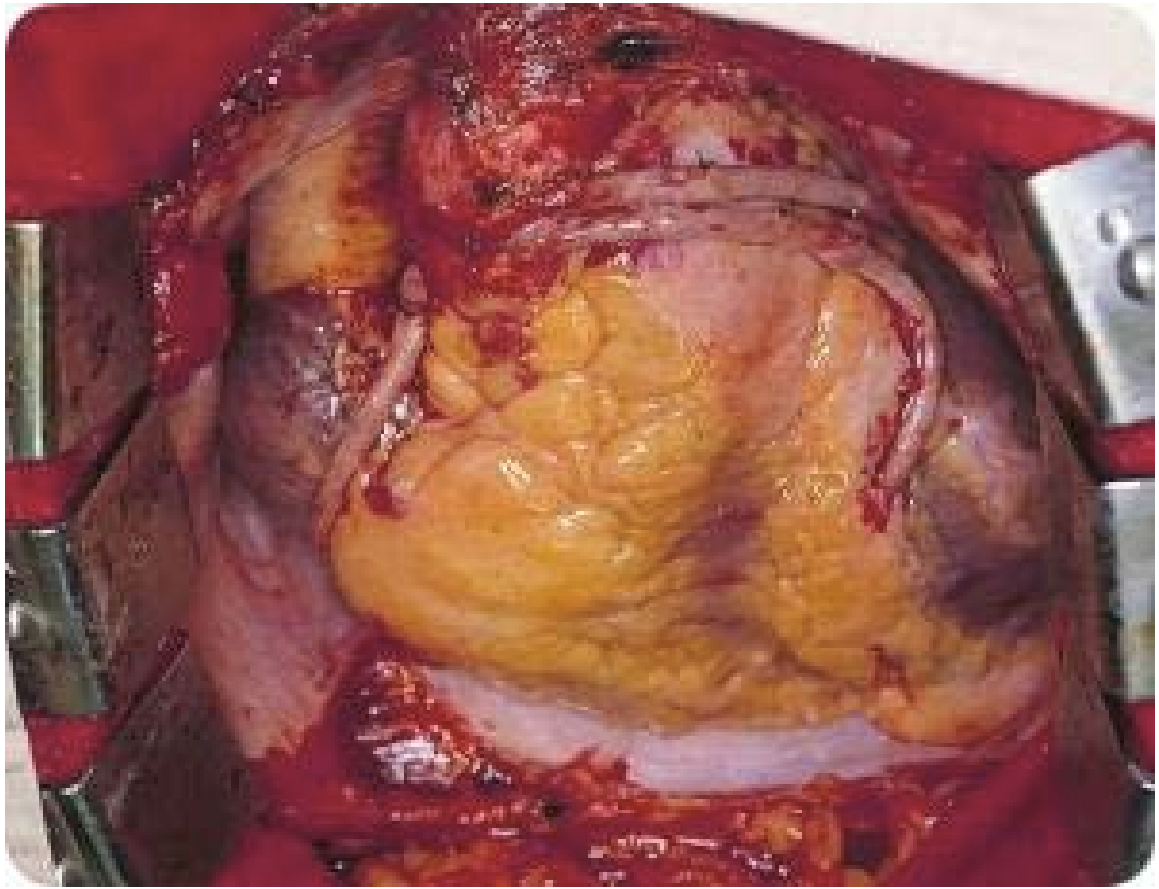
Belém, Brazil, 1960

Training in cardiovascular Surgery

G. Kreutzer
and
R. Neirotti

After the first time, what happened with the development of several areas, in our region?

CABG Surgery



1st CABG performed by **René Favaloro**, from Argentina, in 1967, in Cleveland Clinic.

He became known worldwide as the father of CABG

Soon after the proposal of Favaloro, Adib Jatene initiated in Brazil in 1968 the myocardial revascularization using saphenous vein grafts; reproduced by several groups in Brazil in the following years

The Argentinian surgeon Federico Benetti started the off pump coronary surgery in 1978

Benetti FJ. Cirugia coronaria direta con bypass de vena safena sin circulatión extra-corpórea o parada cardíaca. comunicación previa. Rev Fed Arg Cardiol 1980; 8: 3-5.

Enio Buffolo - CABG off-pump proposal, in 1982, Brazil

Enio Buffolo *
José Carlos Silva Andrade **
José Ernesto Succi **
Luis Eduardo Villaça Leão ***
Clotário Cueva ***
João Nelson R. Branco ***
Costabile Gallucci ****

REVASCULARIZAÇÃO DIRETA DO MIOCÁRDIO SEM CIRCULAÇÃO EXTRACORPÓREA. DESCRIÇÃO DA TÉCNICA E RESULTADOS INICIAIS.

Arq Bras Cardiol. 1982 May;38(5):365-73.

Thorac Cardiovasc Surg. 1985 Feb;33(1):26-9.

Direct myocardial revascularization without cardiopulmonary bypass.

Buffolo E, Andrade JC, Succi J, Leao LE, Gallucci C.

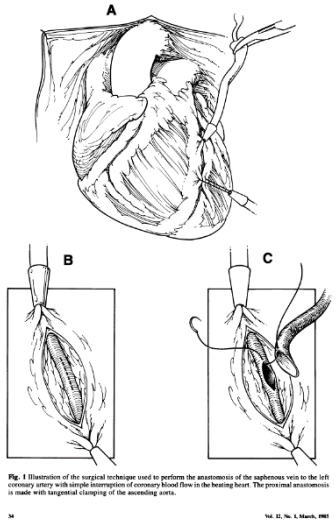
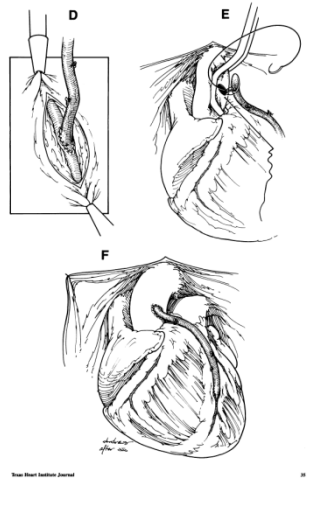


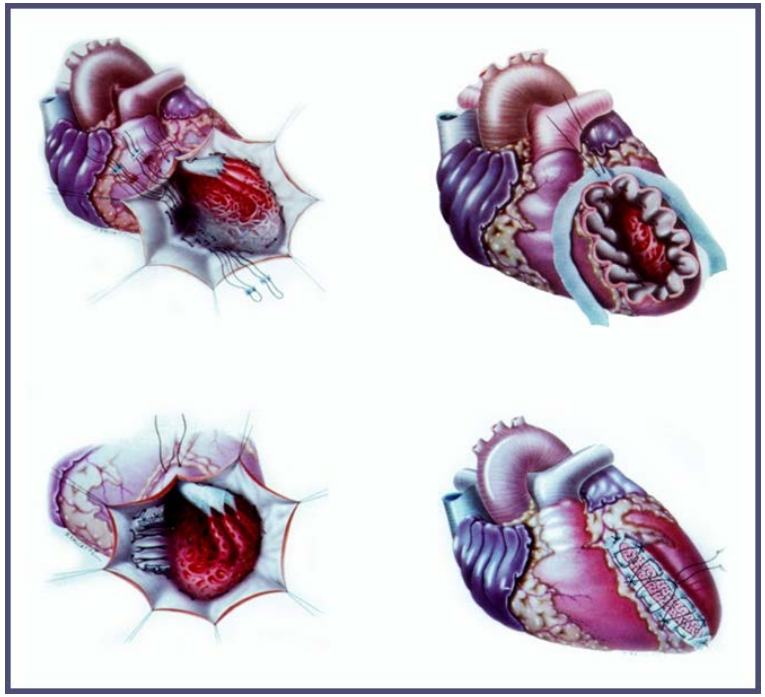
Fig. 1 Illustration of the surgical technique used to perform the anastomosis of the saphenous vein to the left coronary artery with simple interruption of coronary blood flow in the beating heart. The proximal anastomosis is made with tangential clamping of the ascending aorta.

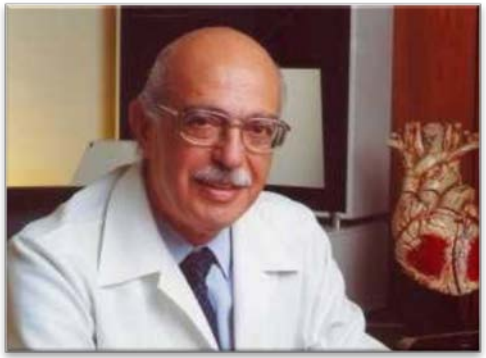


J Thorac Cardiovasc Surg. 1985 Mar;89(3):321-31.

Left ventricular aneurysmectomy. Resection or reconstruction.

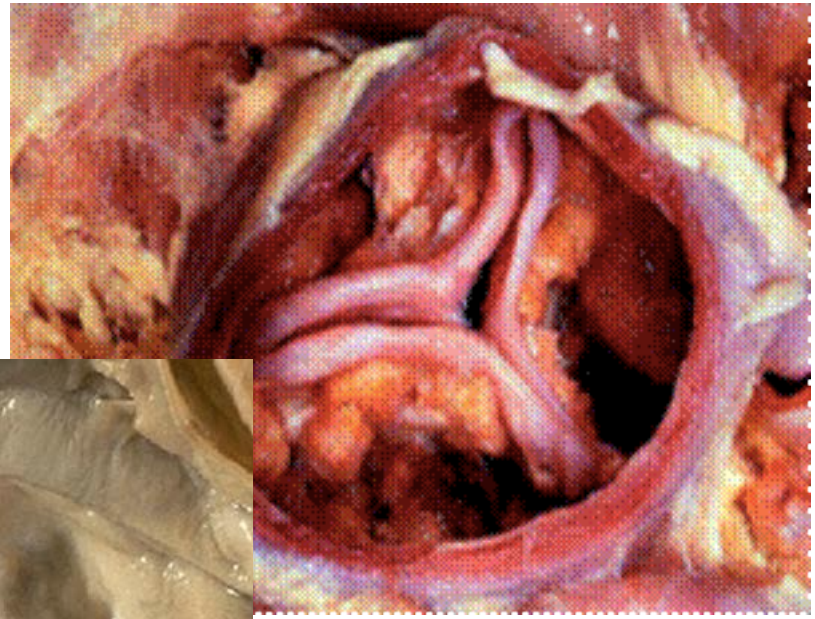
Jatene AD.

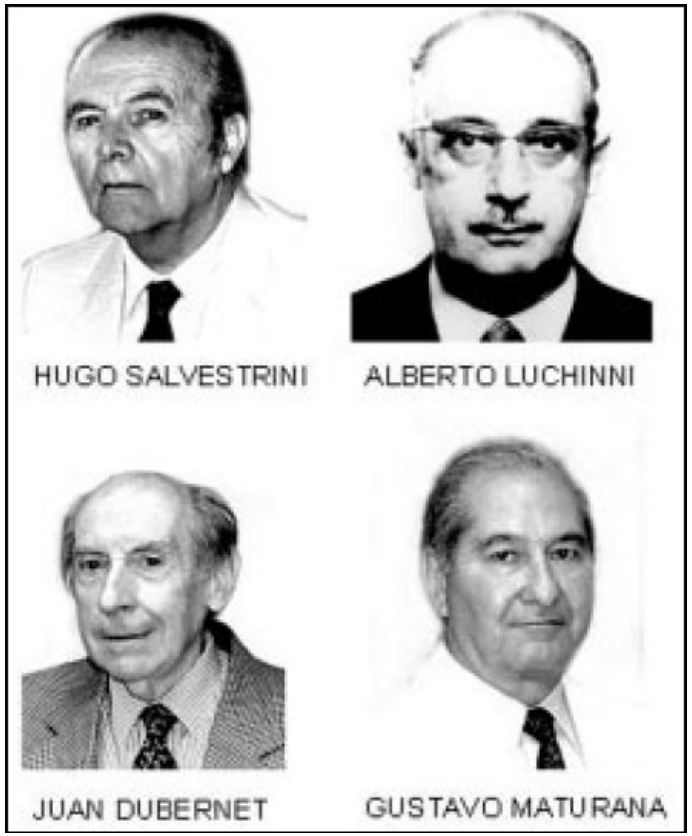




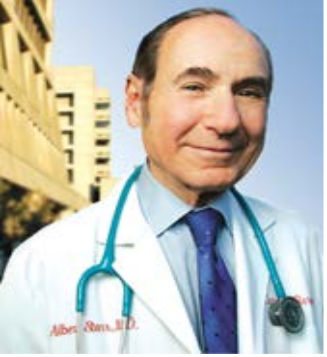
Adib Jatene – Concept of geometric ventricular reconstruction, in 1985

Valve Surgery

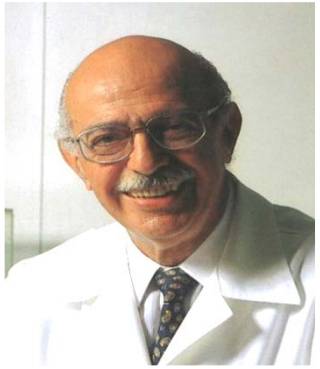




Surgical team of the Hospital Clínico de la Pontificia Universidad Católica who performed the first mitral valve replacement in Chile and, most probably, one of the pioneers in South America, on May 15, **1964**.



Albert Starr

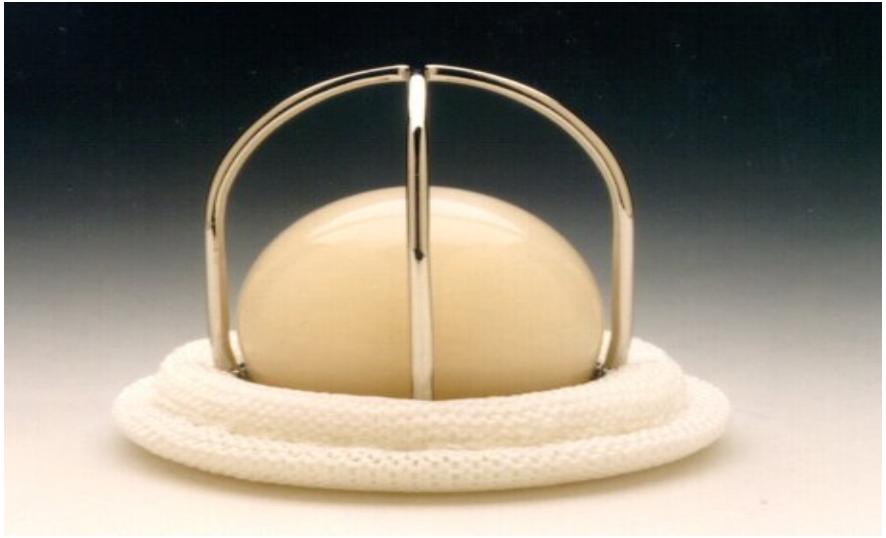


Adib Jatene

1960

Ball Valve

1962



Dura Mater Bioprosthesis - 1970

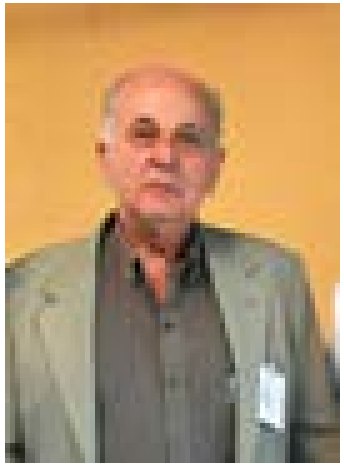
J Thorac Cardiovasc Surg. 1972 Jul;64(1):154-60.

Homologous dura mater cardiac valve. Preliminary study of 30 cases.

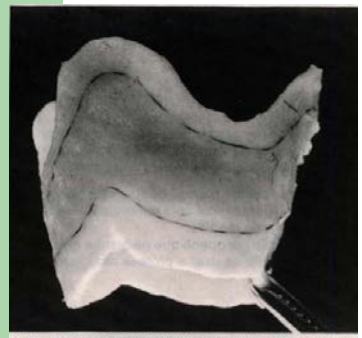
Puig LB, Verginelli G, Belotti G, Kawabe L, Frack CC, Pileggi F, Décourt LV, Zerbini EJ.

Luiz Boro Puig, in 1970, started the development of the homologous dura mater cardiac valve

The first implantation was performed in 1971



Mario Vrandecic



ig. 2 - Bioprótese *Stentless* (altura comissural + 10 mm e altura subostial + 5 mm).

Rev. Bras. Cir. Cardiovasc.,
3(3): 159-168, 1988.

Estudo multicêntrico dos resultados das trocas valvares com o uso da bioprótese Biocor no Estado de Minas Gerais

Mário Osvaldo VRANDECIC*; Bayard GONTIJO FILHO*; João Alfredo Paula e SILVA**; Fernando Antônio FANTINI*; Juscelino Teixeira BARBOSA**; Márcio C. SÃO JOSÉ; Carlos Álvaro dos Santos PINTO***; Gilberto Lino VIEIRA****; Homero Geraldo OLIVEIRA****; Renato R. RABELO****; Sebastião Correa RABELLO****; Alexandre V. BRICK*****; Eduardo PEREDO*; Adelson A. PEDROSA*; Antônio Luiz O. AZEVEDO SOBRINHO***; Maurício BARBOSA***; Heberth César MIOTTO*; Maria Aparecida BRAGA****; Marco Antônio SALUM**; Júnia F. BRAGA*; Guilherme H. MOREIRA*; Osvald Hely MOREIRA*; Carlos Alberto de OLIVEIR

Rev. Bras. Cir. Cardiovasc.
7(3):208-214, 1992.

Nova bioprótese aórtica sem suporte: resultados clínicos

Bayard GONTIJO FILHO*, Mário O. VRANDECIC*, Mário MOREA*, Kjell RADEGRAN*, João Alfredo de PAULA E SILVA*, Fernando Antônio FANTINI*, Juscelino Teixeira BARBOSA*

Congenital Surgery

Developmet of Pediatric Cardiac Surgery acroos the world

Canada

Maude abbott 1939
Bigelow 1952 Hypothermia
G Trusler, W. Mustard (1963)

United States

Mc Lean 1918 (Heparin)
Gross 1938 (PDA ligation).
Blalock, Taussig Thomas 1945(BTS)
Dammon Muller 1952 (PA Banding)
Gibbon, Lillehei, Kirklin 1954 (ECC)
Lillehei Zoll 1952 (Pacemaker)
Rashkind 1966 (atrioseptostomy)

Sweden

Crafford Co Ao 1944
Senning (Atrial switch)

France , UK, Germany, Italy

D Ross Homografts 1962
Fontan
Dobost
Brock

New zeland

Barrat Boyes 1958 ECC
Homografts 1962

Development of Pediatric Cardiac Surgery in South America. (Closed surgery) (Late 40´s)

Colombia

G. Humphreys,1948 (PDA)
Rueda 1952 BTS AoCo

Brazil

Azarias de Brito 1946 (PDA)
Dominguez Pinto 1948 (BT S -Coa)

Chile

Amestri 1943 (PDA)

Argentina

Enrique Finochietto 1941 (PDA)
Albanese 1946 Ao Co / BT Shunt

Development of Pediatric Cardiac Surgery in South America. (Open heart Surgery)(late 50´s)

Venezuela

Ruben Jaen Centeno 1958

Gustavo Garcia Galindo. ECC 1961

Colombia

Bejarano , Ramirez .
1959 ECC, PS, ADS

Perú

Ricardo Tole 1959,

Bolivia

Loma Peña y Lillo

Brazil

Felipozzi 1955 PE ECC

Zerbini, Bittencourt, Jatene (ECC) 1960 T4 Fallot

Chile

Helmut Jaeger 1957(ASD)

Uruguay

Juan Carlos Abó y Roberto Rubio ECC 1959,1960

Argentina

Mario Brea, Tricerri 1958 ECC.

Development of Pediatric Cardiac Surgery in South America 60'.

Institutions (50´s & 60´s)

Venezuela
Hospital las Clinicas.
Hospital Cardiológico Infantil

Colombia
Clínica Shaio . Bog 1957
F. Cardiovascular Med.
Fundación C Infantil

Brazil
Hospitais das Clinicas – Incor
Instituto Pazzanese
Hospital Paulista

Survivors over fifty years

Hospital del niño
Incor

Chile
Hospital Clinico
Hospital Calvo Mackena

Uruguay
Hospital de Clinicas

Argentina
Hospital las Clinicas
Hospital Italiano,

Development of Pediatric Cardiac Surgery in South America. (Contributions)

Colombia

Reynolds, Bejarano: External Pacemarker 1958
Eduardo Arciniegas´s Book

Brazil

Zervinni T of Fallot, Jatene, TGA
Barbero Marcial.
JP Da Silva.

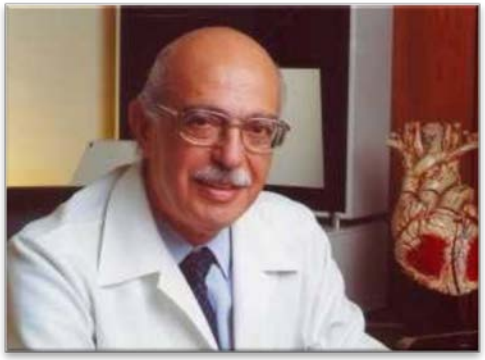
Chile

Pedro del Nido,
Pizzarro Norwood

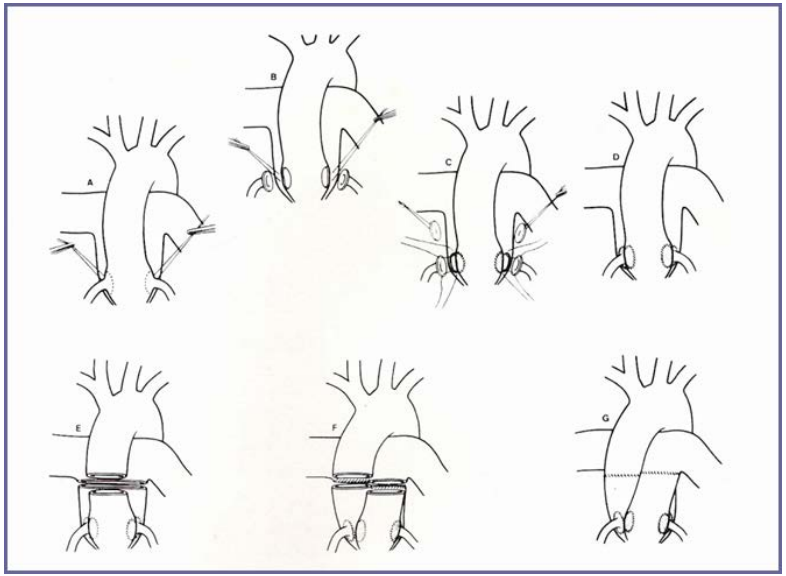
Argentina

G Kreutzer. Atriopulmonar connnection

Prof. Adib Jatene



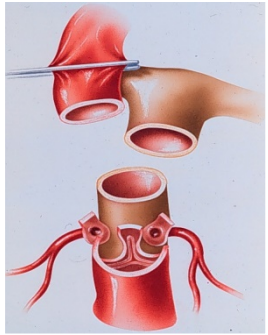
1976: Anatomic correction of transp. of the great arteries – Jatene's Operation (**arterial switch)**

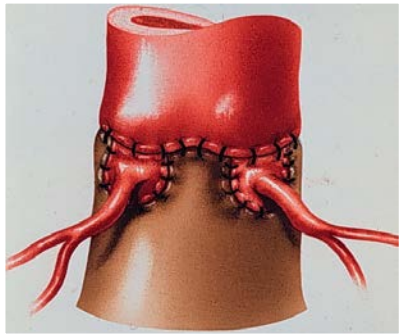


J Thorac Cardiovasc Surg. 1976 Sep;72(3):364-70.

Anatomic correction of transposition of the great vessels.

Jatene AD, Fontes VF, Paulista PP, Souza LC, Neger F, Galantier M, Sousa JE.

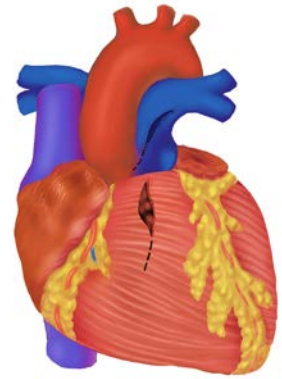


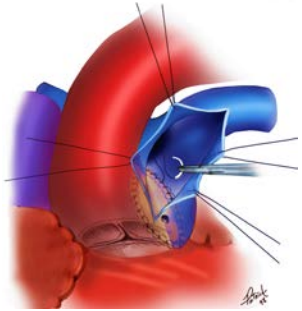


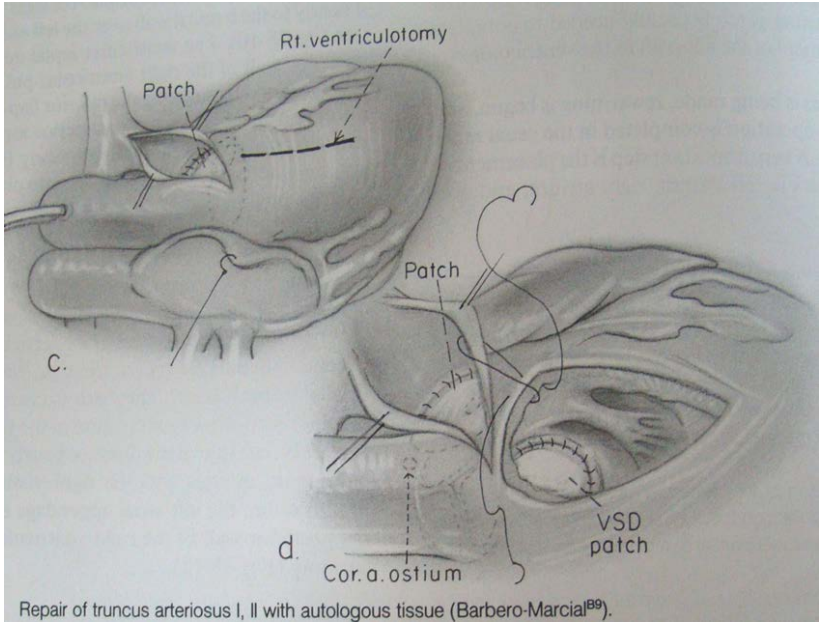
J Thorac Cardiovasc Surg. 1990 Feb;99(2):364-9.

A technique for correction of truncus arteriosus types I and II without extracardiac conduits.

Barbero-Marcial M[1], Riso A, Atik E, Jatene A.







Repair of truncus arteriosus I, II with autologous tissue (Barbero-Marcial[89]).

Arq Bras Cardiol. 2004 Mar;82(3):212-6. Epub 2004 Apr 5.

[Ebstein's anomaly: results of the conic reconstruction of the tricuspid valve].

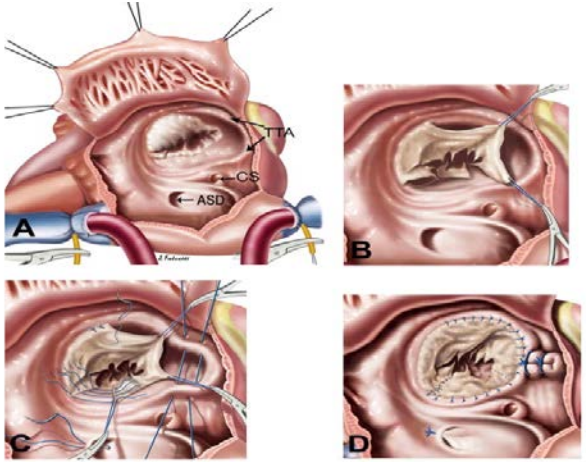
[Article in Portuguese]
Silva JP[1], Baumgratz JF, Fonseca Ld, Afiune JY, Franchi SM, Lopes LM, Magalhães DM, Vila JH.

J Thorac Cardiovasc Surg. 2007 Jan;133(1):215-23. Epub 2006 Dec 4.

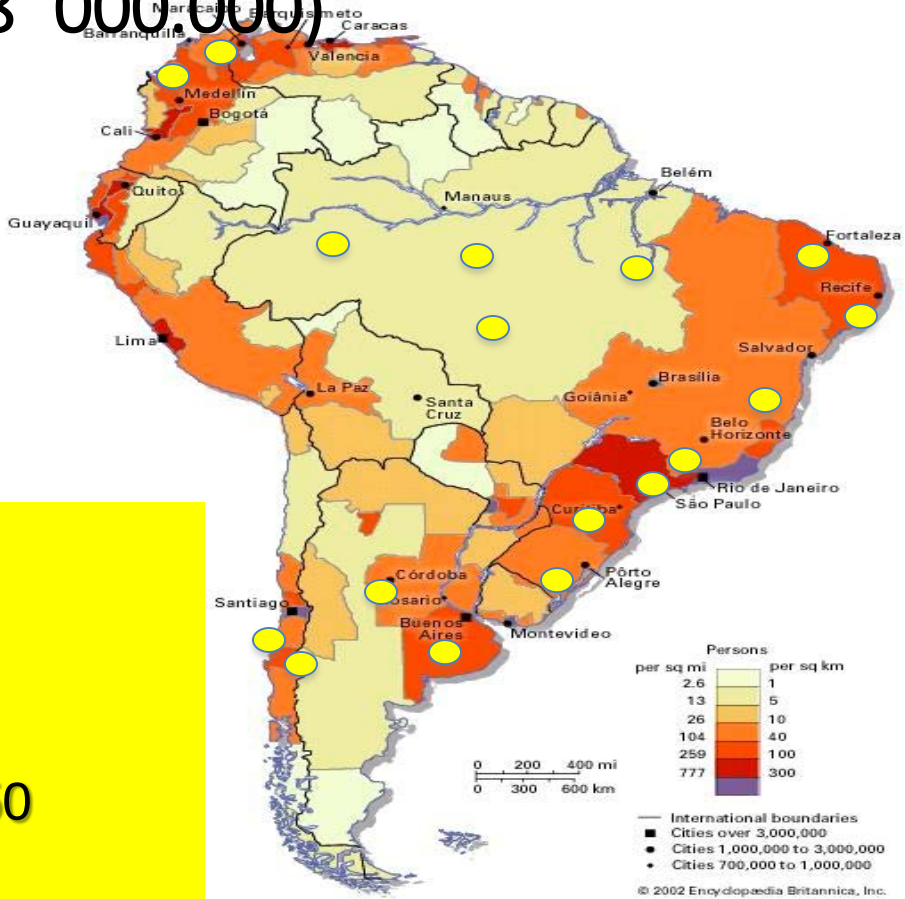
The cone reconstruction of the tricuspid valve in Ebstein's anomaly. The operation: early and midterm results.

da Silva JP[1], Baumgratz JF, da Fonseca L, Franchi SM, Lopes LM, Tavares GM, Soares AM, Moreira LF, Barbero-Marcial M.

In 1993, José Pedro da Silva developed a new technique for tricuspid valve repair in Ebstein's anomaly



CARDIAC UNITS PER MILLION IN SOUTH AMERICA (418´000.000)

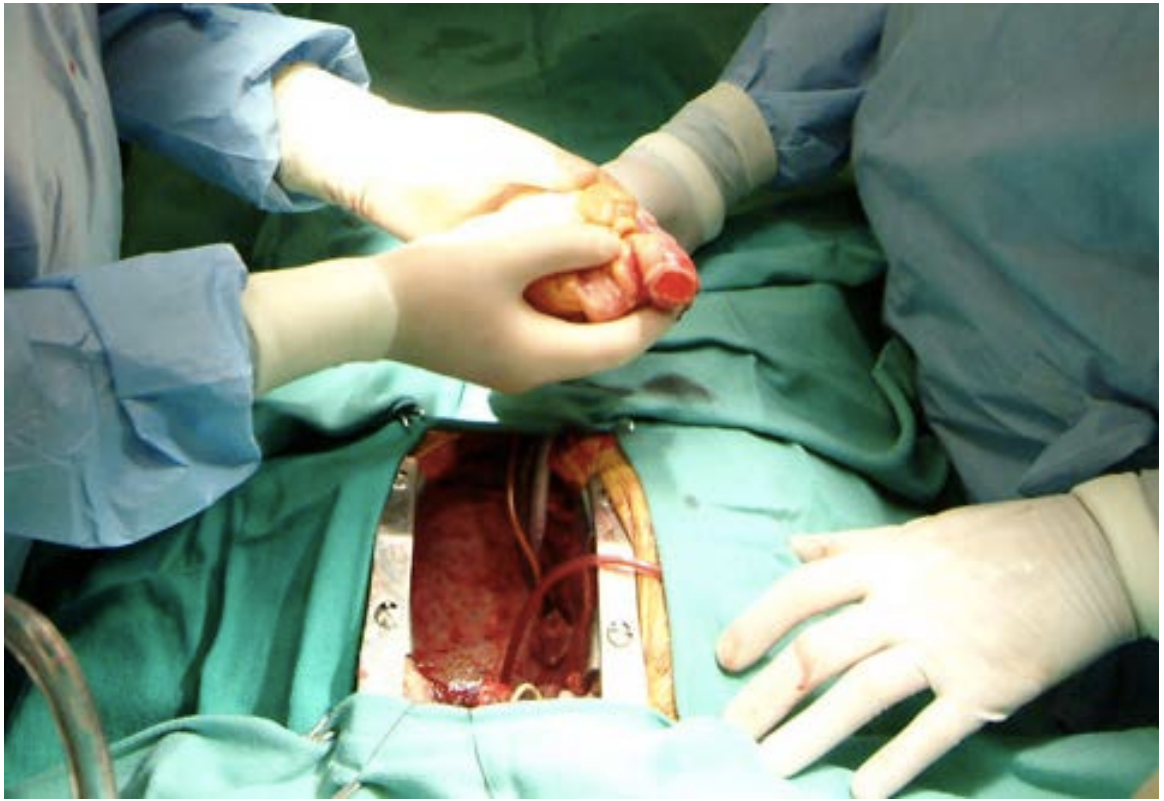


138 centers
1 Ped Cardiac Center /3´000.000
(1 Ped /1to 5 million)

Few centers perform more that 250 cases/year

Sandoval N et al. World Journal for Pediatric and Congenital Heart Surgery 2010 1: 321

Heart Transplant

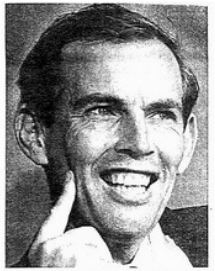


The first human-to-human heart transplant was performed on 3 Dec/ 1967 in Cape Town by Christiaan Barnard

Moments in History

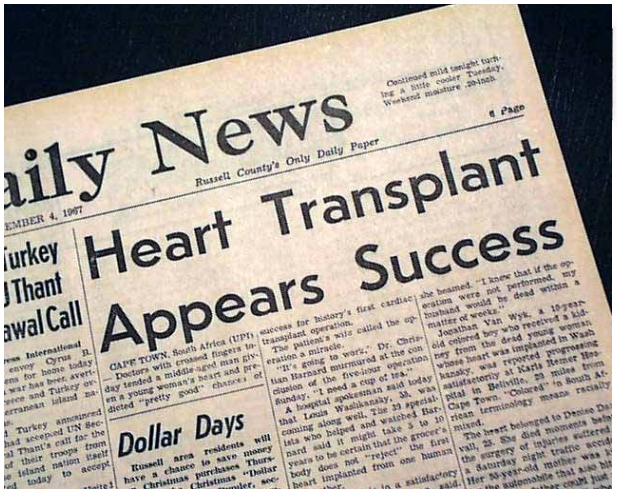
In December, 1967, a young woman, Denise Darvall, was walking across a street in Woodstock to buy a cake when a car struck her. She died in Groote Schuur Hospital and in doing so achieved immortality by becoming the world's first heart donor when Christiaan Neethling Barnard transferred her heart into the chest of Louis Washkansky.

Cape Town has been witness to many historic moments since the day Van Riebeeck anchored in Table Bay. Few, if any, brought more limelight to the city than the heart transplant. For the surgeon, Dr Barnard, soon to be a household name throughout the world, "the heart is merely a pump". But for those who equated the heart with love and death, the transplant seemed close to a miracle.



Professor Chris Barnard, leader of the heart-transplant team, in a characteristic pose during one of his many press conferences.

First close-up photograph to be taken of Mr Louis Washkansky, who underwent the world's first heart-transplant operation, was taken by a surgeon using an *Argus* photographer's camera at Groote Schuur Hospital. Mr Washkansky, whose condition was given as good, is being assisted to breathe by a respirator. 4.12.1967



aily News

Russell County's Only Daily Paper

Continued mild tonight turning a little cooler Tuesday. Weekend moisture possible.

8 Page

EMBER 4, 1967

urkey
Thant
awal Call

Heart Transplant Appears Success

CAPE TOWN, South Africa (UPI) — Doctors with crossed fingers today tended a middle-aged man given a young woman's heart and predicted "pretty good" chances of success for history's first cardiac transplant operation.

The patient's wife called the operation a miracle.

"It's going to work," Dr. Christian Barnard murmured at the conclusion of the five-hour operation Sunday. "I need a cup of tea."

A hospital spokesman said today that Louis Washkansky, 58, was coming along well. The 53 specialists who helped and watched Barnard said it might take 3 to 10 years to be certain that the grocer's body does not "reject" the first heart implanted from one human

she beamed. "I knew that if the operation were not performed, my husband would be dead within a matter of weeks."

Jonathan Van Wyk, a 10-year-old colored boy who received a kidney from the dead young woman whose heart was implanted in Washkansky, was reported progressing satisfactorily at Karis Hemer Hospital in Bellville, 25 miles from Cape Town. "Coloreds" in South African terminology means racially mixed.

The heart belonged to Denise Darvall, 25. She died moments before the surgery of injuries suffered in a Saturday night traffic accident. Her 59-year-old mother was also hurt when the automobile that also hit

Dollar Days

Russell area residents will have a chance to save money at Christmas purchases Thurs-

First Heart Transplant in Latin America Performed by Zerbini in 1968

Barnard visit to Brasil

Fig. 8 - Visit of Dr. Christian Barnard at Clinics Hospital in 1969. In the foreground, Zerbini and Barnard

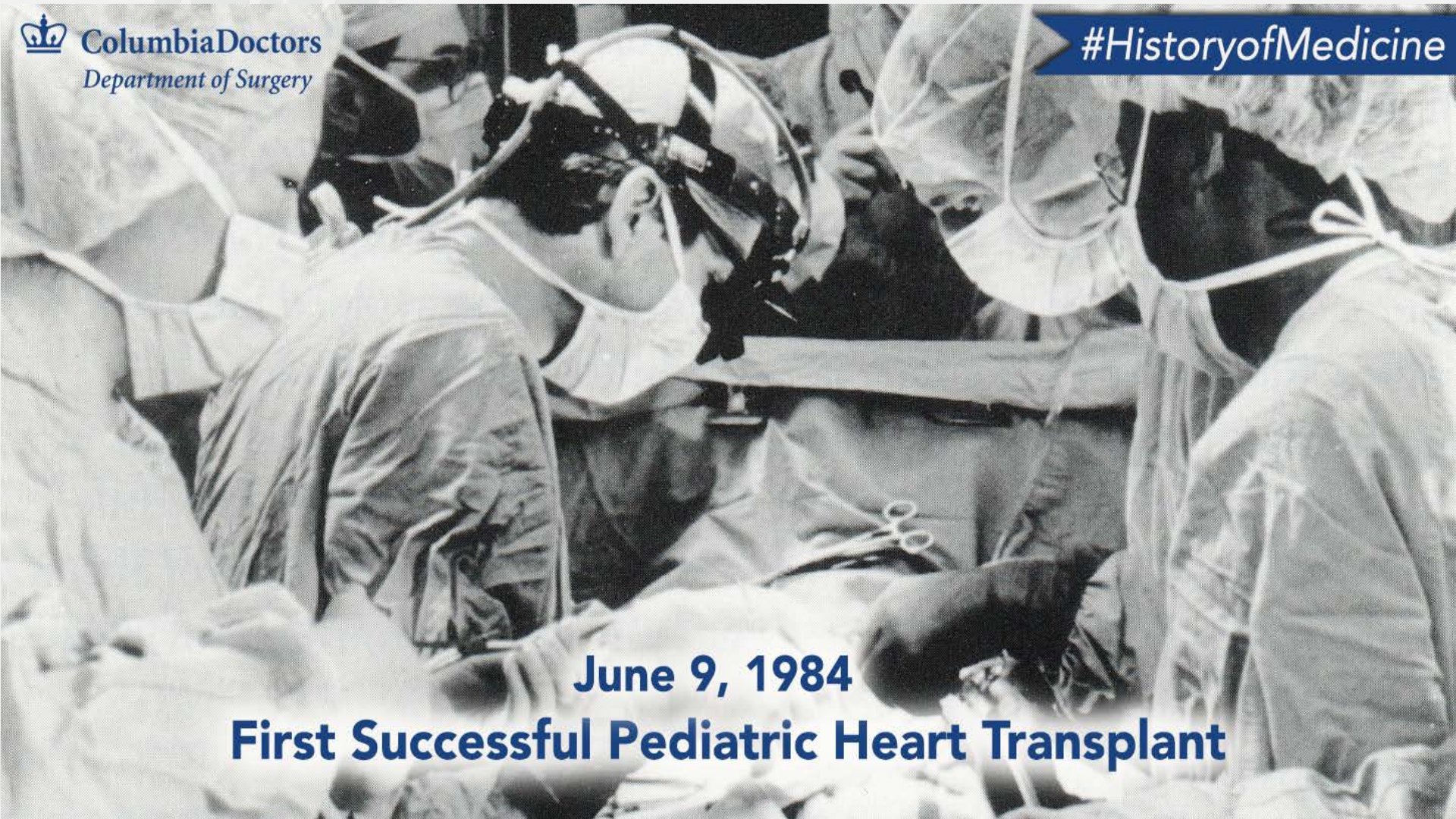
On May 31, 1968, the heart surgeon Miguel Bellizi had performed the first heart transplant in Argentina

It was in the Clínica Modelo de Lanús and the patient survived the operation 94 hours. In the world it was the transplant number 19

In Peru, the first heart transplant was performed by Dr Marino Molina in 1972 (died) and, in 1991, Dr Carlos Alcantara Butterfield performed the first successful transplant in a private clinic

ColumbiaDoctors
Department of Surgery

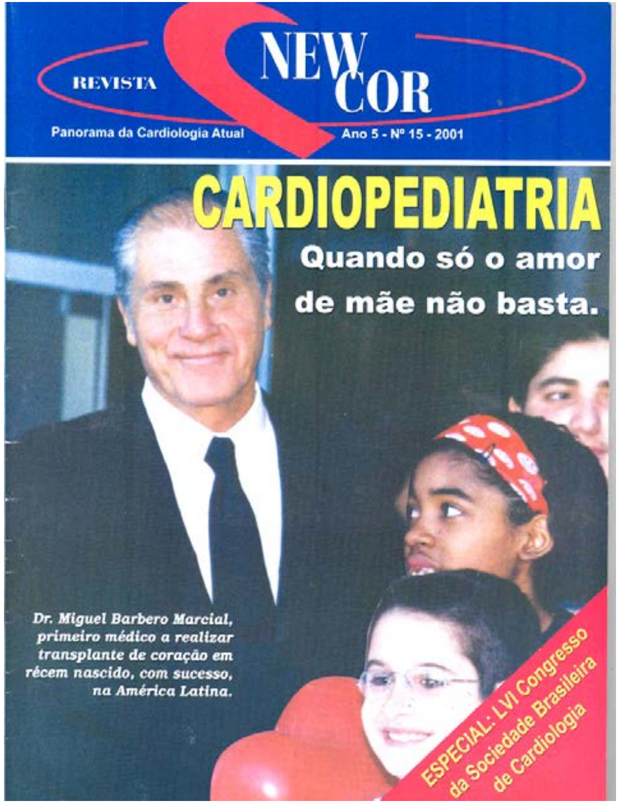
#HistoryofMedicine



June 9, 1984

First Successful Pediatric Heart Transplant

Miguel Barbero Marcial, in 1992, performed the 1st neonatal heart transplant in South America, in Brazil

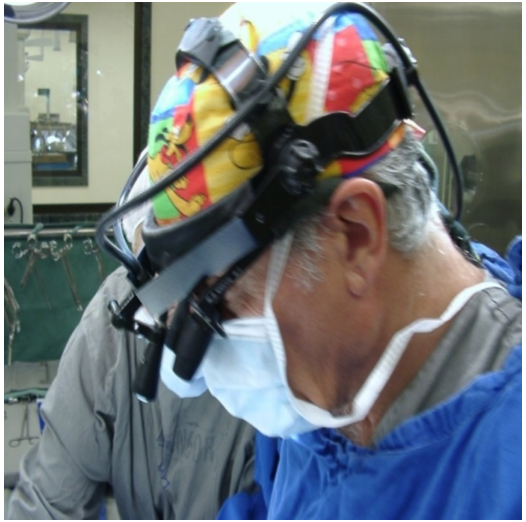


MEDICINA

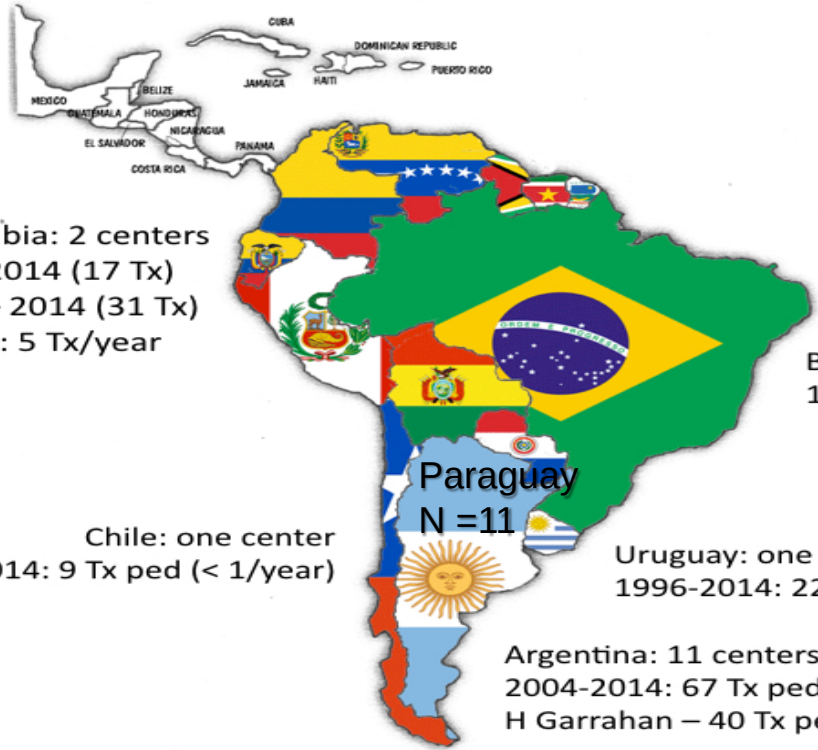
Folha da Tarde 4.11.92

Incor faz o 1º transplante de coração em bebê no país

Foi a primeira operação do gênero na América do Sul. Médico não descarta risco de vida



Centers and Number of Pediatric HTx in LA



Colombia: 2 centers
Center 1: 2008-2014 (17 Tx)
Center 2: 2004 – 2014 (31 Tx)
48 Tx since 2004: 5 Tx/year

Brazil: 13 centers
1992-2014: 246 Tx ped

Chile: one center
2002-2014: 9 Tx ped (< 1/year)

Uruguay: one center
1996-2014: 22 Tx ped

Argentina: 11 centers (2 pediatric only)
2004-2014: 67 Tx ped
H Garrahan – 40 Tx ped (2000-2014)

Courage and Innovation

50th Anniversary of the 1st Human Heart Transplant

2nd-5th December 2017

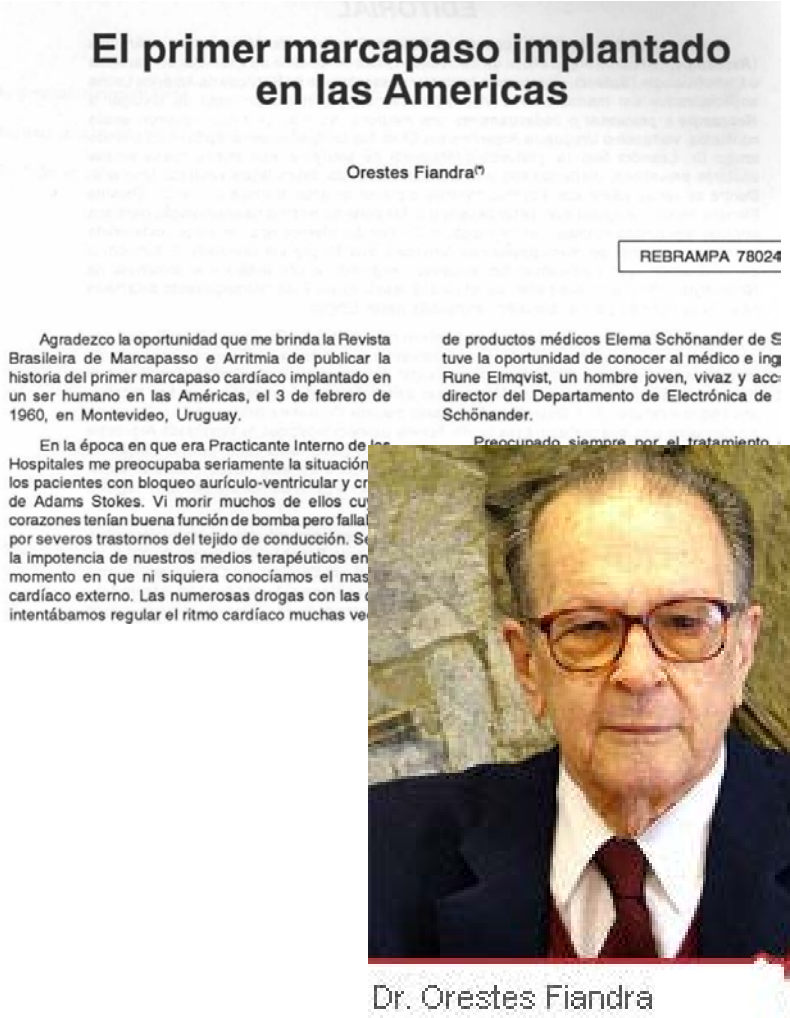
Groote Schuur Hospital, University of Cape Town

Londocor Event Management
sonja@londocor.co.za

Artificial stimulation

The first cardiac pacemaker implanted in the Americas was on February/1960, in Montevideo, Uruguay by Orestes Fiandra

That device functioned successfully for nine months, until the patient died



El primer marcapaso implantado en las Americas

Orestes Fiandra(*)

REBRAMPA 78024

Agradezco la oportunidad que me brinda la Revista Brasileira de Marcapasso e Arritmia de publicar la historia del primer marcapaso cardíaco implantado en un ser humano en las Américas, el 3 de febrero de 1960, en Montevideo, Uruguay.

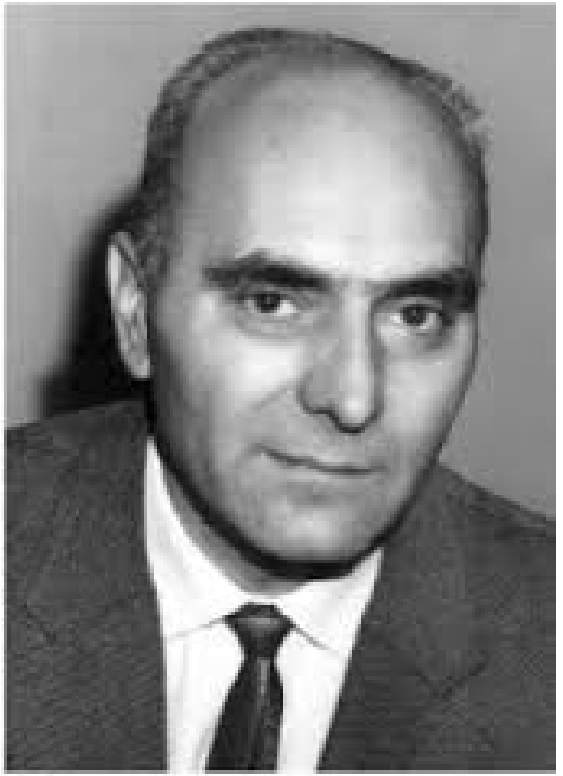
En la época en que era Practicante Interno de los Hospitales me preocupaba seriamente la situación de los pacientes con bloqueo aurículo-ventricular y cr de Adams Stokes. Vi morir muchos de ellos cu corazones tenían buena función de bomba pero falla por severos trastornos del tejido de conducción. Se la impotencia de nuestros medios terapéuticos en momento en que ni siquiera conocíamos el mas cardíaco externo. Las numerosas drogas con las intentábamos regular el ritmo cardíaco muchas ve

de productos médicos Elema Schönander de S tuve la oportunidad de conocer al médico e ing Rune Elmqvist, un hombre joven, vivaz y acc director del Departamento de Electrónica de Schönander.

Preocupado siempre por el tratamiento

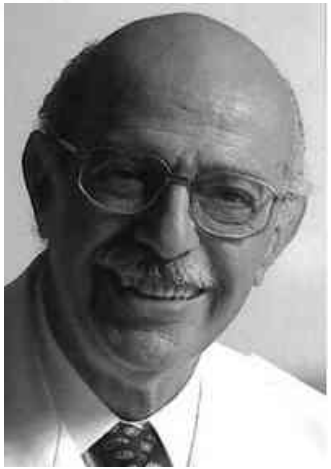
Dr. Orestes Fiandra

1962- In Salvador, Prof. Hugo Felipozzi implants the first pacemaker in Brazil

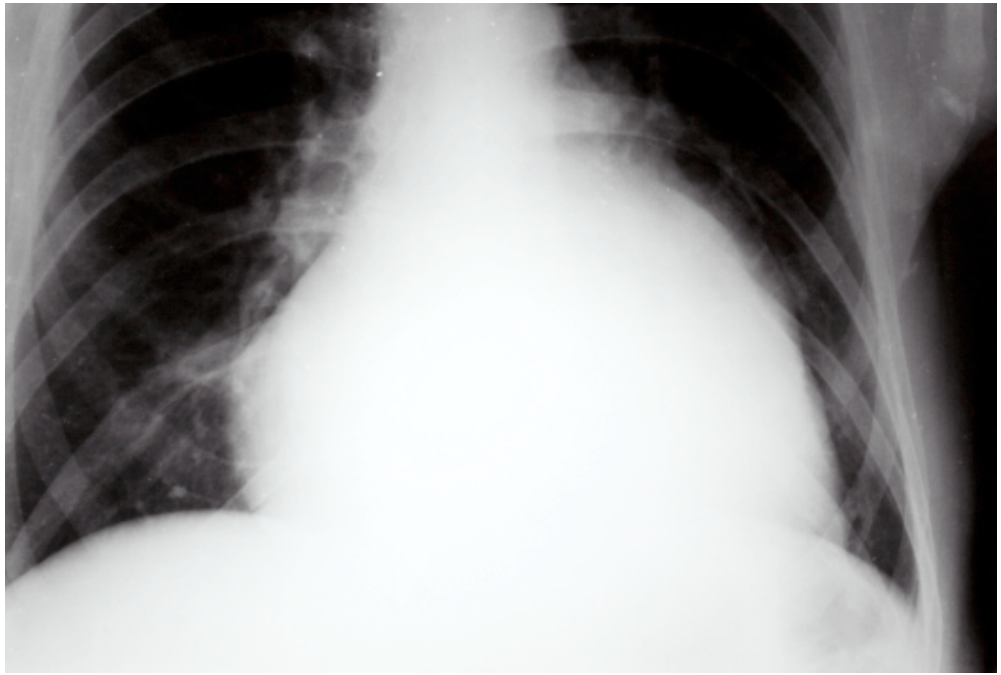


Professor Hugo João Felipozzi

In the 60's, Décio Kormann and Adib Jatene manufactured pacemakers to implant in their patients at the Dante Pazzanese Institute of Cardiology in São Paulo



Surgical treatment of HF



In 1986, Federico Benetti create his technique for exclusion of the interventricular septum

1990

Incor makes the first paracorporeal ventricle in Latin America.

Fourth country worldwide

together with USA, Germany and Japan.

J Card Surg. 1989 Jun;4(2):164-70.

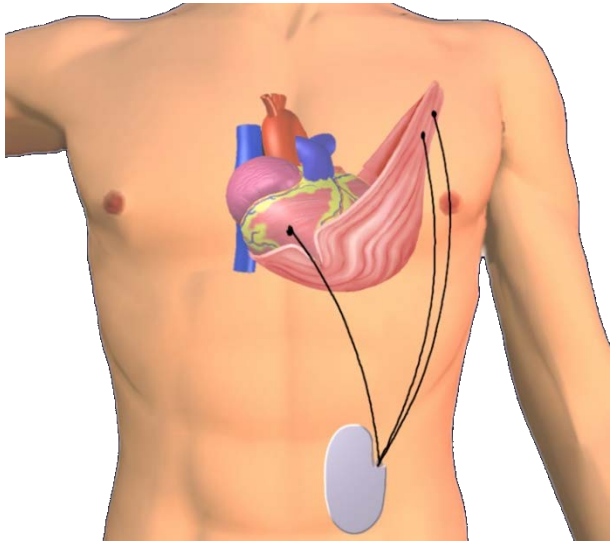
Cardiomyoplasty benefits in experimental myocardial dysfunction.

Moreira LF[1], Chagas AC, Camarano GP, Leirner A, Pêgo-Fernandes PM, da Luz PL, Stolf NA, Jatene AD.

Circulation. 1990 Nov;82(5 Suppl):IV257-63.

Latissimus dorsi cardiomyoplasty in the treatment of patients with dilated cardiomyopathy.

Moreira LF[1], Stolf NA, Bocchi EA, Pereira-Barretto AC, Meneghetti JC, Giorgi MC, Moraes AV, Leite JJ, da Luz PL, Jatene AD.

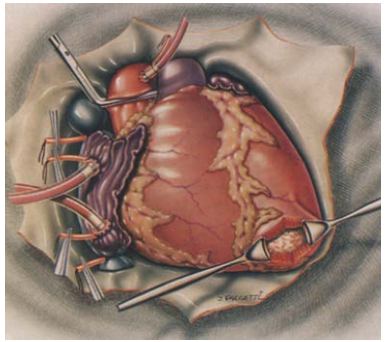


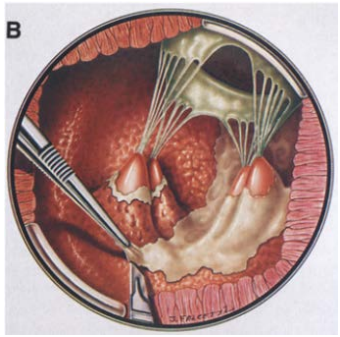
Noedir Stolf, in 1989, started experiments in dogs and 1990 published first clinical experience (11 patients)

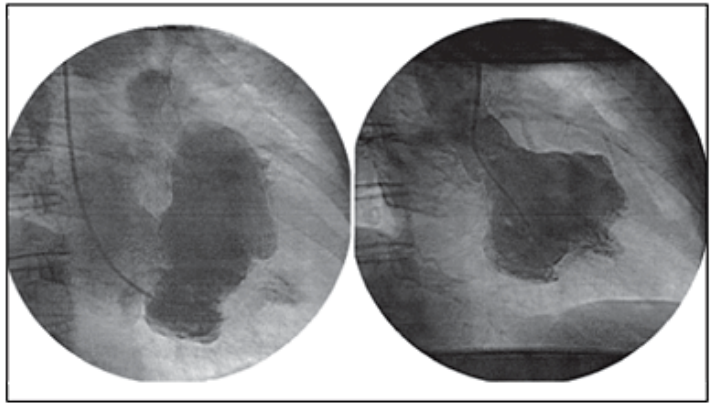
J Am Coll Cardiol. 1990 Nov;16(5):1246-51.

Surgical treatment of endomyocardial fibrosis: a new approach.

de Oliveira SA[1], Pereira Barreto AC, Mady C, Dallan LA, da Luz PL, Jatene AD, Pileggi F.



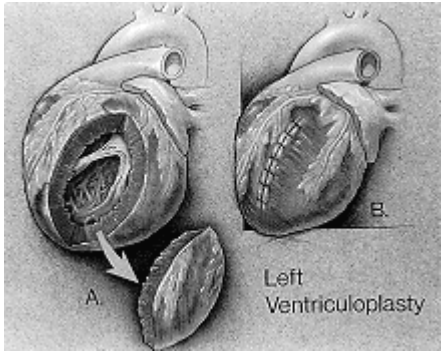


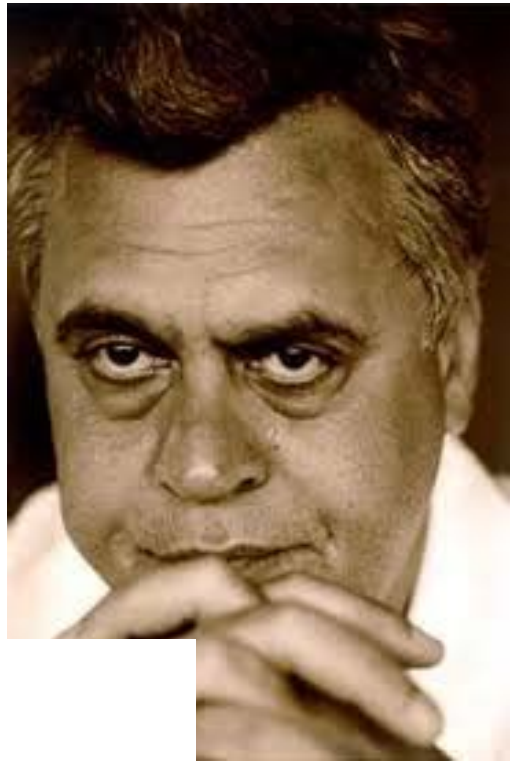


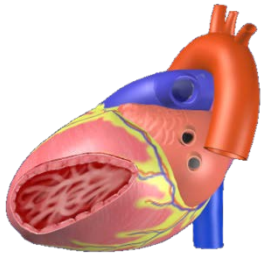
J Card Surg. 1996 Mar-Apr;11(2):96-7; discussion 98.

Partial left ventriculectomy to improve left ventricular function in end-stage heart disease.

Batista RJ[1], Santos JL, Takeshita N, Bocchino L, Lima PN, Cunha MA.







TOO BIG A HEART

IN RURAL BRAZIL A SURGEON USES A REVOLUTIONARY AND CONTROVERSIAL METHOD OF REPAIRING

Inst Dante Pazzanese

Mod Kubrusly – Curitiba PR

DAV Ax-Tide Fluxo contínuo axial – implantável (média e longa duração)

Assistência ao ventrículo esquerdo

Conjunto VAD: bomba, controlador e bateria

Avaliação pré-clínica (6 ovelhas: 50-60 Kg)

VAD: Titânio revestido com carbono-diamante

Camisa de microesfera

The first robotic cardiac surgery in Latin America was performed by Robinson Poffo in 2010 to closure of atrial septal defect

equilíbrio e saúde

Maior | Menor Enviar por e-mail Comunicar erros Imprimir Compartilhe

17/03/2010 - 08h39

Brasil faz primeira cirurgia cardíaca com robô

FERNANDA BASSETTE
da Folha de S.Paulo

PUBLICIDADE

Recomendar Cadastre-se para ver o que seus amigos recomendam.

O Hospital Israelita Albert Einstein realizou, anteontem, a primeira cirurgia cardíaca minimamente invasiva totalmente robotizada. Trata-se do primeiro procedimento do gênero realizado na América Latina.

Caio Guatelli/Folha Imagem

A cirurgia, comandada pelo cirurgião cardíaco Robinson Poffo, foi realizada

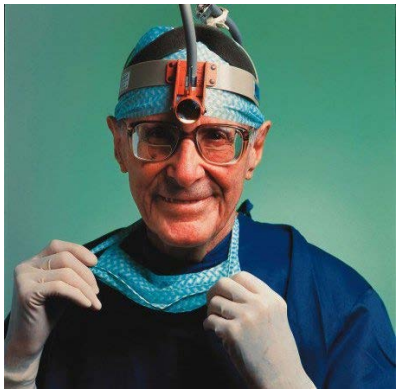
Dr. Robinson Poffo

March / 2010

Hospital Albert Einstein

Important surgical training centers in Latin America

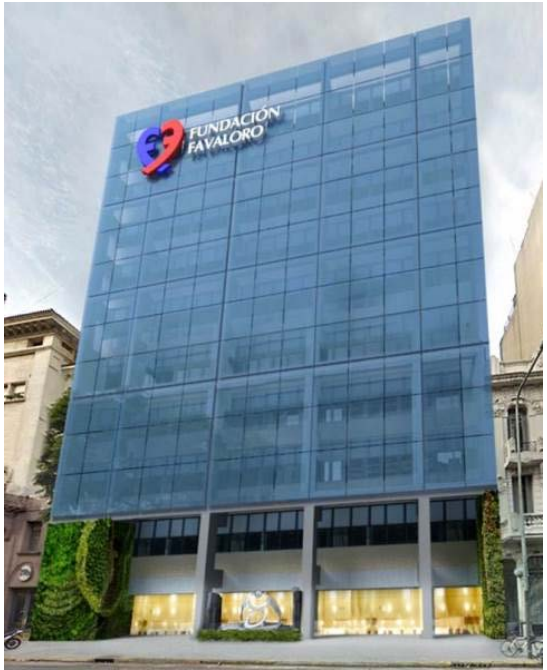
- Instituto Dante Pazzanese de Cardiologia was inaugurated in 1954
- In 1959 was created the medical residency in the Institute



Instituto do Coração – São Paulo, Brazil

- On January 10, 1977, Incor started patient care
- Today are performed around 4.000 surgeries by year

Rene and Roberto Favaloro



The **Favaloro Foundation** for Teaching and Medical Research in **Argentina** was created in **1975,** four years after the return of René G. Favaloro from the Cleveland Clinic

Rodolfo Barragán García

Instituto Nacional de Cardiologia - Ignacio Chávez - Mexico

On April 1944 the National Institute of Cardiology was inaugurated in a solemn ceremony that brought together the scientific community of the entire continent.

Hospital Beneficência Portuguesa de São Paulo - Brazil

- Founded in 1876 by 168 Portuguese immigrants, Beneficência Portuguesa is today one of the largest hospitals in Brazil

- Today are performed around 6.000 cardiovascular surgeries by year

In some periods more than 30 operations/daily

Cardiac Surgery Team - Hospital das Clínicas (1982)

What are our Goals?
Needs for the Care of the cardiac surgery patients?
Our Problems?

- Long waiting lists for surgery
- Lack of technology
- Financing problems
- LA Medical Society
- LA Registry

1965

Begins the development of implantable cardiac pacemakers – Instituto Dante Pazzanese

1986

Macchi-Jatene Membrane Oxygenator

Development Self Technology"

Zerbini Foundation (1980)
Adib Jatene Foundation (1984)

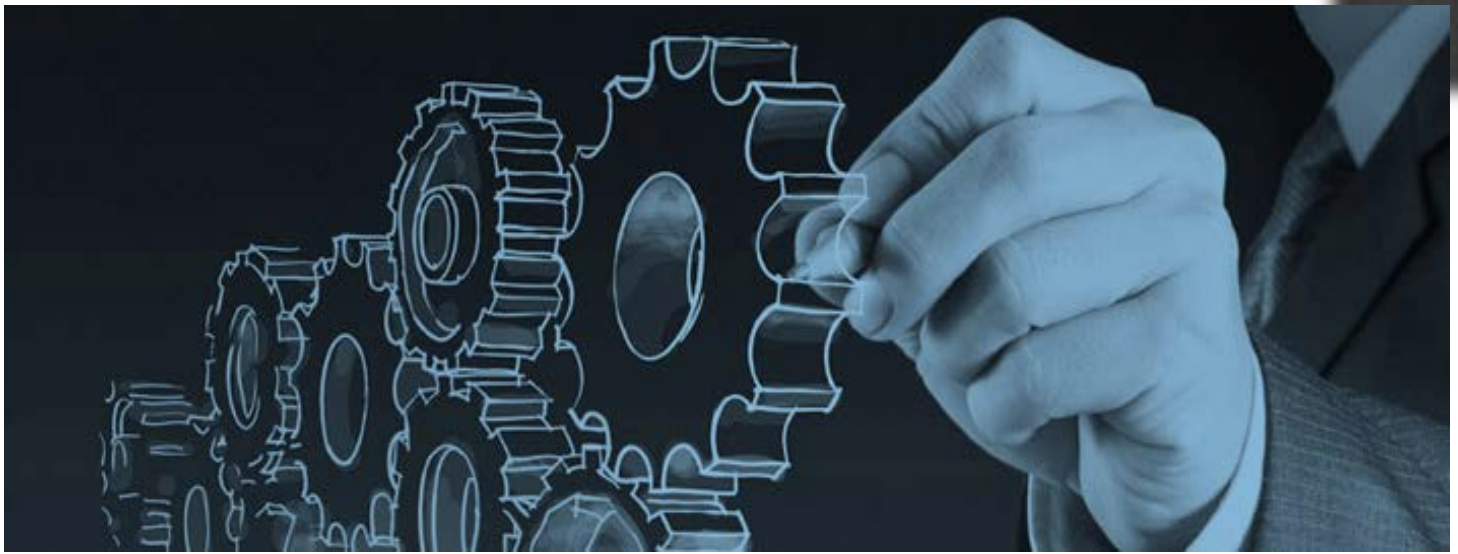
Manufacturing:

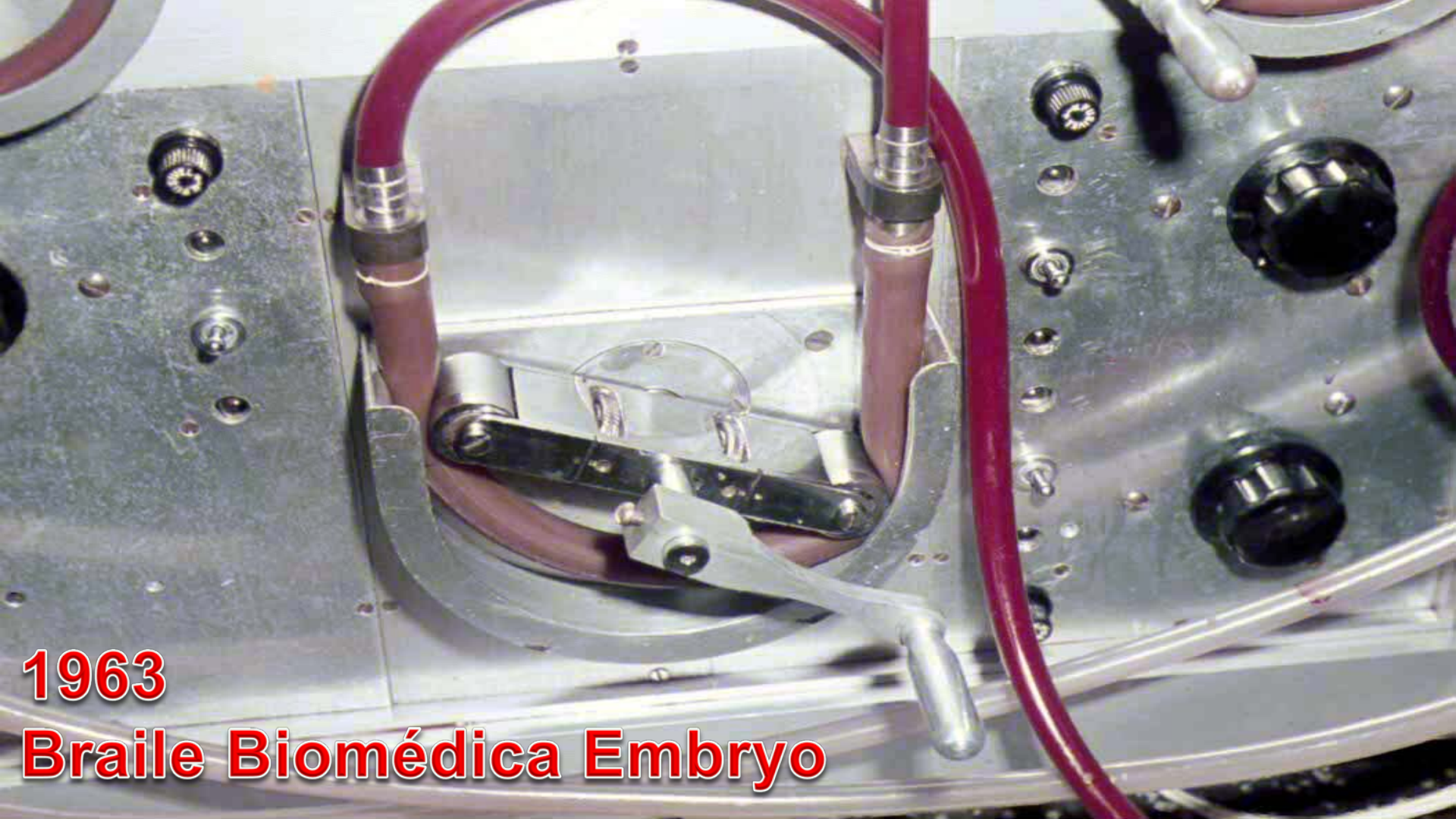
- Artificial Heart Valves
- Pacemakers
- Defibrillators
- Heart Lung Machine
- Bubble Oxygenators**,**

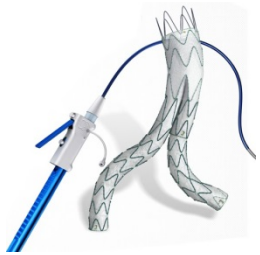
Adapting them to our technological level.

In many countries it did not occur. They used to import American and European equipments.

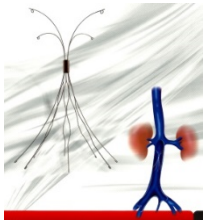
Prof. Domingo Braile




1963
Braile Biomédica Embryo



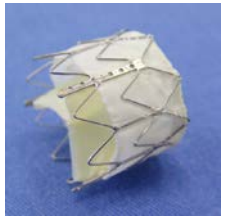




1977

BRAILE BIOMÉDICA













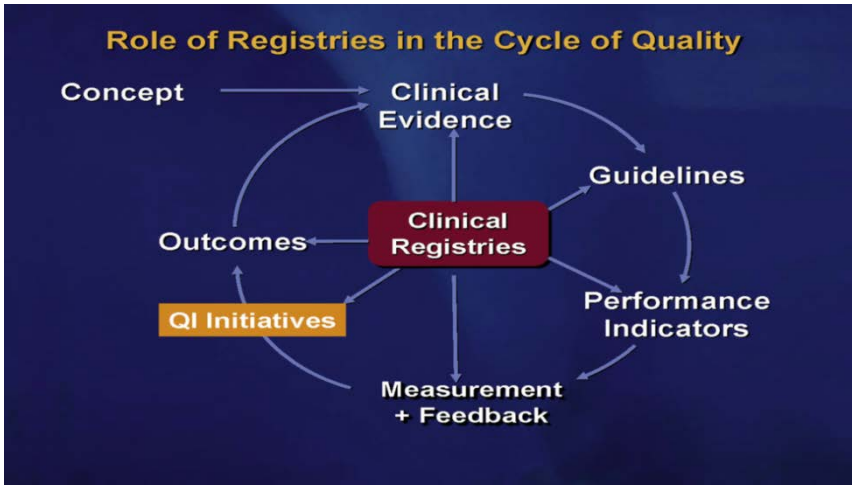




JACC Journals

From: ACC/AHA/STS Statement on the Future of Registries and the Performance Measurement Enterprise: A Report of the American College of Cardiology/American Heart Association Task Force on Performance Measures and The Society of Thoracic Surgeons

J Am Coll Cardiol. Published online October 02, 2015. doi:10.1016/j.jacc.2015.07.010



Without prospective data we haven't registry, without registry we don't scores or indicators, without scores we haven't way to follow up on our medical practice and without indicators we can't implement **"quality initiatives".**

REGISTRIES

- Registries – non-selected pts ("real world“)
- Possibility to manage, maintain and update information on epidemiological aspects, results and prognostic factors
- Benchmark to improves the quality of care
- Planning of the financial resources, can support public policies
- Improving of scientific knowledge

REGISTRIES

Cardiovascular registries, which have a track record of supporting clinical quality improvement, are recognized as a potential solution to many of these emerging challenges

Bhatt DL et al J Am Coll Cardiol. 2015;66(20):2230-45

SP CORE

REPLICCAR

Registro Paulista de Cirurgia Cardiovascular

Predicted outcomes from REPLICCAR

Age at Surgery:
63

Body Mass Index:
35

Walking Frailty:
2

Ejection Fraction:
50

Creatinine Clearence:
50

Functional Class:
II

Insulin Dependent:
No

Previous Myocardial Infarction:
Yes

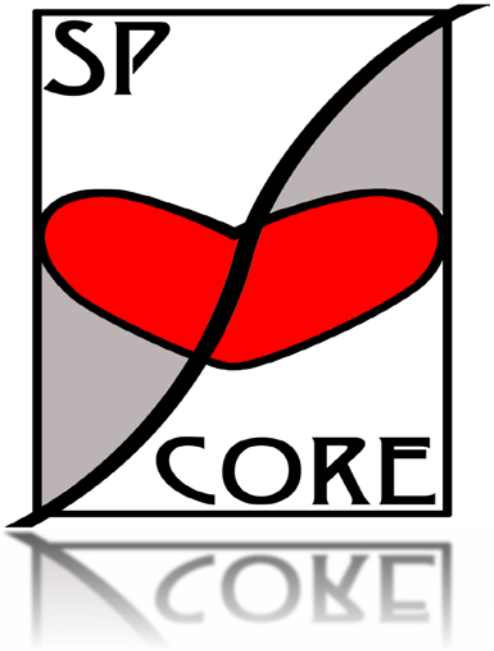
Previous Coronary Stent:
Yes

Rheumatic Heart Disease:
No

Atrial Fibrillation:
No

Predict

	Outcome	Probability
1	Any Cardiac or Renal	28.57 %
2	Any Infection	14.29 %
3	Any Readmission	0 %
4	Any Death	14.29 %
5	Any Reoperation	0 %
6	Any Other	14.29 %



REGISTRIES

BYPASS – **B**razilian registr**Y** of adult **P**atients undergoing to c**A**rdiova**S**cular **S**urgery

- The project is an initiative of the Brazilian Society of Cardiovascular Surgery (BSCVS) and aims to document the practice of Cardiovascular Surgeries across the country, involving all Brazilian centers dedicated to specialty
- The study will follow the patients until discharge, extending the periods of 30 days, 6 months and 12 months for evaluation of major cardiovascular events.

BYPASS

ORIGINAL ARTICLE

Braz J Cardiovasc Surg 2017;32(2):71-6

The Brazilian Registry of Adult Patient Undergoing Cardiovascular Surgery, the BYPASS Project: Results of the First 1,722 Patients

"A journey of a thousand miles begins with one step."
Lao Tzu

Walter J. Gomes[1], MD, MSc, PhD; Rita Simone Moreira[1], RN, MSc, PhD; Alexandre Cabral Zilli[2], MD; Luiz Carlos Bettiati Jr[2], MD; Fernando Augusto Marinho dos Santos Figueira[3], MD; Stephanie Steremberg Pires D'Azevedo[3], RN; Marcelo José Ferreira Soares[4], MD; Marcio Pimentel Fernandes[4], MD; Roberto Vito Ardito[5], MD; Renata Andrea Barberio Bogdan[5], MD; Valquíria Pelisser Campagnucci[6], MD, MSc, PhD; Diana Nakasako[6], MD; Renato Abdala Karam Kalil[7], MD, MSc, PhD; Clarissa Garcia Rodrigues[7], RN, MSc, PhD; Anilton Bezerra Rodrigues Junior[8], MD; Marcelo Matos Cascudo[8], MD; Fernando Antibas Atik[9], MD, PhD; Elson Borges Lima[9], MD; Vinicius José da Silva Nina[10], MD, PhD; Renato Albuquerque Heluy[10]; Lisandro Gonçalves Azeredo[11], MD; Odilon Silva Henrique Junior[11], MD; José Teles de Mendonça[12], MD, PhD; Katharina Kelly de Oliveira Gama Silva[12]; Marcelo Pandolfo[13], MD; José Dantas de Lima Júnior[13], MD, MSc; Renato Max Faria[14], MD; Jonas Pereira dos Santos[14], MD; Rodrigo Pereira Paez[15], MD; Guilherme Henrique Biachi Coelho[15], MD; Sergio Nunes Pereira[16], MD; Roberta Senger[16], RN; Enio Buffolo[17], MD, PhD; Guido Marco Caputi[17], MD, PhD; José Amalth do Espírito Santo[18], MD; Juliana Aparecida Borges de Oliveira[18], RN; Otavio Berwanger[18], MD, PhD; Alexandre Biasi Cavalcanti[18], MD, PhD; Fabio B. Jatene[19], MD, PhD

EDITOR HIGHLIGHT

DOI: 10.21470/1678-9741-2017-0053

COMUNICADO SBCCV 2/7-2017

Inclusão de pacientes no Registro BYPASS da SBCCV superou 3.000 pacientes

Excedendo as projeções iniciais, em junho de 2017 a inclusão de pacientes no Registro BYPASS da SBCCV ultrapassou a marca de 3.000 pacientes.

Após a publicação da análise dos primeiros resultados na edição 32.2 do Brazilian Journal of Cardiovascular Surgery (BJCVS) e apresentação no 44º Congresso da SBCCV, no Rio de Janeiro em abril 2017, há um renovado entusiasmo por parte dos cirurgiões cardiovasculares e vários Centros pelo país estão aderindo ao projeto.

O Registro BYPASS representa um projeto de inestimável valor contemporâneo, a consecução do trabalho e esforço dos cirurgiões cardiovasculares brasileiros e de extrema relevância para prover dados, estatísticas confiáveis, análise da qualidade, implementação de melhorias, além de servir de ferramenta para corrigir distorções de informações anteriores sobre resultados da cirurgia cardiovascular brasileira, com publicações que de fato reflitam a qualidade da prática da especialidade no país.

Maiores informações para adesão ao projeto, favor entrar em contato com a Sra. Juliana Oliveira, do Instituto de Ensino e Pesquisa do HCor - jboliveira@hcor.com.br

www.sbccv.org.br
Rua Afonso Celso, 1178 - Vila Mariana - São Paulo-SP CEP: 04119-061
Tel: (11) 3849.0341

Gomes WJ et al. Braz J Cardiovasc Surg 2017;32(2):71-6

Asociación Argentina de Angiología
y Cirugía Cardiovascular

Colegio Argentino de
Cirujanos Cardiovasculares

SOCIEDAD BOLIVIANA
DE CIRUGIA CARDIACA,
TORÁCICA Y VASCULAR

Maximo Guida

Sociedade Brasileira de Cirurgia Cardiovascular

InCor HCFMUSP
Ciência e Humanismo

"Learning from multidisciplinarity"

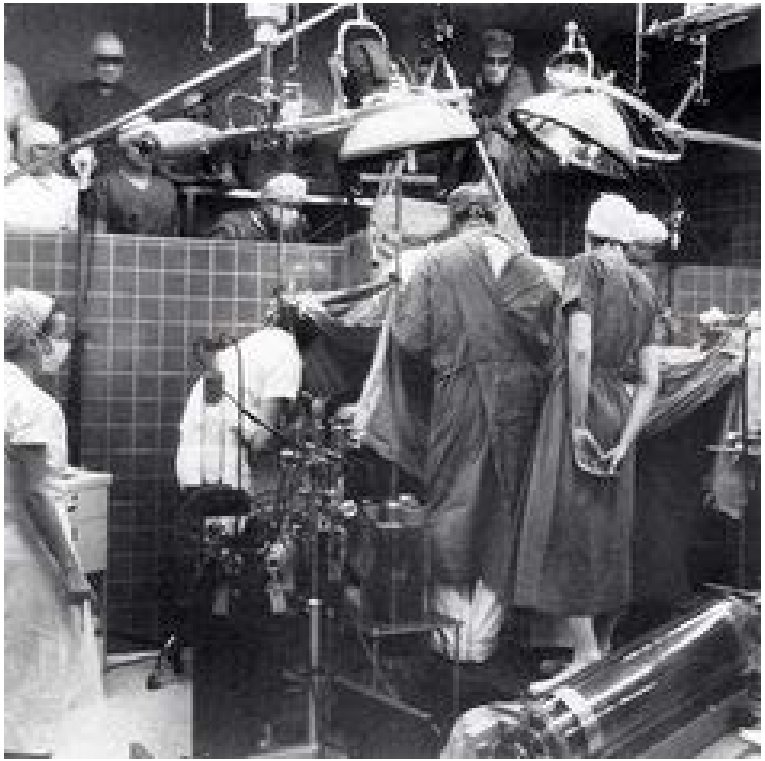
"The idea behind this event is to listen to health leaders and high-risk industries to inspire us to think differently about how to manage risk, drive improvement and innovation, teamwork, and leadership"

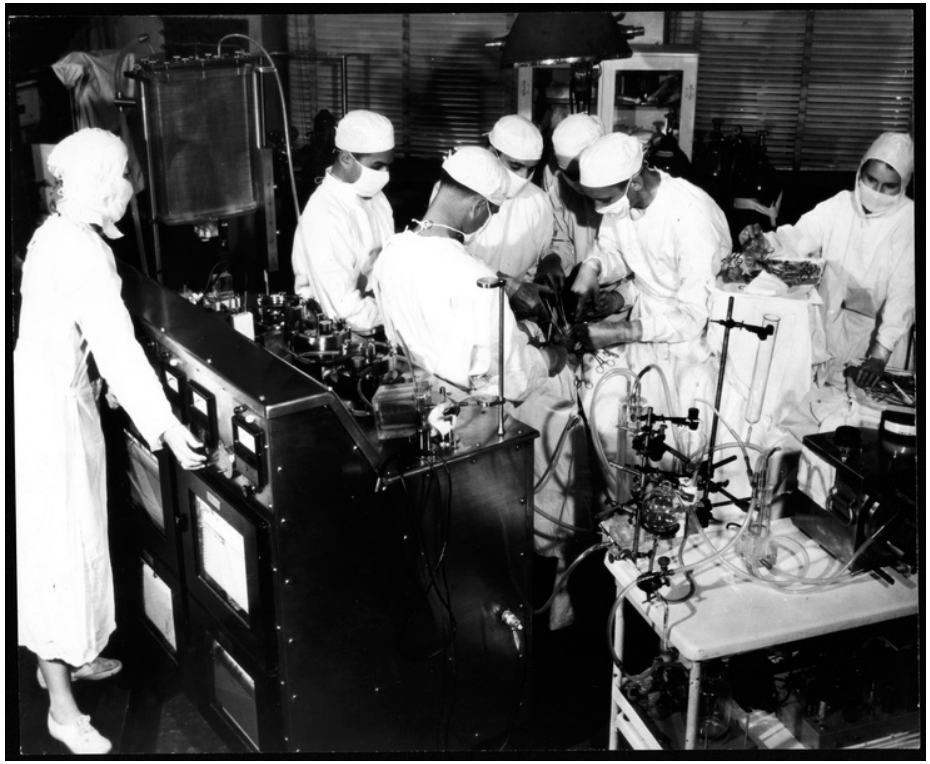
Final Considerations

- Heterogeneous development
- Great technical skills and use the most modern technology, together to long waiting list for surgery and difficulty of access.
- Small self technology in the countries. Much of the equipment is imported.

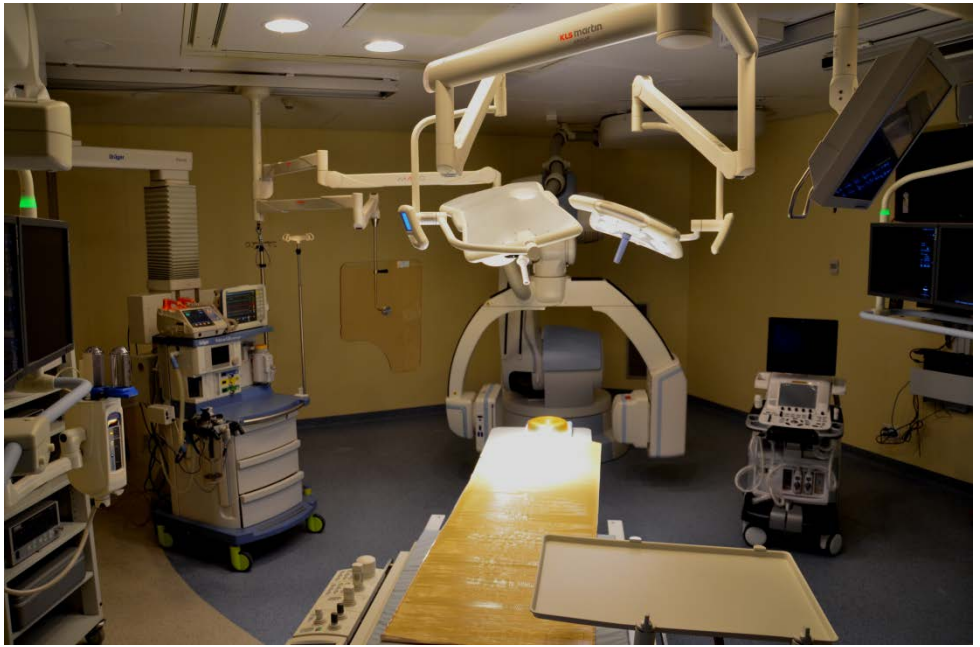
Summary / Panorama atual

- Thousands of operations per year, in the various countries.
- Heterogeneous development among Medical Societies and countries. Some of them with hundreds of members in their own and other societies with few members, associated with societies of Cardiology or general surgery.
- Initiatives for development of national records. There are no available records in details and about the surgical performance in the various countries.
- Current concern with the concepts of quality and safety






Dräger
Movita


Dräger
KLS martin

One day I learned that dreams exist to come true. And since that day, I no longer sleep to rest. I simply sleep to dream…

Walt Disney

If I have seen further,
it is by standing
ON THE SHOULDERS
OF GIANTS.

- Isaac Newton

STS/EACTS Latin America Cardiovascular Surgery Conference

September 21-22, 2017 | Cartagena, Colombia

info@cardiovascularsurgeryconference.org
www.CardiovascularSurgeryConference.org

Thank You

The Society of Thoracic Surgeons

EACTS
European Association For Cardio-Thoracic Surgery

Pioneers of Cardiac Surgery in Brazil

Domingos Junqueira de Moraes

Euryclides Zerbini

Costabile Galucci

Hugo Felipozzi

Prof. Dr. Noedir Stolf

2006-2012:

Titular Professor

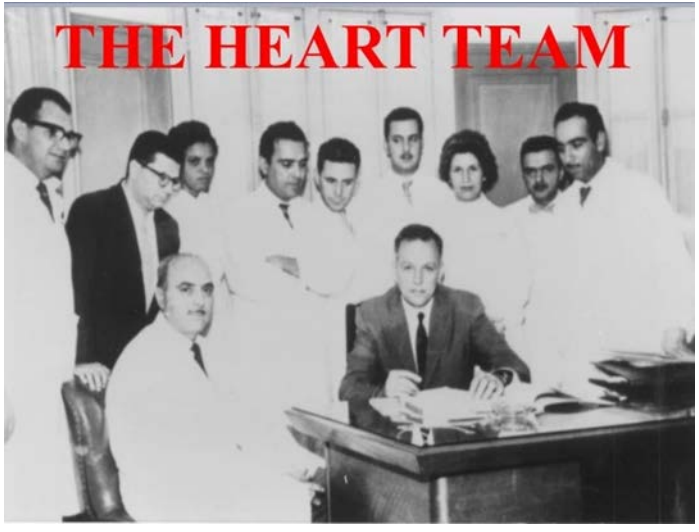
FMUSP

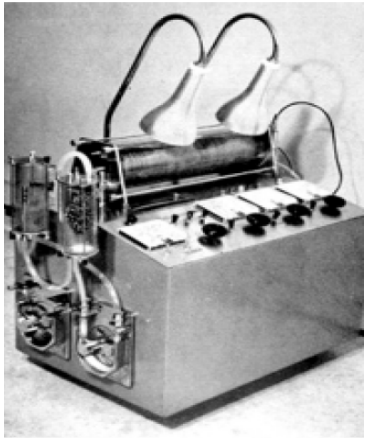
2013-Atual:

Senior Professor

FMUSP

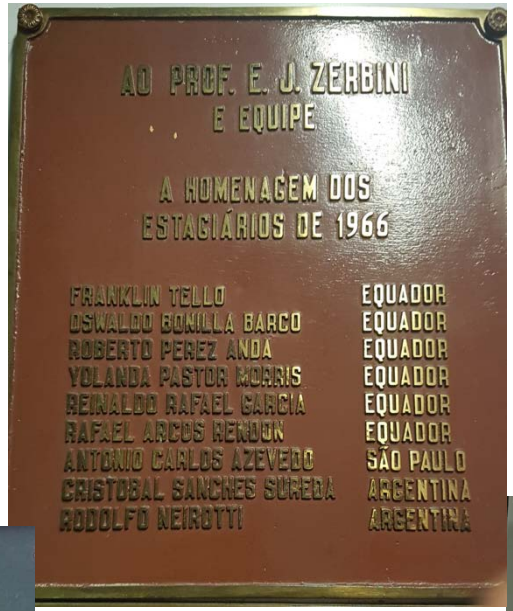
- Heart and lung transplants
- Cardiomyoplasty
- Surgery of ascending aorta
- First implant of artificial ventricle made in Brazil
- Collaboration INCOR





CPB machine manufactured by Felipozzi in 1959


AO PROF. E. J. ZERBINI
E EQUIPE
A HOMENAGEM DOS ESTAGIÁRIOS
DE CIRURGIA CARDÍACA
WILSON MENDONÇA GOIÁS 1951
ISEO COSTA PARANÁ 1952
MAURO BARBOSA ARRUDA PERNAMBUCO 1957
MAGNUS COELHO DE SOUZA R. G. DO SUL 1959
VINICIO JOÃO MOTTI R. G. DO SUL 1959
MAURICIO BOUCQVAR PERNAMBUCO 1959
LUIZ ADELMO LODI MINAS GERAIS 1959
WALFRIDO M. LEAL PARANÁ 1960
MARIO KAPLAN ARGENTINA 1960
JUAN CARLOS REDONDO ARGENTINA 1960
DOMINGOS BRAILE SÃO PAULO 1960
BENEDITO GIBSON F. COSTA BAHIA 1961
GUILLERMO KREUTZER ARGENTINA 1962
GUSTAVO VILLALBA SILVA VENEZUELA


AO PROF. E. J. ZERBINI
E EQUIPE
A HOMENAGEM DOS
ESTAGIÁRIOS DE 1966
FRANKLIN TELLO EQUADOR
OSWALDO BONILLA BARCO EQUADOR
ROBERTO PEREZ ANDA EQUADOR
YOLANDA PASTOR MORRIS EQUADOR
REINALDO RAFAEL GARCIA EQUADOR
RAFAEL ARCOS REMDON EQUADOR
ANTONIO CARLOS AZEVEDO SÃO PAULO
CRISTOBAL SANCHES SUREDA ARGENTINA
RODOLFO NEIROTTI ARGENTINA


AOS PROFESSORES
A. O. JATENE, G. VERGINELLI,
N. A. G. STOLF, S. A. OLIVEIRA,
M. B. MARCIAL, L. B. PUIG
E ASSISTENTES
A HOMENAGEM DOS RESIDENTES E ESTAGIÁRIOS
DE CIRURGIA CARDIOVASCULAR DE 1988 À 1991
JOSÉ GARCIA NETO - GOIÁS
LEONARDO ANDRADE MULINARI - PARANÁ
LUIZ ROBERTO GEROLA - SÃO PAULO
ICHIRO YOSHITOMI - JAPÃO
JOÃO M. RODRIGUES DA SILVA - PORTUGAL
PATRICIO DELGADO SAAVEDRA - CHILE
SÃO PAULO, JANEIRO DE 1991


AO PROF. E. J. ZERBINI
E EQUIPE
A HOMENAGEM DOS ESTAGIÁRIOS
DE CIRURGIA CARDÍACA
MARCELO CAMPOS CRISTO MINAS GERAIS 1963
HOMBERTO RIVERA OROZCO VENEZUELA 1963
IGNÁCIO LULUAGA ARGENTINA 1963
RICARDO MENDEZ-MORENO VENEZUELA 1963
POMPEYO GALLARDO ARCINIEGAS PERU 1964
ROBERTO CARLOS VEDOYA ARGENTINA 1964
CARLOS SMITH FIGUEROA PERU 1964
MARIO DE BITETTI ARGENTINA 1965
MIGUEL BARBERO-MARCIAL ARGENTINA 1965
JOÃO FLORÊNCIO PALMEIRA RIO DE JANEIRO 1965
WALTER ROHZ DE CARVALHO RIO DE JANEIRO 1965
NOÉ BAZAN VIGO PERU 1965
CANDIDO MEJIA CASTRO HONDURAS 1965

Development of Implantable Heart

1960-2014

Dr. Sérgio Almeida de Oliveira

1971:

Surgical treatment of coronary insufficiency

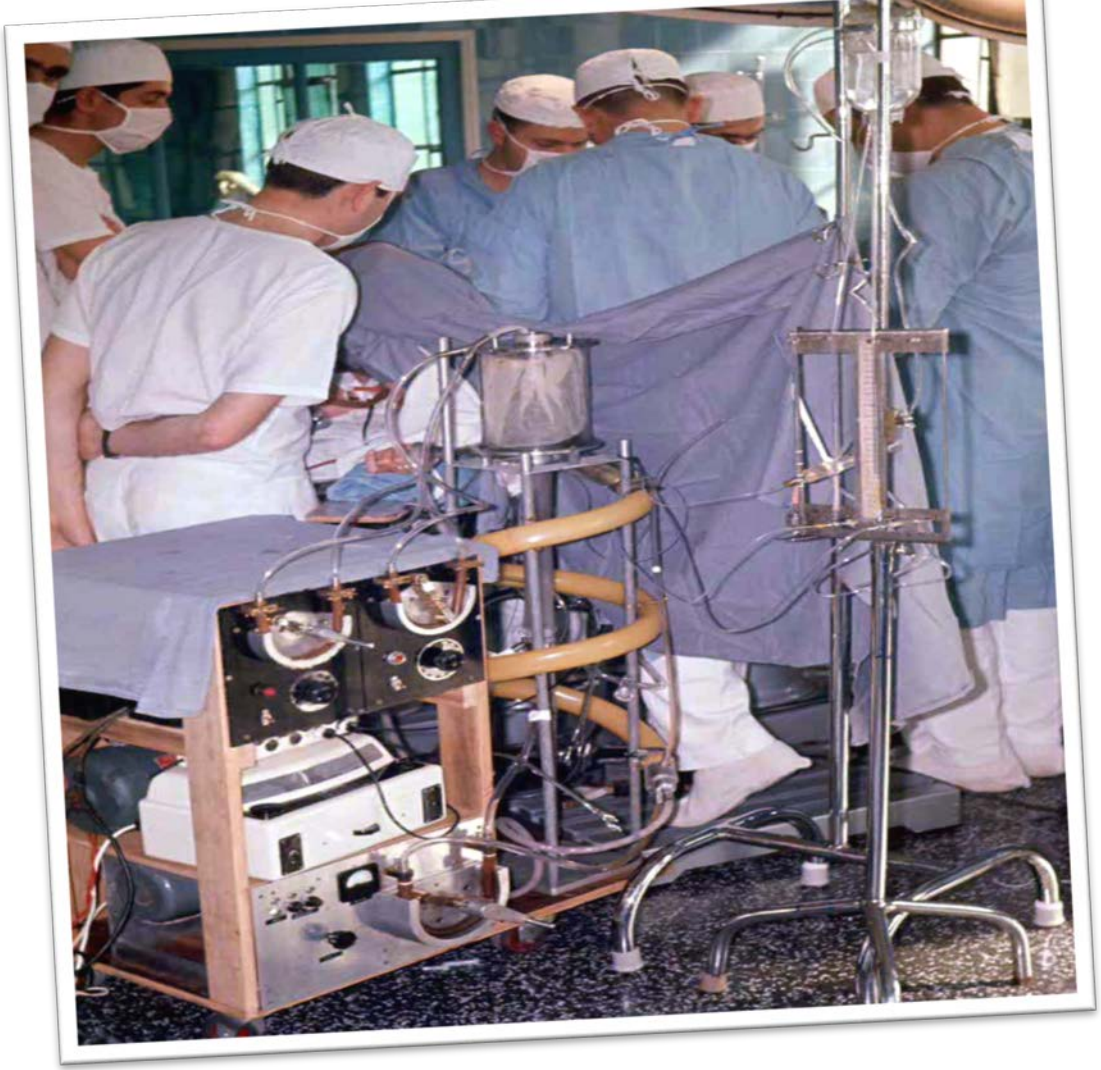
Arq Bras Cardiol. 1971 Oct;24(5):57-64

1990:

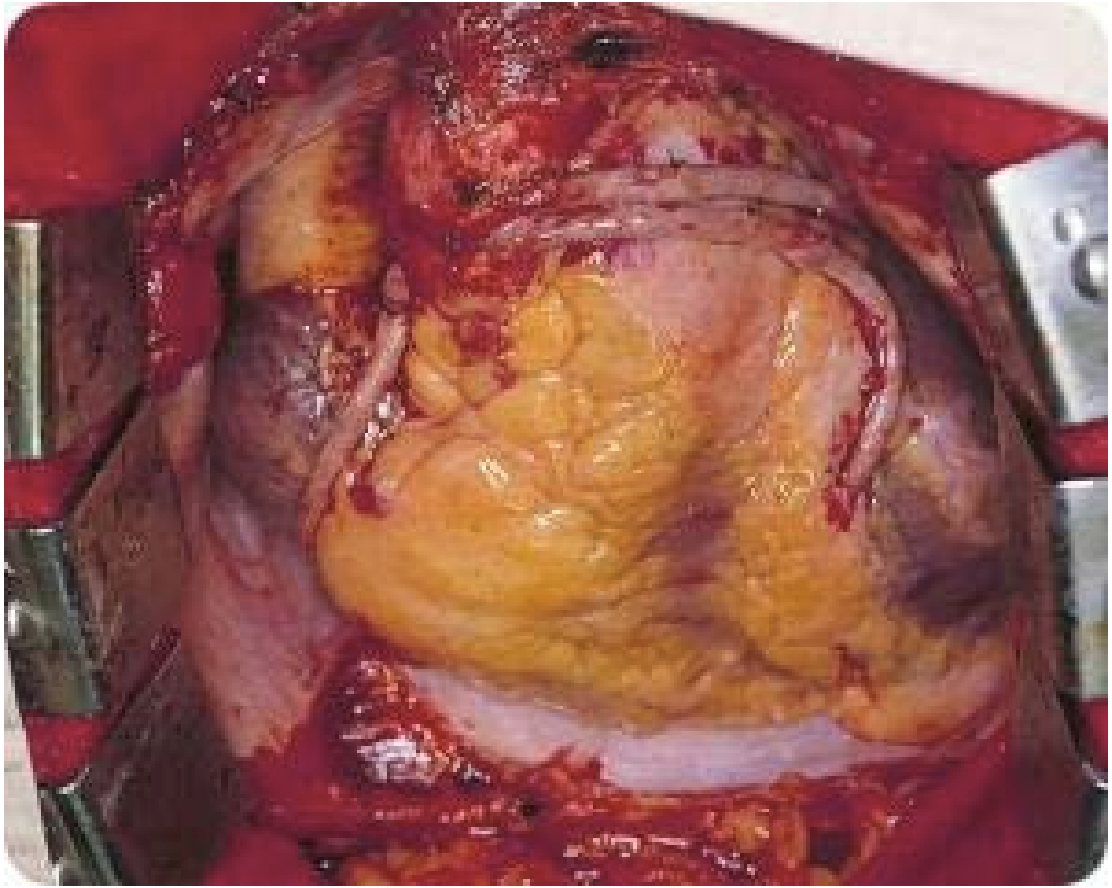
Surgical treatment of endomyocardial fibrosis: a new approach.

J Am Coll Cardiol 1990; 16: 1246-51

- **Effective member of the AATS**



Alguma foto de muitos transplantados, reunidos?
Já maiores?



Tentar falar mais de cirurgia de coronárias, se possível alguns dados, nos vários países.

Prof. Dr. Euryclides de Jesus Zerbini

- **1960-1965:** International experience - Tetralogy of Fallot (221 patients)
- **1968:** 1st Heart Transplant Latin America
- **1975:** InCor Foundation / Zerbini Foundation

O BRASILEIRO DO SÉCULO
CATEGORIA
Ciência, Tecnologia & Educação

Prof. Dr. Euryclides de Jesus Zerbini

- **Treatment of mitral stenosis with CPB**
- **Dura-mater valves**
- **Acute myocardial revascularization**
- **President and Founder of Brazilian Society of Cardiovascular Surgery**

The 2nd Generation

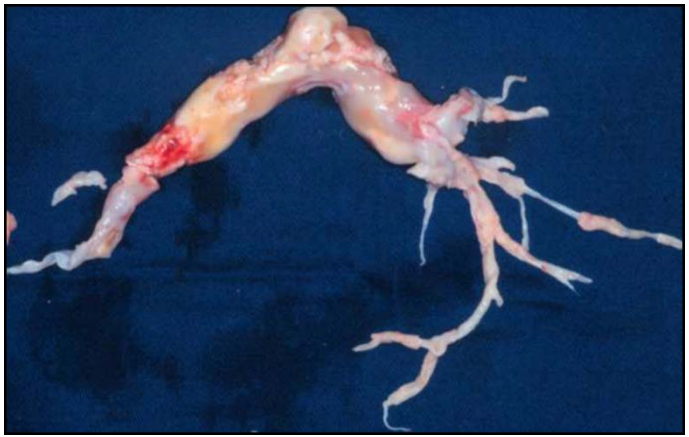
Adib Jatene

Domingo Braile

Enio Buffolo

Miguel Barbero-Marcial

Fabio Jatene, in 1984 performed the pulmonary endarterectomy first in South America



Falar mais sobre biopróteses.
Alguém teve alguma iniciativa?

ACHD in Latin America

Summary

- LATAM “pioneers”
- Centers with too much experience in CHD
- Many survivals that have reached de adulthood.
- Economic difficulties
- ACHD No information about prevalence

ACHD in Latin America

Summary

- It is time for ACHD to be relevant.
- We need more teams.
- We need data.(include adults with CHD)
- We need training
- Option for Latin-Americans: US, Canada, Europe, Australia, Japan? (ISACHD)(very expensive!!!!)
- We must take advance out of the of our society and promote this kind of help.

ACHD in Latin America

Summary

- LATAM “pioneers”
- Centers with too much experience in CHD
- Many survivals that have reached de adulthood.
- Economic difficulties
- ACHD No information about prevalence
- Há pouca cooperação formal entre os vários países, quer seja em relação à assistencia, ensino e pesquisa.

What are the Goals for the Care of the cardiac surgery patients?

- Patients Should remain in appropriate CHD care.
- Anticipate their challenges of aging
- Minimize life long complications
  - Therefore we must understand
    - ACHD co-morbidities
    - Causes of death
    - Be prepared to help them

ACHD in Latin America

Summary

- It is time for ACHD to be relevant.
- We need more teams.
- We need data.(include adults with CHD)
- We need training
- Option for Latin-Americans: US, Canada, Europe, Australia, Japan? (ISACHD)(very expensive!!!!)
- We must take advance out of the of our

Heart Institute (InCor)

Fig. 10 – Fase final da construção do Instituto do Coração do Hospital das Clínicas Faculdade de Medicina da Universidade de São Paulo