

The background features a large, light green watermark of the University of California seal. The seal is circular and contains a central figure holding a book and a torch, with the word 'EUREKA' on a banner below. The outer ring of the seal contains the text 'UNIVERSITY OF CALIFORNIA' and the year '1868'.

# Lung Transplantation for Patients with ILD: Surgical and Recovery Issues

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# We will talk about...

1. The transplant surgery
  - Getting the call
  - Single or double lung transplant?
  - Increased risk donors
2. Recovery
  - In the hospital
  - Care after discharge
3. Immunosuppression: the bright and the dark side
4. Quality of Life and Survival after transplant

# Getting The Call

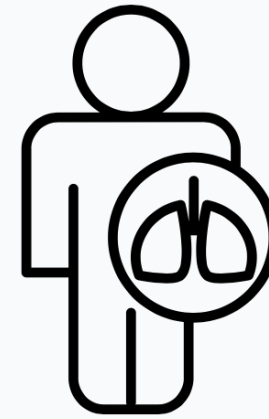
- ✓ Lung Allocation Score
- ✓ Blood type
- ✓ Antibodies
- ✓ Chest size



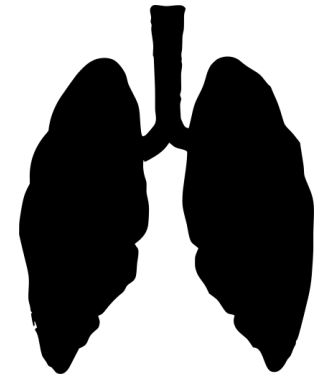
5-6 hours



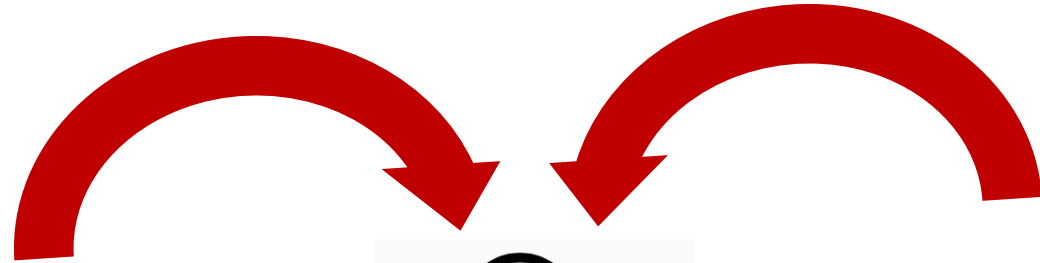
Patient's home



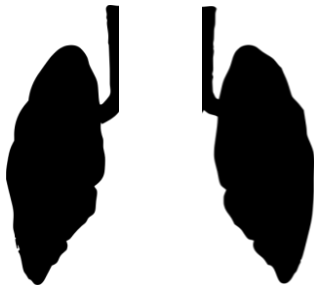
Transplant center



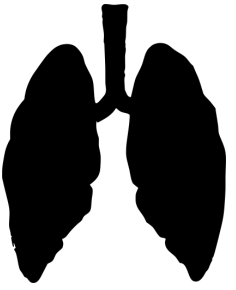
Donor hospital



1 out of 3-4 times, the organs do not work out and we need to wait for the next offer.



# Single or double lung transplant?

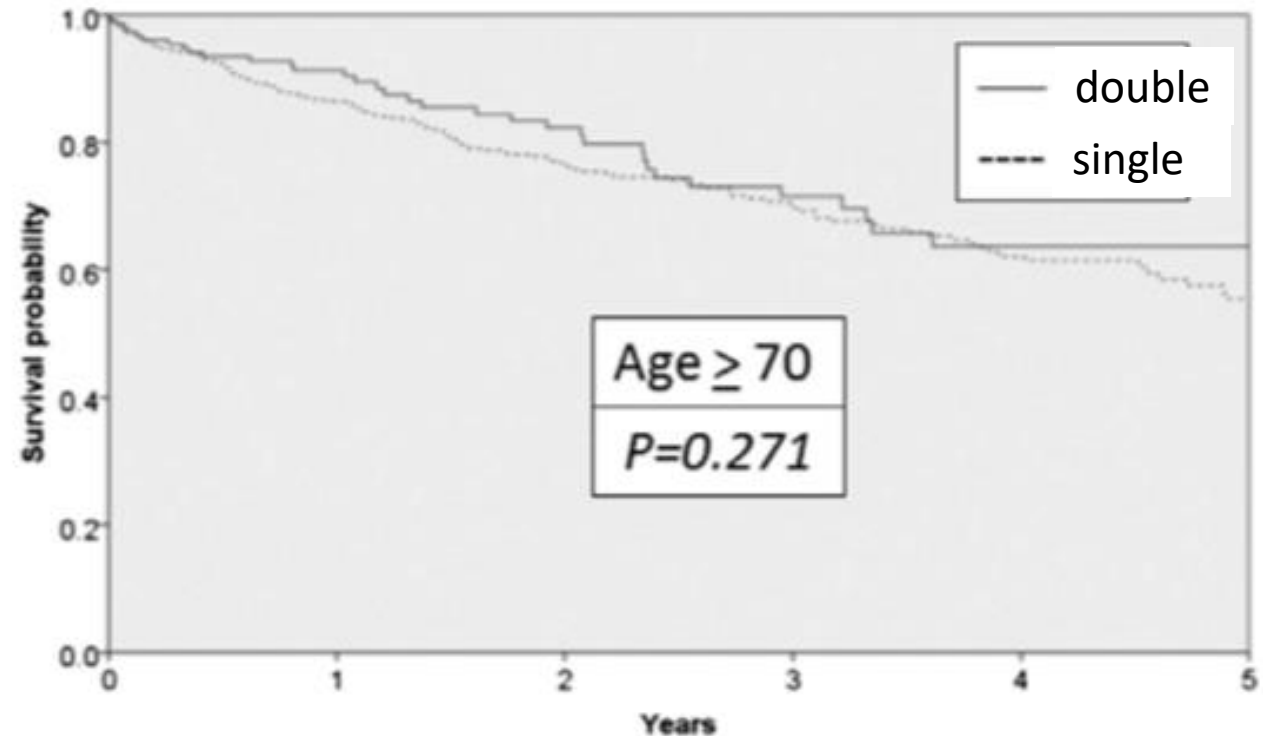


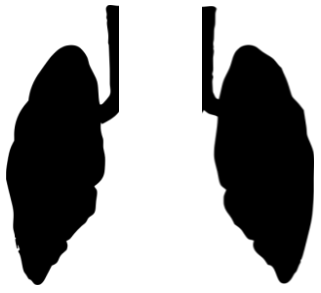
Studied in >9000 lung transplants for IPF from 1987 to 2015 in the US.

## 1. Age

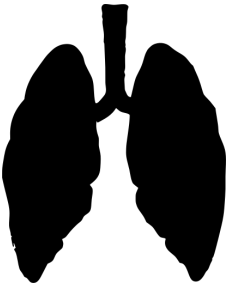
- For patients < 70 years old, double provides longer survival and is preferred.
- For patients  $\geq 70$  years, single and double provide the same survival.

In older patients, single allows for faster recovery and may be preferred.





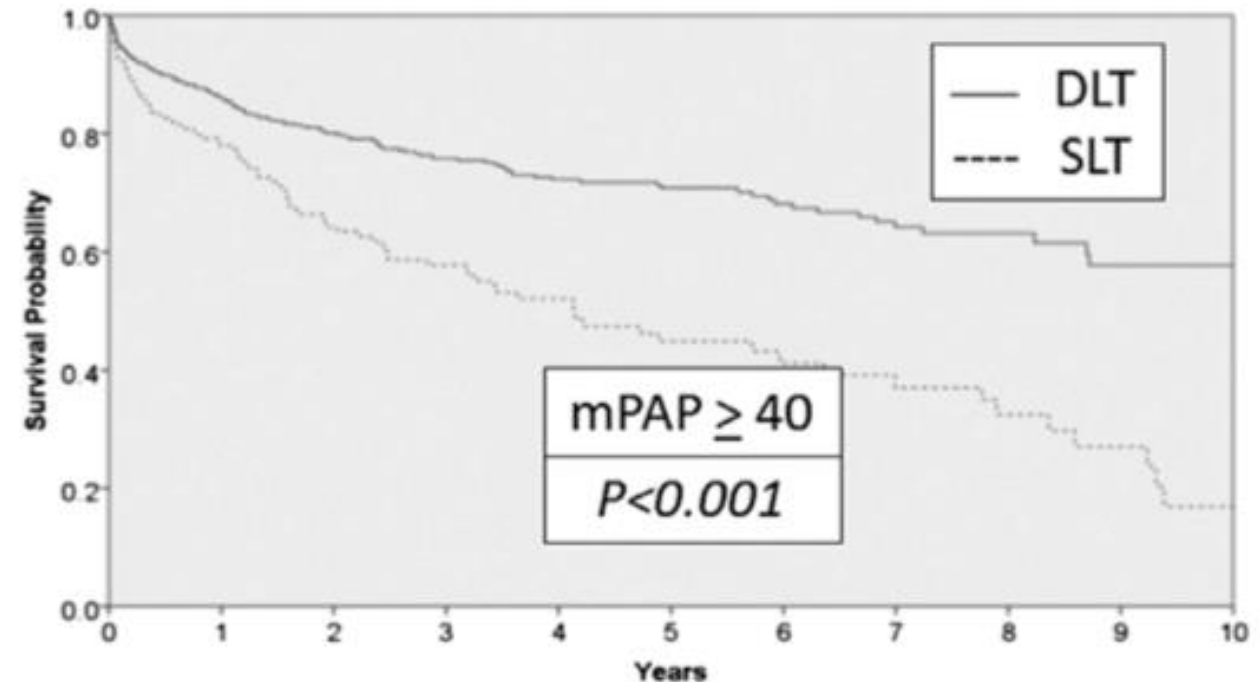
# Single or double lung transplant?

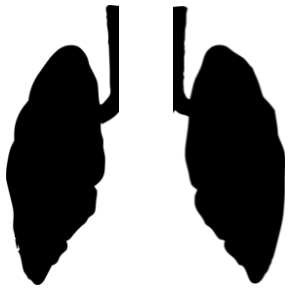


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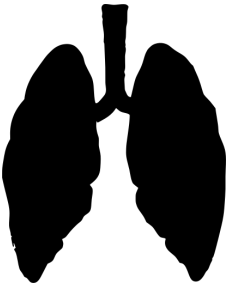
## 2. Pulmonary hypertension (PH)

- For patients with pulmonary hypertension, double provides longer survival and is preferred.
- The higher the blood pressure inside the lungs, the greater the survival benefit of double.





# Single or double lung transplant for IPF?



The transplant team decides after considering many individual patient characteristics.

Often patients will be listed for either single or double.

Waiting time is longer for double than for single. Patients listed for single have greater survival in the first year after getting on the waitlist.

*Villavicencio MA. The Annals of thoracic surgery. 2018*

Getting any transplant is better than running out of time.

**My advice: Trust your transplant team!**

# Increased Risk Donors

- Donors with behaviors/exposures in the previous 12 months that put them at risk of having **HIV, hepatitis B, or hepatitis C** infection.
- MSM, IV drug use, sex for money or drugs, sex partner with known/suspected infection, incarceration, hemodialysis, when information is unavailable
- The risk for a recipient to contract these infections from a donor during the window period is  $\leq 0.1\%$ .
- The highest risk is for contracting *hepatitis C* from an IV drug user (3%) or a sex worker (1.2%).

# Increased Risk Donors

- The recipient is tested repeatedly during the first year after transplant to detect and treat infections.
- This risk has nothing to do with the quality of the lungs. Survival is equal or better with lungs from increased risk donors.
- The risk of dying on the waitlist is often much higher than the risk of contracting these infections.

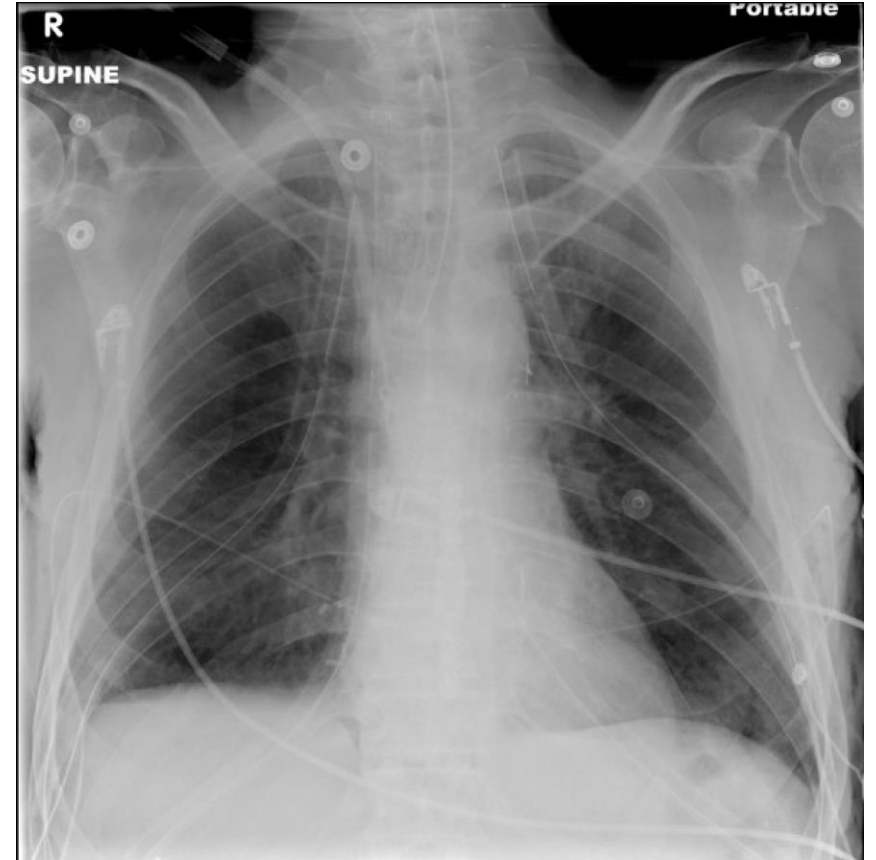


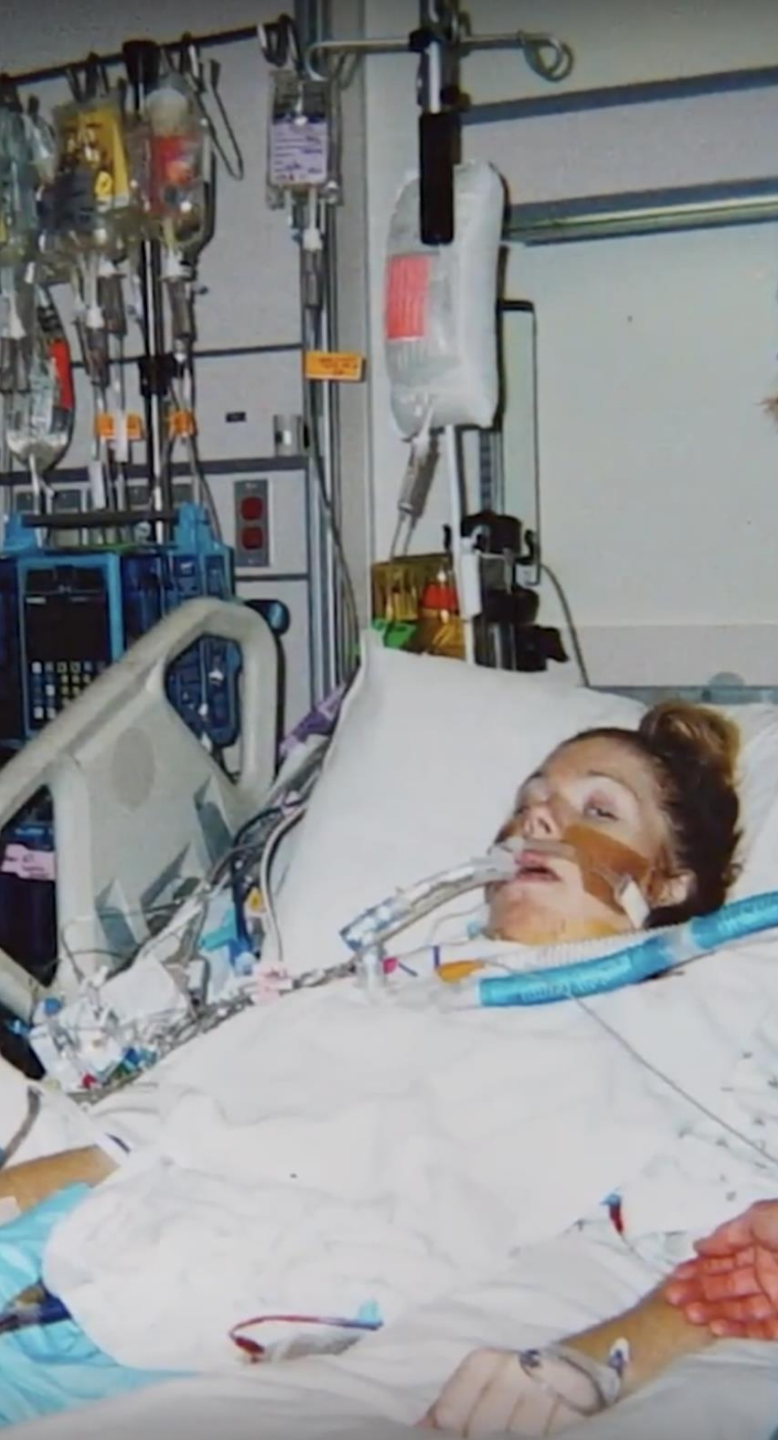
**My advice: Trust your transplant team!**



# The Lung Transplant Operation

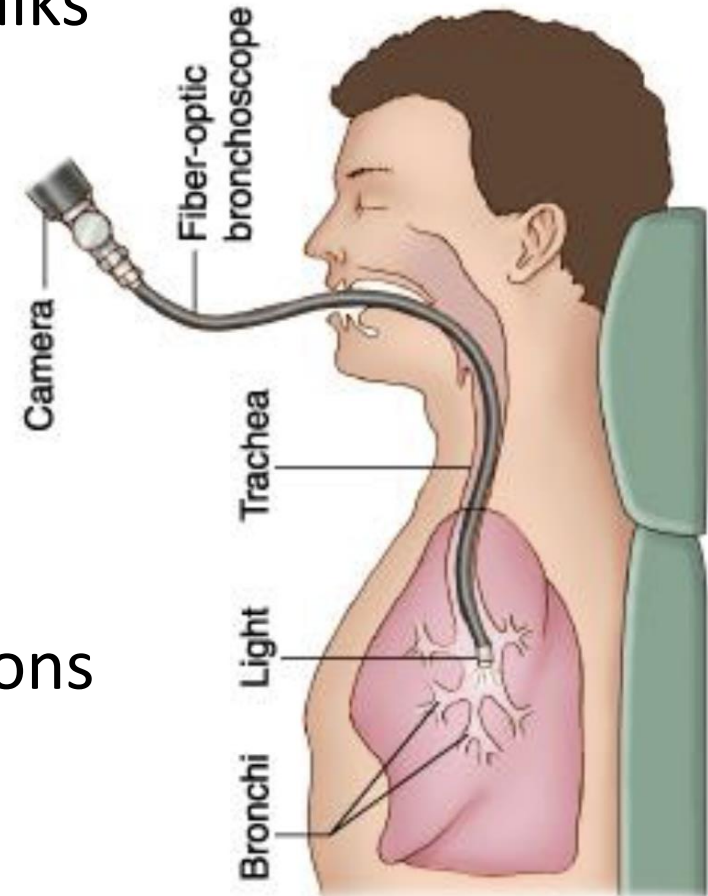
- Surgery lasts 8-10 hours on average.
- If the lungs are too big, they may need resections to adjust size.
- A heart-lung machine (ECMO) may be needed to support the patient during and after surgery.
- Nerve cryoablation for pain control.





# Recovery in the Hospital

- Patient wakes up
- Breathing tube comes out
- Patient gets out of bed and walks
- **Physical therapy**
- **Nutrition**
  
- Control pain
- Chest tubes come out
- Bronchoscopy to clear secretions



# Care After Discharge

- Hospital stay: 2 weeks (average)
- Stay in San Francisco: 6-8 weeks
- **Two caregivers** are needed
  
- Transplant Clinic visits
  - Every week (6 weeks)
  - Every month (6 months)
  - Every 2 months (6-12 months)
  - Every 3 months (2<sup>nd</sup> year)
  - Every 6 months (3<sup>rd</sup> year and after)
  
- Primary care provider visits



<https://www.ucsf.edu/news/2012/11/13055/rock-climber-exceeds-expectations-after-double-lung-transplant>

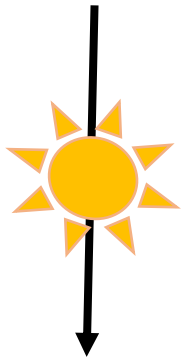
# Life-long Immunosuppression after Transplant

## ► Immunosuppression

Prednisone

Tacrolimus

Mycophenolate Mofetil



Prevent Rejection



## Complications

Infection



Bacteria

Fungi

Virus

Metabolic



Acid reflux

Diabetes

High blood pressure

Kidney disease

Osteoporosis

Cancer

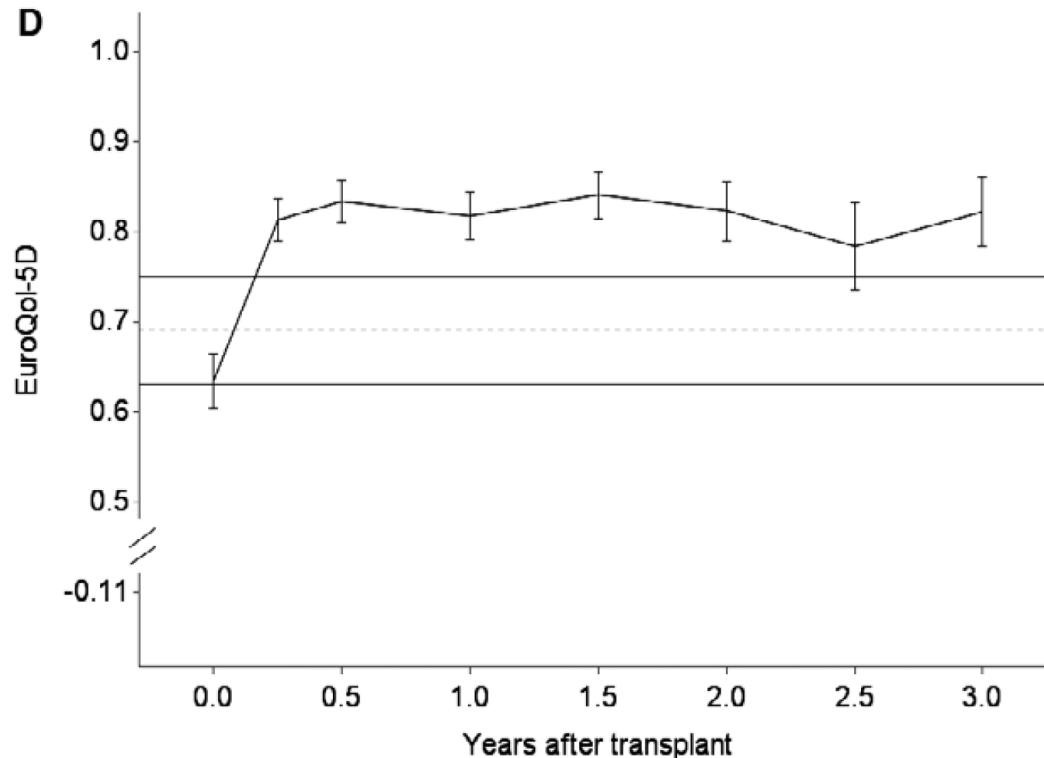


Skin cancer

Lymphoma

# Lung Transplant Improves Quality of Life and Disability

Most patients have large improvements within 6 months after transplant.



EuroQol-5D assesses mobility, self-care, usual activities, pain/discomfort, and anxiety/depression.

Singer JP. *American Journal of Transplantation*. 2017



<https://www.youtube.com/user/UCSFMedicalCenter/search?query=lung+transplant>

# Survival after Lung Transplant

Overall Median survival (years):

A1ATD: 7.0

CF: 9.5

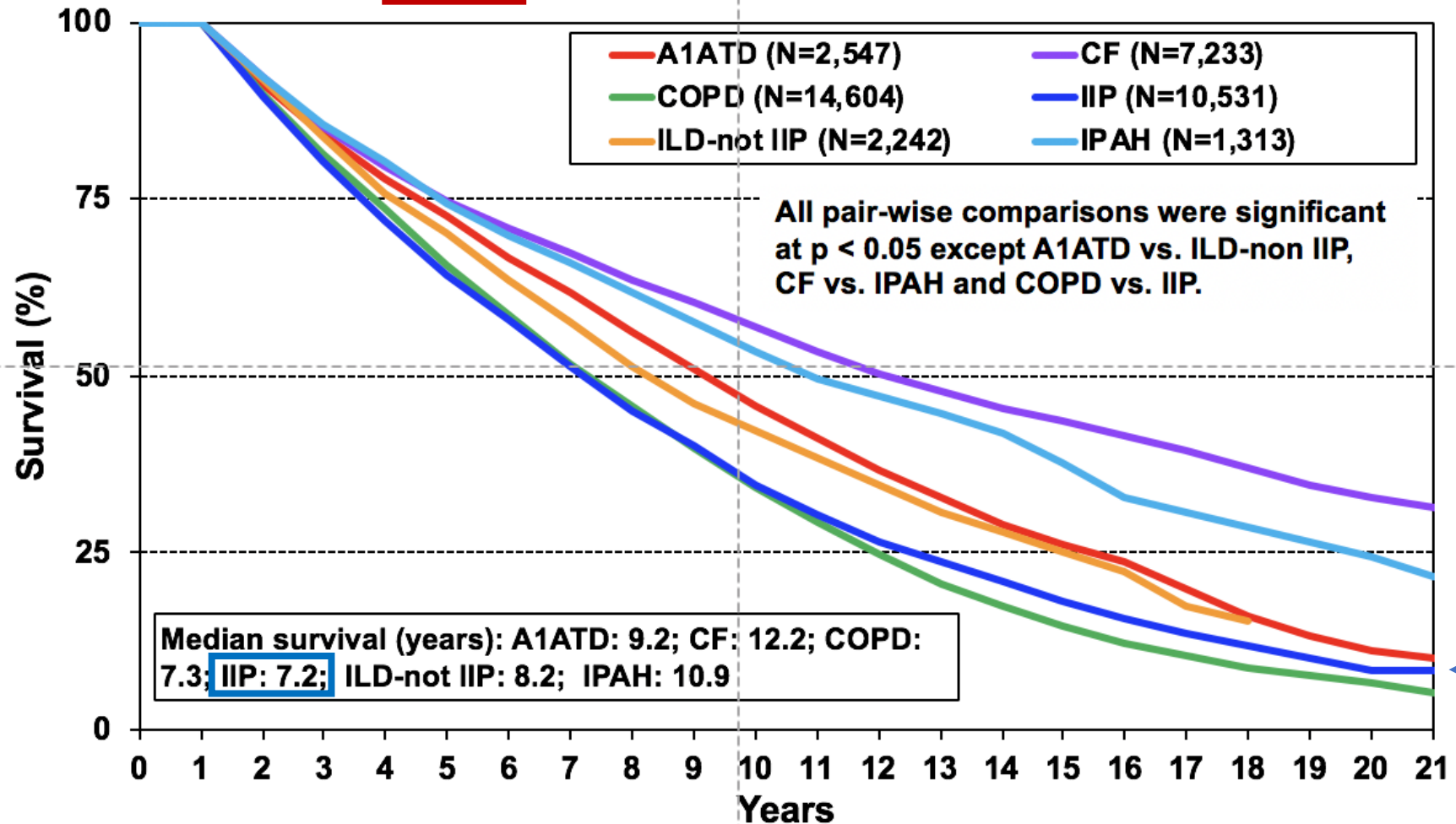
COPD: 5.9

IIP: 5.2

ILD-not IIP: 6.3

IPAH: 6.3.

## Adult Lung Transplants Kaplan-Meier Survival by Major Diagnosis Conditional on Survival to 1 Year (Transplants: January 1990 – June 2016)



Early survival is very important!

IPF

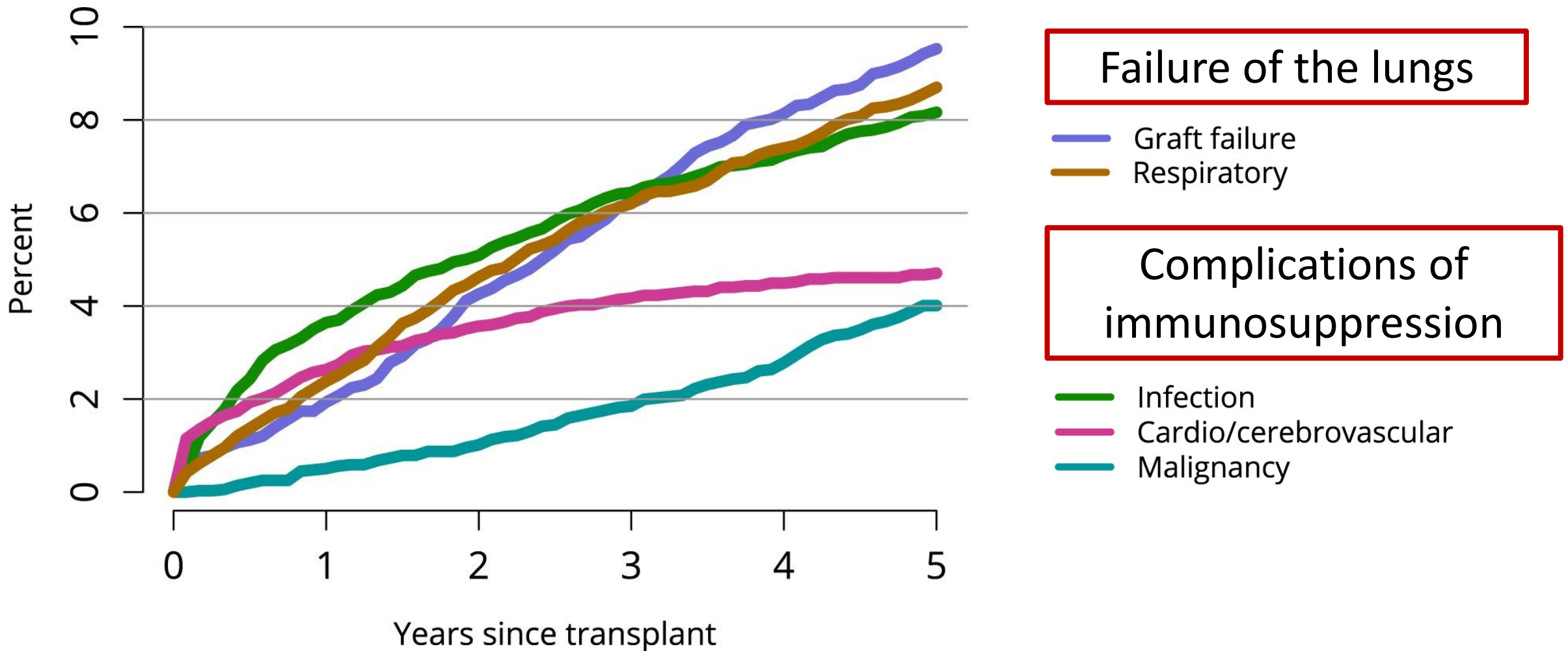
IPF

# Early patient survival with a functioning transplant



<b>Survival</b>	<b>United States</b>	<b>UCSF</b>
1 month	97.46 %	99.26 %
1 year	88.85 %	96.86 %
3 years	70.47 %	83.28 %

# What are the causes of death after lung transplant?







Thank you



“Every day is a gift.”

Learn more at  
<http://lungtransplanteducation.ucsf.edu>