



Media workshop

Introduction to organ donation and transplantation

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Brussels, 07.10.2013

What makes organ transplantation special?

Medical

High-tech medicine
Multidisciplinary cooperation
Taking calculated risks

...

Ethical/Social

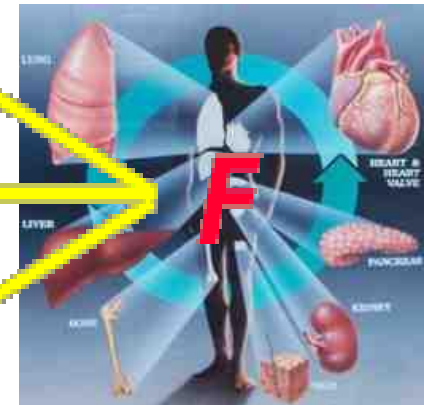
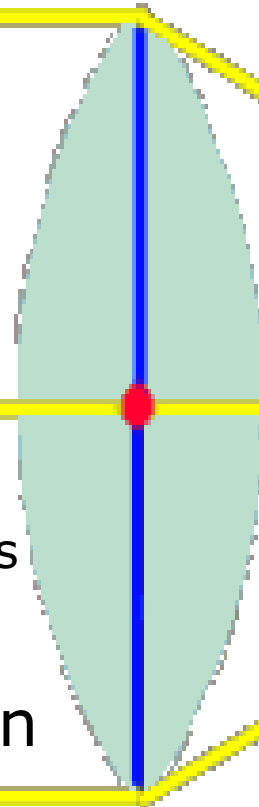
Definition of death
Allocation of scarce resources
Culture differences

...

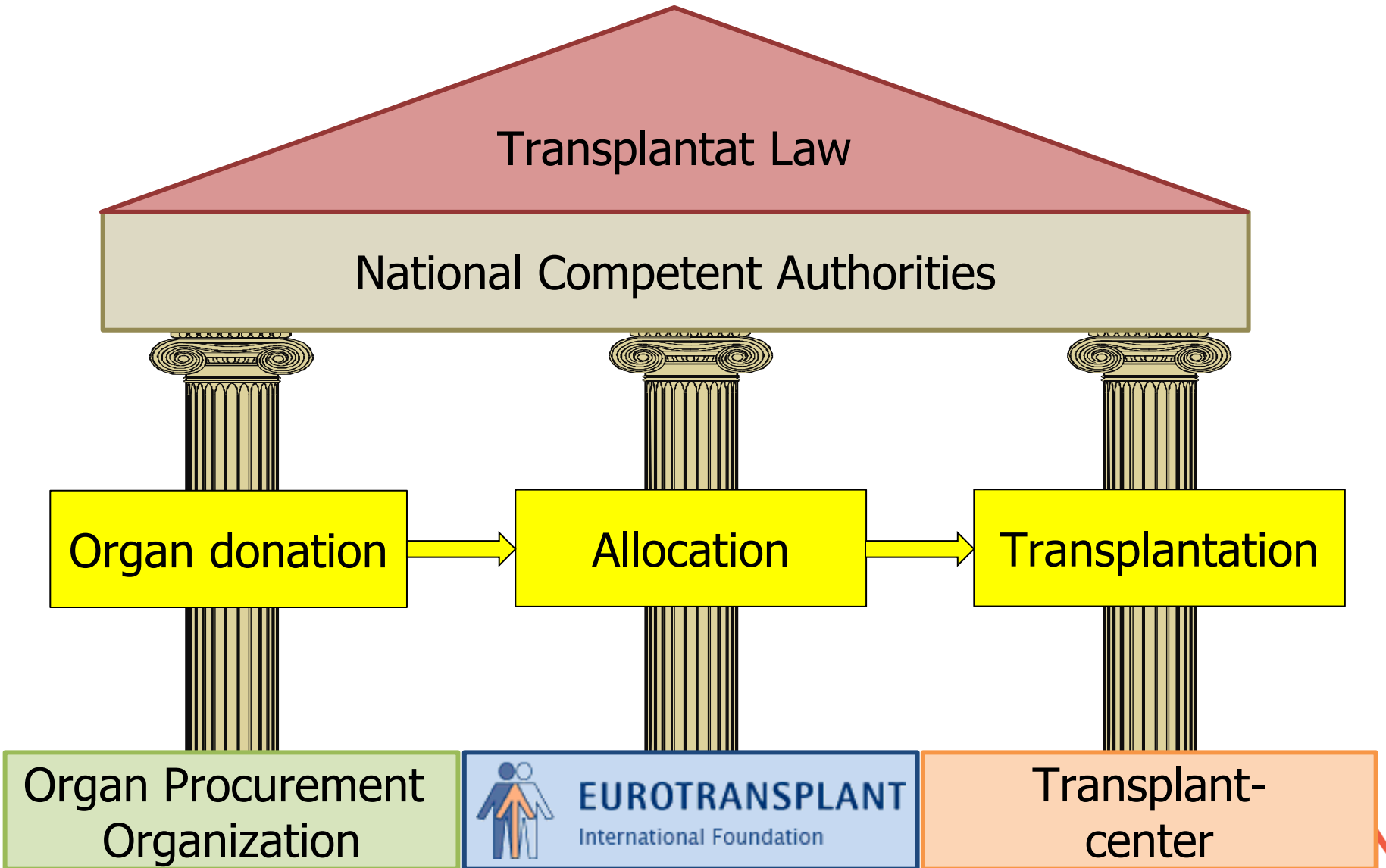
Legislation/Organization

Access to transplantation
International cooperation
Organ trade/Transplant tourism

...



Distribution of tasks in organ transplantation

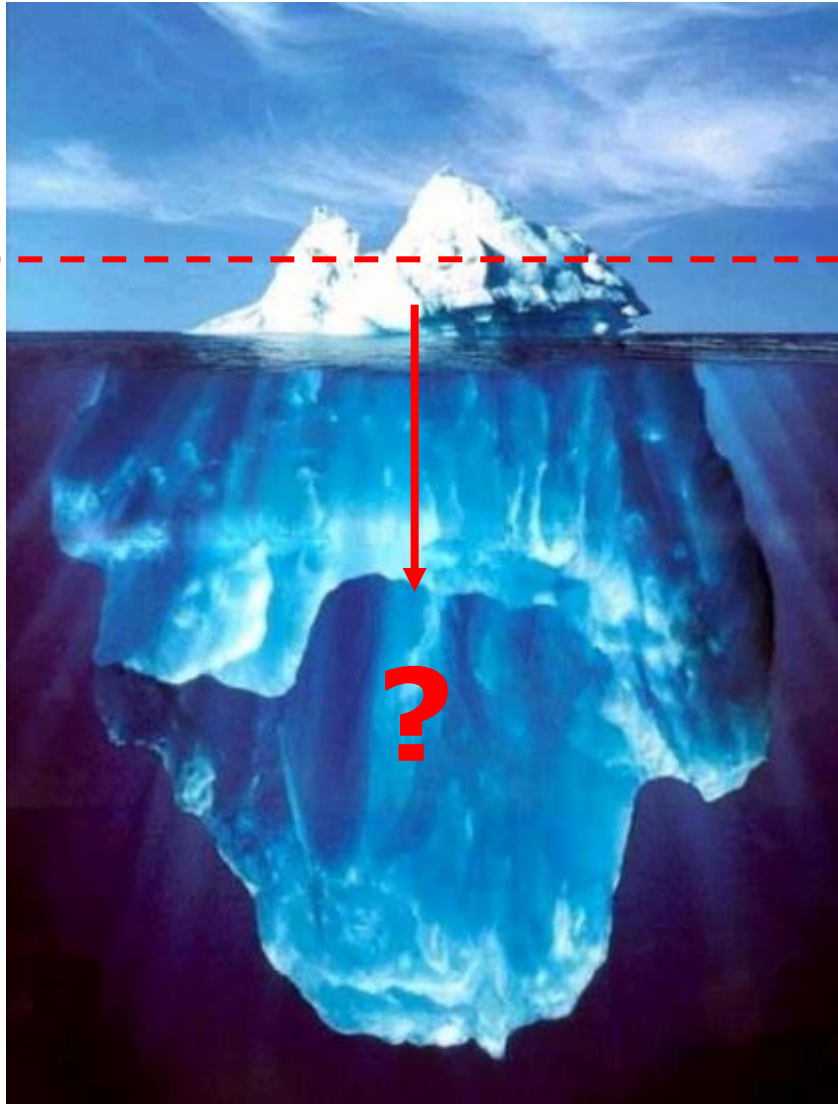


A photograph of a cemetery featuring several prominent Celtic crosses and other gravestones. The crosses are made of dark stone with circular designs at their intersections. The scene is set against a backdrop of a cloudy, overcast sky. In the background, a building with a chimney and some distant hills are visible. A black metal fence runs across the middle ground, separating the foreground from the rest of the cemetery. The overall mood is somber and reflective.

Each day, 10 European citizens die whilst waiting for a suitable organ transplant, that's almost 4,000 people on a yearly basis*

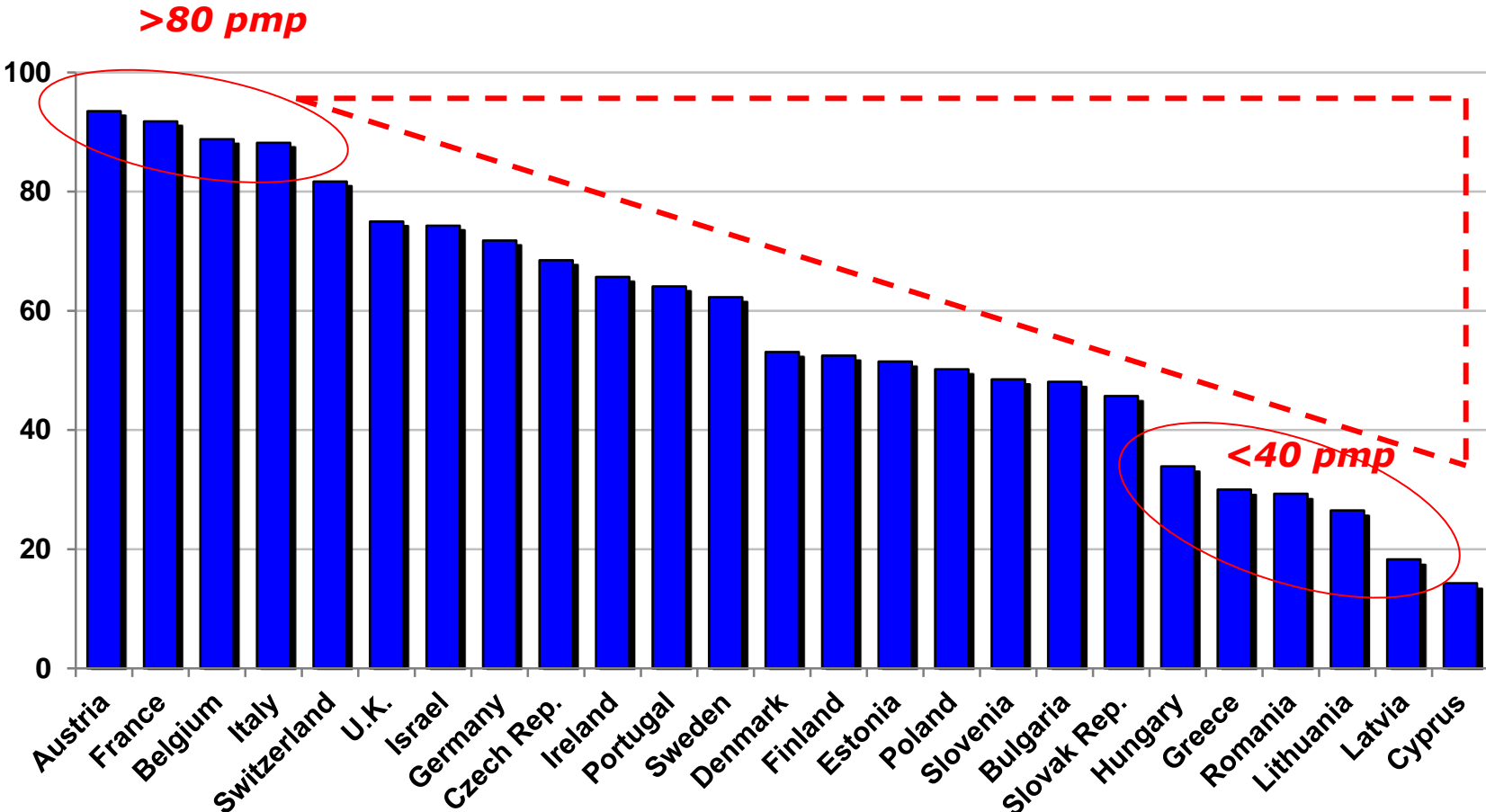
**3820 deaths on the waiting list in 2009, Council of Europe data 2010*

Tip of the iceberg...



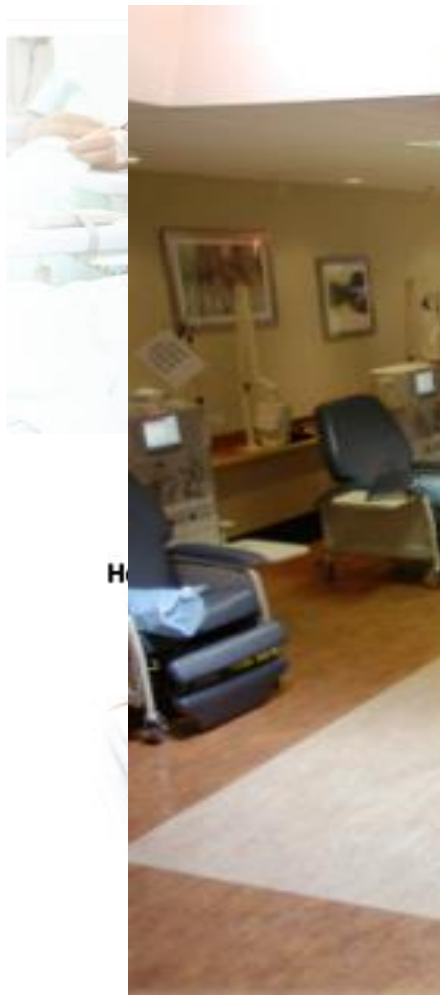
Patients newly registered on the waiting list for organ transplantation (per million population)

Transplant Newsletter - Council of Europe/Ont 2007



How serious is end-stage kidney disease with dialysis treatment?

Quality of life



I don't care what day it is.
Four hours is four hours.

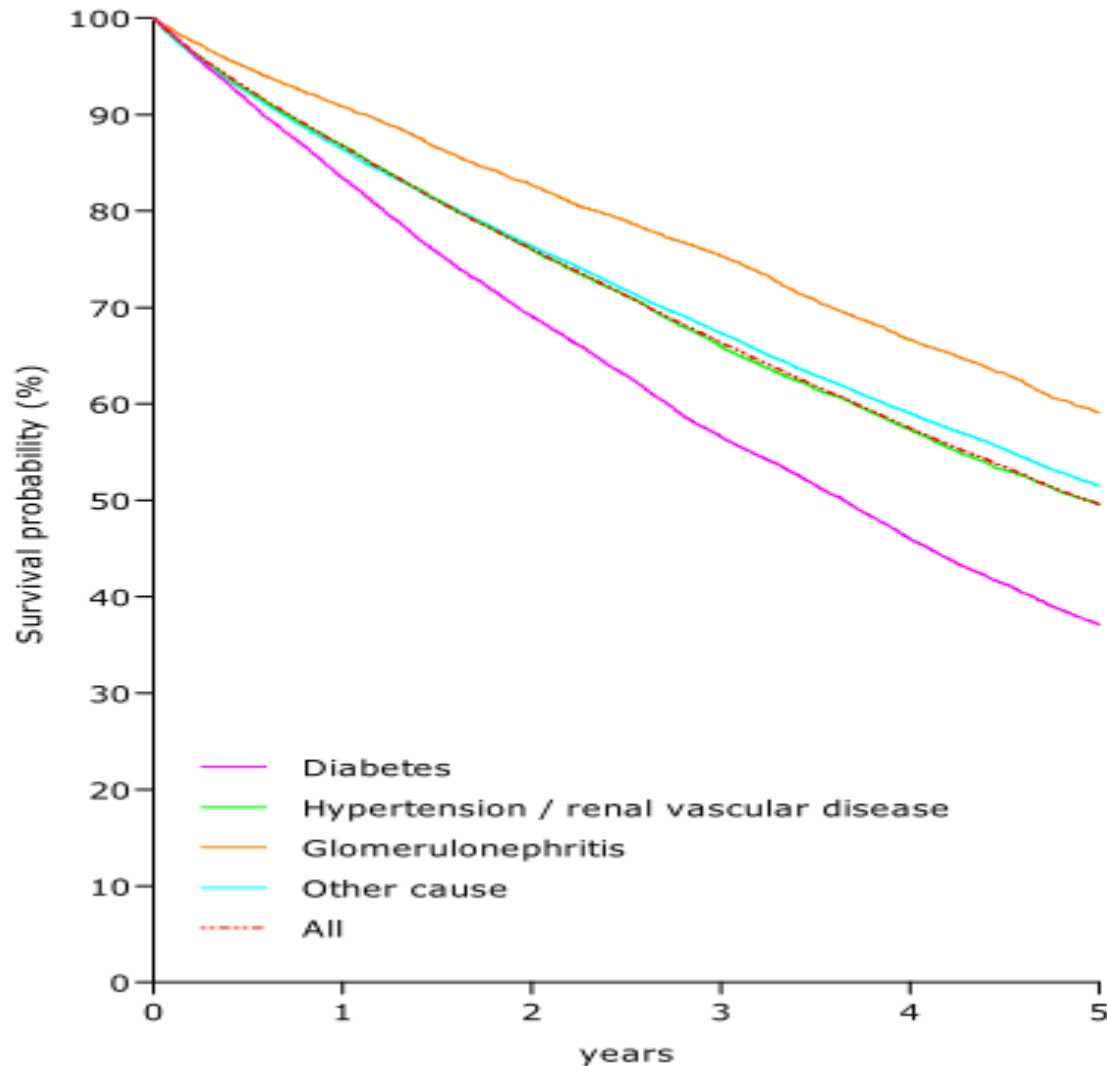


body dial
Copyright SVS 2004

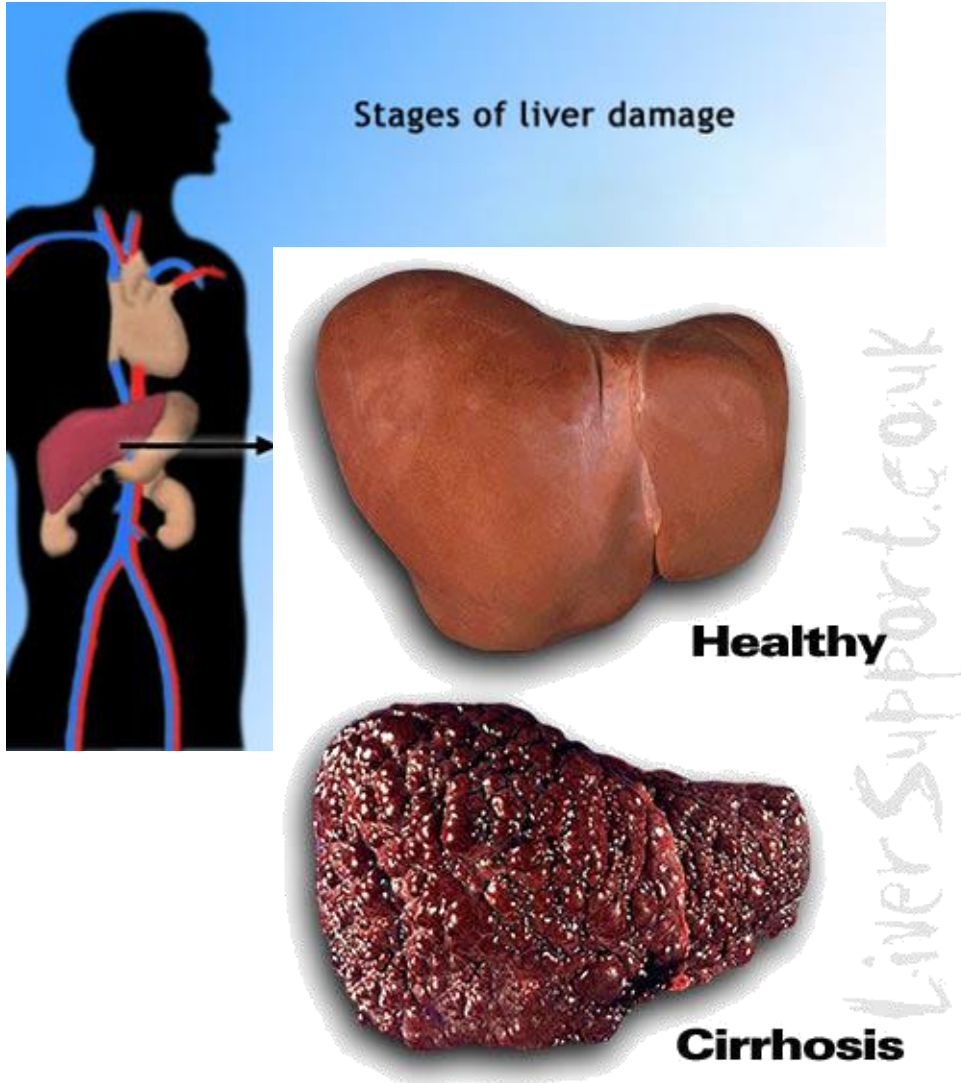


Prognosis of patients on hemodialysis

ERA-EDTA-Registry – Annual report 2008

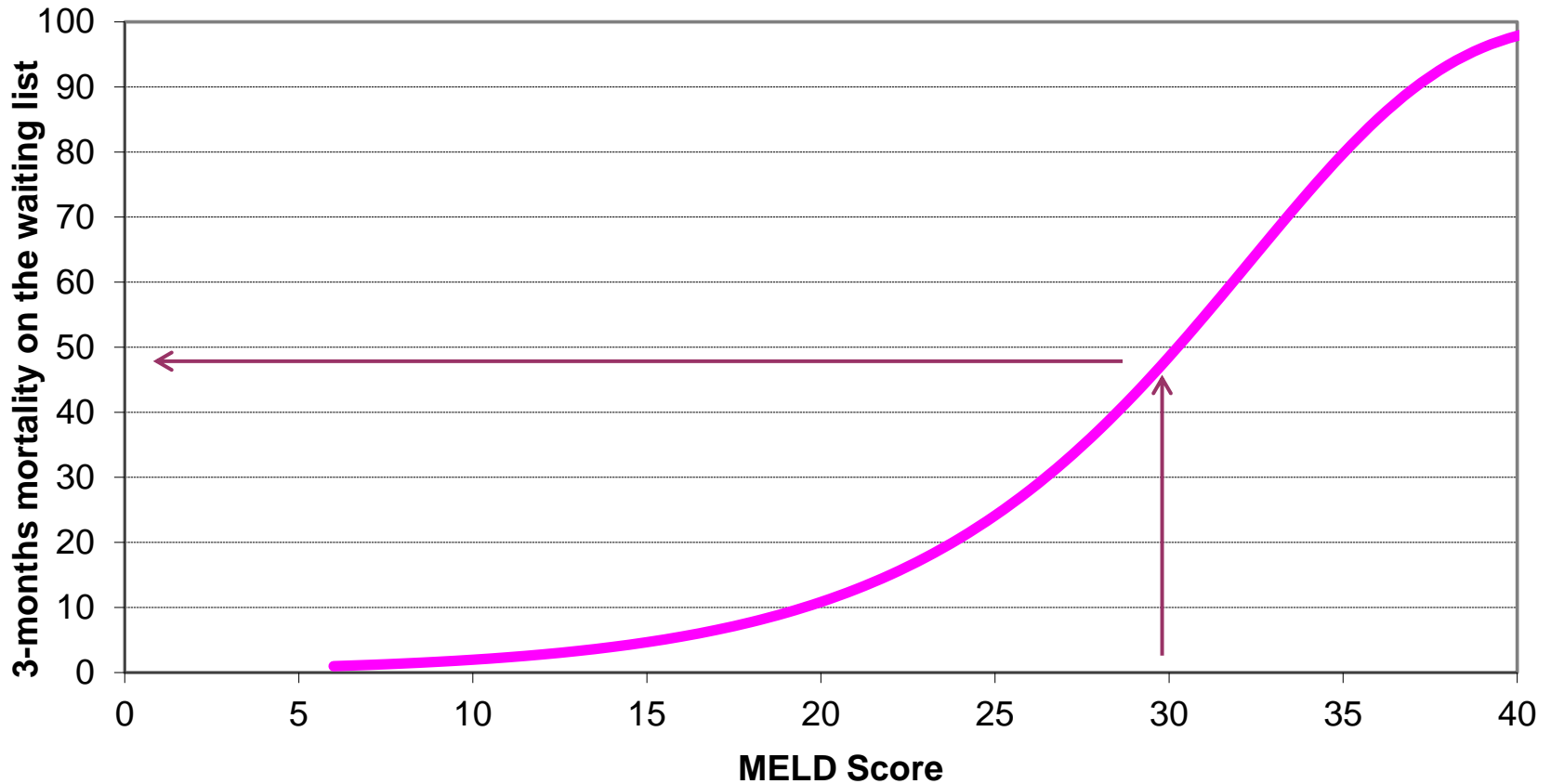


Liver cirrhosis – Clinical situation

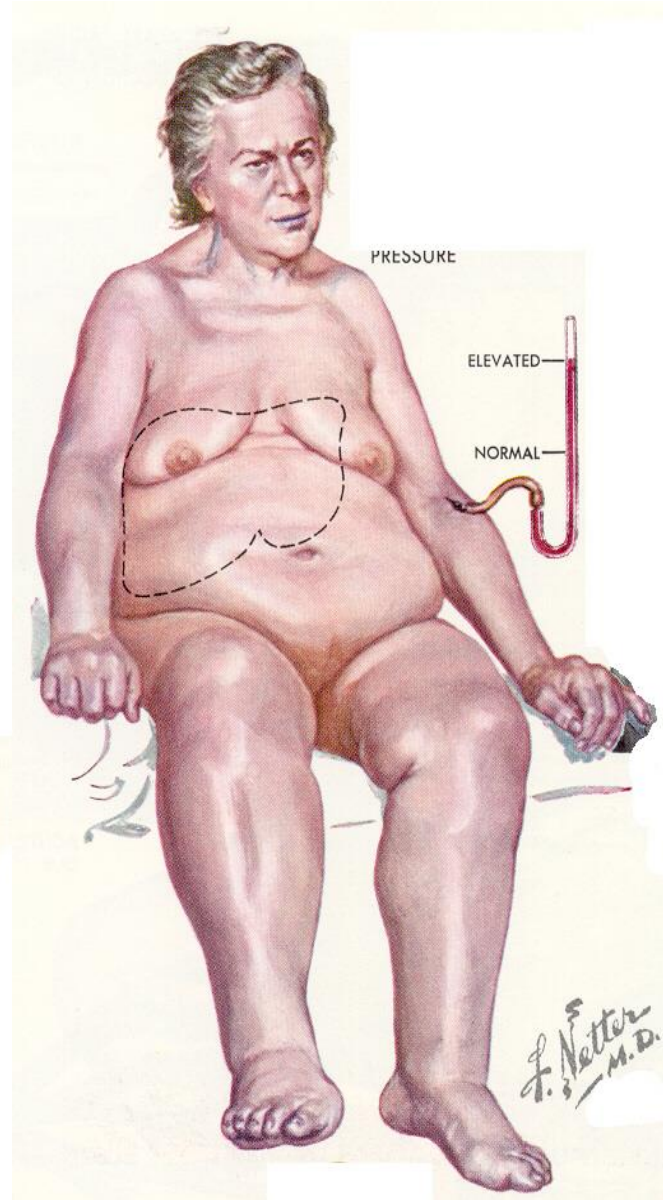


MELD score vs. waiting list mortality

Expected 3-months mortality and MELD score

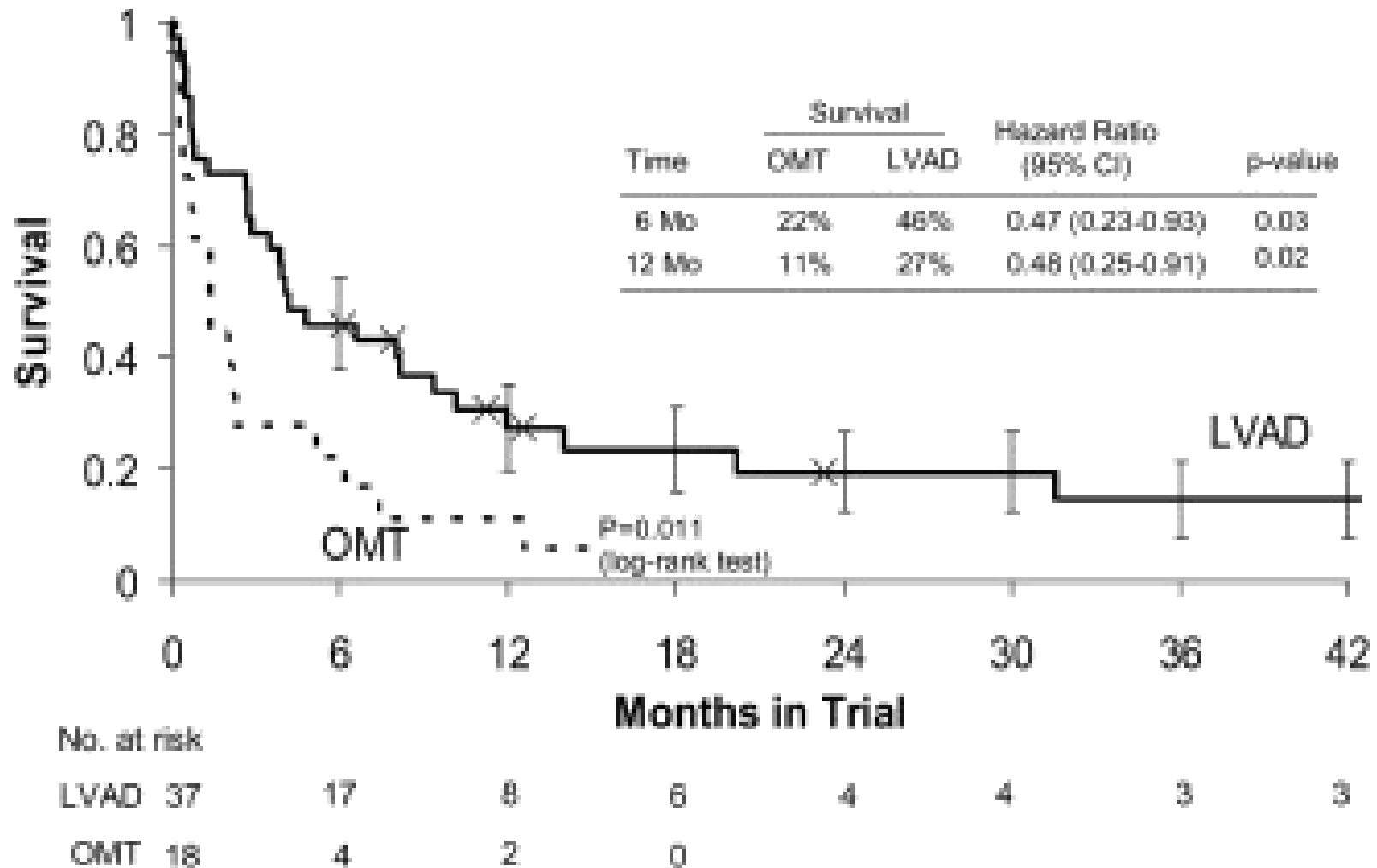


Patients with end-stage heart failure

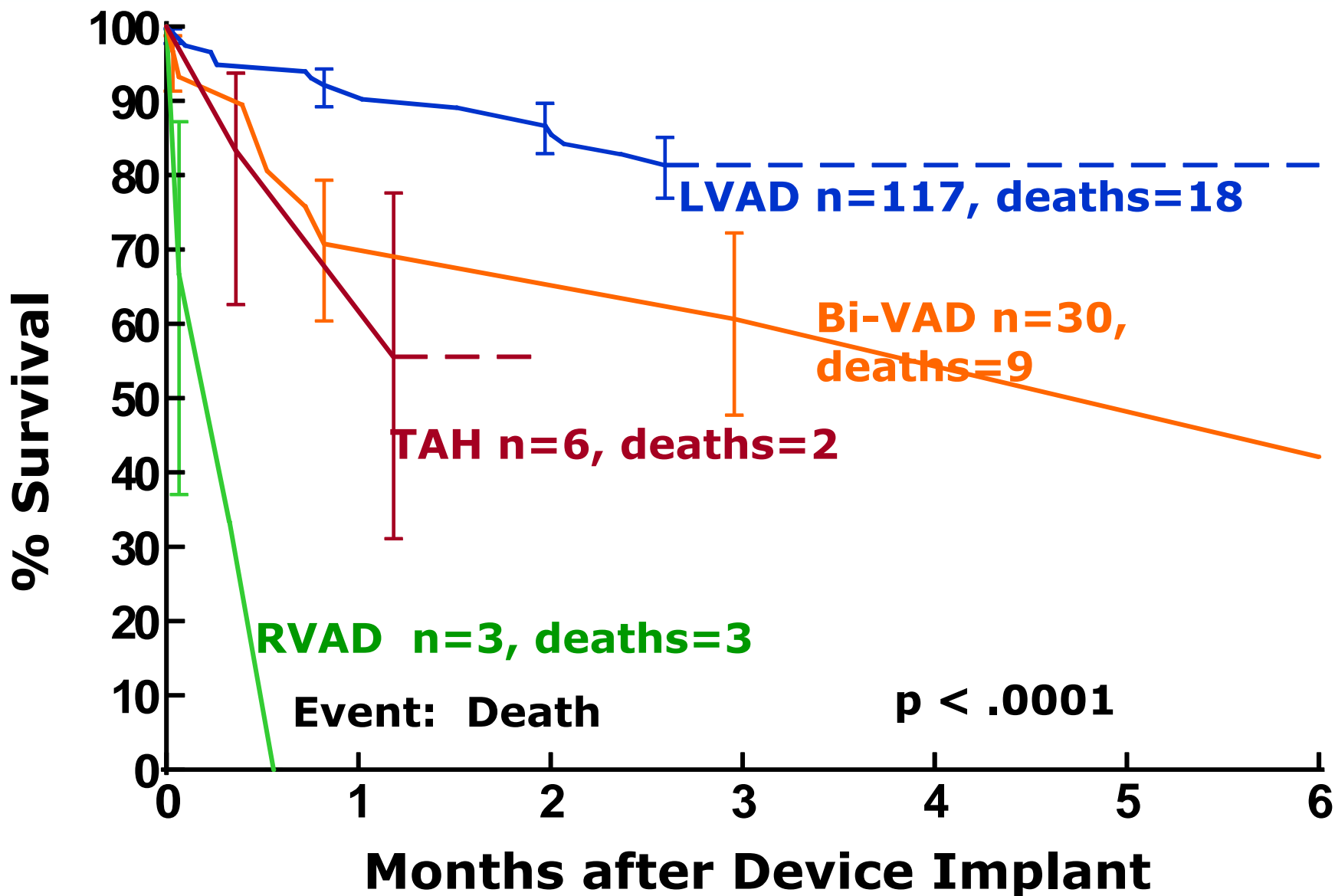


Assist device as destination therapy in inotrope-dependent heart failure

INTR EPID-Trial – Novacor-LVAD



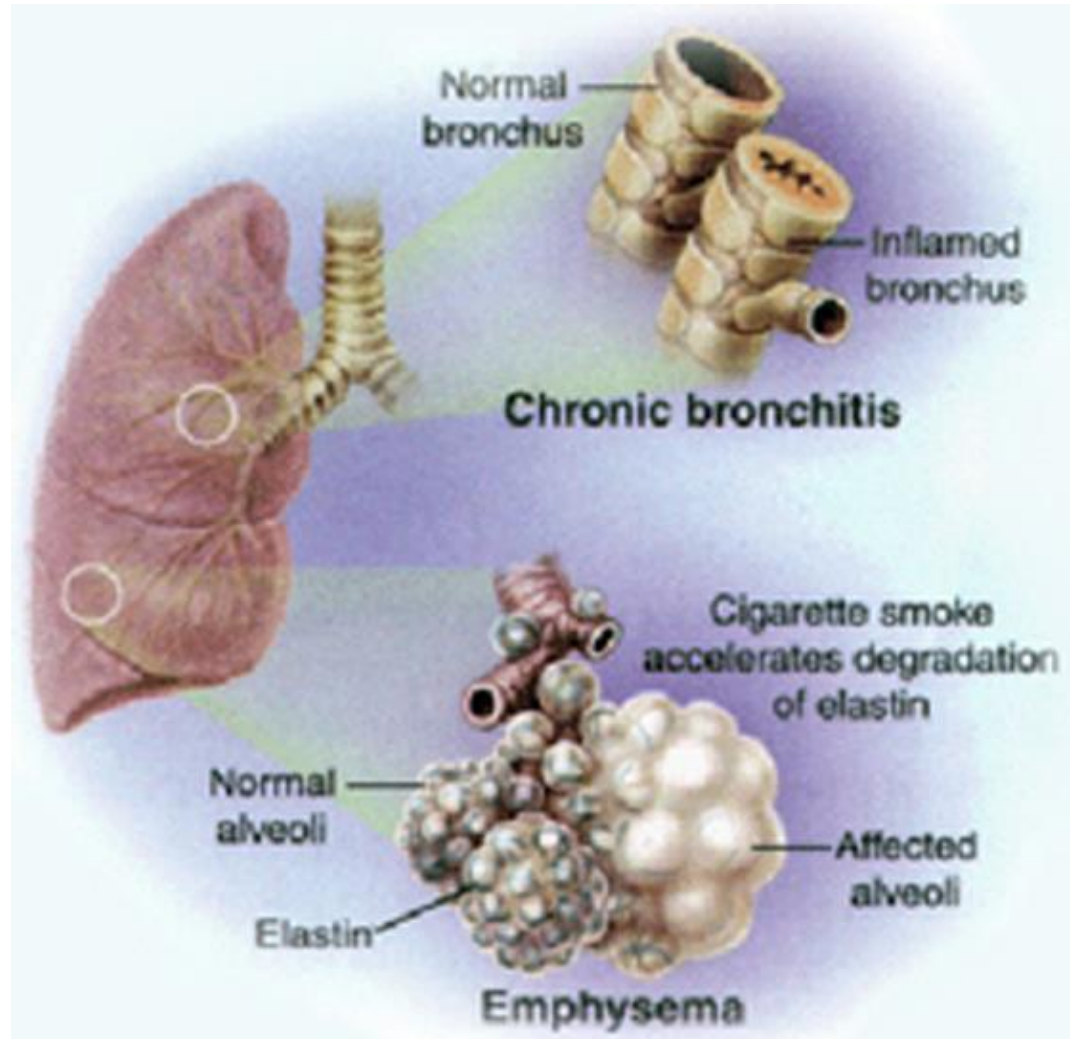
Prognosis with Cardiac Assist Device



Months after Device Implant

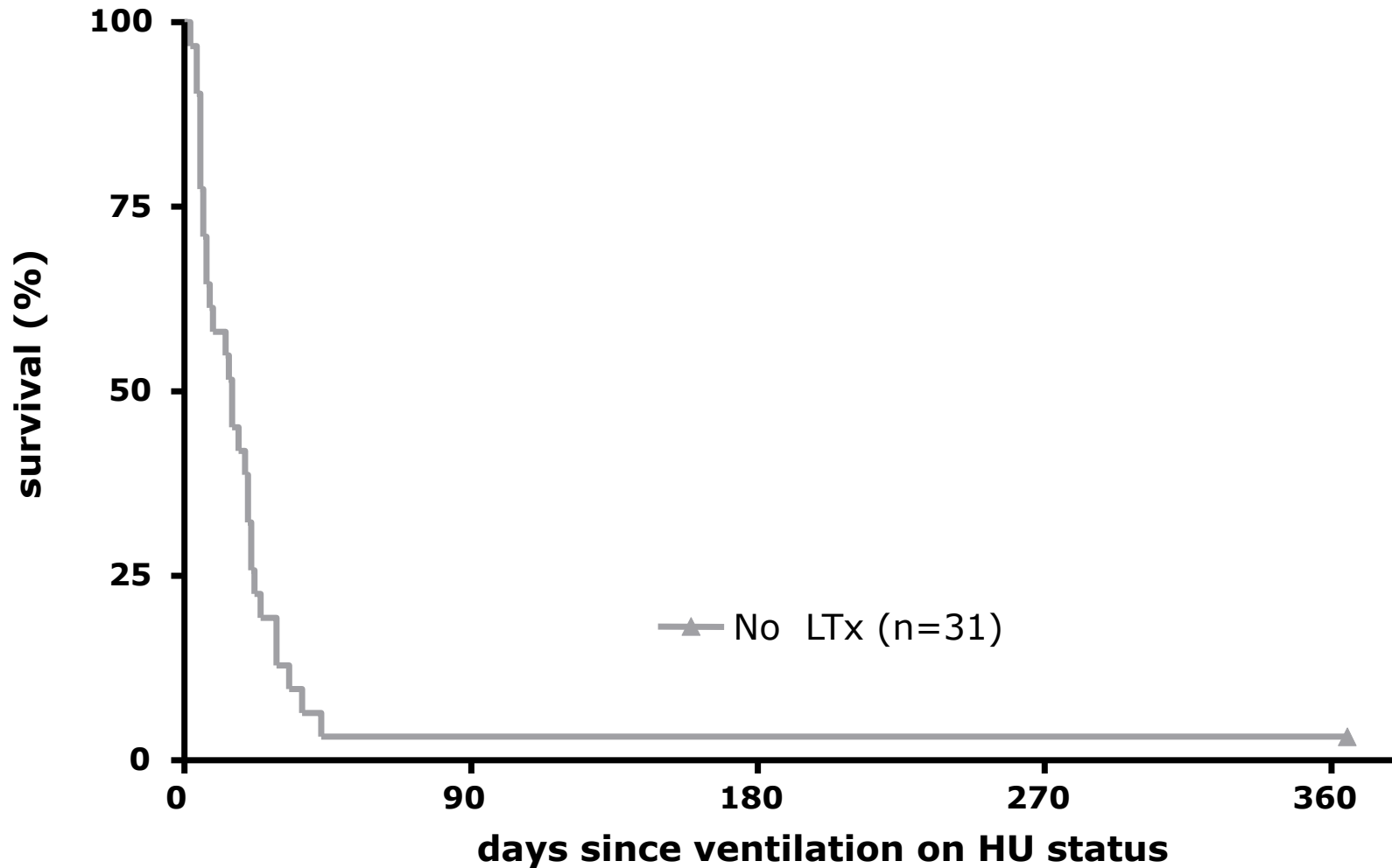


Patients on the waiting list for lung transplantation



Prognosis of mechanical ventilated patients awaiting lung transplantation

MHH, Germany, 2005 - 2008



Organ donation

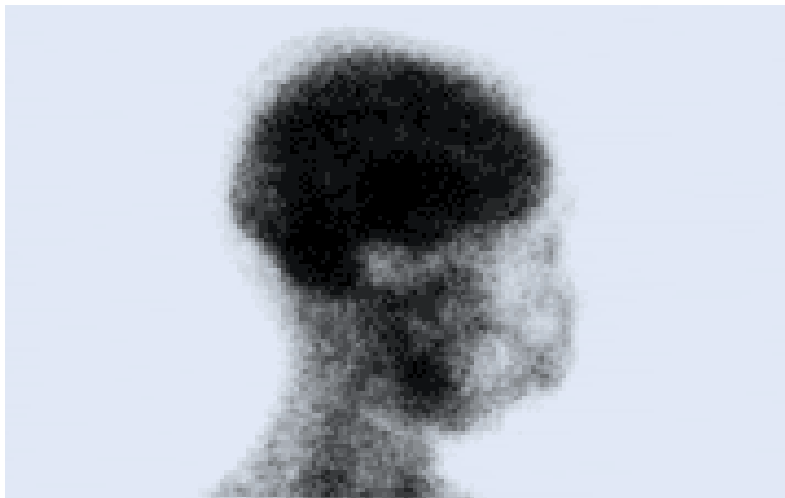
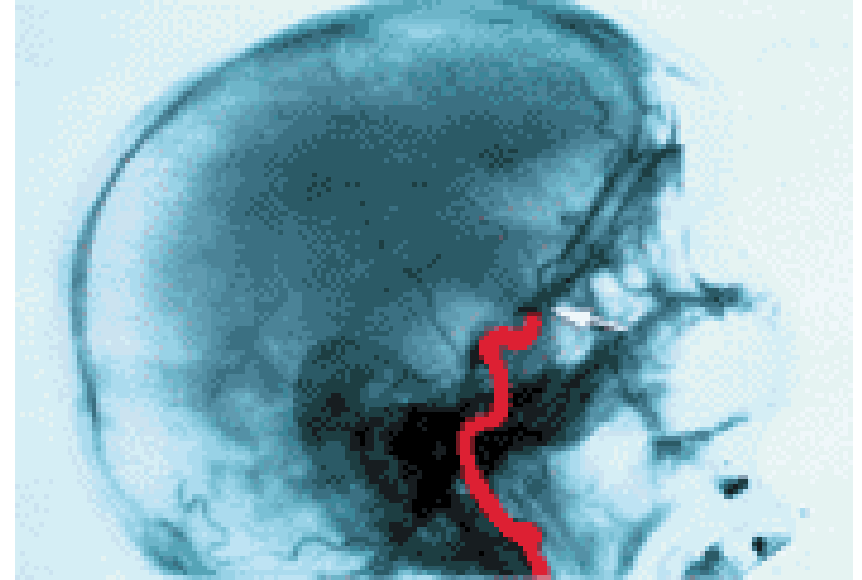
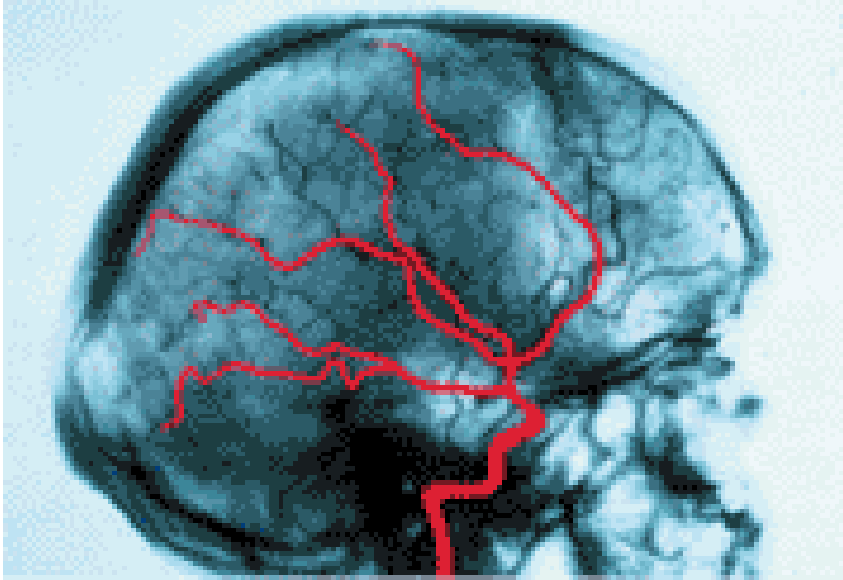
Declaration of death

“Brain death”

- Death declared on the basis of neurologic criteria
- Irreversible loss of all functions of the entire brain, including the brain stem



Brain death – No cerebral perfusion



Declaration of death

“Brain death”

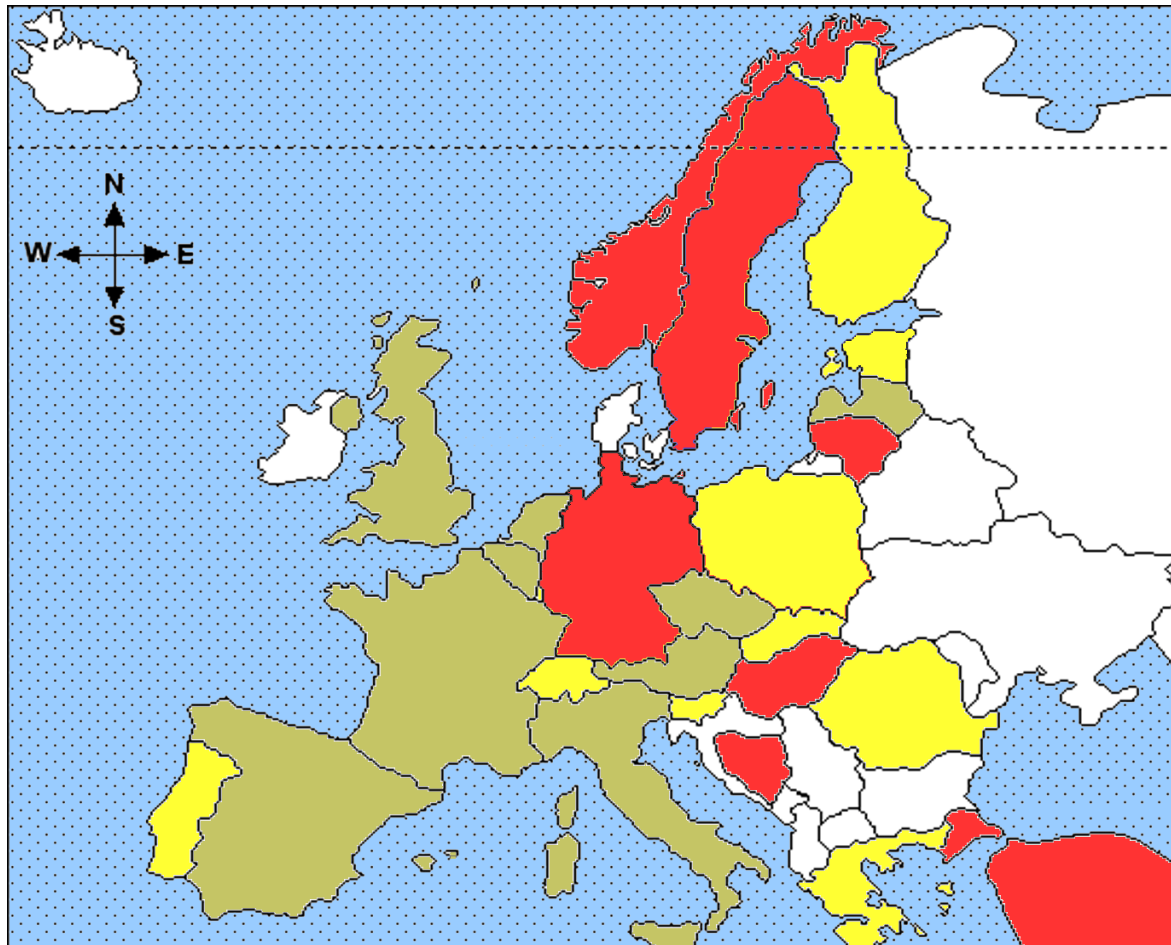
- Death declared on the basis of neurologic criteria
- Irreversible loss of all functions of the entire brain, including the brain stem

“Circulatory death”

- Death declared on the basis of cardiopulmonary criteria
- Permanent cessation of circulatory and respiratory function



Donation after cardiac/circulatory death (non heartbeating donation) in Europe



The critical donation pathway

Donation after brain death

Severe brain damage

Identify potential donor

Diagnose brain death

Refer potential donor

Approach to family

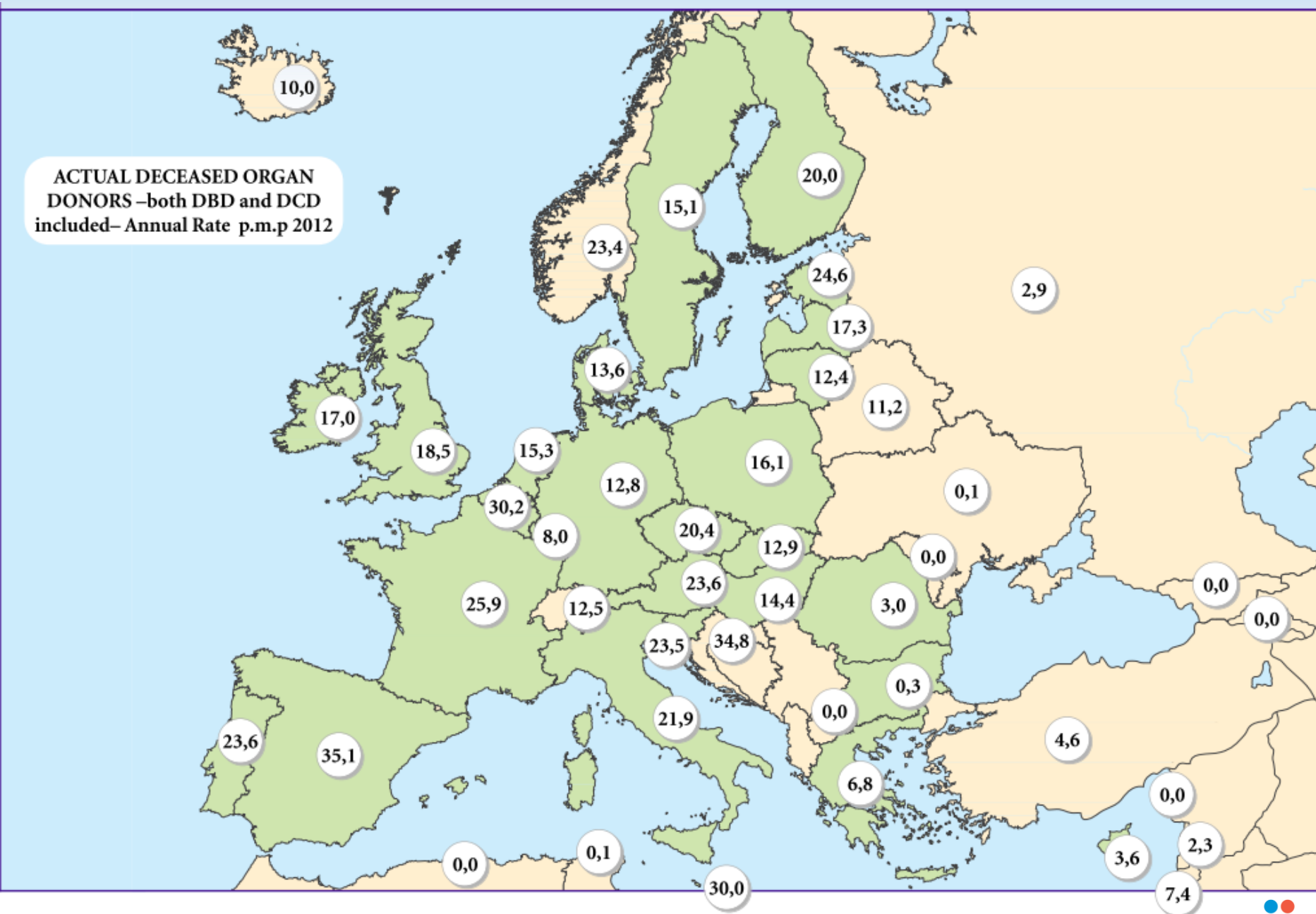
Maintain viability of organs

Retrieve organs

Provide feedback

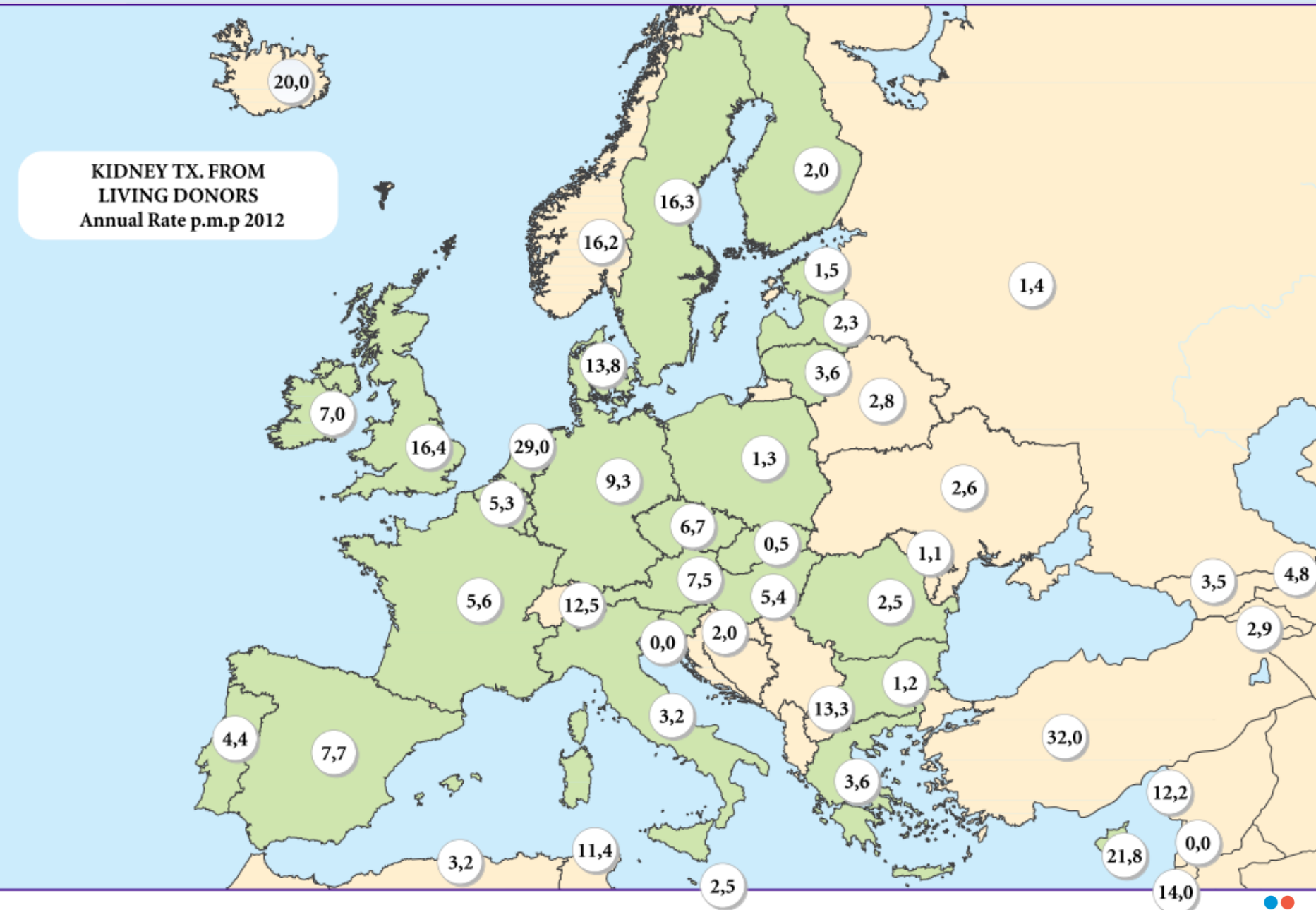
- **Donor detection**
- **Donor referral**
- **Family care & communication**
- **Donor maintenance**
- **Organ retrieval**



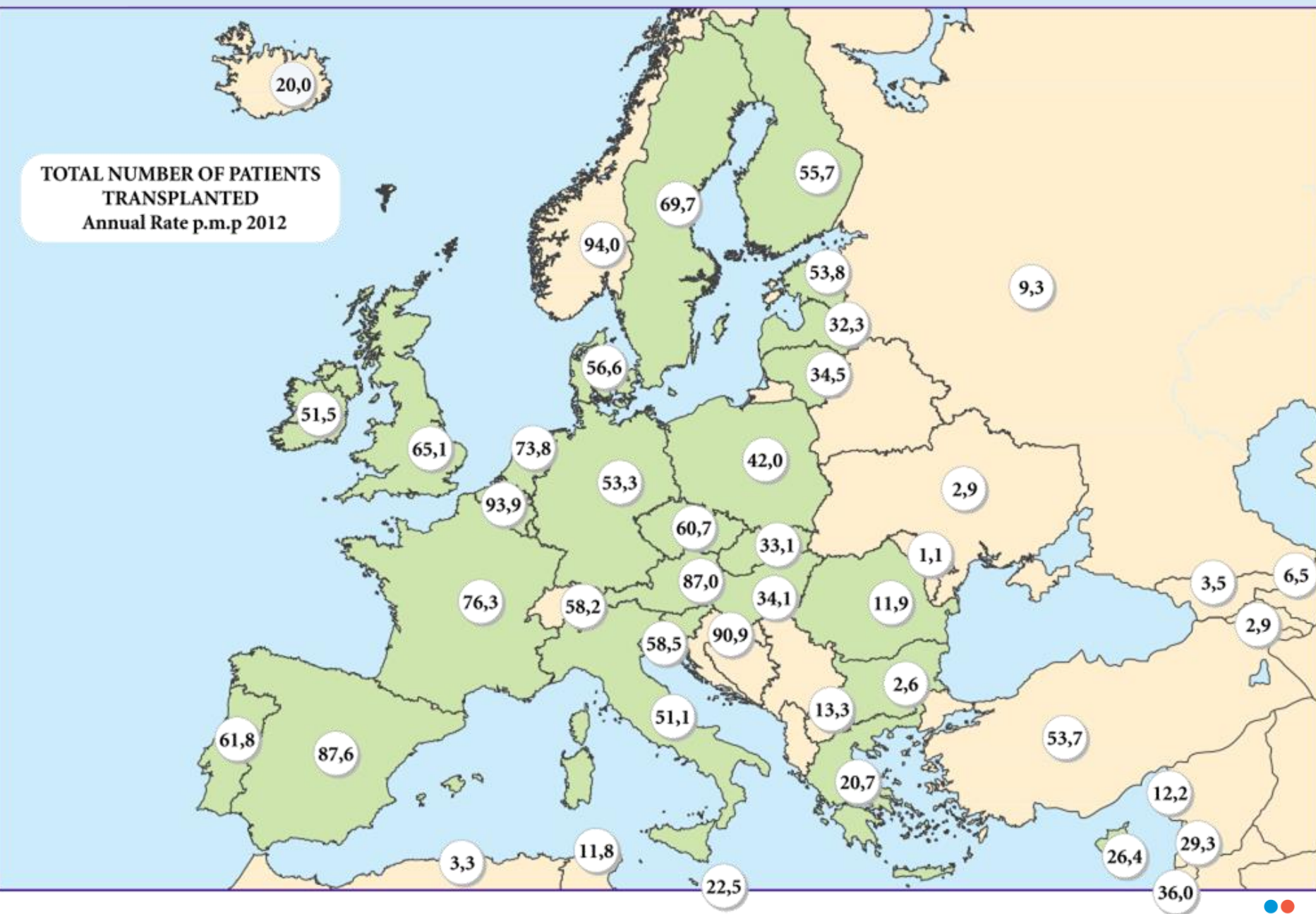


20,0

**KIDNEY TX. FROM
LIVING DONORS**
Annual Rate p.m.p 2012



**TOTAL NUMBER OF PATIENTS
TRANSPLANTED**
Annual Rate p.m.p 2012





The probability to receive an organ transplant is about three times higher than the probability to become an organ donor



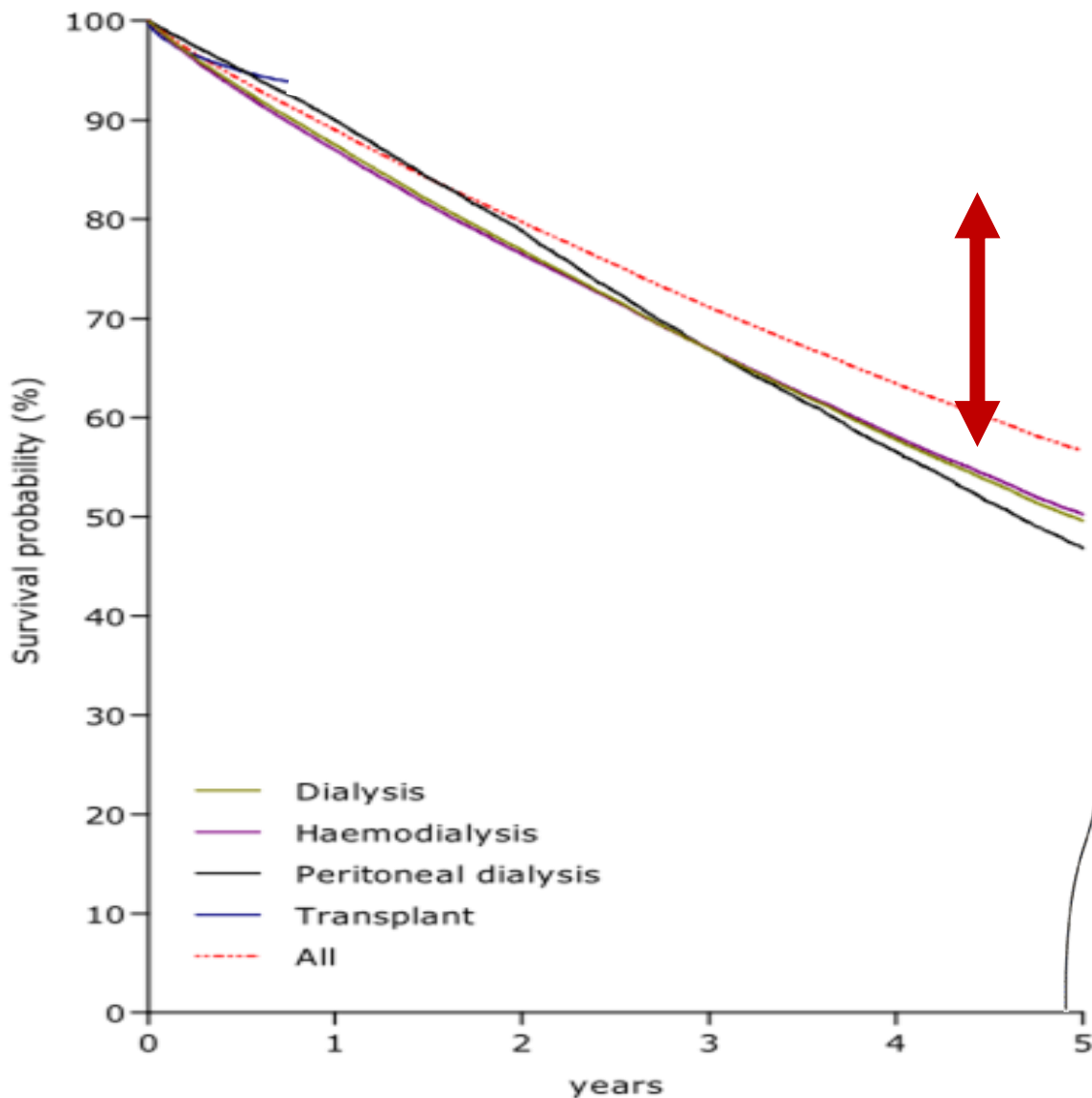
Transplantation

Organ procurement, transport and transplantation

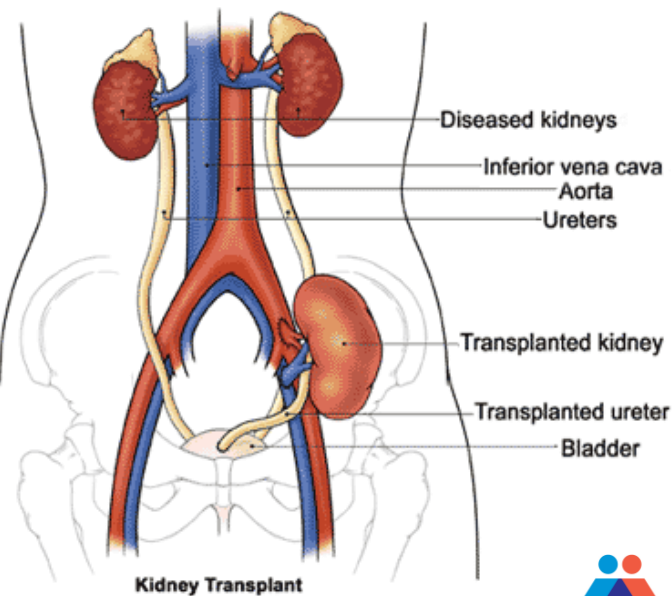


Survival benefit after kidney transplantation

ERA-EDTA-Registry – Annual report 2008



Transplantation
Survival benefit

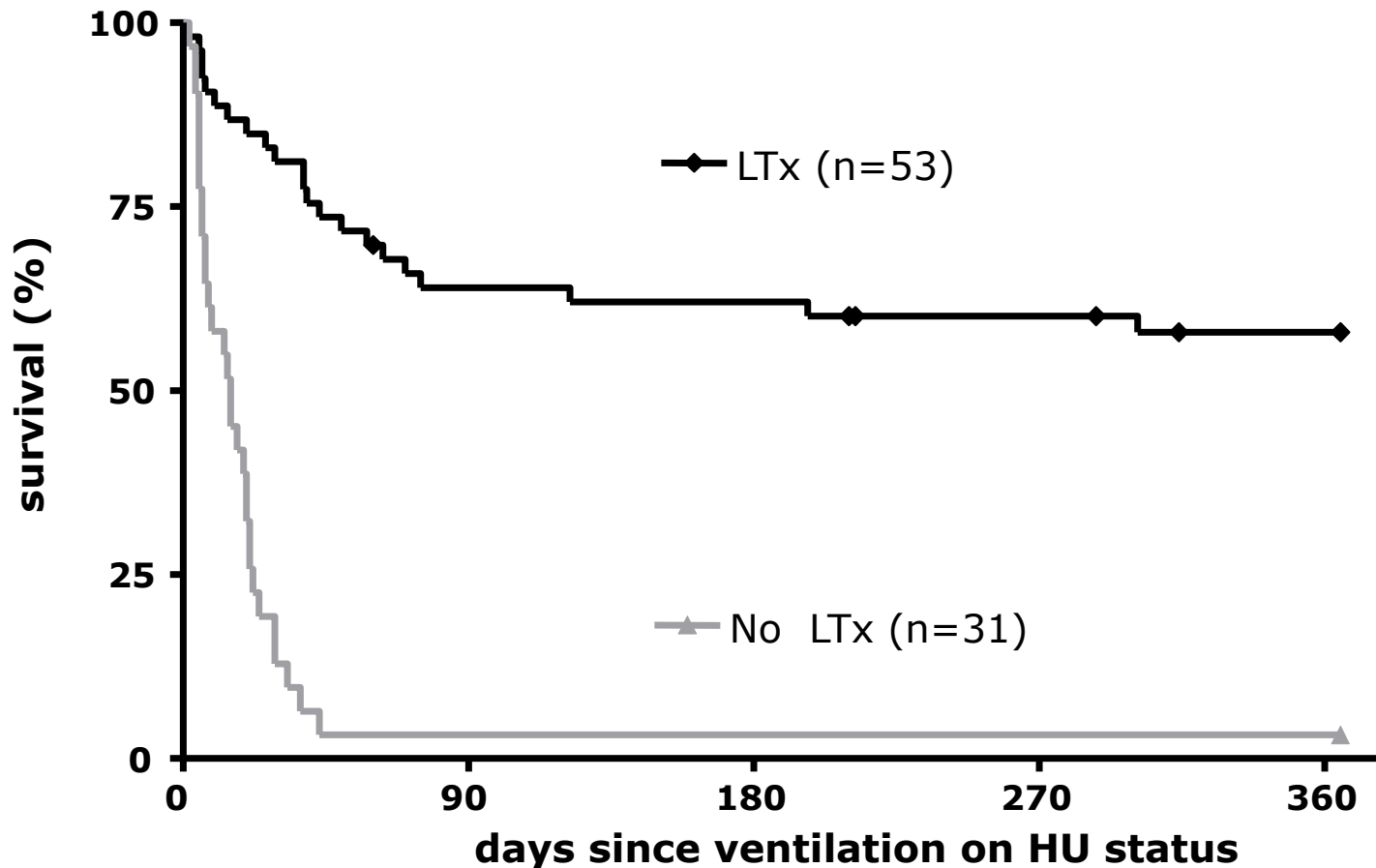


Quality of life after lung transplantation



Survival benefit after lung transplantation in mechanically ventilated patients

MHH, Germany 2005-2008



survival –
benefit
N = 60 %



Quality of life after heart transplantation



Organ allocation

WHO GUIDING PRINCIPLES ON HUMAN CELL, TISSUE AND ORGAN TRANSPLANTATION

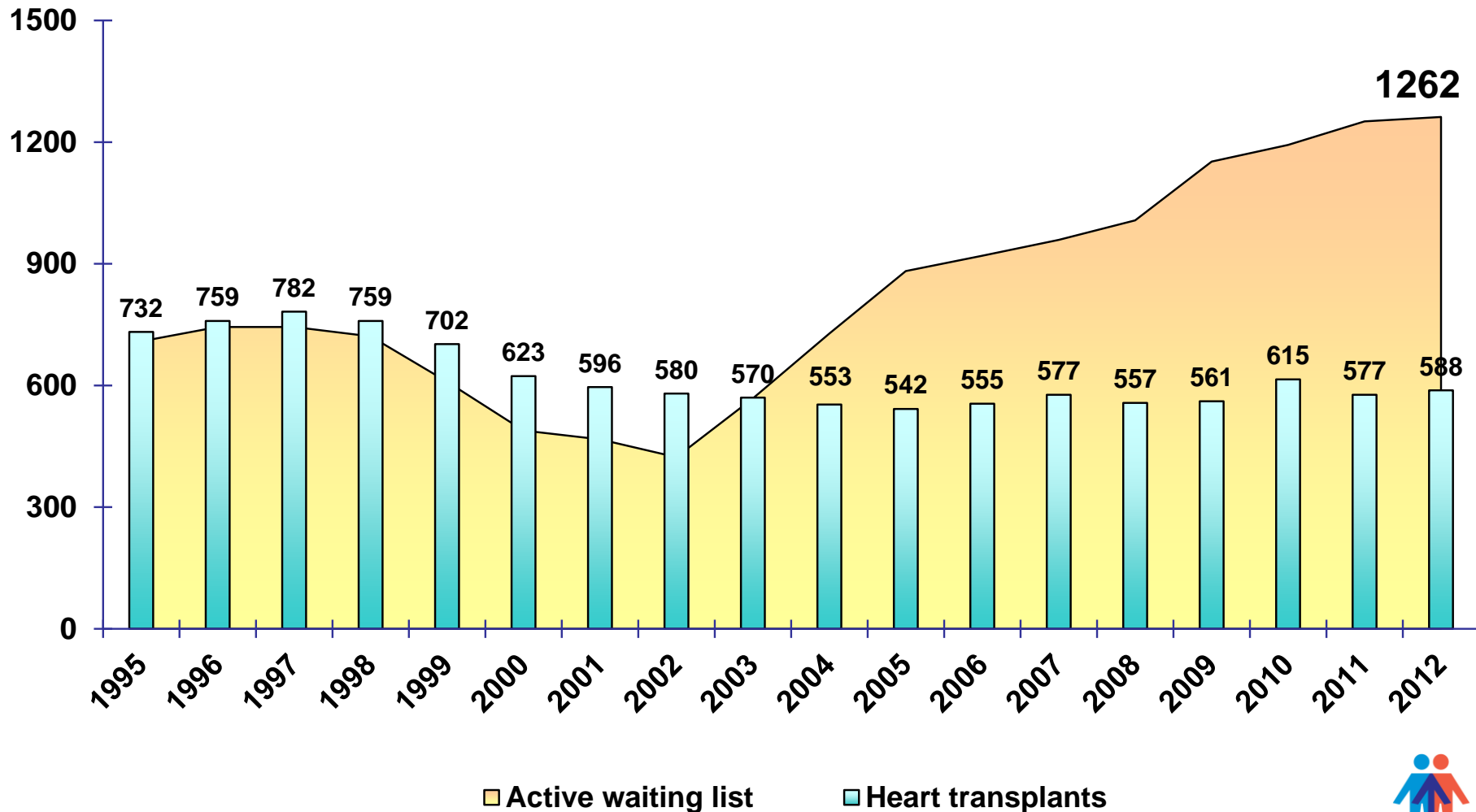
Guiding Principle 9

Where donation rates do not meet clinical demand, *allocation criteria should be defined* at national or subregional level by a committee that includes experts in the relevant medical specialties, bioethics and public health...



Heart Waiting List and Transplants

Eurotransplant 1995 – 2012



WHO GUIDING PRINCIPLES ON HUMAN CELL, TISSUE AND ORGAN TRANSPLANTATION

Guiding Principle 9

The allocation of organs, cells and tissues should be guided by clinical criteria and ethical norms, not financial or other considerations.

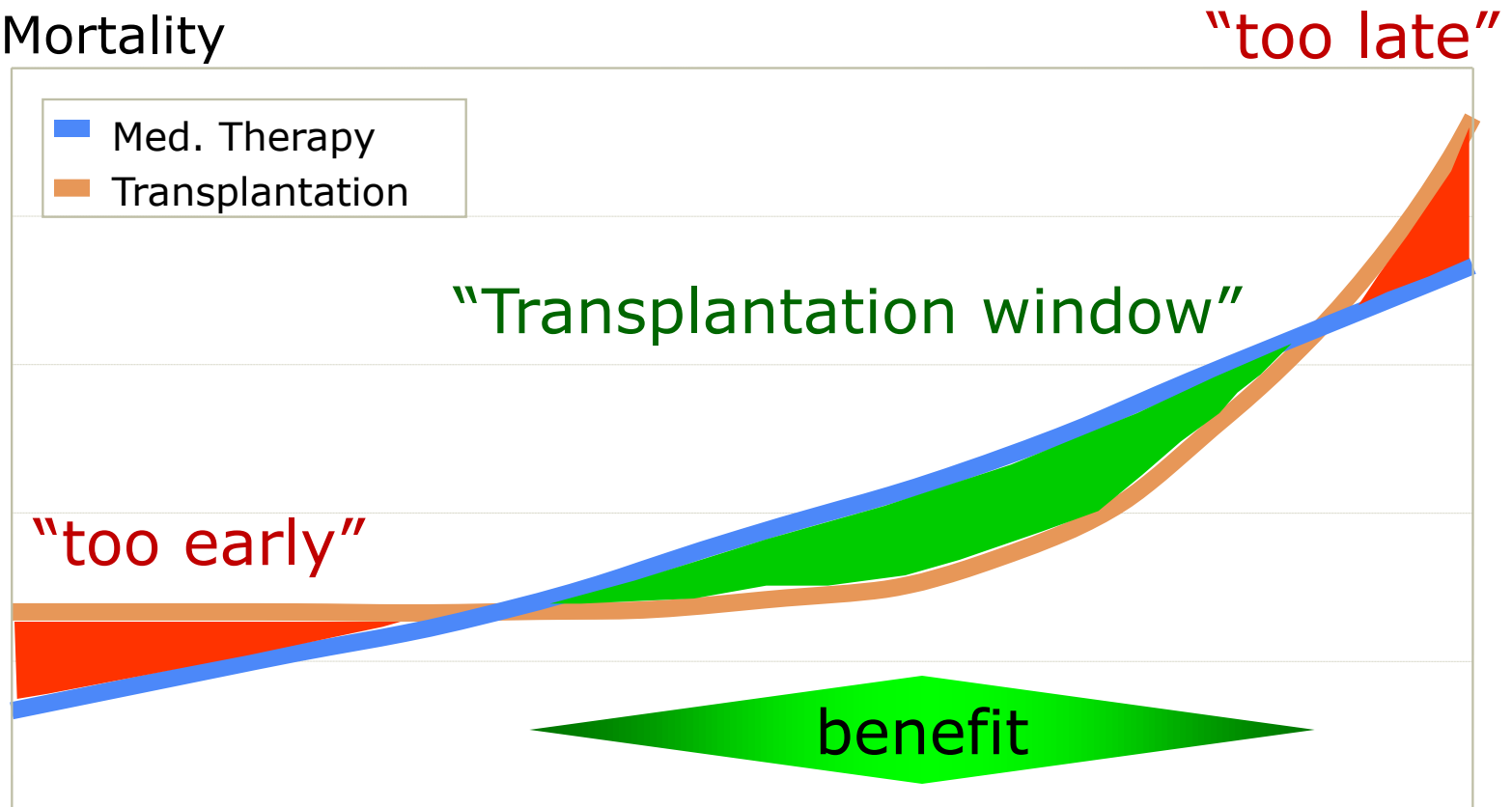
Allocation rules, defined by appropriately constituted committees, should be equitable, externally justified, and transparent.



Balancing urgency and outcome

“Transplant window”-concept

Mortality



-> Increasing organ failure ->



Basic principles of an organ allocation system

Objectivity

- Allocation is independent of subjective factors (procurement and allocation organization, transplant center)

Reliability

- With same donor information and same waiting list information an identical matchlist is generated

Transparency and accountability

- Every step in the allocation process is documented and can be explained

Validity of allocation criteria

- Ethically acceptable, medically based



Balancing urgency and outcome



Examples of the consequences of allocation trade-offs

Recipient	60 years with Diabetes	20 years without Diabetes	20 years with Diabetes
Lifespan without transplant*	4 years	16 years	9 years
Lifespan with transplant*	9 years	22 years	16 years
Incremental survival	5 years	6 years	7 years

***Median survival for this specific patient group (US data)**



Examples of the consequences of allocation trade-offs

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Lifespan with transplant*	9 years	22 years	16 years
Incremental survival	5 years	6 years	7 years

Allocation to the most urgent patient (maximize waiting list survival)



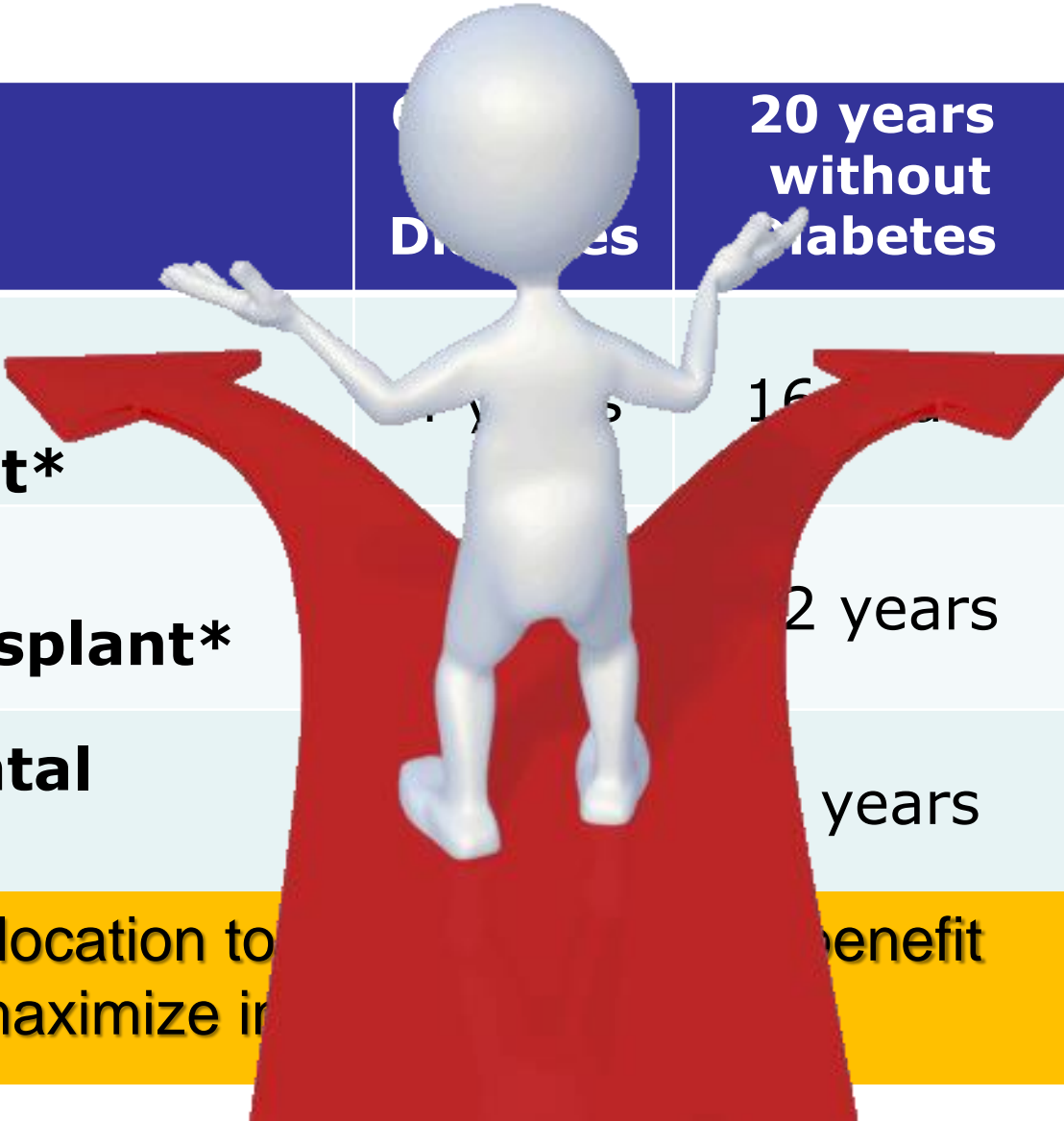
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Lifespan with transplant*	9 years	22 years	16 years
Incremental survival	5 years	6 years	7 years

Allocation to the patient with best outcome (maximize post transplant survival)



Examples of the consequences of allocation trade-offs



Recipient	Control Group	20 years without Diabetes	20 years with Diabetes
Lifespan without transplant*	16 years	16 years	9 years
Lifespan with transplant*	2 years	2 years	16 years
Incremental survival	14 years	14 years	7 years

Allocation to Control Group (maximize incremental benefit)



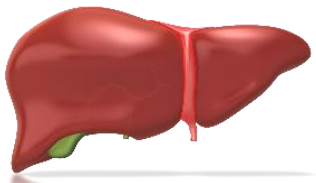
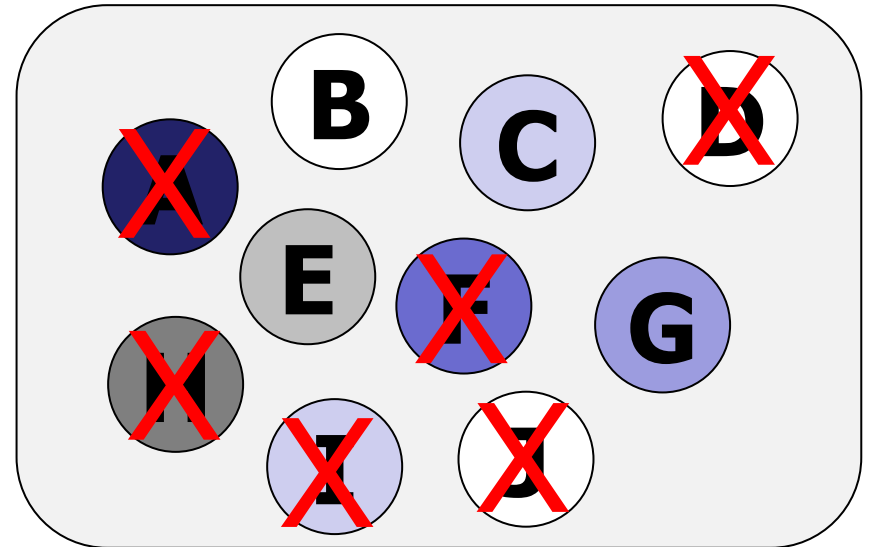
Organ Allocation Principles

Queuing



Determination of the Matchlist Selection and Ranking

Waiting list
Day 1



Donor A
65 yrs, 50kg

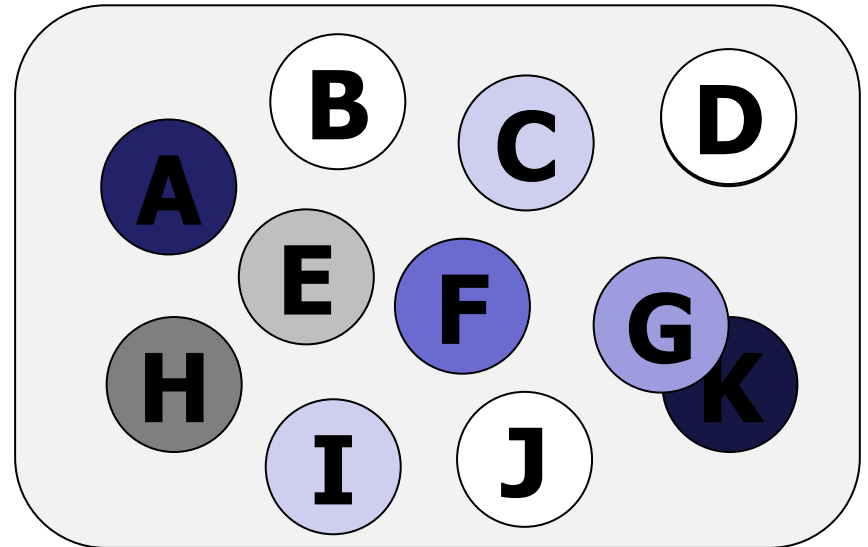
Matchlist 1
Pat. „C“ is number **2** on the matchlist



Determination of the Matchlist

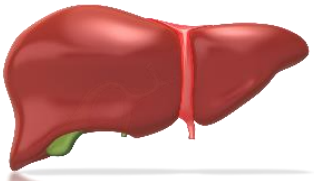
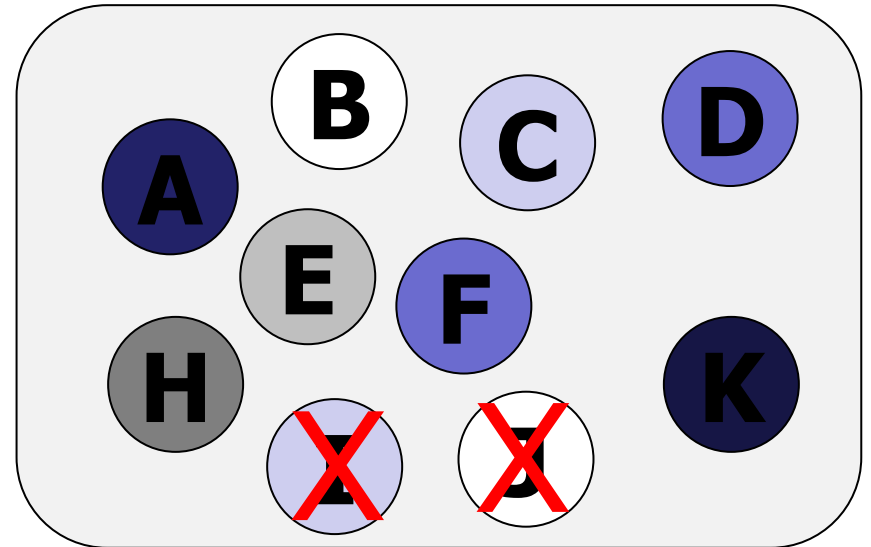
Selection and Ranking

Waiting list
Day 2



Determination of the Matchlist Selection and Ranking

Waiting list



Donor B
40 yrs, 75kg

Matchlist 2
Pat. „C“ is number **5** on the matchlist



Manipulation of waiting list data in Germany

Manipulation of lab values

- Wrongly labeled blood samples
- Manipulation of blood samples
 - Adding urine to increase creatinine
 - Adding citrate to increase INR



Incorrect information entered into ENIS

- „Patient on dialysis“ although there was no renal replacement therapy



TRUST

Is a fragile thing.

Easy to break,

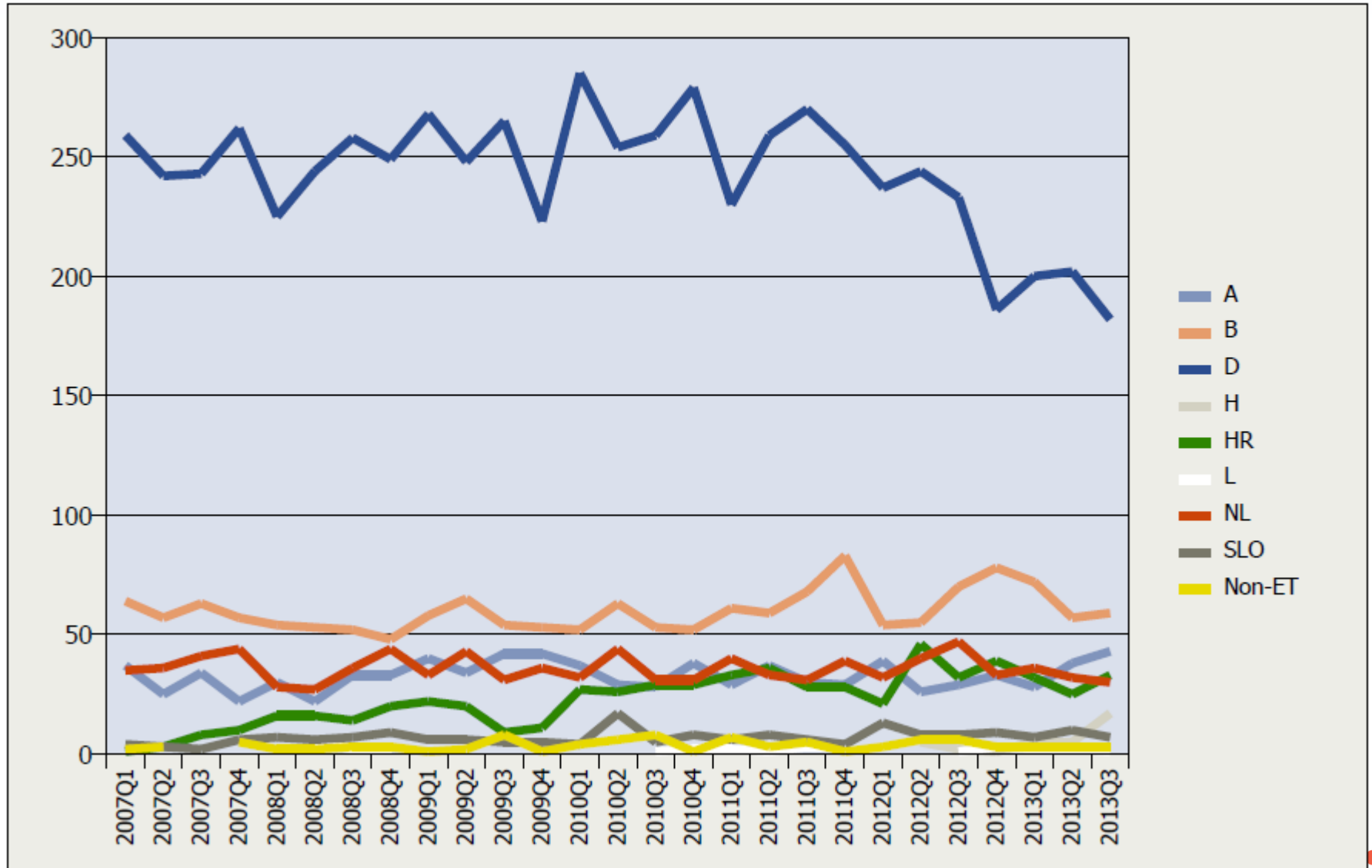
easy to lose,

and very hard

to get back.

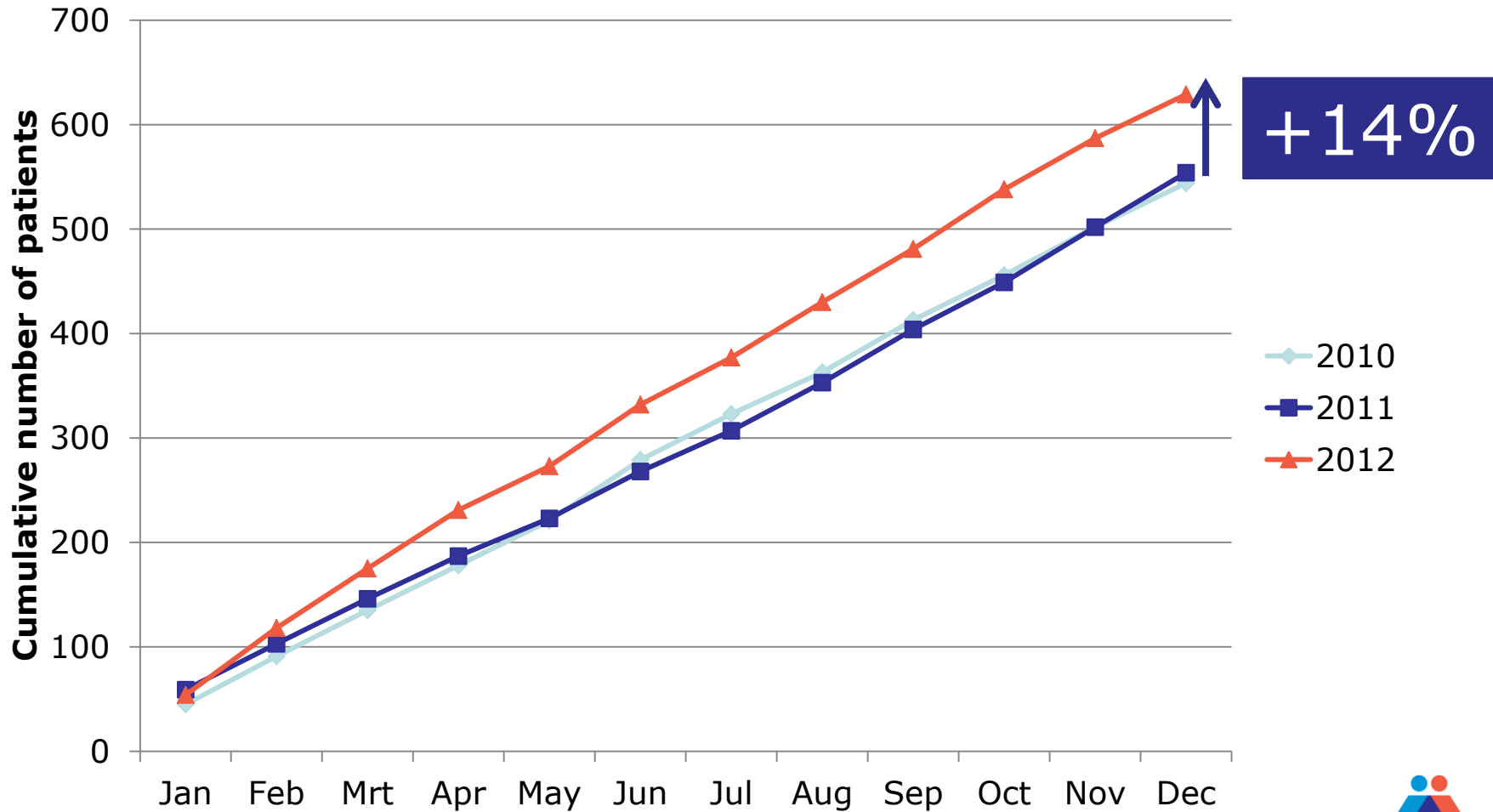


Deceased liver donors used, by quarter, by donor country



Death on the waiting list and delisting due to deterioration

Liver-Tx Germany 2010-2012





Summary

- Organ transplantation gives huge benefit to the patients both with regard to survival and quality of life
- Main limit to organ transplantation is donor shortage
- Organ donation can be improved by a well organized and structured approach, learning from best practices is important
- Transparent organ allocation based on sound medical and ethical allocation principles is necessary to address the needs of patients on the waiting list and make best use of the available donor organs







**HEY,
SCIENCE**

