

Lung transplantation initial attempts

- 1963 James D. Hardy
 - First clinical attempt in humans
 - 16 days survival
 - Bronchial fistula
 - Kidney failure
- 1965 – 1980
 - 25 failed attempts
 - F. Derom: 10 months survival

The first successes

1983 J. Cooper (Toronto)

- First single-lung transplantation

1986 J. Cooper

- First «en-bloc» bilateral transplantation
- Still many failures

1981 Stanford

- First heart-lung transplantation

Initial developments at Foch hospital

88-11

- First unilateral transplantation
- 2 years survival

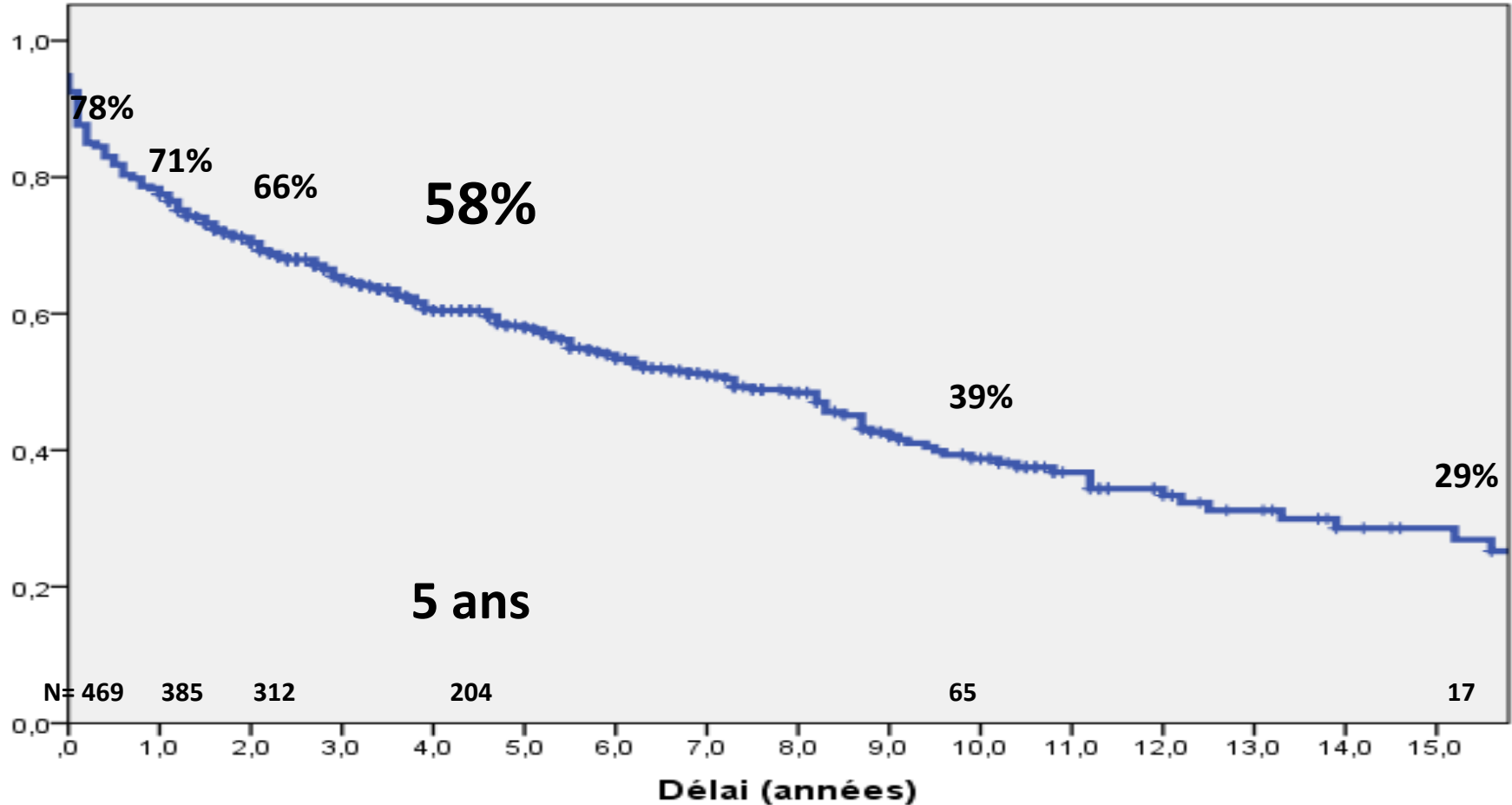
89-11

- World first double unilateral transplantation
- 2 years survival

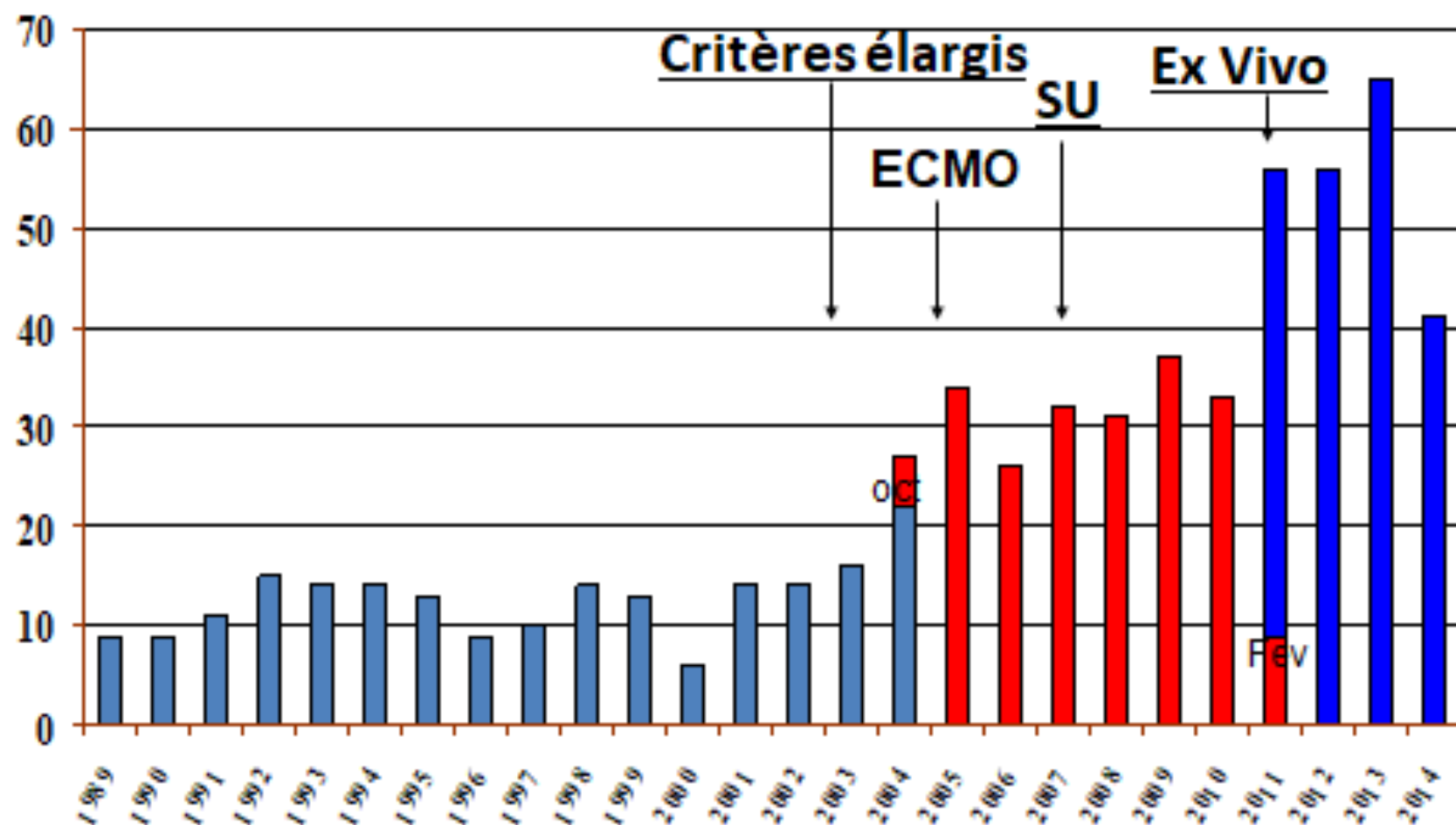
92-03

- World first double lobar transplantation for mucoviscidosis
- 8 years survival

Actuarial survival rate of 600 transplant patients (11/1988 - 09/2014)

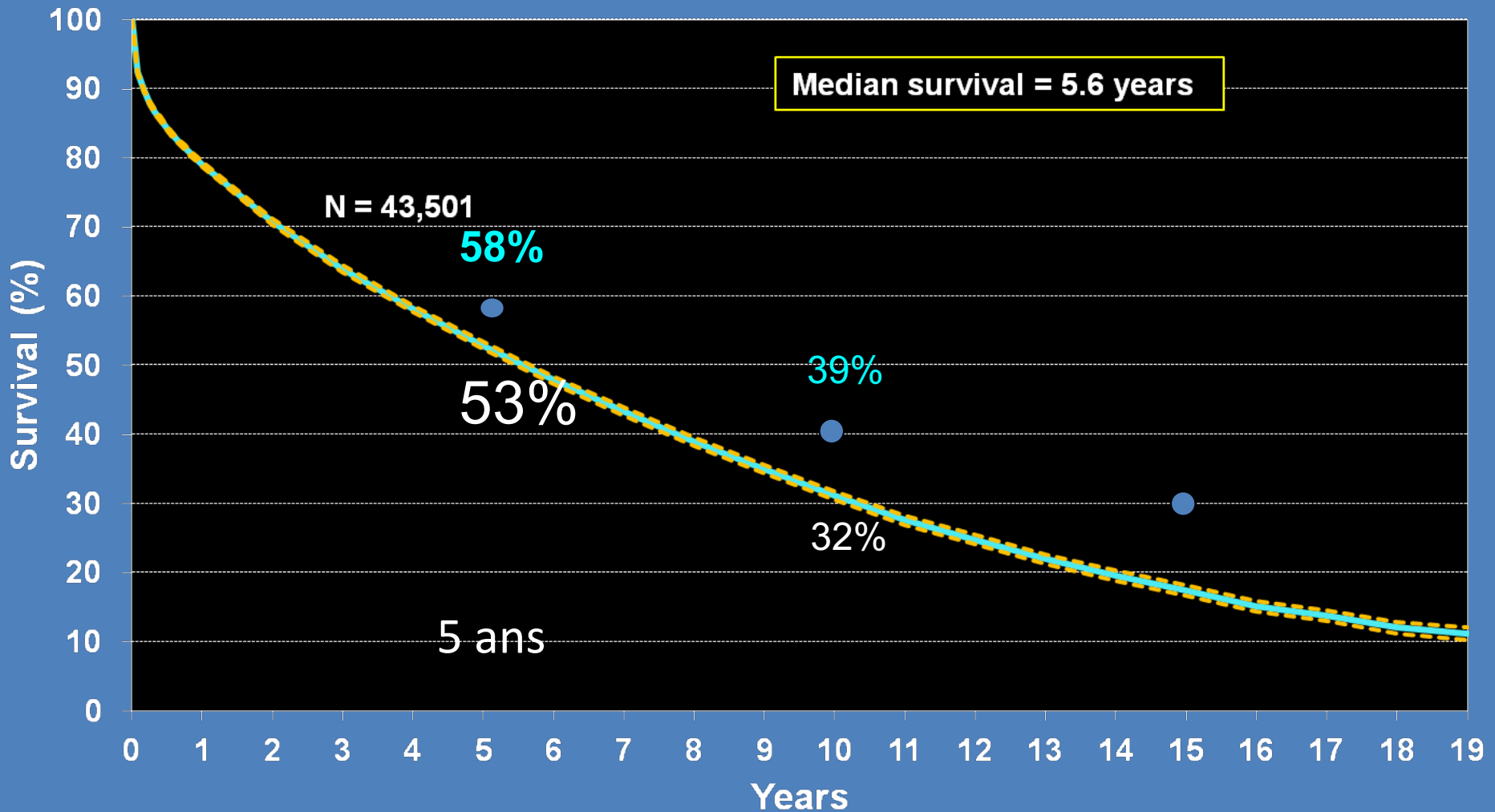


600 patients répartis en 3 groupes de 200
avec 1 an 1/2 de recul minimum



Adult Lung Transplants

Kaplan-Meier Survival (Transplants: January 1990 – June 2012)



Lung Transplantation in France

*** Number needed : 300-400 grafts for year**

*** 322 lungs transplantations in 2012**

- 30 % cystic fibrosis**
- 30 % emphysema**
- 20 % fibrosis**
- 20 % other**

*** 16 patients died while on the waiting list
in 2012**

Lung graft

Optimal Donor

Age < 56 years

$PO_2/FiO_2 > 400$
mmHg

No smoking

Normal X-ray

No inhalation

Extended criteria

Age 56-70

PO_2/FiO_2 200-
400

Abnormal x-ray

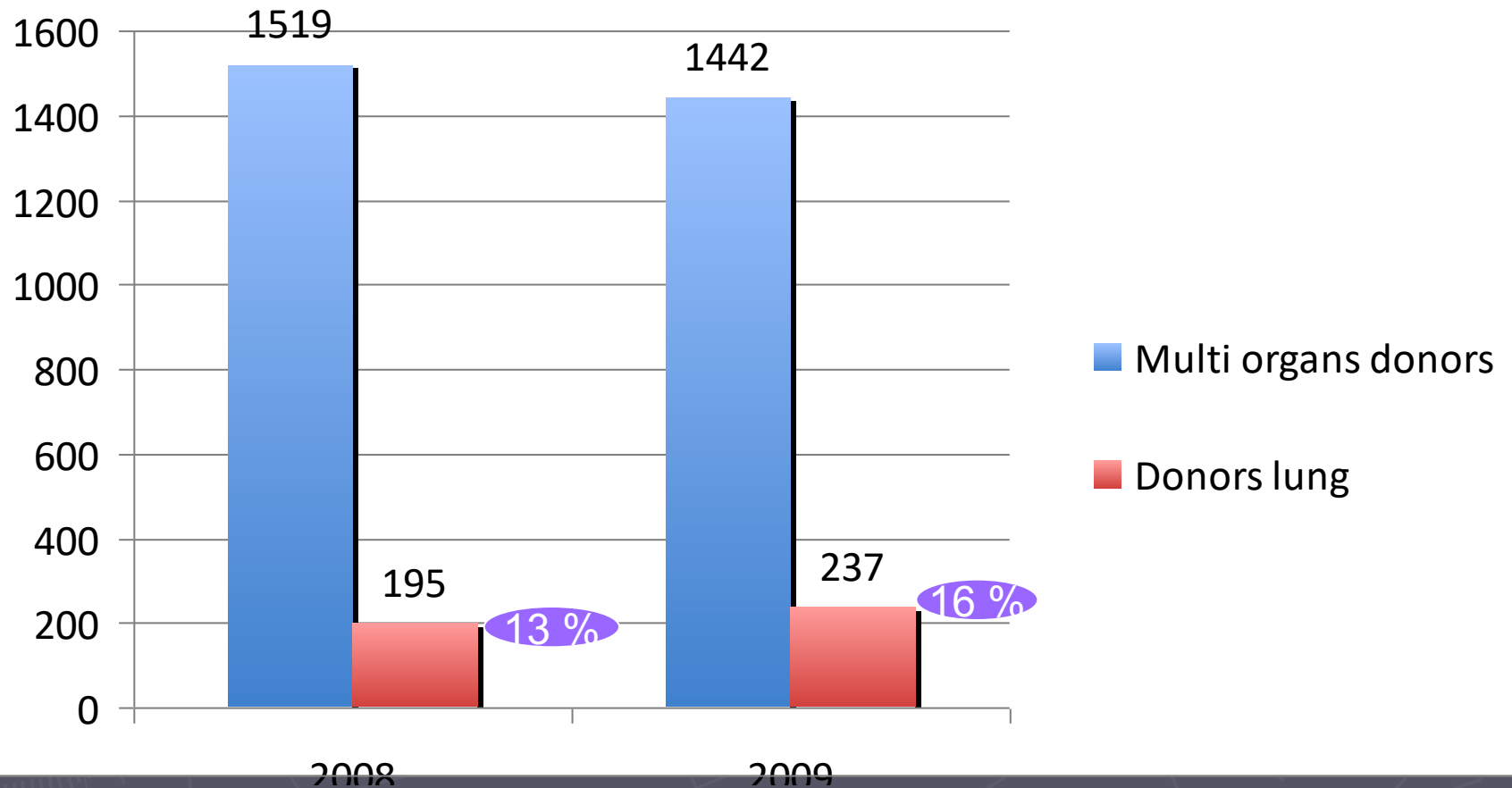
Inhalation

Marginal donors

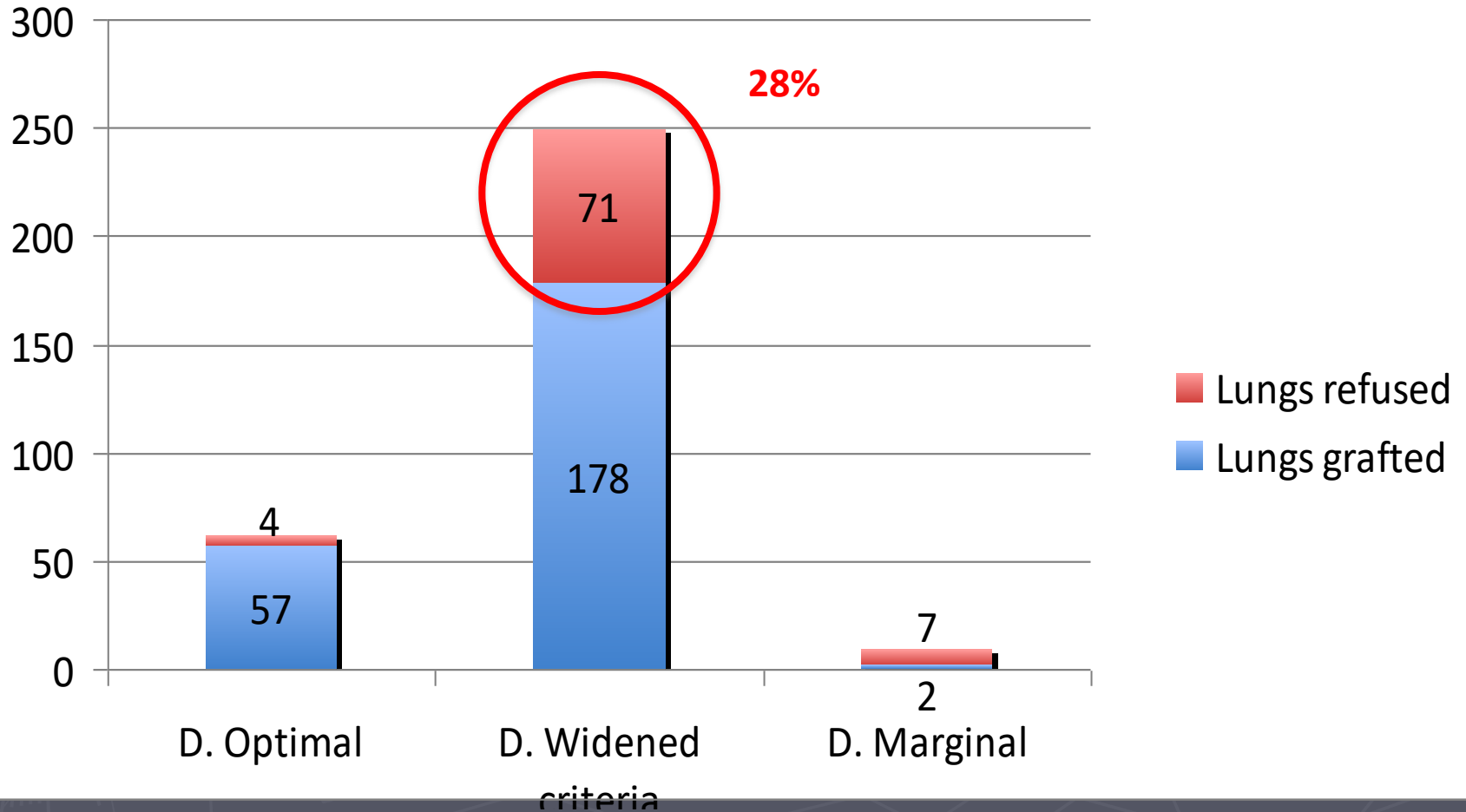
Age > 70 years

$PO_2/FiO_2 < 200$ mmHg

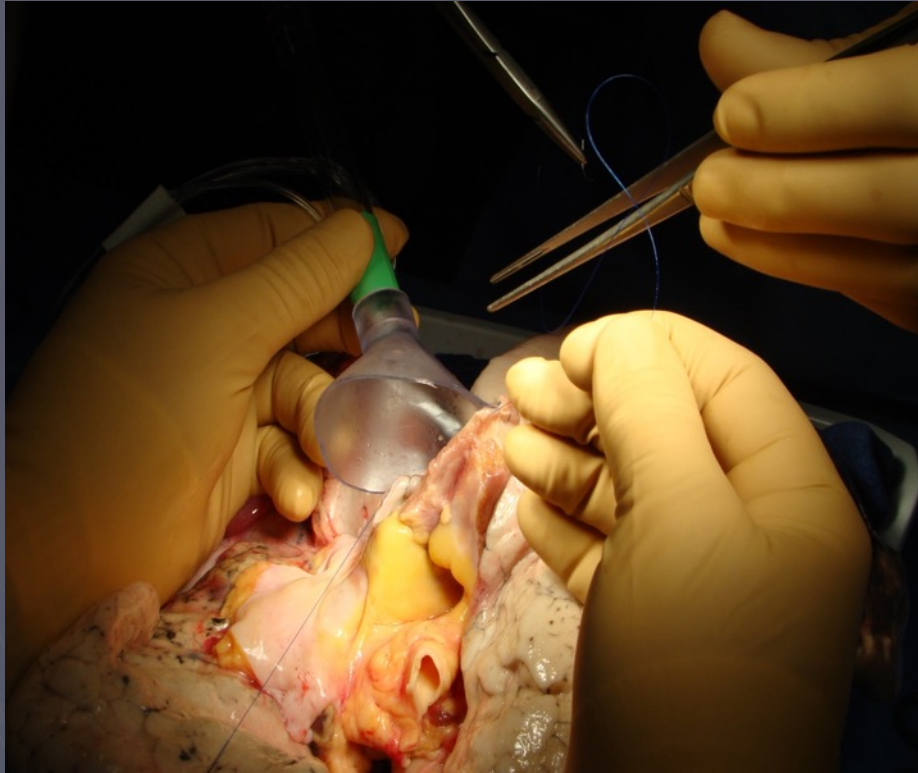
Organ donors in France



What becomes of donor lungs



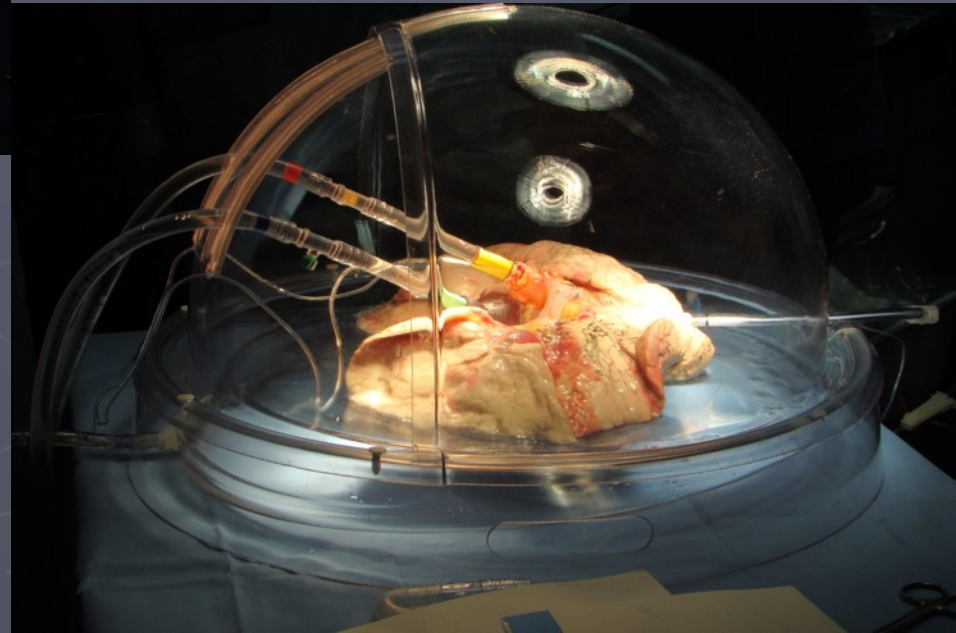
Toronto Box



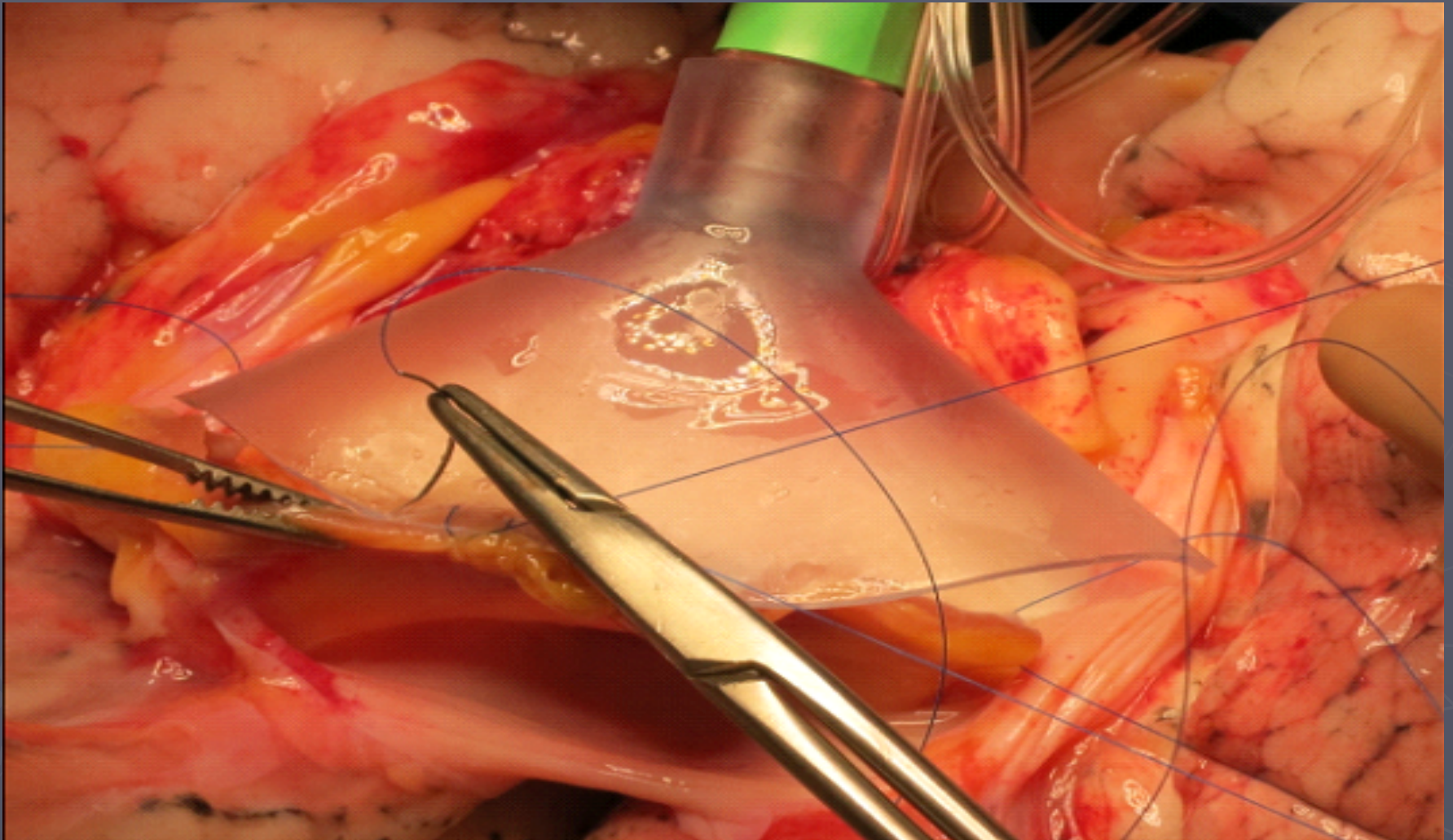
- ▶ Canula in troncus of pulmonary artery
Perfusion pressure < 15 mmHg
- ▶ Canula left atrium
Perfusion pressure 3-5 mmHg
- ▶ Belt cover to maintain humidity
- ▶ Tracheal intubation



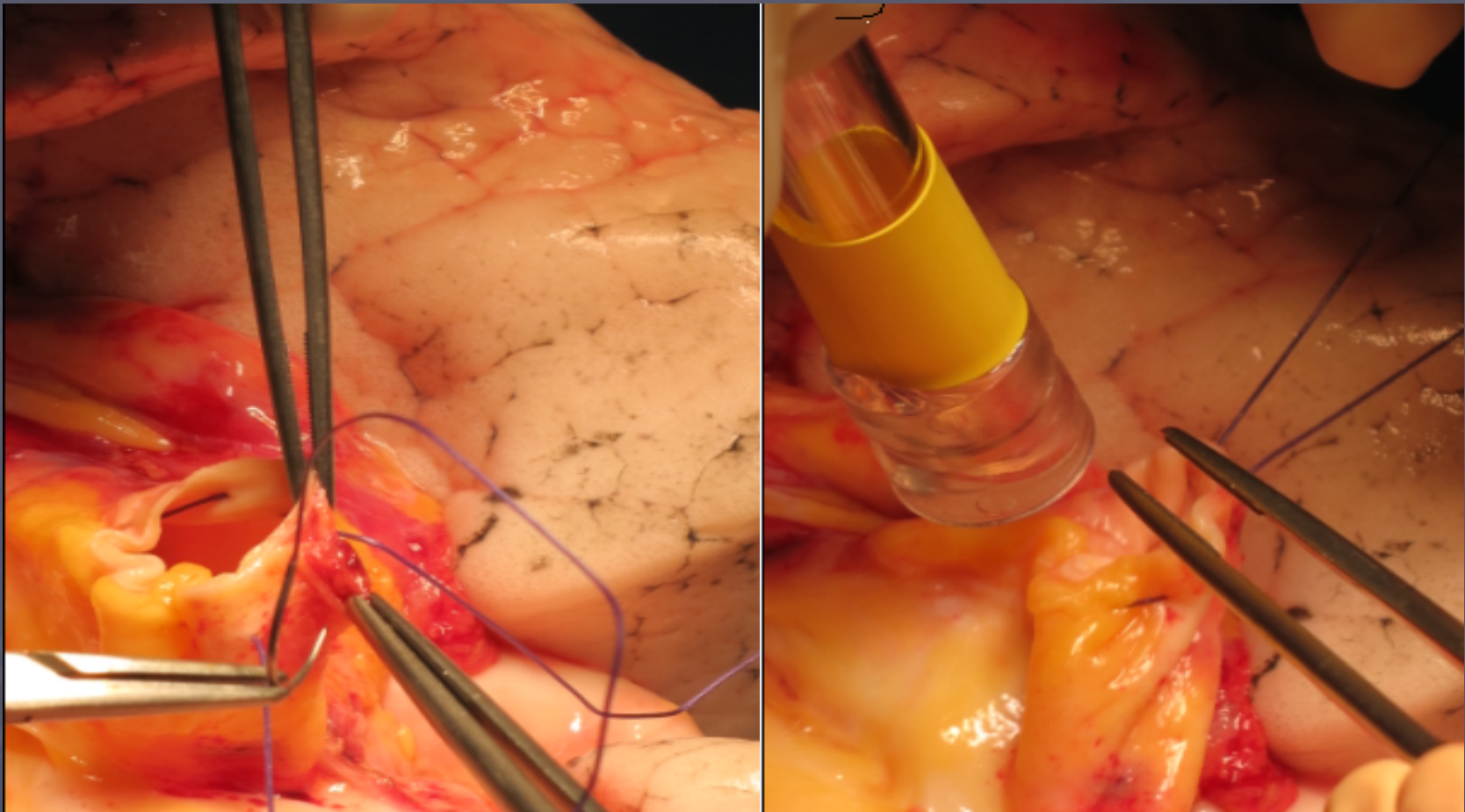
100 % Solution Steen
Ancellular and hyperosmolar



Suture of veinous canula on atrium



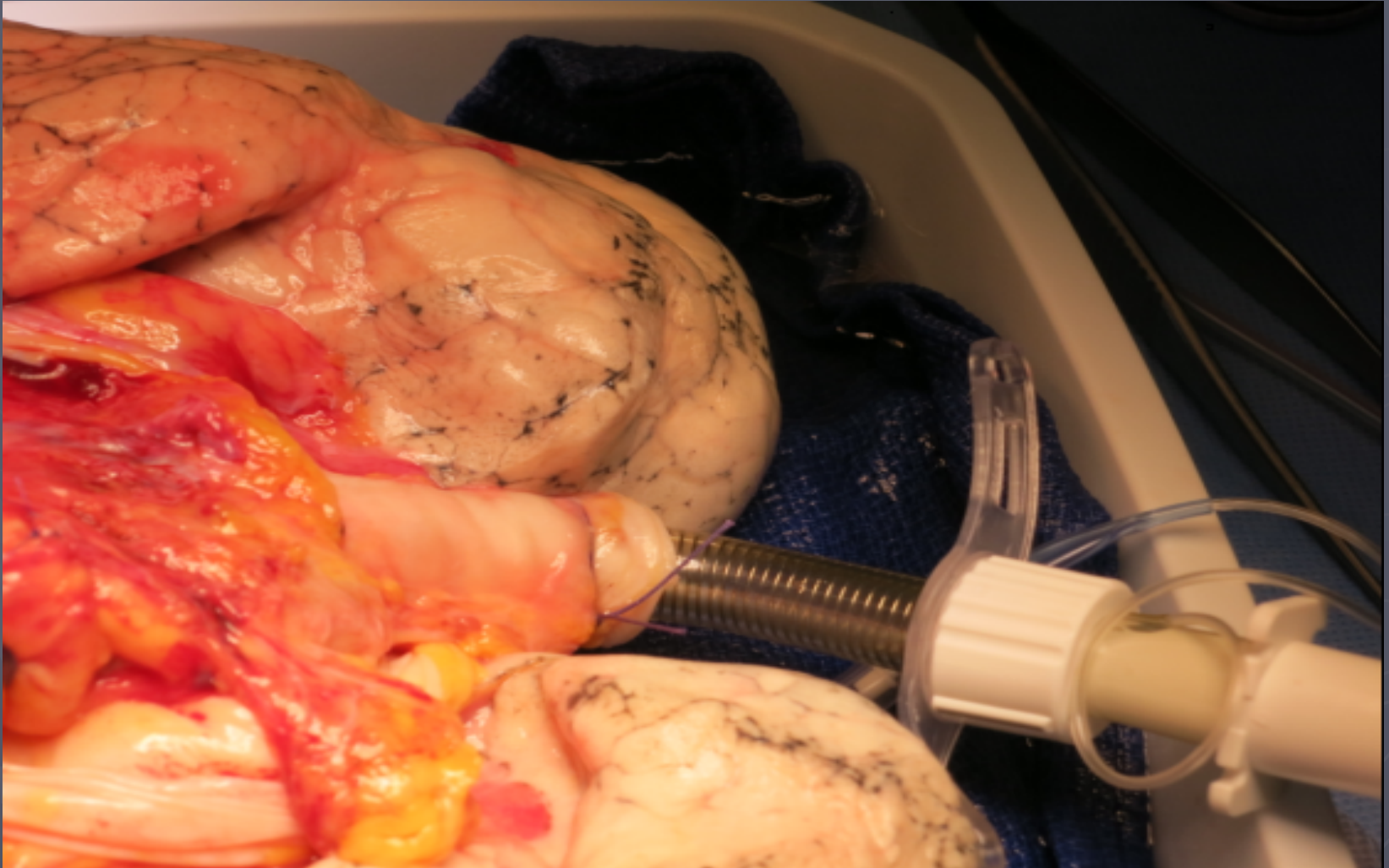
Insertion of arterial canula in the truncus of pulmonary artery



Opening up the trachea and proximal suction of secretions



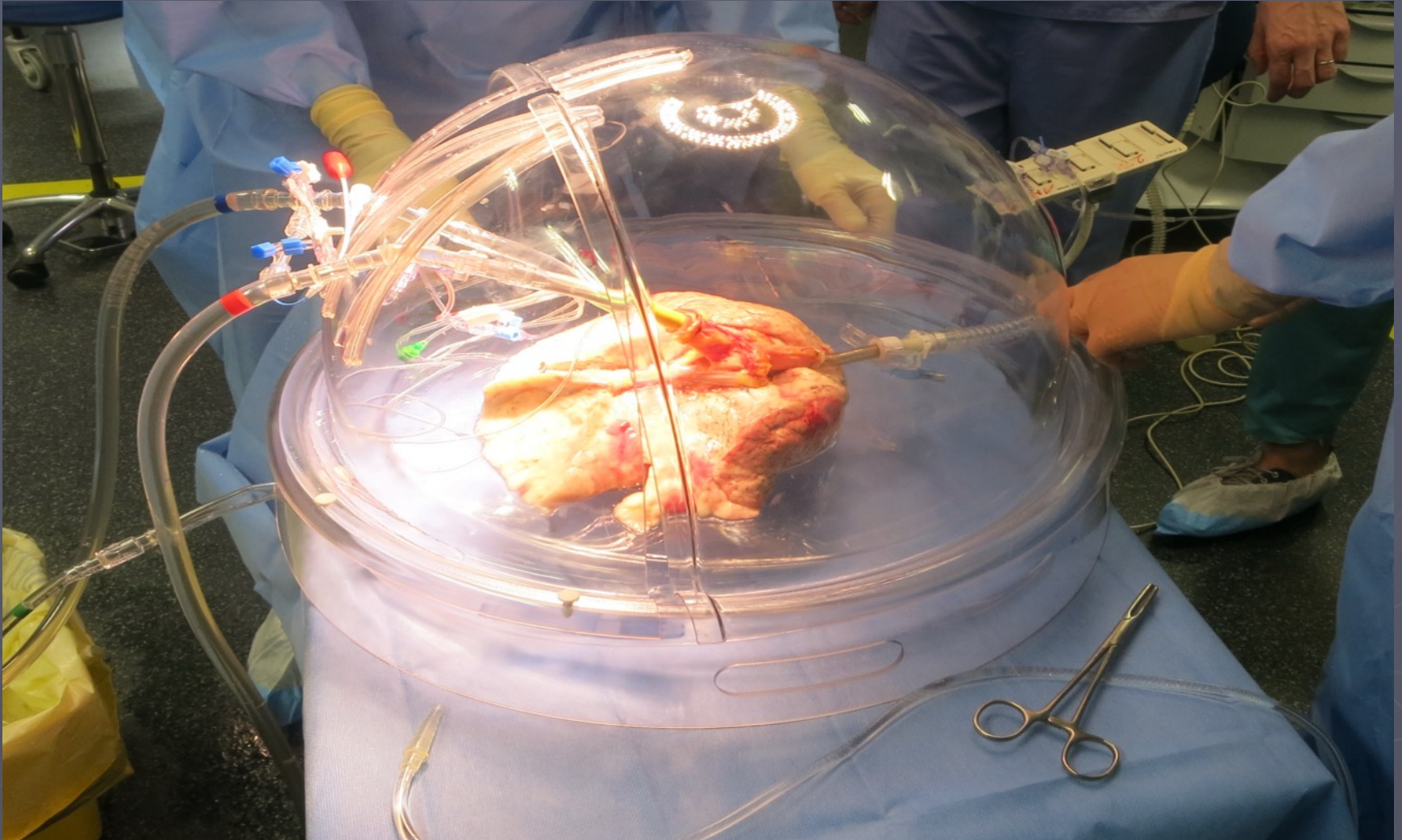
Placement of tracheal intubation



Suction of distal secretions + alveolar lavage



Initiation of rehabilitation



Grafts with widened criteria

2 hours of perfusion

$PO_2 > 350 \text{ mmHg}$

transplantation

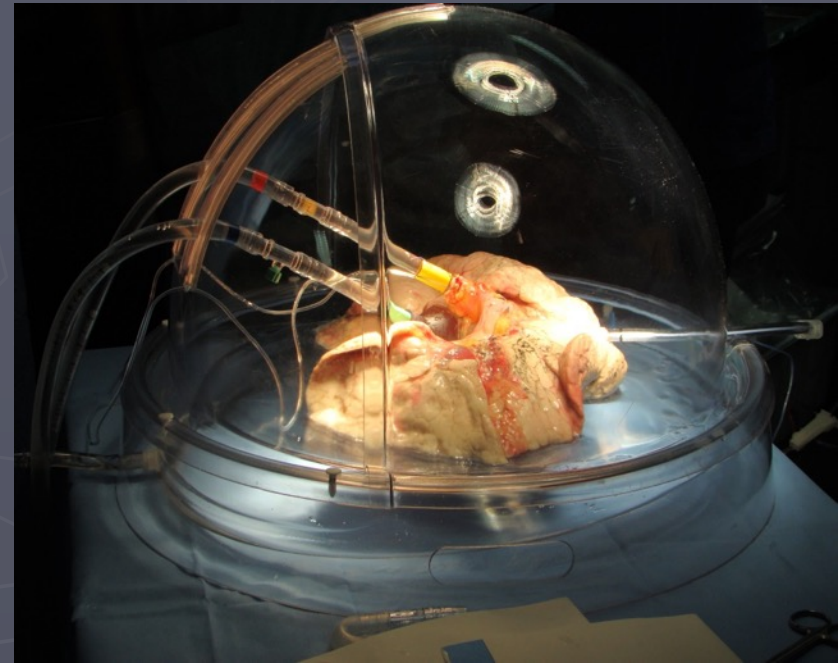
$PO_2 < 350 \text{ mmHg}$

$PO_2 > 350 \text{ mmHg}$

2 hours of perfusion

$PO_2 < 350 \text{ mmHg}$

pathology



2 years of protocol Foch Hospital

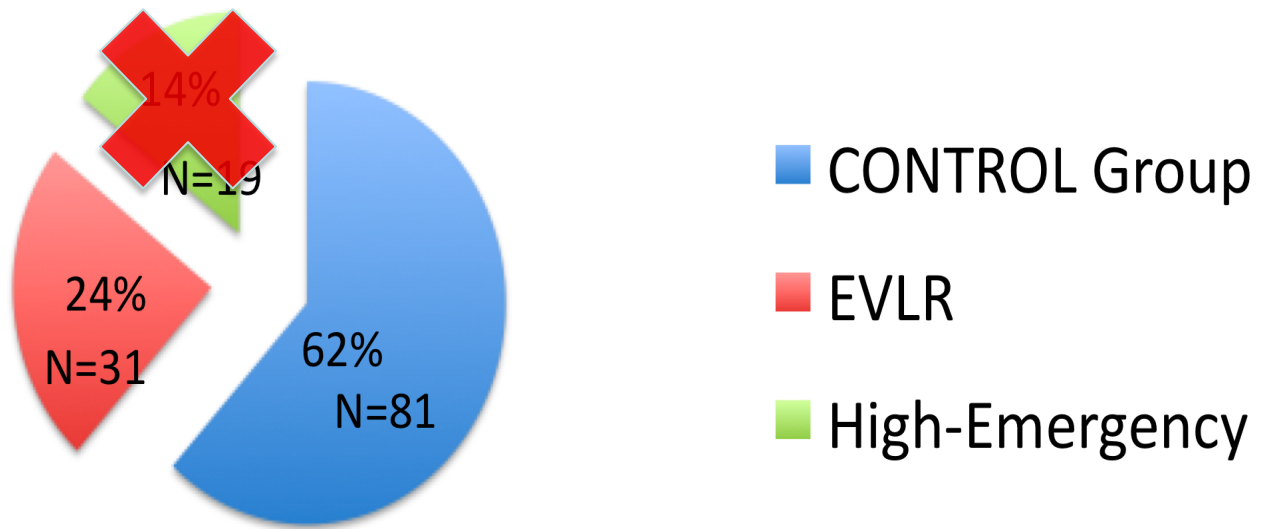
32 grafts rehabilitation by ex vivo



*** 31 grafted**

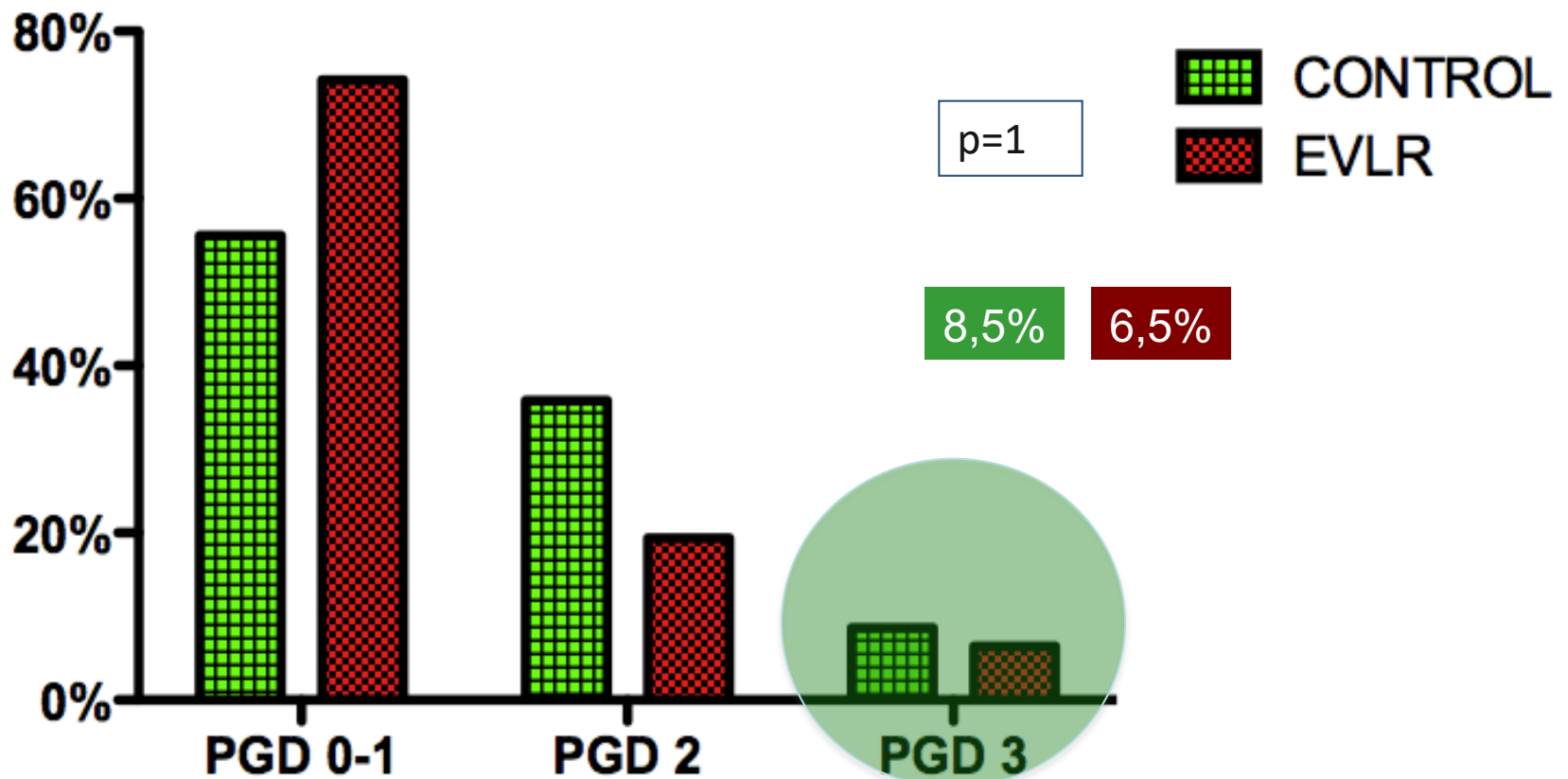
*** 1 failure**

April 2011 – September 2013



**131 Lung
transplantations**

Early results Primary graft failure 3 days

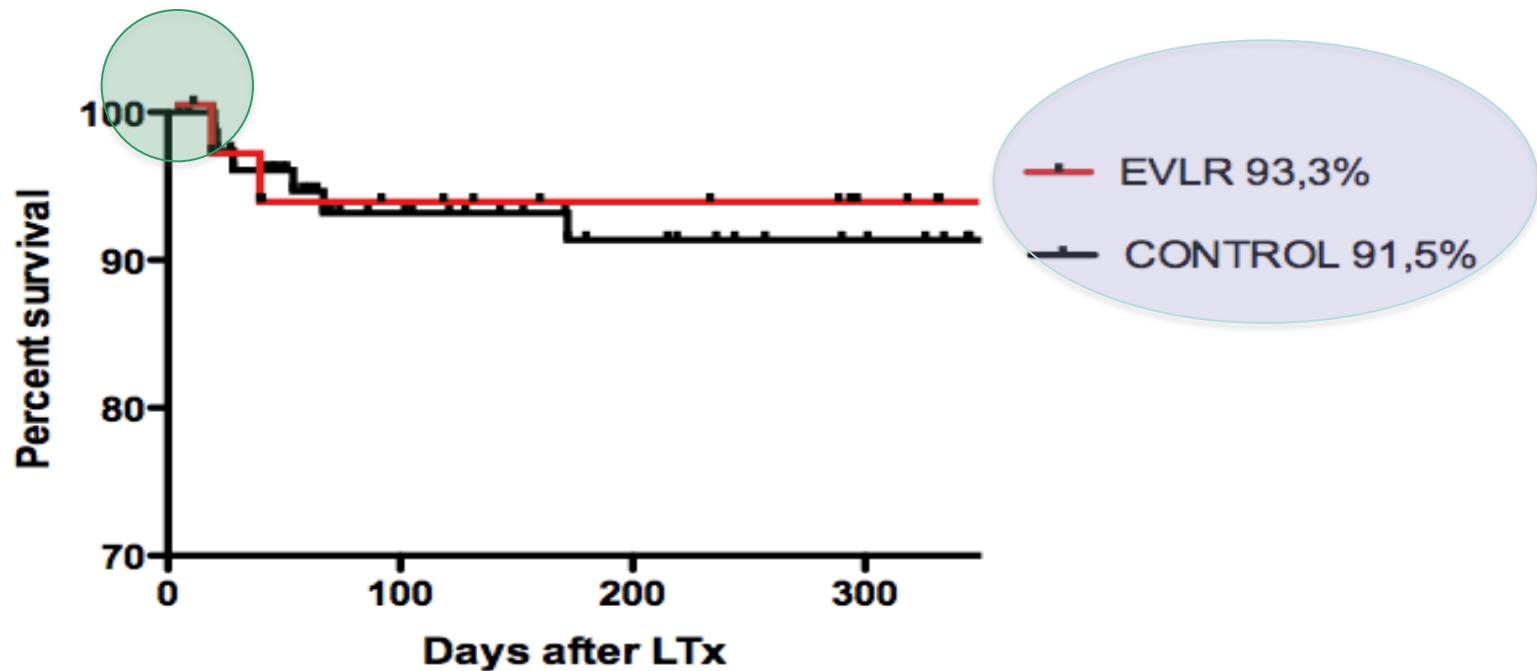


Results

Mortality 30 days

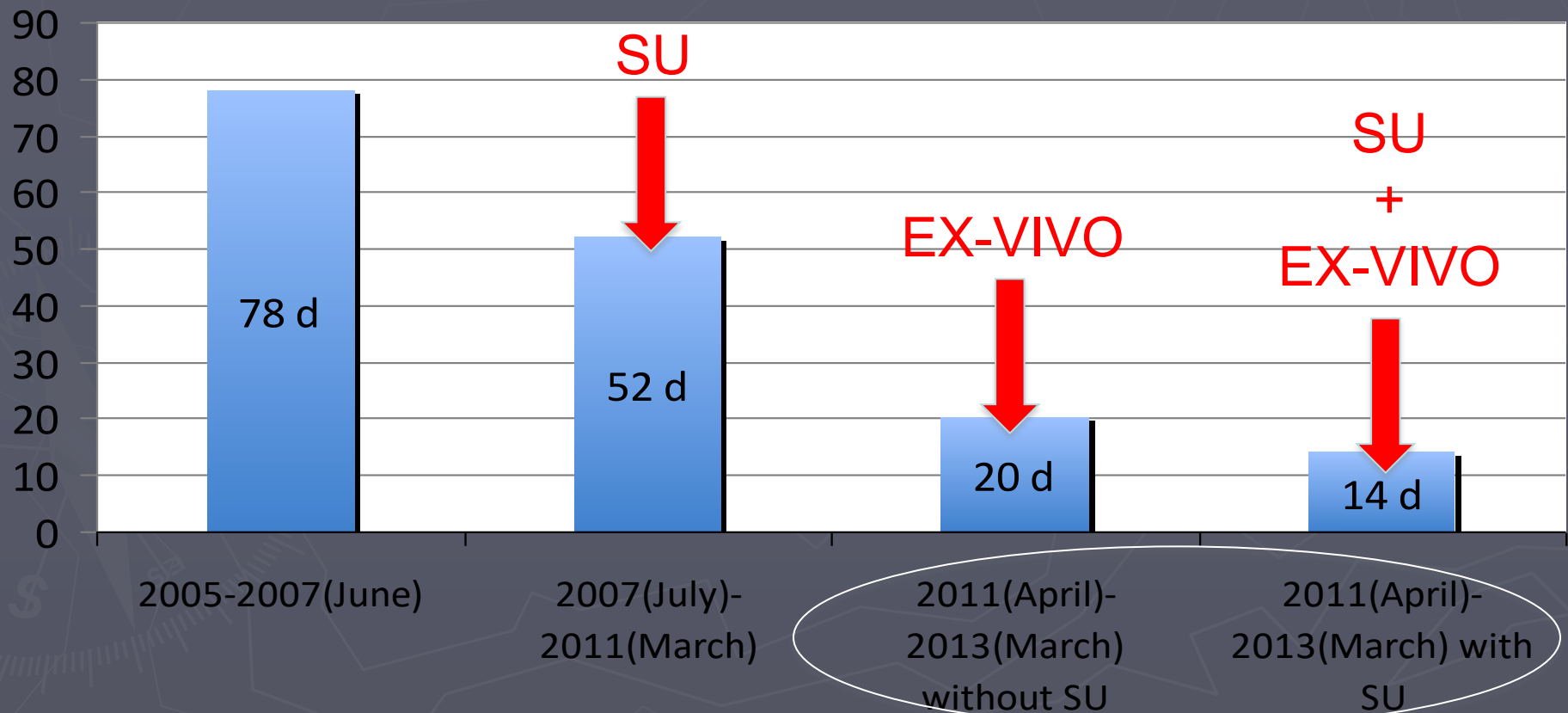
Survival one year

EVLR 3,1% (n=1)
Control 3,7% (n=3)



Results

Time on waiting list



Normothermic perfusion of donor lungs presentation with organ care system lung

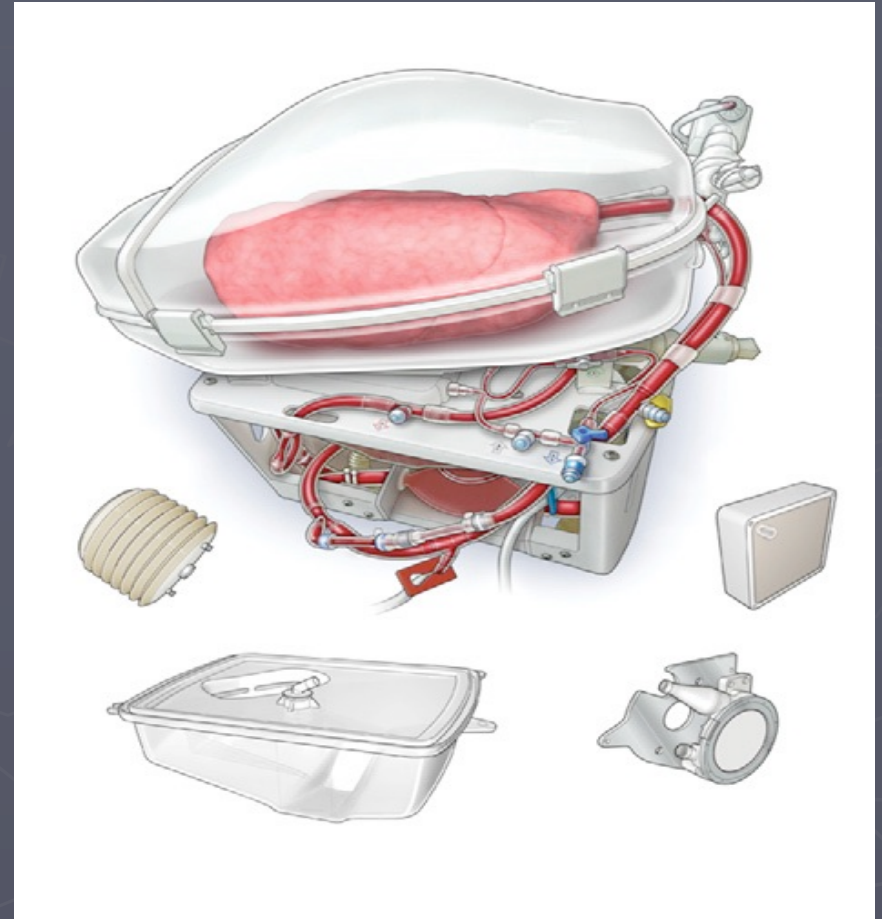
A. HAVERICH (Hanover)

First in man experience of portable OCS for preservation, assessment and transport of donor lungs

► 12 patients :

- 5 with pulmonary hypertension (primary or secondary)**
- 2 under ECMO before L.T**
- 5 intraoperative ECMO**
- All patients survive at 30 days**
- 1 patient died at 120 days**

An other system : Organ System Care Lung



Lung transplantation teams in Mediterranean rim

In activity

- Foch
- Ryiad (Saudi Arabia)
- ISMETT (Palermo)
- Onassis foundation (Athens)

On training

- Egypt
- Emirates

Training for medical teams

- Pneumologists
- Thoracic surgeons

Patient's course

Pre-operative assessment

- In situ with trained pneumologist

Operative indication

- Addressed during joint staff

Transplantation and post-op follow-up

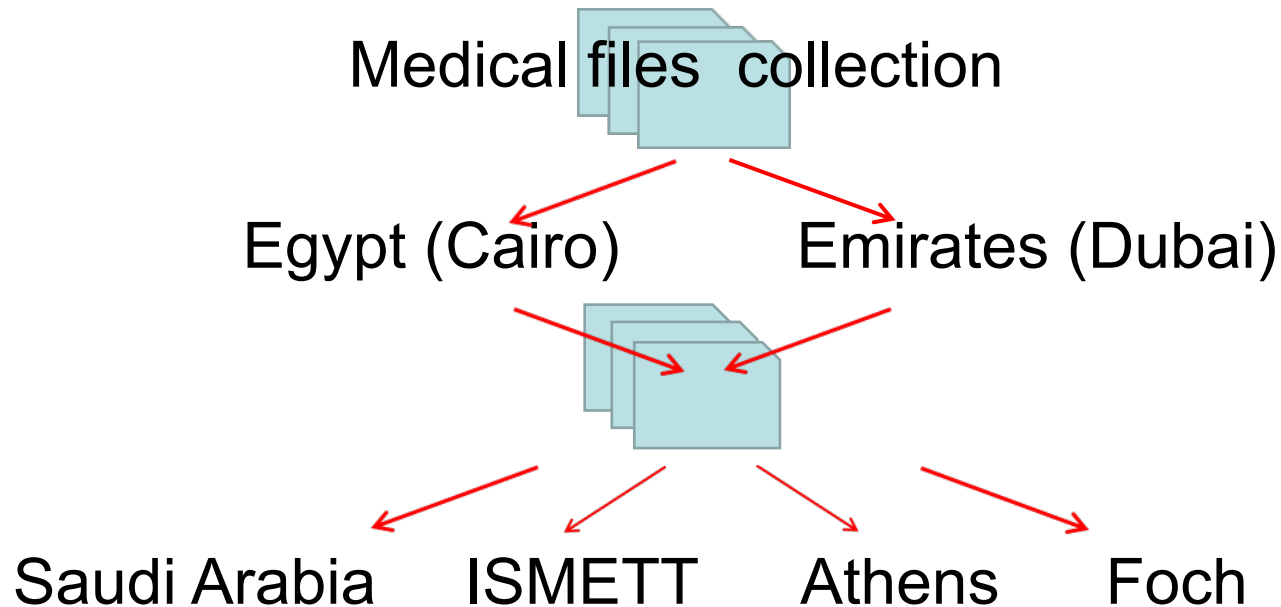
- In active ward

Mid- & long-term follow-up

- In home country

Platform operation

- Lung transplantation teams already in operation
- Countries with no transplant activities



In conclusion

- Still a draft !
 - Enabling lung transplantation
 - Mutual collaboration
- A path to project specs finalisation