Wetenschappelijk Onderzoek

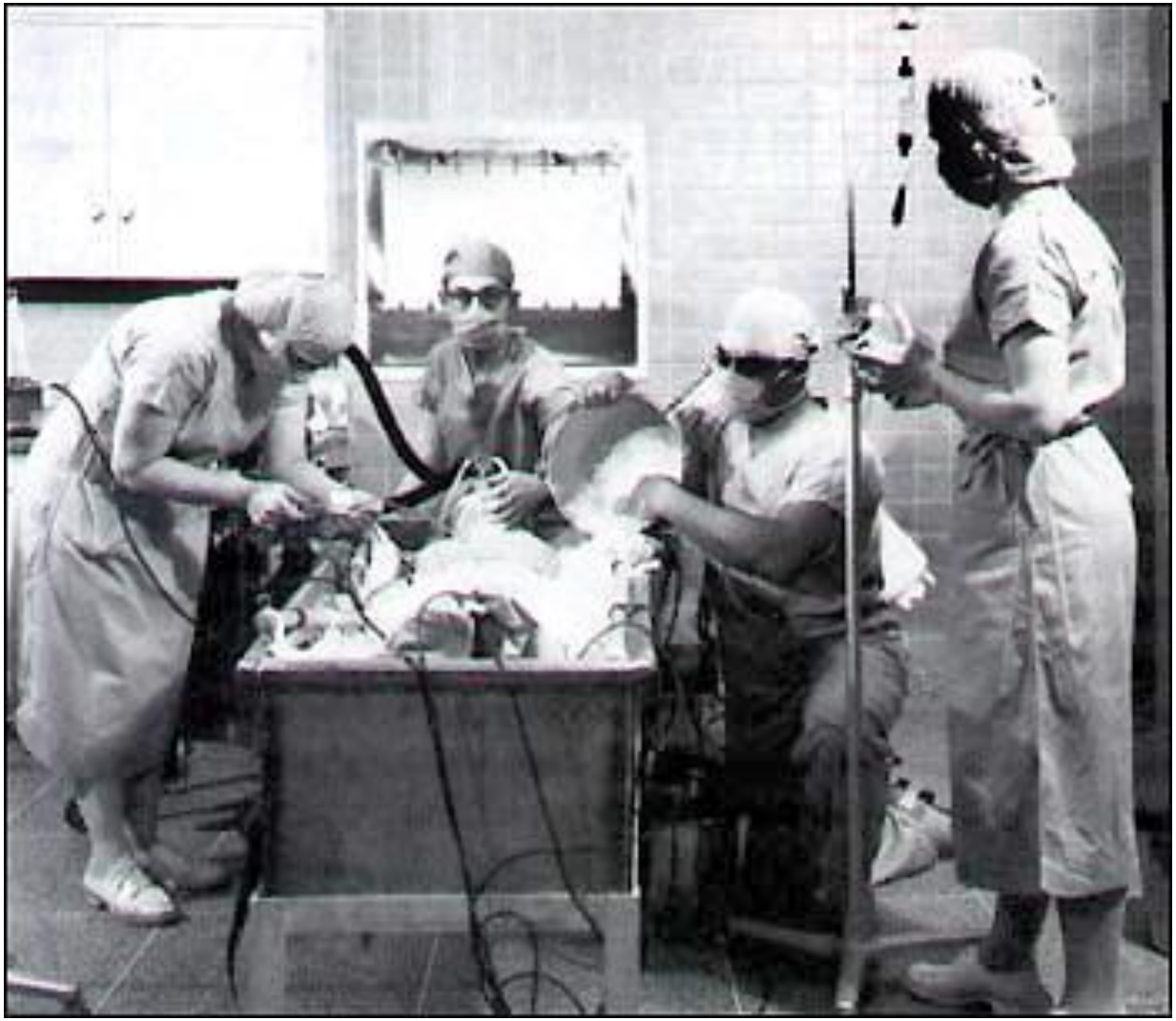
Hans Breur
Kindercardioloog

Overleving met een congenitale hartafwijking

Van der Linde, J Am Coll Cardiol 2011

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking



Congenital Heart Disease Life Span
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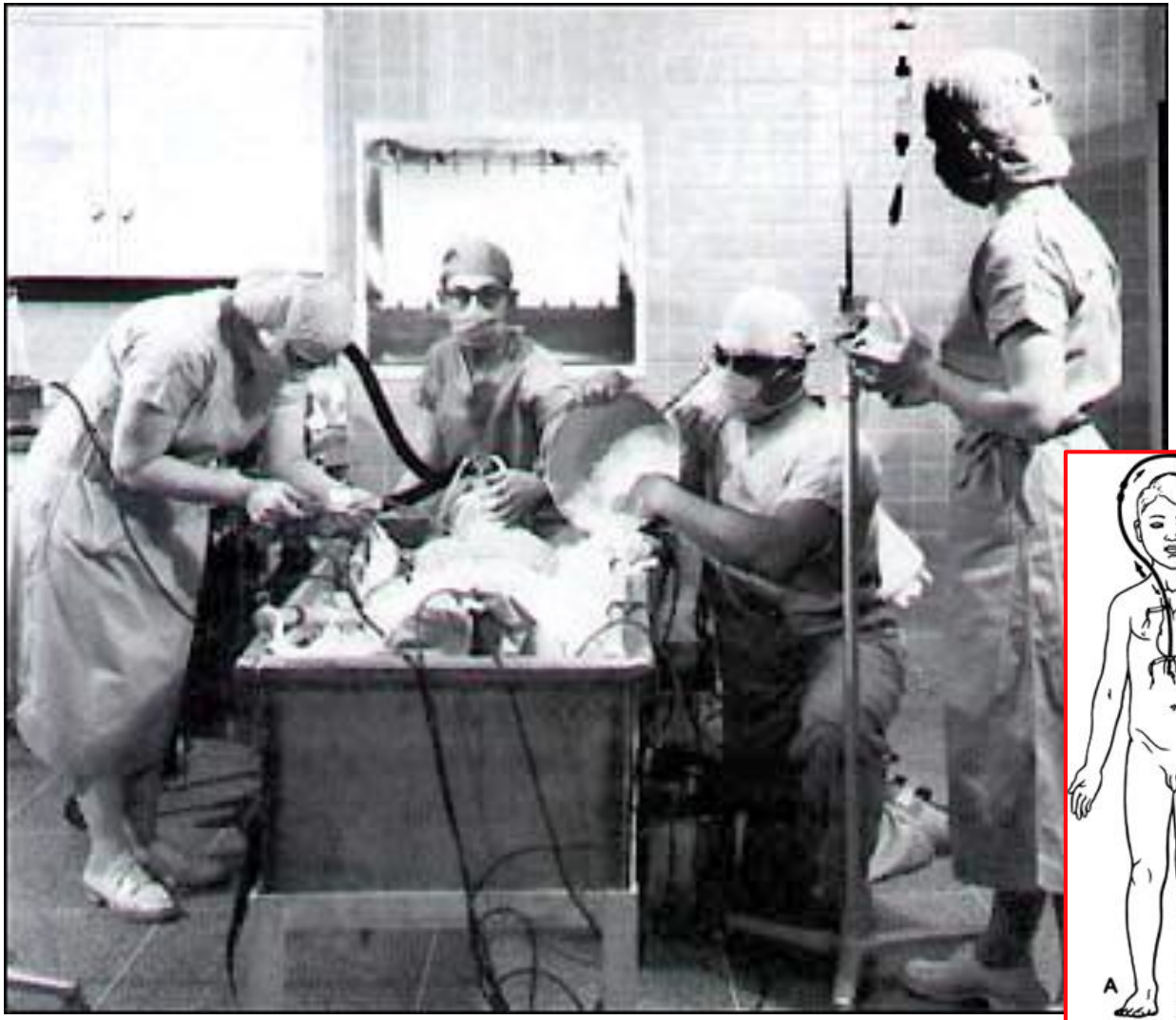
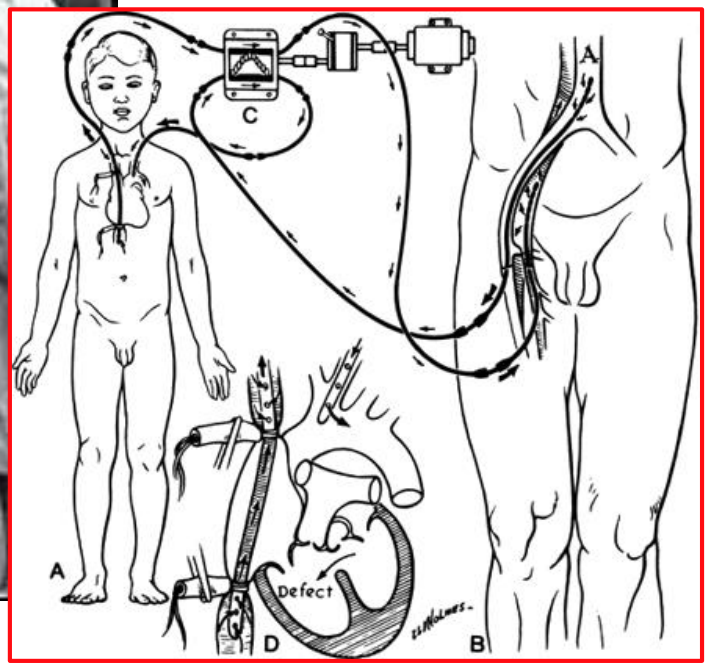





gettyimages
Bettmann
515137782

Overleving met een congenitale hartafwijking

Switching Arteries Sidetracks Blood and Oxygen to Otherwise Starved Lungs

Saving Our Doomed 'Blue' Babies

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.

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. 29, 1944, Dr. Blalock, Professor of Surgery at Johns Hopkins University in Baltimore, has been conquering the "blue" baby malady by re-routing 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. Manaderfer 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."

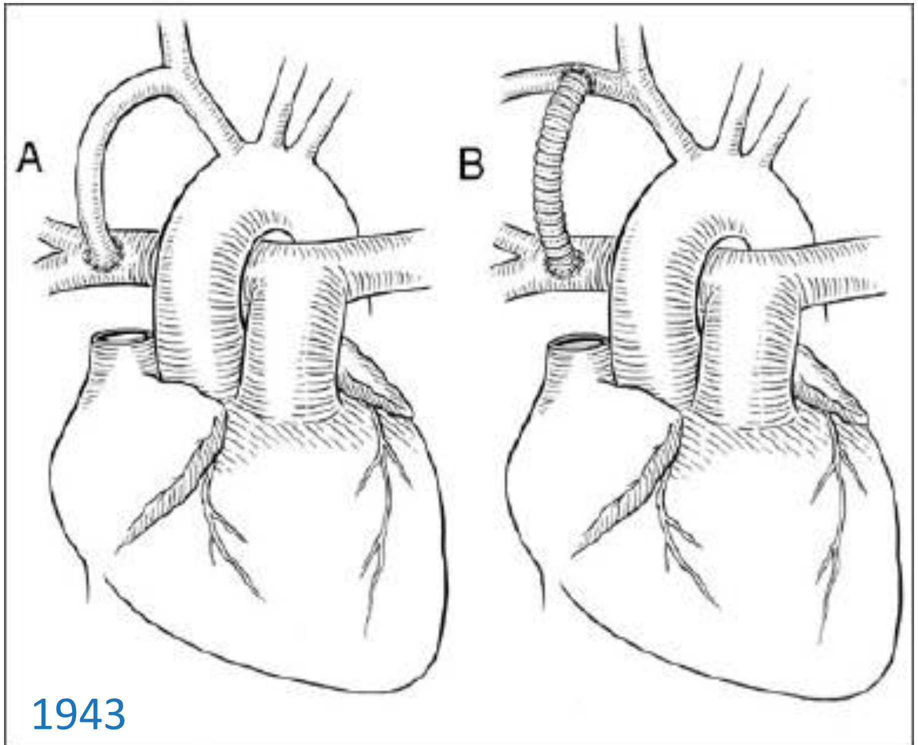
The Blalock-Taussig operation is not a simple one. It takes from an

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



1943

Overleving met een congenitale hartafwijking

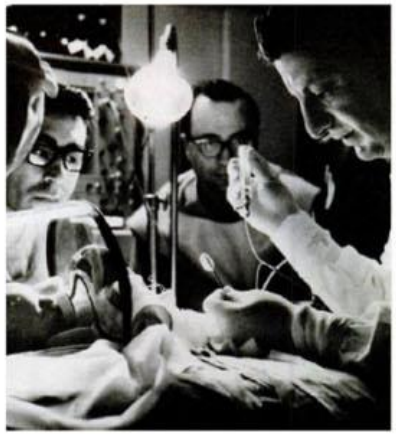
1953
ASD sluiting

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking

WORLD CONGRESS OF PEDIATRIC CARDIOLOGY AND CARDIAC SURGERY

7th WORLD CONGRESS OF PEDIATRIC CARDIOLOGY & CARDIAC SURGERY
16-21 JULY, 2017 • BARCELONA



Life Magazine May 27, 1966

A standby repair until surgery

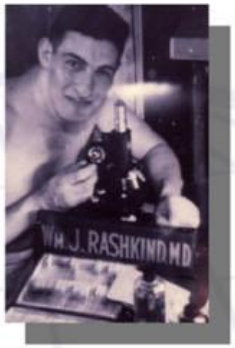
To keep Bobby alive it was absolutely essential, as a temporary measure, to break through the tissue membrane separating the two upper chambers of the heart (*see diagram*). The only other way to accomplish this would be by full-scale surgery—an operation that Bobby probably could not have survived. Rashkind's new balloon technique accomplished the same thing, effecting a stopgap but workable repair that will tide Bobby over for a few years. When his heart has grown large enough, doctors will be able to perform the complicated surgery needed to reconstruct the interior of the upper heart chambers so that Bobby's circulation will have full efficiency.

Rashkind's treatment was carried out with only a local anesthesia at the groin. It caused so little fuss that Bobby placidly sucked his pacifier throughout the procedure (*left*). When the doctor bent down (*below*) to coo at his little patient immediately after he had withdrawn the deflated balloon from the heart, Bobby cooed right back.

William J. Rashkind

Reported 1st **Balloon Atrial Septostomy** in a neonate ("Bobby") in ***Life* Magazine**
(and then in JAMA 1 month later)

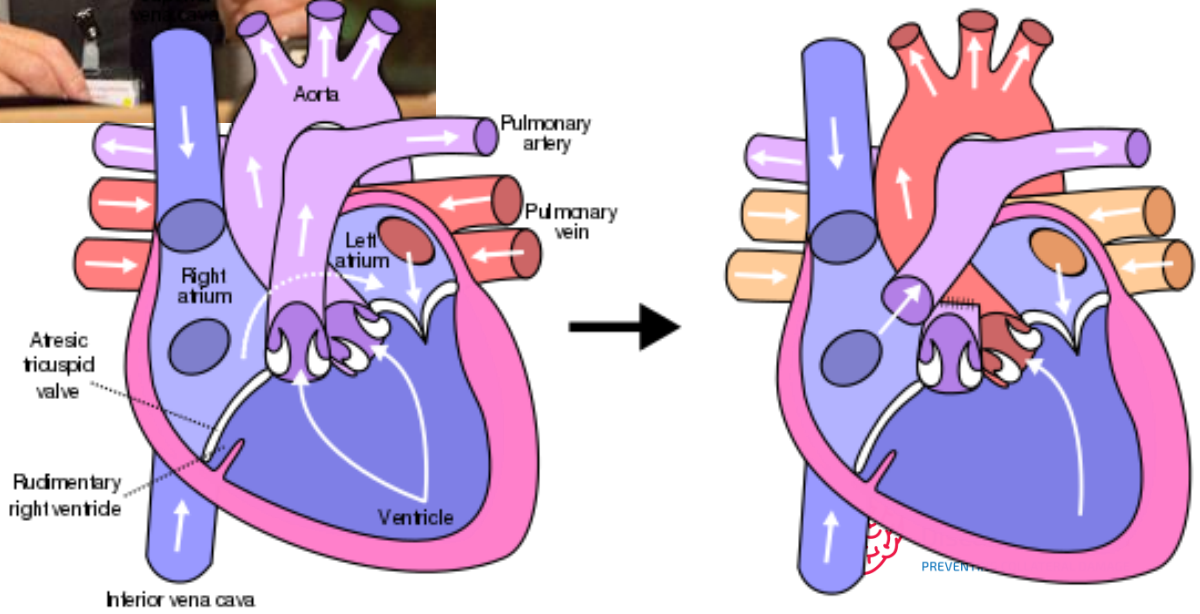
"Father of Interventional Cardiology"



Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking

1971



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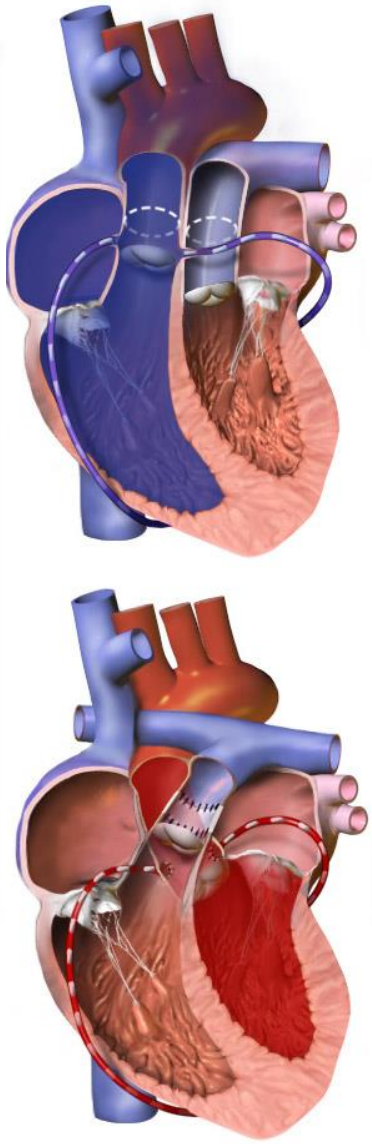
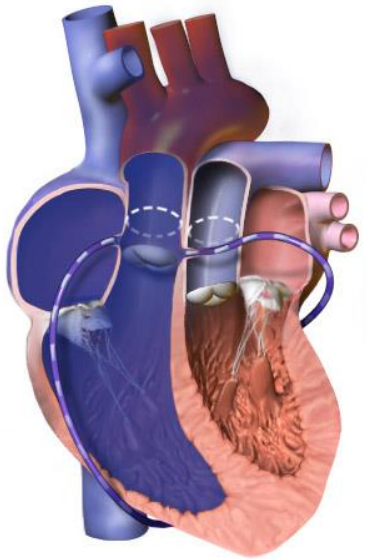


1977

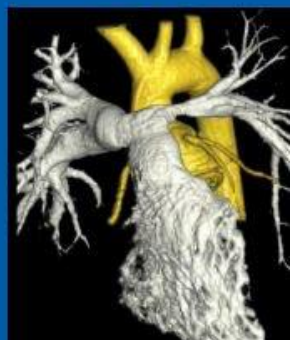
Arteriële switch operatie

Adib Domingos Jatene (June 4, 1929 – November 14, 2014)

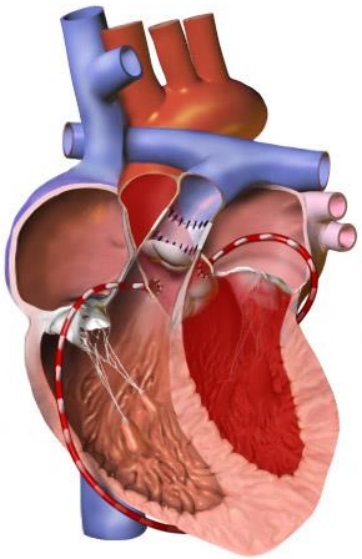


The 5th 'Utrecht Sessions' for Congenital Heart Disease

Transposition of the great arteries



February 8th - 10th, 2018
Wilhelmina Children's Hospital
www.utrechtsessions.nl



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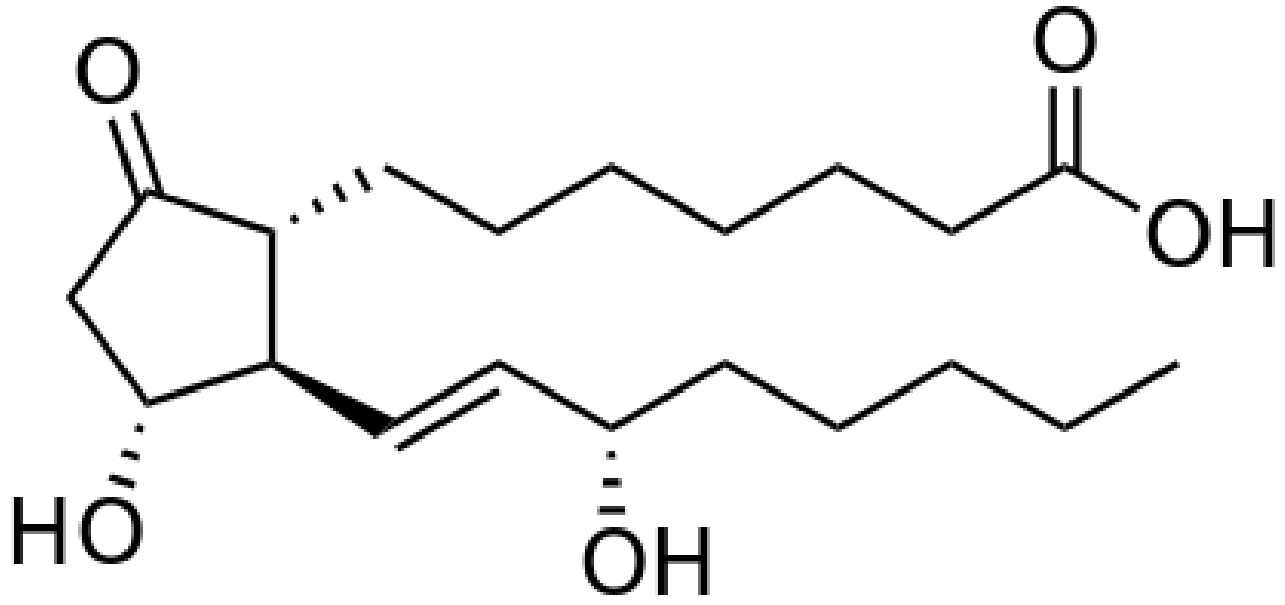
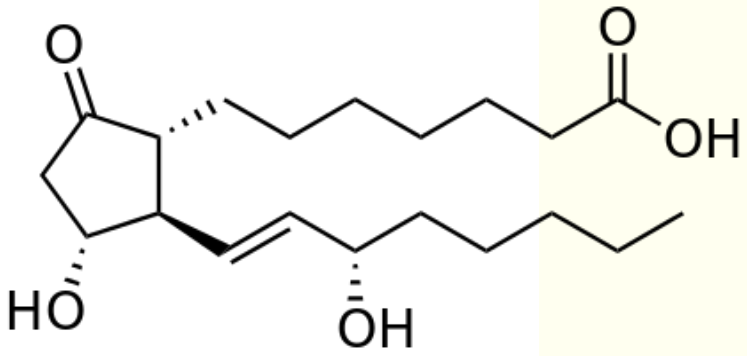


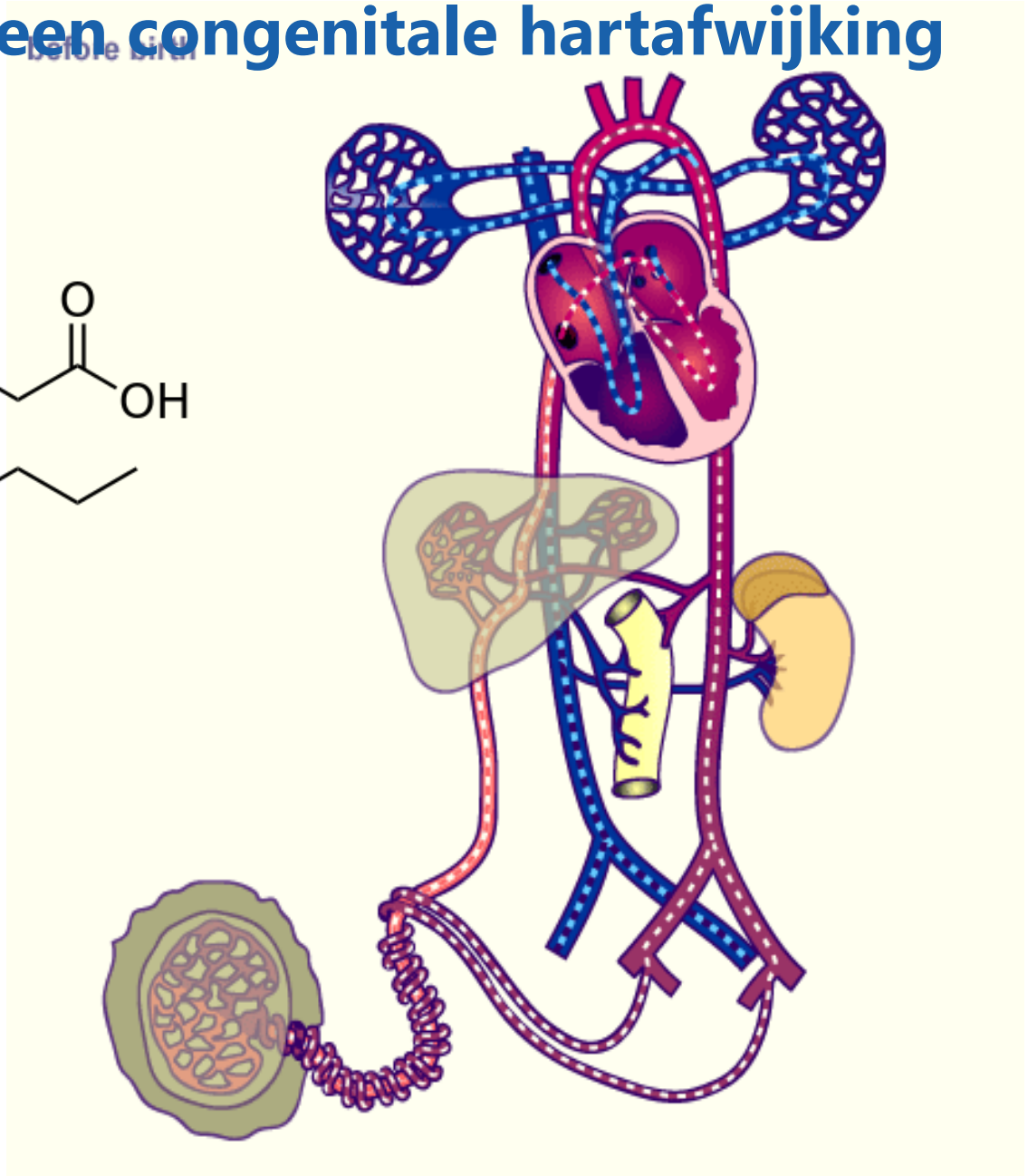
1982 Nobelprijs Geneeskunde
Bergstrom, Samuelsson & Vane

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking



PROSTAGLANDINE



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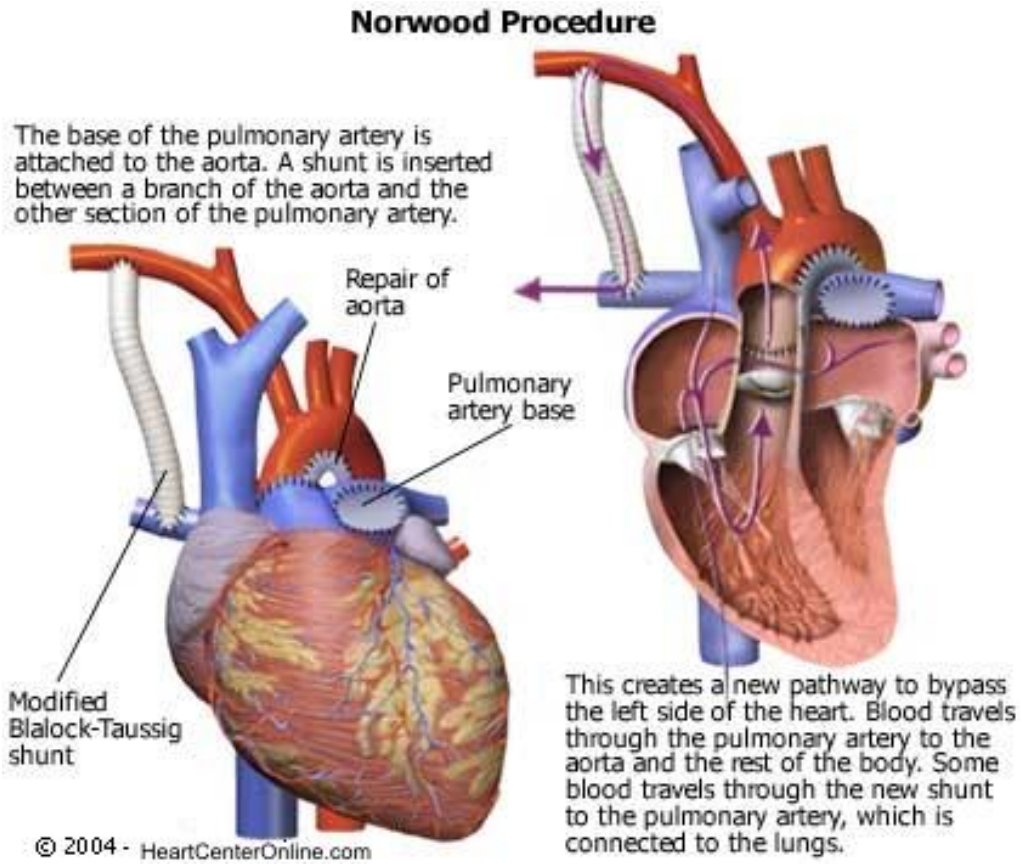

1981, William Norwood

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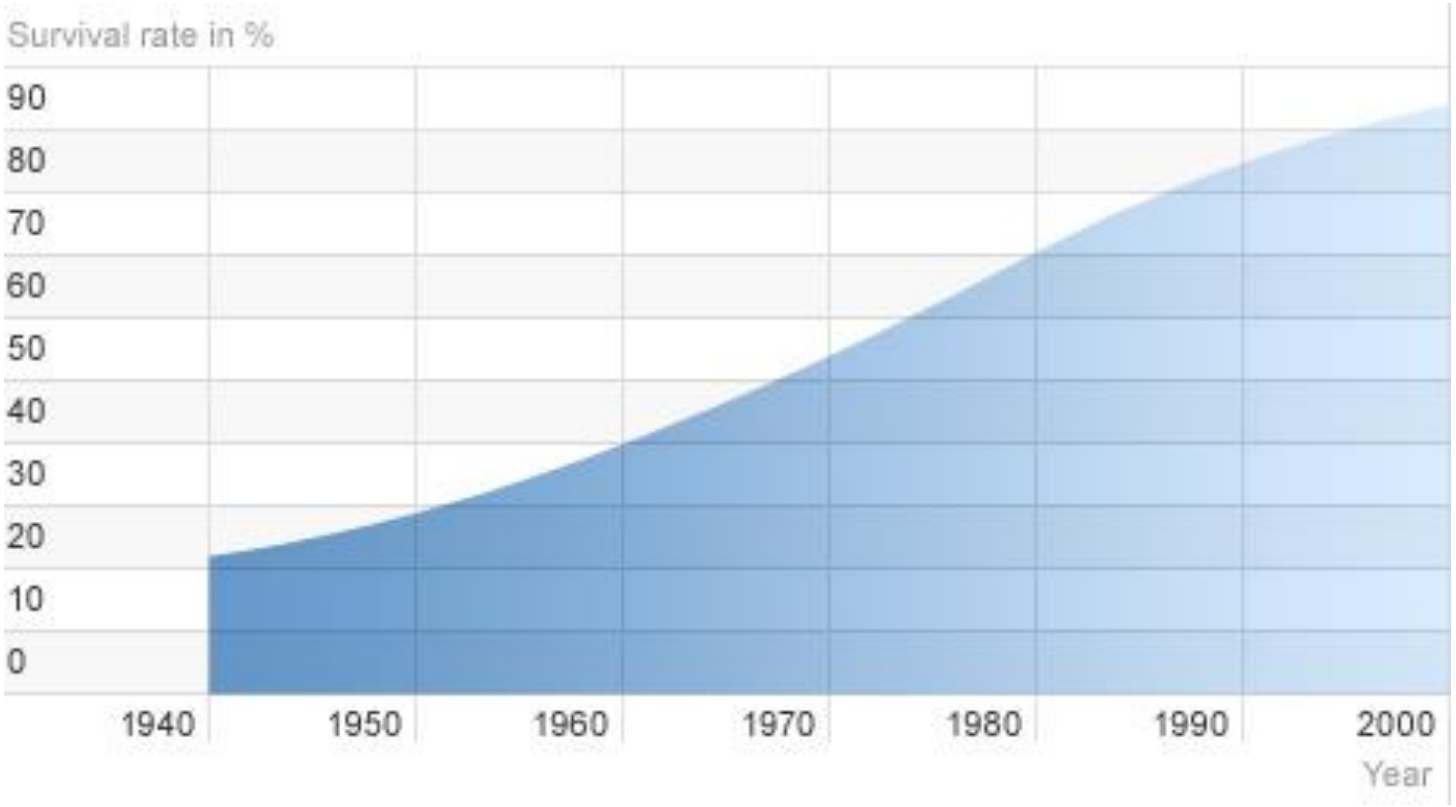
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking

2003, Philip Bonhoeffer

Overleving met een congenitale hartafwijking



Van der Linde, J Am Coll Cardiol 2011

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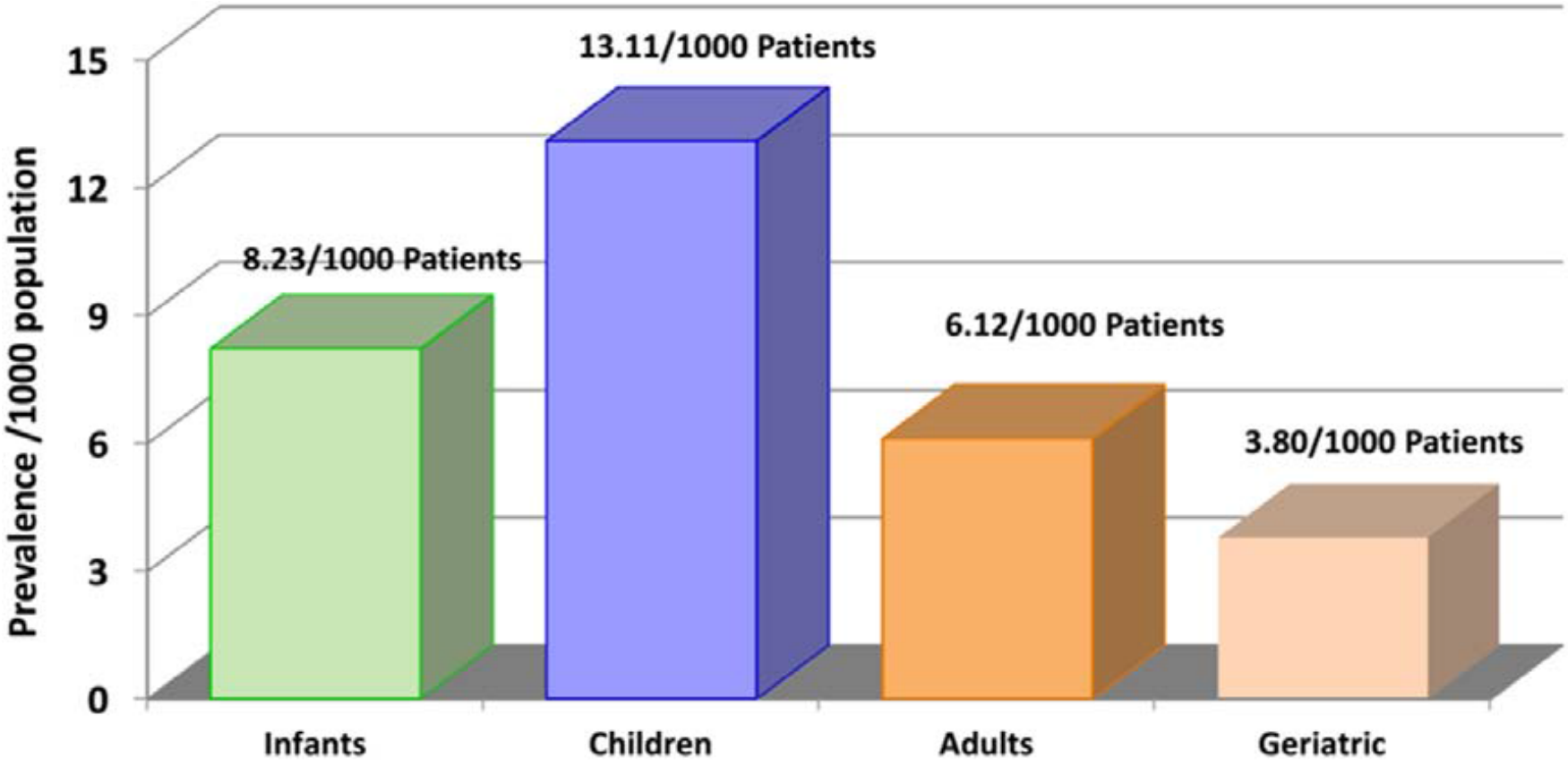

Mazor Dray & Marelli, 2015.

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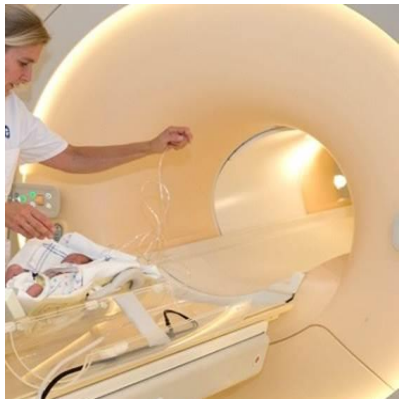
PREVENTING COLLATERAL DAMAGE

Overleving met een congenitale hartafwijking

- Van overleven naar kwaliteit van leven
  - Individuele behandeling en follow-up
  - Landelijke registraties/onderzoek
    - **Samen** patiënten vervolgen (kind en volwassen)
      - Hartfalen/ritmestoornissen/ontwikkeling
    - Medicatie
  - Technische ontwikkelingen
  - Fundamenteel onderzoek

KinCor

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE



Foetale MRI

Postnatale MRI

Postop MRI

20 weken Diagnose

40 weken Geboorte

Neonatale OK

Follow Up

EEG + NIRS

EEG + NIRS

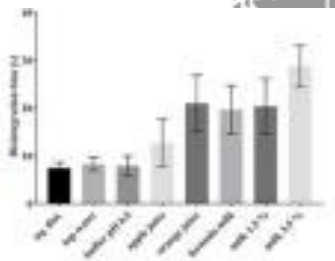
Congenital Heart Disease Life Span

PREVENTING COLLATERAL DAMAGE

Enalapril orodispersible minitablets

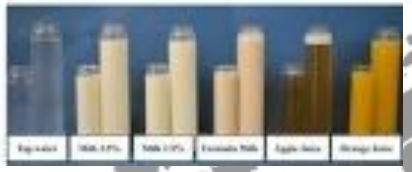
Development of an administration regime

Disintegration



in various beverages

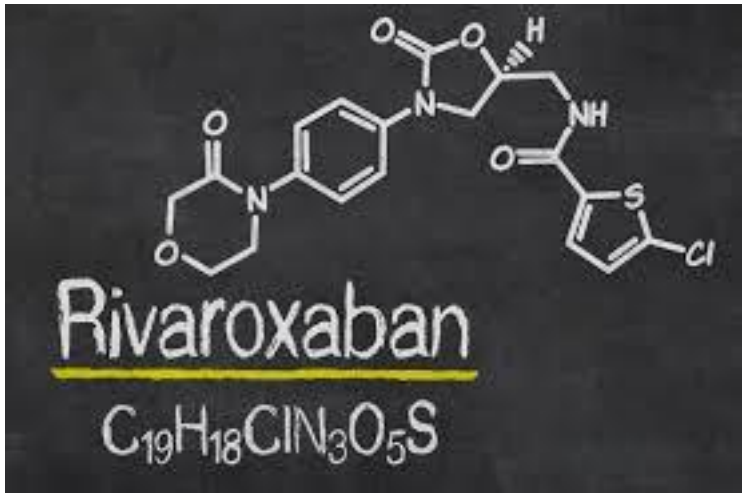
Stability

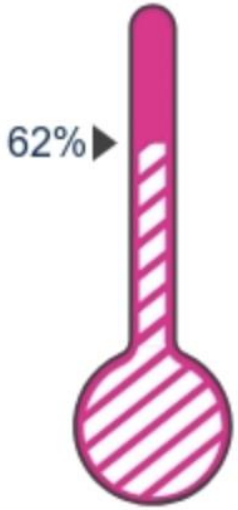


Administration via nasogastric tubes

lena

UNIVERSE





62% Enrollment Reached!

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

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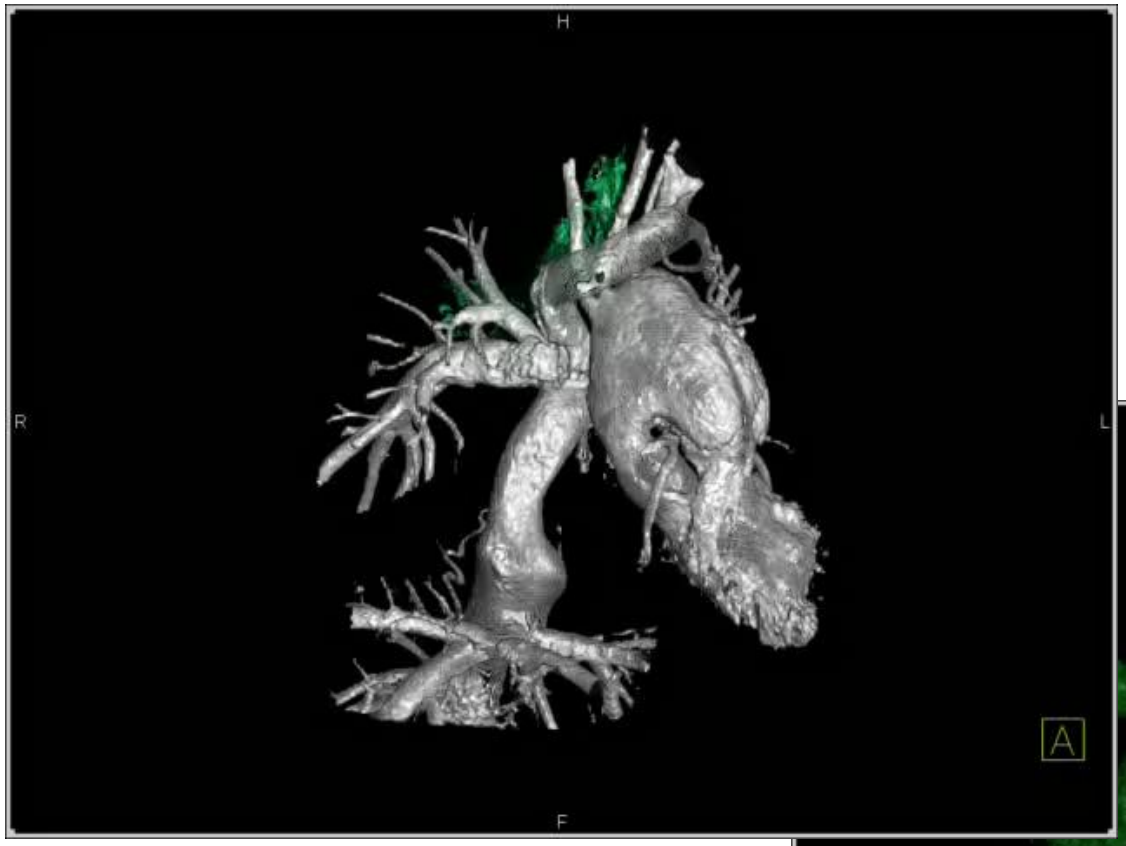

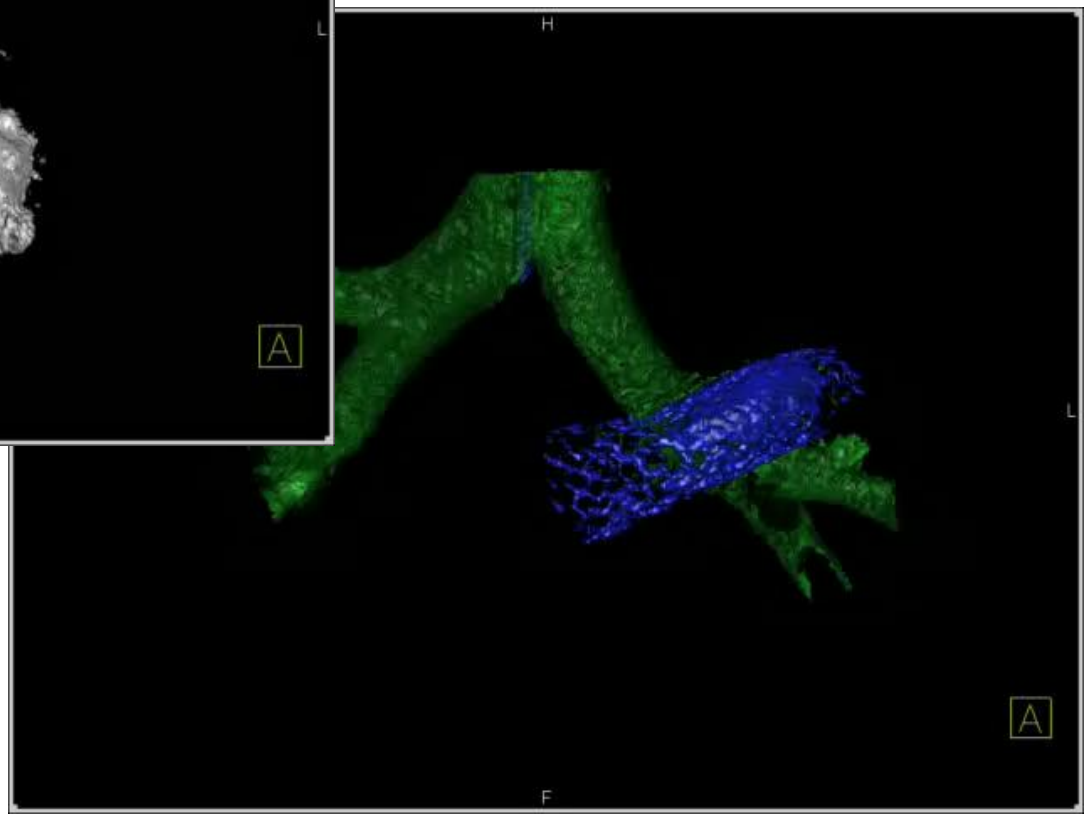

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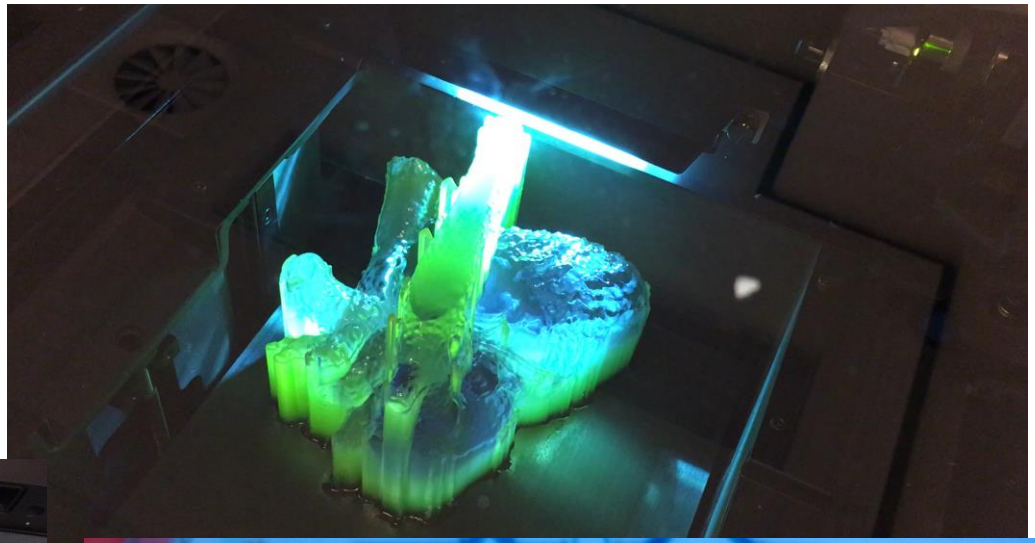

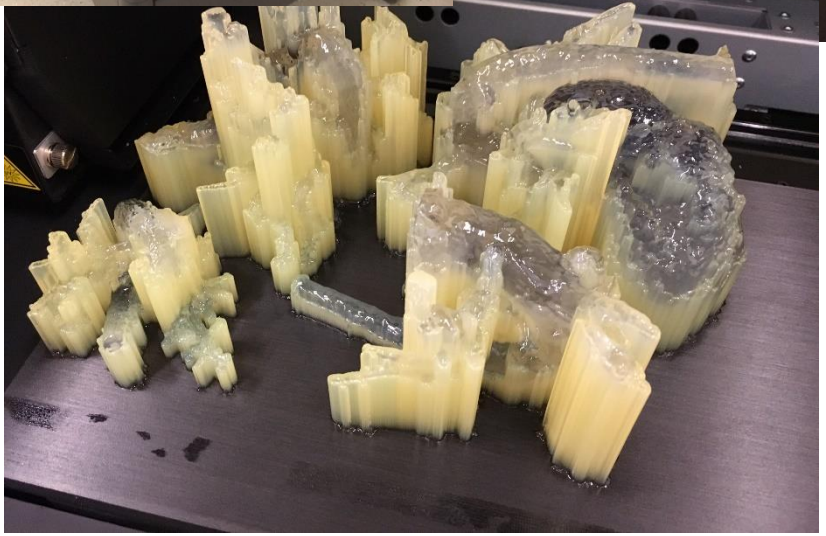

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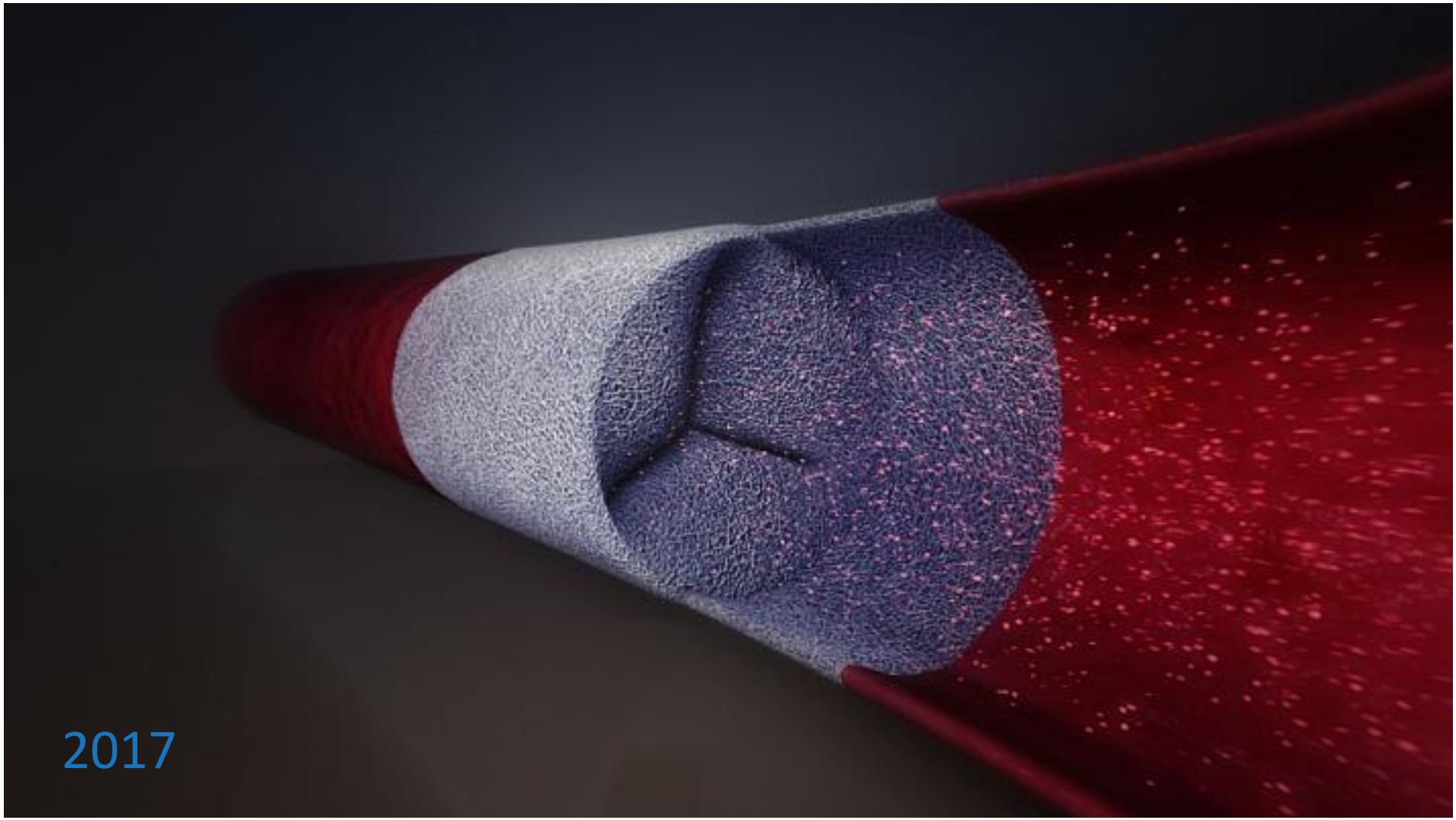


Xeltis

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Dit is waar we nu staan

- Maar het kan en moet nog veel beter
- Bruggen slaan
  - Tussen hartcentra, in Nederland en daarbuiten
  - Translationeel
  - Van ongeboren kind tot volwassene
  - Samen met de patiënt

- Onderzoek heeft het verschil gemaakt en zal het verschil blijven maken!

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

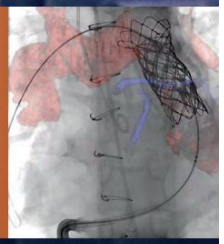
6th 'Utrecht Sessions' on Congenital Heart Disease

Tetralogy of Fallot

February 1st – February 2nd, 2019

Wilhelmina Children's Hospital

www.utrechtsessions.nl



UMC Utrecht
Wilhelmina Children's Hospital

Congenital Heart Disease Life Span
PREVENTING COLLATERAL DAMAGE

Bedankt!

Wilhelmina Kinderziekenhuis

- Kinderhartcentrum
- Kinder-IC
- Anesthesie
- Neonatologie
- Obstetrie
- Radiologie
- Kinderbewegingscentru

PATIËNTENVERENIGING AANGEBOREN HARTAFWIJKINGEN

stichting hartekind