

Lung Transplant for ILD

What to Expect When to Refer

Katy Black, MD

Division of Pulmonary and Critical Care Medicine
Massachusetts General Hospital

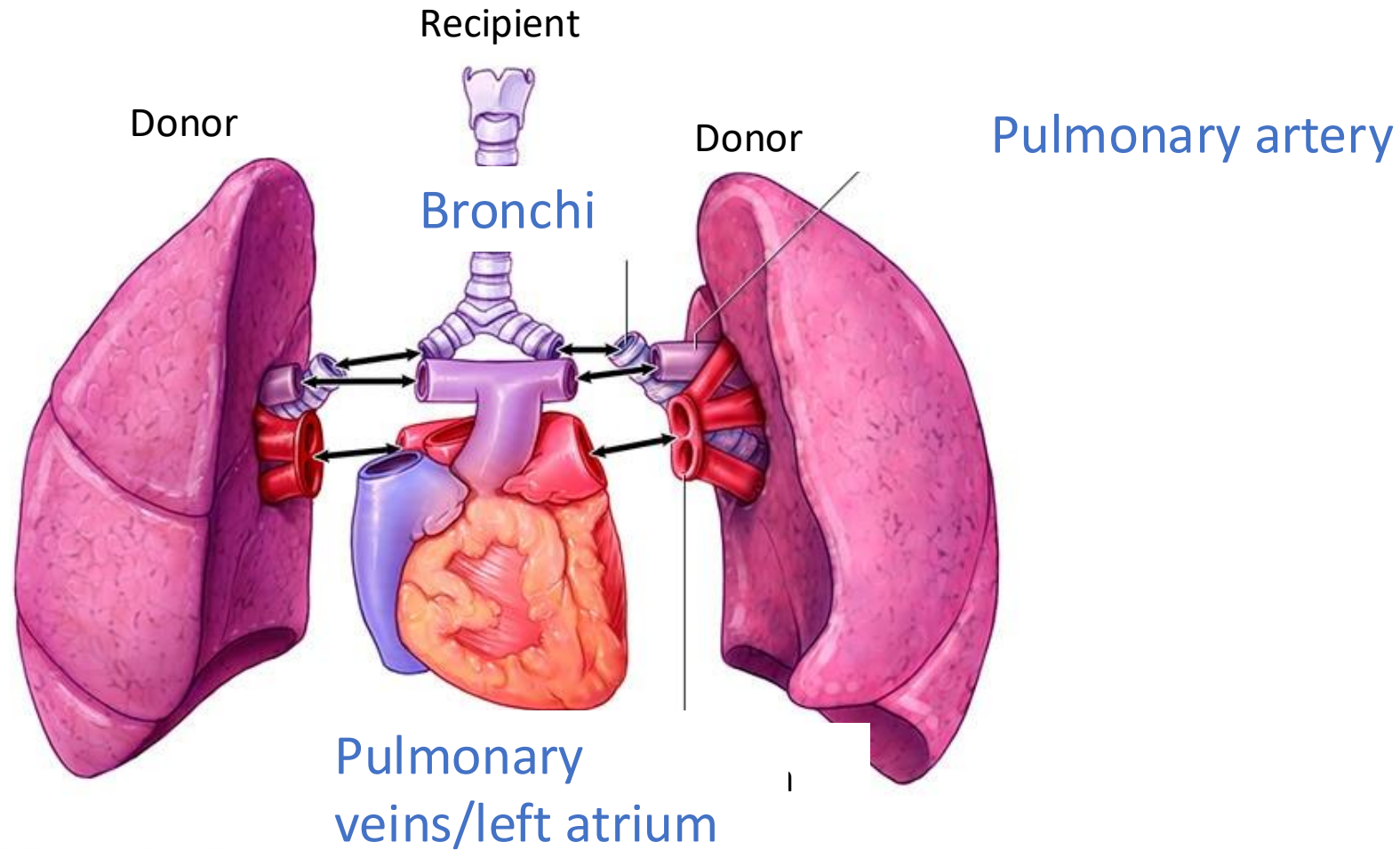
Disclosures

I am speaking for myself only; this talk does not represent the formal views of the MGH lung transplant program

I have in past years had sponsored research agreements with Celgene/Bristol Myers Squibb and Bayer



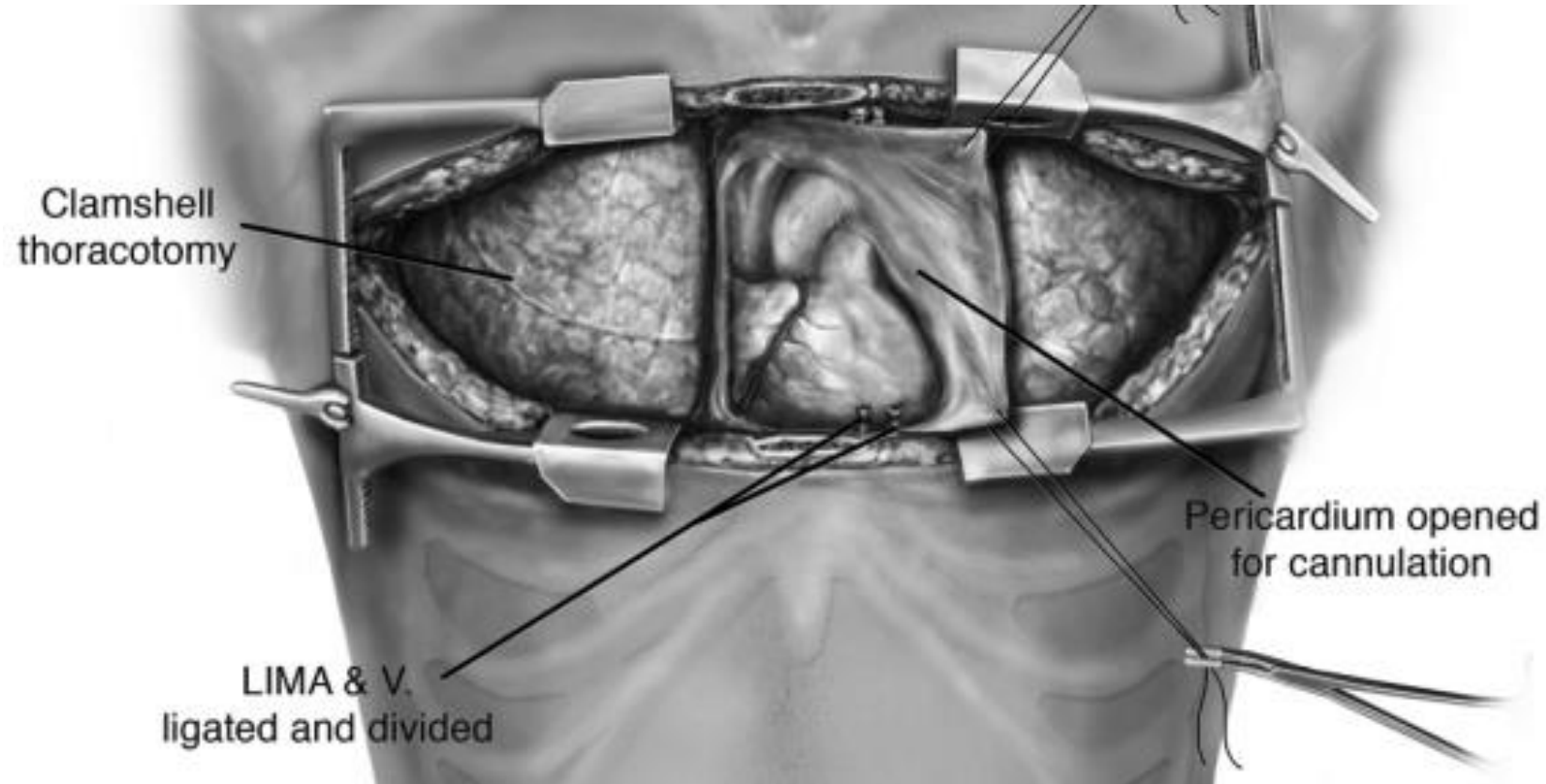
Bilateral Sequential Lung Transplant



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Bilateral Sequential Lung Transplant

Clamshell incision: bilateral thoracotomy and transverse sternotomy



Potential Risks of Lung Transplant

Surgical risks

Post-surgical risks

Impaired rehabilitation

Medication side effects

Infection

Malignancy

Rejection



Post-Transplant Complications

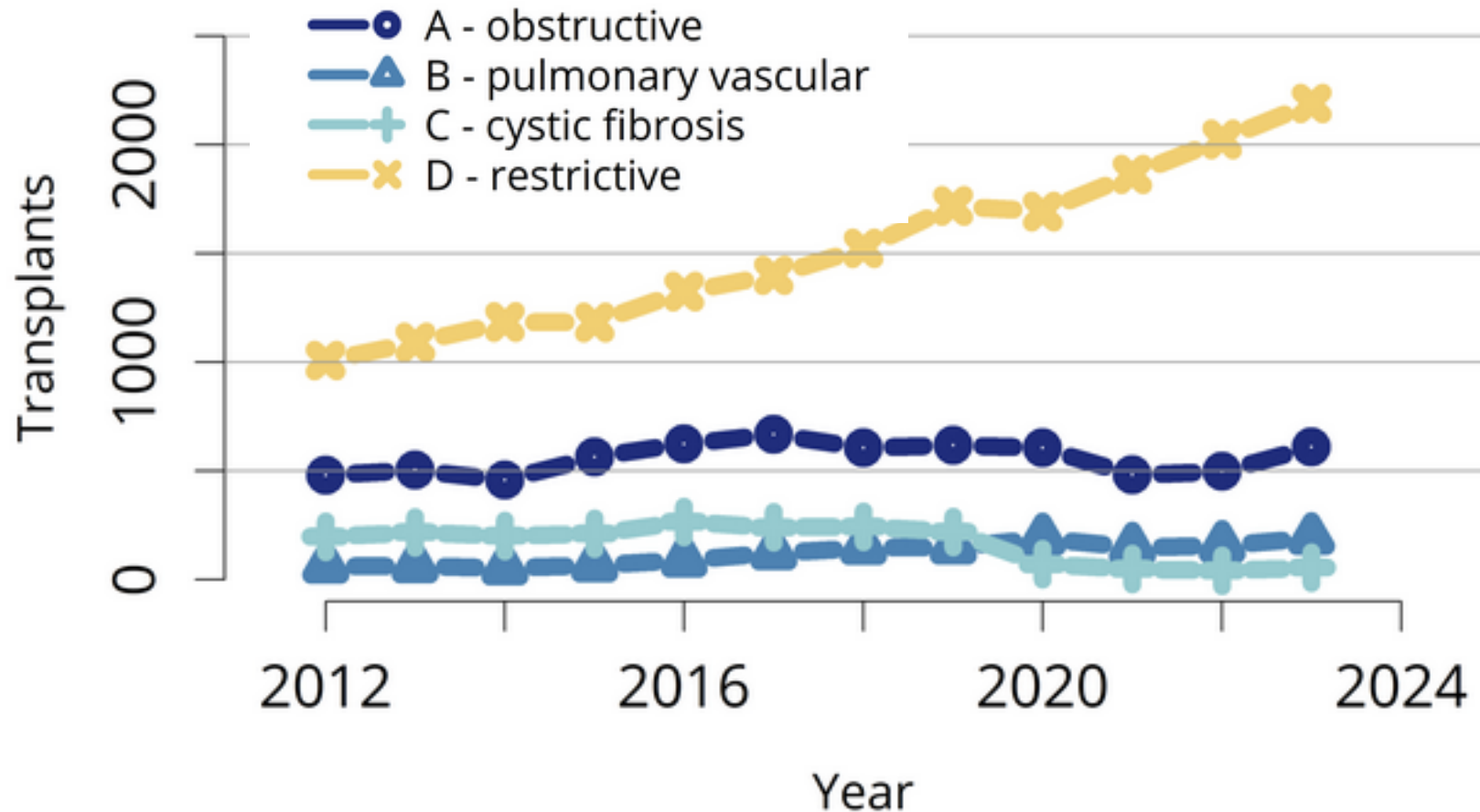
Complications (1995–2017)	1 year	5 year	10 year
All severe renal dysfunction	5.6%	16.0%	24.6%
Creatinine > 2.5 mg/dl	4.2%	12.6%	14.8%
Chronic Dialysis	1.4%	2.8%	6.4%
Renal Transplant	0.0%	0.5%	3.5%
Diabetes	19%	33%	
Malignancy (all non skin cancer types)	5.3%	20.4%	32.6%
Bronchiloitis obliterans syndrome	8.5%	41.4%	67.1%

U.S. Deceased Donor Transplants

Year	LUNG	Heart	Liver	Kidney
2024	3,340	4,572	10,854	22,074
2023	3,026	4,545	10,001	21,854
2022	2,692	4,111	8,925	20,446
2021	2,524	3,818	8,667	19,519
2020	2,539	3,658	8,415	18,410

Most recent living lobar transplant in US was 2013

US Lung Transplants: Diagnoses



Year	2024	2023
All Diagnoses	3,146	2,848
IPF	1,007	937
Other ILD	1,213	1,011
All IPF/ILD	2,220	1,948
Percent ILD	71	68

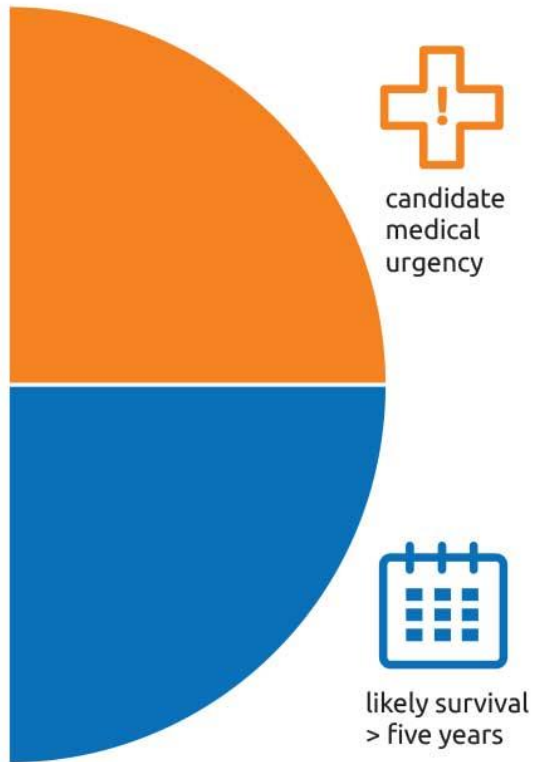
83.6% Bilateral

2023: 71.8% of lung transplants for restrictive lung disease

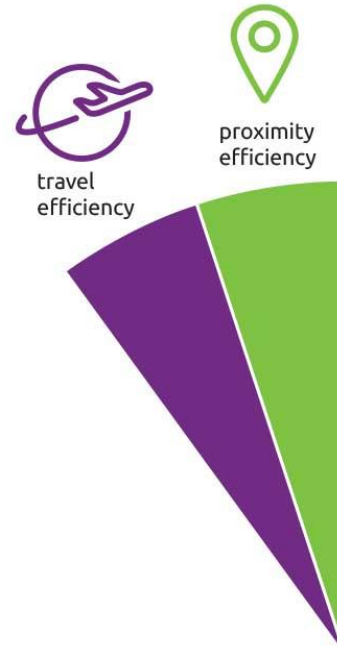
Survival after Lung Transplant in US

	1 year	3 year	5 year
All Lung	87.9	74.8	61.2
Double Lung	87.7	71.8	58.7
Single Lung	86.7	64.5	47.3
Lung for "IPF"	87.0	68.2	52.5
Lung for COPD	89.7	72.3	56.0
Heart	90.9	85.6	78.6
Kidney	97.1	93%	86%
Liver	91.8	83.8	76.2%

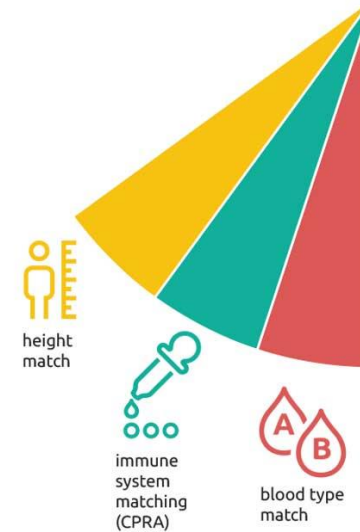
Composite Allocation Score



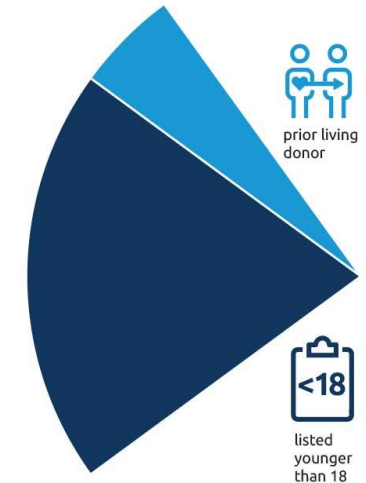
Patient factors
 -Urgency (≤ 25)
 -5 year survival (≤ 25)



Distance
 -travel expense (≤ 5)
 -proximity (≤ 5)



Hard to Match
 -Extreme of height (≤ 5)
 -Sensitized to donors (≤ 5)
 -Rare blood type



Extra Credit
 -Under 18 (≤ 10)
 -Prior living donor (≤ 5)

<https://optn.transplant.hrsa.gov/patients/by-organ/lung/lung-allocation-based-on-the-composite-allocation-score-cas-questions-and-answers-for-patients-and-caregivers/>

<https://optn.transplant.hrsa.gov/data/allocation-calculators/lung-cas-calculator/>

ISHLT guidance for referral

Lung transplantation should be considered for adults with chronic, end-stage lung disease who meet all the following general criteria:

1. High (>50%) risk of **death from lung disease within 2 years** if lung transplantation is not performed.
2. High (>80%) likelihood of **5-year post-transplant survival** from a general medical perspective provided that there is adequate graft function.



ISHLT guidance on referral for ILD

Any UIP on pathology or probable or definite UIP on CT

Any pulmonary fibrosis with FVC <80% or DLCO <40%

Relative fall in FVC >10%, DLCO >15%

Any supplemental oxygen use - even exertional

Progression despite therapy if inflammatory ILD

Early referral for CTD or familial pulmonary fibrosis

Consider listing when

Absolute fall in: FVC >10%, DLCO >15%, 6MWT 50m

Pulmonary hypertension, hospitalization for exacerbation



Considerations for candidacy

- No formal age limit
- Malignancy with low risk of recurrence not contraindication
- BMI over 35 is problematic
- Multiple small issues may be worse than one large one
- **Physical fitness and social support are crucial to surviving transplant**



Measuring Frailty: Fried Frailty Index

- “Frailty phenotype”
 - Evaluated by Fried Frailty Index
 - Unintentional weight loss (10 lbs in past year)
 - Self-reported exhaustion
 - Weakness (grip strength)
 - Slow walking speed
 - Low physical activity – <128 kcal/week or <90 kcal/week walking for 30 minutes ~ 120 kCal

Short Physical Performance Battery

Timed chair stands



Balance tests

Feet
Together



Semi
Tandem



Full
Tandem



Walk Speed

Time for 4 meters

Consequences of frailty

Multiple associations of frailty and outcome

Increased incidence delisting and death on waitlist

27% in frail, ~15% in non frail

Frailty phenotype: 3.8x risk of 1 year mortality

Frailty at discharge 3.4 odds ratio for unplanned readmission in 30 days

Study of 50 lung tx patients: frail pts experience higher improvement in quality of life and more improved 6MWT

Thank you



Useful websites

https://srtr.transplant.hrsa.gov/annual_reports/2022/Lung.aspx

<https://optn.transplant.hrsa.gov/data/allocation-calculators/lung-cas-calculator/>

OPTN dashboard with graphics: <https://insights.unos.org/OPTN-metrics/>

Detailed reports: <https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/>



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Open access JHLT [https://www.jhltonline.org/article/S1053-2498\(21\)02407-4/fulltext](https://www.jhltonline.org/article/S1053-2498(21)02407-4/fulltext)

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