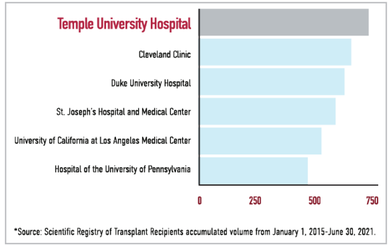
PROGRAM HIGHLIGHTS

- The Temple Lung Transplant Program is a leader in both quantity and quality. It's the nation's highest-volume program, but it also has the best one-year survival rates in Philadelphia and all of Pennsylvania.
- Temple regularly accepts the most complex transplant candidates, including patients of advanced age, higher BMI, or other comorbid conditions. This means patients who have been turned down for transplantation at other centers may be eligible at Temple.
- The experience found at Temple, combined with the latest technology and a robust research program, is the reason so many physicians recommend Temple when their patients need a lung transplant.

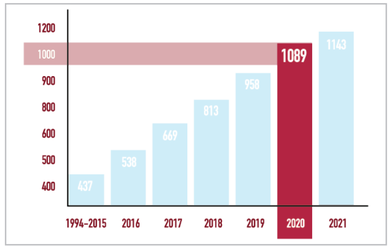
NATIONAL LUNG TRANSPLANT VOLUMES (2015-2021)*



*Source: Scientific Registry of Transplant Recipients accumulated volume from January 1, 2015-June 30, 2021.

Temple's Lung Transplant Program has grown consistently over the past decade. In 2020, we performed our 1,000th transplant, putting us in an elite group of centers worldwide.

TRANSPLANTS PER YEAR



- **Transplanting Your Patients Faster.** Temple has the fastest time to transplant rate than any lung transplant center in the region, helping more patients.
- **Fast, Seamless Process.** Our transplant team coordinates every step of care, from consultation through to admission, transplantation, and post-operative lifestyle care. We offer accelerated transplant evaluations so patients and their families can return home as soon as possible.
- **Co-Managing Lung Transplant Patients.** The Temple Lung Center is committed to keeping you informed about your patients. We have a dedicated team of Key Account Managers who can assist you with the needs of your patients, help you resolve any problems quickly, and coordinate contact with Temple lung transplant physicians and staff. Our goal is simple—to provide a level of communication that equals our level of patient care.

OUR COMMITMENT TO COMMUNITY PHYSICIANS

At Temple, we believe that quality patient care requires not just experienced clinicians and state-of-the-art technology, but also strong relationships with our community physicians. It is our goal to provide timely and ongoing communication throughout your patient's evaluation, education, and treatment until he or she is returned to your care. When a patient is amenable to transplant as a treatment option, please consider an early referral to our program. This will allow for proper evaluation and patient education in addition to clear coordination with you the community physician.

KEY ACCOUNT MANAGERS

Temple Key Account Managers are always available to assist you and can be contacted anytime to:

- Answer questions immediately
- Help you resolve problems quickly
- Coordinate contact with Temple Lung Transplant Program staff
- Provide information about clinical programs and research studies
- Make a personal visit to your practice

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Sean Borden
Key Account Manager
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HOW TO REFER

To refer a patient or consult with a member of our Lung Transplant Program, call 800-TEMPLE-MED.
For inpatient transfers, please call 215-707-TRAN (215-707-8726).

PHYSICIAN OFFICE LOCATIONS

TEMPLE UNIVERSITY HOSPITAL
3401 North Broad Street
5th Floor Ambulatory Care Center (Zone D)
Philadelphia, PA 19140

TEMPLE HEALTH OAKS
Oaks Corporate Center
50 Cresson Blvd., Suite 200
Oaks, PA 19456

TEMPLE LUNG CENTER AT JEANES CAMPUS
Temple University Hospital – Jeanes Campus
7600 Central Avenue
Patient Care Center, 1st Floor
Philadelphia, PA 19111

TEMPLE LUNG CENTER AT CHESTNUT HILL
8815 Germantown Avenue
Medical Office Building
Philadelphia, PA 19118

TempleHealth.org/Lung

Lung Center
TEMPLE HEALTH

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LUNG TRANSPLANT PROGRAM

UNRIVALED EXPERTISE LEADING TO BETTER OUTCOMES

For increasing numbers of patients, lung transplantation remains the best solution for an advanced lung problem. The information enclosed details the lung transplant recipient guidelines used by the Temple Lung Transplantation Program. Referring physicians caring for patients with advanced lung disease outside a transplant center should be familiar with the criteria for referral and listing—and how the Temple Lung Transplantation Program is more prepared than ever to help your patients get a new start on a better life.

Lung Center
TEMPLE HEALTH

LUNG TRANSPLANTATION REFERRAL QUICK GUIDE

DISEASE TYPE	GUIDELINE FOR REFERRAL
COPD	BODE index exceeding 5
IPF or Non-Specific Interstitial Pneumonia	Histologic or radiographic evidence of UIP irrespective of vital capacity, or histologic evidence of fibrotic NSIP
Pulmonary Arterial Hypertension (PAH)	NYHA functional class III or IV regardless of ongoing therapy, or rapidly progressive disease
Sarcoidosis	NYHA functional class III or IV

PATIENT SELECTION

Indications

Lung transplantation is indicated for patients with chronic, end-stage lung disease who are failing maximal medical therapy, or for whom no effective medical therapy exists. Potential candidates would be well-informed and demonstrate adequate health behavior and a willingness to adhere to guidelines from healthcare professionals.

General Contraindications

Absolute Contraindications

- Malignancy: Disease free for < 2 years at the time of referral, with the exception of cutaneous squamous and basal cell tumors.
- Advanced dysfunction of another major organ system (e.g., heart, liver, or kidney).
- Non-curable chronic extrapulmonary infection including chronic active viral hepatitis B, hepatitis C, and human immunodeficiency virus.
- Documented ongoing nonadherence or inability to follow through with medical therapy.
- Untreatable psychiatric or psychological condition associated with the inability to cooperate or comply with medical therapy.
- Substance addiction (e.g., alcohol, tobacco, or narcotics) that is either active or has been active within the last 6 months.

Relative Contraindications

- Age older than 70 years at time of referral.
- Disease-free malignancy in the last 5 years, with the exception of squamous and basal cell tumors.
- Treated chronic extrapulmonary infection including chronic active viral hepatitis B, hepatitis C grade > 2 by liver biopsy.
- Critical or unstable clinical condition (e.g., shock, mechanical ventilation or extracorporeal membrane oxygenation).
- Severely limited functional status with poor rehabilitation potential.
- Colonization with highly resistant or highly virulent bacteria, fungi, or mycobacteria.
- Severe obesity defined as a body mass index (BMI) exceeding 35 kg/m^2.
- Underweight with BMI less than 18.5.
- Severe or symptomatic osteoporosis.
- Mechanical ventilation. Candidates who are able to participate actively in a rehabilitation program and who have been on mechanical ventilation > 7 days without other acute or chronic organ dysfunction may be successfully transplanted.

Source: International Guidelines for the Selection of Lung Transplant Candidates. 2006 Update – A Consensus Report from the Pulmonary Scientific Council of the International Society for Heart and Lung Transplantation.

DISEASE-SPECIFIC LUNG TRANSPLANTATION CONSIDERATIONS

Chronic Obstructive Pulmonary Disease (COPD)

- Referral for transplantation in COPD patients would be considered in patients who continue to deteriorate despite optimal medical and surgical therapy, including smoking cessation, maximal bronchodilating treatment, rehabilitation, long-term oxygen therapy, and endoscopic or surgical lung volume reduction where feasible.
- Hospitalization for an acute exacerbation associated with hypercapnia carries a poor prognosis with a 49% 2-year survival.

Guideline for Referral

- BODE index exceeding 5.

Idiopathic Pulmonary Fibrosis and Non-Specific Interstitial Pneumonia

Idiopathic pulmonary fibrosis (IPF) is also known as usual interstitial pneumonia (UIP). Because patients with IPF die without transplantation (median survival time from diagnosis, 2.5 to 3.5 years), it is important to distinguish UIP from other interstitial lung disorders that have a more favorable prognosis. IPF patients have the highest mortality on the transplant waiting list.

Pulmonary Function and Exercise Capacity

- Forced vital capacity (FVC) of less than 60% of predicted is associated with increased mortality. Some patients with preserved lung volumes may be at similar risk of mortality, as are those patients with lower levels of lung function. Well-preserved spirometry should not preclude referral for transplantation.
- Serial measurement of spirometry provides added prognostic value in UIP patients. A 10% or greater decrement in FVC during 6 months of follow-up identifies patients at significantly increased risk of mortality.
- Oxygen saturation of 88% during a 6-minute walk test (6-MWT) identifies a group of patients at particularly high risk of mortality.

Guidelines for Referral

- Histologic or radiographic evidence of UIP irrespective or vital capacity.
- Histologic evidence of fibrotic NSIP.

Pulmonary Arterial Hypertension (PAH)

Prognostic Factors

Advances in medical therapy have changed the prognosis of PAH considerably. The decision to list for transplant is made when functional status and hemodynamics decline to the point where survival without transplantation is likely to be compromised. Long-term survival data is available for patients treated with intravenous epoprosteno; the effects of new therapeutic modalities on long-term outcome are still unknown. Factors associated with a poor prognosis are linked to the degree of right ventricular dysfunction.

Guidelines for Referral

- NYHA functional class III or IV, regardless of ongoing therapy.
- Rapidly progressive disease.

Sarcoidosis

The potential for significant extrapulmonary involvement, such as cardiac, hepatic, or neurosarcoidosis, should be considered. Bronchiectasis with bacterial colonization and aspergilloma(s) are prevalent in such patients. Because sarcoidosis tends to have a chronic and variable natural course, the optimum timing to refer a patient for transplantation is difficult to define. Factors indicating poor prognosis include African-American ethnicity, presence of hypoxemia, pulmonary hypertension, diminished cardiac index, and elevated right atrial pressure. An elevated right atrial pressure indicates severe right ventricular dysfunction and is an ominous prognostic factor associated with high short-term mortality. Recent studies have revealed high mortality rates from 30% to 50% in sarcoid patients on a lung transplant waiting list, not unlike mortality rates observed in patients with pulmonary fibrosis.

Guideline for Referral

- NYHA functional class III or IV

LUNG TRANSPLANT PROGRAM LEADERS

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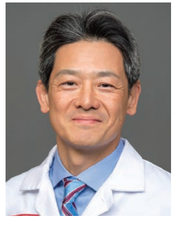
Lewis Katz School of Medicine at Temple University

Medical Director, Lung Transplantation Program,
Temple University Hospital

Gerard J. Criner, MD, FACP, FACCP

Chair and Professor, Thoracic Medicine and Surgery,
Lewis Katz School of Medicine at Temple University

Director, Temple Lung Center



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