3.7 ALLOCATION OF THORACIC ORGANS. This policy describes how thoracic organs (hearts, heart-lung combinations, single and double lungs) are to be allocated to candidates awaiting a thoracic organ transplant.

3.7.1 Exceptions. Unless otherwise approved according to Policy 3.4.8 (Variances), or specifically allowed by the exceptions described in this Policy 3.7.1, all thoracic organs must be allocated in accordance with Policy 3.7.

3.7.1.1 Exception for Sensitized Candidates. The transplant surgeon or physician for a candidate awaiting thoracic organ transplantation may determine that the candidate is "sensitized" such that the candidate's antibodies would react adversely to certain donor cell antigens. It is permissible not to use the allocation policies set forth in Policy 3.7 for allocation of a particular thoracic organ when all thoracic organ transplant centers within an OPO and the OPO agree to allocate the thoracic organ to a sensitized candidate because results of a crossmatch between the blood serum of that candidate and cells of the thoracic organ donor are negative (i.e., the candidate and thoracic organ donor are compatible). The level of sensitization at which a candidate may qualify for this exception is left to the discretion of the listing transplant center, and subject to agreement among all thoracic organ transplant centers within an OPO and the OPO. Sensitization is not a qualifying criterion for assigning a candidate to a heart status category as described in Policies 3.7.3 (Adult Candidate Status) and 3.7.4 (Pediatric Candidate Status).

3.7.2 Geographic Sequence of Thoracic Organ Allocation. Thoracic organs are to be allocated locally first, then within the following zones in the sequence described in Policy 3.7.10 and Policy 3.7.11. Five zones will be delineated by concentric circles of 500, 1,000, and 1,500 and 2,500 nautical mile radii with the donor hospital at the center. Zone A will extend to all transplant centers which are within 500 miles from the donor hospital but which are not in the local area of the donor hospital. Zone B will extend to all transplant centers that are at least 500 miles from the donor hospital but not more than 1,000 miles from the donor hospital. Zone C will extend to all transplant centers that are at least 1,000 miles from the donor hospital but not more than 1,500 miles from the donor hospital. Zone D will extend to all transplant centers that are located beyond 1,500 miles from the donor hospital, but not more than 2,500 miles from the donor hospital. Zone E will extend to all transplant centers that are located beyond 2,500 miles from the donor hospital.

3.7.3 Adult Candidate Status. Each candidate awaiting heart transplantation receives a status code corresponding to the candidate's medical urgency for transplant. A heart transplant candidate at least 18 years of age at the time of listing receives a status code as follows:

Status	Definition
Status 1A	A candidate listed as Status 1A is admitted to the listing transplant center hospital (with the exception for a 1A(b) candidate) and has at least one of the following devices or therapies in place: (a) Mechanical circulatory support for acute hemodynamic decompensation that includes at least one of the following: (i) left and/or right ventricular assist device implanted Candidates listed under this criterion, may be listed for 30 days at any point after being implanted as Status 1A once the treating

physician determines that they are clinically stable. Admittance to the listing transplant center hospital is not required.

(ii) total artificial heart;

(iii) intra-aortic balloon pump; or

(iv) extracorporeal membrane oxygenator (ECMO).

Qualification for Status 1A under criterion 1A(a)(ii), (iii) or (iv) is valid for 14 days and must be recertified by an attending physician every 14 days from the date of the candidate's initial listing as Status 1A to extend the Status 1A listing.

(b) Mechanical circulatory support with objective medical evidence of significant device-related complications such as thromboembolism, device infection, mechanical failure or life-threatening ventricular arrhythmias. A transplant center can report a complication not listed here. The report of an "other" complication will result in a review by the respective heart regional review board. (Candidate sensitization is not an appropriate device-related complication for qualification as Status 1A under this criterion. The applicability of sensitization to thoracic organ allocation is specified by Policy 3.7.1.1 (Exception for Sensitized Candidates).)

Admittance to the listing center transplant hospital is not required. Qualification for Status 1A under this criterion is valid for 14 days and must be recertified by an attending physician every 14 days from the date of the candidate's initial listing as Status 1A to extend the Status 1A listing.

(c) Continuous Mechanical ventilation. Qualification for Status 1A under this criterion is valid for 14 days and must be recertified by an attending physician every 14 days from the date of the candidate's initial listing as Status 1A to extend the Status 1A listing.

(d) Continuous infusion of a single high-dose intravenous inotrope or multiple intravenous inotropes, in addition to continuous hemodynamic monitoring of left ventricular filling pressures.

Qualification for Status 1A under this criterion is valid for 7 days and may be renewed for an additional 7 days for each occurrence of a Status 1A listing under this criterion for the same candidate. The OPTN contractor shall maintain in the heart status justification form in UNet℠ a list of the specific inotropes and doses approved by the Board of Directors to be compliant with this criterion.

Status 1A by Exception

A candidate who does not meet criterion (a), (b), (c), or (d) may nevertheless be Status 1A upon application by his or her transplant physician. The transplant physician must justify to the applicable Regional Review Board why the candidate is considered, using acceptable medical criteria, to have an

urgency and potential for benefit as other candidates in Status 1A. The justification must be for a candidate admitted to his or her listing transplant center hospital and must include a rationale for incorporating the exceptional case as part of Status 1A. ~~Timing of the review of these cases, whether prospective or retrospective, will be left to the discretion of each Regional Review Board.~~ Regional Review Boards will retrospectively review requests for Status 1A-exceptions.

A candidate's listing under this exceptional provision is valid for 14 days. Any further extension of the Status 1A listing by exception requires ~~prospective~~ retrospective review and approval by ~~a majority of~~ the Regional Review Board ~~Members~~. If Regional Review Board approval is not given, the candidate's transplant physician may override the Regional Review Board and list the candidate as Status 1A~~, subject to automatic referral to the Thoracic Organ Transplantation Committee~~. A report of the decision of the Regional Review Board and the basis for it ~~shall~~ may be forwarded for review by the Thoracic Organ Transplantation Committee. The Thoracic Organ Transplantation Committee may refer the case to the Membership and Professional Standards Committee.

Submission of Status 1A Justification Form
A completed Heart Status 1A Justification Form must be submitted in UNet^{SM} in order to list a candidate as Status 1A, or extend his or her listing as Status 1A in accordance with the criteria listed above. When a candidate's time at Status 1A expires, the candidate will automatically be classified as Status 1B. The attending physician must classify the candidate as Status 2 or 7 if the candidate's medical condition does not qualify for Status 1A or Status 1B.

Status 1B A candidate listed as Status 1B has at least one of the following devices or therapies in place:

(aa) left and/or right ventricular assist device implanted; or
(bb) continuous infusion of intravenous inotropes.

Status 1B by Exception
A candidate who does not meet the criteria for Status 1B may nevertheless be listed as Status 1B upon application by his or her transplant physician. The transplant physician must justify to the applicable Regional Review Board why the candidate is considered, using acceptable medical criteria, to have an urgency and potential for benefit as other Status 1B candidates. The justification must include a rationale for incorporating the exceptional case as part of Status 1B. Regional Review Boards will retrospectively review requests for Status 1B exceptions. A report of the decision of the Regional Review Board and the basis for it ~~shall~~ may be forwarded for review by the Thoracic Organ Transplantation Committee. The Thoracic Organ Transplantation Committee may refer the case to the Membership and Professional Standards Committee.

Submission of Status 1B Justification Form
A completed Heart Status 1B Justification Form must be submitted to UNet^{SM} in order to list a candidate as Status 1B.

Status 2 A candidate who does not meet the criteria for Status 1A or 1B

is listed as Status 2.

Status 7 A candidate listed as Status 7 is considered temporarily unsuitable to receive a thoracic organ transplant.

Change in Status 1A or 1B Criterion or Eligibility
If a change in the candidate's medical condition makes the criterion used to justify a candidate's Status 1A or 1B no longer accurate, the transplant program must report the accurate information in UNet℠ within 24 hours of the change in medical condition.

3.7.4 Pediatric Candidate Status. Each candidate awaiting heart transplantation receives a status code corresponding to the candidate's medical urgency for transplant. Pediatric heart transplant candidates who have not received a heart transplant before their 18th birthday shall continue to qualify for medical urgency status based on Policy 3.7.4. A heart transplant candidate who is less than 18 years of age at the time of listing receives a status code as follows:

Status Definition

Status 1A A candidate listed as Status 1A meets at least one of the following criteria:

(a) Requires assistance with a ventilator;

(b) Requires assistance with a mechanical assist device (e.g., ECMO);

(c) Requires assistance with a balloon pump;

(d) A candidate less than six months old with congenital or acquired heart disease exhibiting reactive pulmonary hypertension at greater than 50% of systemic level. Such a candidate may be treated with prostaglandin E (PGE) to maintain patency of the ductus arteriosus;

(e) Requires infusion of high dose or multiple inotropes (The OPTN contractor shall maintain in the heart status justification form in UNet℠ a list of the specific inotropes and doses approved by the Board of Directors to be compliant with this criterion.); or,

(f) A candidate who does not meet the criteria specified in (a), (b), (c), (d), or (e) may be listed as Status 1A if the candidate has a life expectancy without a heart transplant of less than 14 days, such as due to refractory arrhythmia. Qualification for Status 1A under this criterion is valid for 14 days and may be recertified by an attending physician for one additional 14-day period. Any further extension of the Status 1A listing under this criterion requires a retrospective conference with the applicable Regional Review Board. If Regional Review Board approval is not given, the candidate's transplant physician may list the candidate as Status 1A, subject to automatic referral to the Thoracic Organ Transplantation Committee. A report of the decision of the Regional Review Board and the basis for it shall be forwarded for review by the Thoracic Organ Transplantation Committee. The Thoracic Organ

Transplantation Committee may refer the case to the Membership and Professional Standards Committee.

Qualification for Status 1A under criteria (a) through (e) is valid for 14 days and must be recertified by an attending physician every 14 days from the date of the candidate's initial listing as Status 1A to extend the Status 1A listing.

Submission of Status 1A Justification Form

A completed Heart Status 1A Justification Form must be submitted in UNet^{SM} in order to list a candidate as Status 1A, or extend his or her listing as Status 1A in accordance with the criteria listed above in Policy 3.7.4. When a candidate's time at Status 1A expires, the candidate will automatically be classified as Status 1B. The attending physician must classify the candidate as Status 2 or 7 if the candidate's medical condition does not qualify for Status 1A or Status 1B.

Status 1B

A candidate listed as Status 1B meets at least one of the following criteria:

(a) Requires infusion of low dose single inotropes (The OPTN contractor shall maintain in the heart status justification form in UNet^{SM} a list of the specific inotropes and doses approved by the Board of Directors to be compliant with this criterion.);

(b) Less than six months old and does not meet the criteria for Status 1A; or

(c) Growth failure *i.e.,* less than 5th percentile for weight and/or height, or loss of 1.5 standard deviations of expected growth (height or weight) based on the National Center for Health Statistics for pediatric growth curves.

Note: This criterion defines growth failure as either < 5th percentile for weight and/or height, or loss of 1.5 standard deviation score of expected growth (height or weight). The first measure looks at relative growth as of a single point in time. The second alternative accounts for cases in which a substantial loss in growth occurs between two points in time. Assessment of growth failure using the standard deviation score decrease can be derived by, first, measuring (or using a measure of) the candidate's growth at two different times, second, calculating the candidate's growth velocity between these times, and, third, using the growth velocity to calculate the standard deviation score (*i.e.,* (candidate's growth rate - mean growth rate for age and sex) divided by standard deviation of growth rate for age and sex).

Status 1B by Exception
A candidate who does not meet the criteria for Status 1B may be listed as Status 1B upon application by his transplant physician to the applicable Regional Review Board. The transplant physician must justify why the candidate is considered, using acceptable medical criteria, to have an urgency and potential for benefit as other candidates listed as Status 1B. The justification must include a rationale for incorporating the exceptional case as part of Status 1B. A report of the decision of the Regional Review Board and the basis for it ~~shall~~ may be forwarded for review by the Thoracic Organ Transplantation Committee. The Thoracic Organ Transplantation Committee may refer the case to the Membership and Professional Standards Committee.

Submission of Status 1B Justification Form
A completed Heart Status 1B Justification Form must be submitted in UNet℠ to list a candidate as Status 1B.

Status 2 A candidate who does not meet the criteria for Status 1A or 1B is listed as Status 2.

Status 7 A candidate listed as Status 7 is considered temporarily unsuitable to receive a thoracic organ transplant.

Change in Status 1A or 1B Criterion or Eligibility
If a change in the candidate's medical condition makes the criterion used to justify a candidate's Status 1A or 1B no longer accurate, the transplant program must report the accurate information in UNet℠ within 24 hours of the change in medical condition.

3.7.5 Allocation of Pediatric Donor Hearts to Pediatric Heart Candidates. Within each heart status, a heart retrieved from a pediatric organ donor shall be allocated to a pediatric heart candidate (i.e., less than 18 years old at the time of listing) before the heart is allocated to an adult candidate. For the purpose of Policy 3.7, a pediatric organ donor is defined as an individual who is less than 18 years of age.

3.7.6 Lung Allocation. Candidates waiting for lung transplants receive priority for deceased donor lung offers based on Lung Allocation Score (LAS) if they are at least 12 years of age. Candidates less than 12 years of age receive deceased donor lung offers based on medical urgency priority.

3.7.6.1 Lung Allocation Score (LAS) System for Candidates at Least 12 Years of Age

Candidates who are at least 12 years of age receive offers for deceased donor lungs based on LAS, as well as geography and blood type. Candidates with higher LASs receive higher waiting list priority.

3.7.6.1.1 The LAS Calculation
The LAS calculation uses *all of* the following:

- Waitlist Urgency Measure, which is the expected number of days a candidate will live without a transplant during an additional year on the waiting list
- Post-transplant Survival Measure, which is the expected number of days a candidate will live during the first year post-transplant

- Transplant Benefit Measure, which is the difference between the Post-transplant Survival Measure and the Waitlist Urgency Measure

The LAS is determined by normalizing the Raw Allocation Score to a continuous scale of 0 to 100. The Raw Allocation Score is the difference between the Transplant Benefit Measure and the Waitlist Urgency Measure.

The equation for the LAS calculation is:

$$LAS = \frac{100 * [PTAUC - 2 * WLAUC + 730]}{1095}$$

Where…	**Includes…**
$PTAUC = \sum_{k=0}^{364} S_{TX}(k)$	PTAUC = the area under the post-transplant survival probability curve during the first post-transplant year.
	β_i: the coefficient for characteristic i from the waiting list model, according to Table 1.
$S_{TX}(t) = S_{TX,0}(t)^{e^{\alpha_1 Y_1 + \alpha_2 Y_2 + \ldots + \alpha_q Y_q}}$	$S_{TX}(t)$ = the expected post-transplant survival probability at time t for an individual candidate.
	Y_i = the value of the j^{th} characteristic for an individual candidate
	$\propto_j$ = the coefficient for characteristic j from the post-transplant model, according to Table 2.
$WLAUC = \sum_{k=0}^{364} S_{WL}(k)$	WLAUC = the area under the waiting list survival probability curve during the next year.

Where…

$$S_{WL}(t) = S_{WL,0}(t)^{e^{\beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p}}$$

Includes…

$S_{WL,0}(t)$ = the baseline waiting list survival probability at time t, according to Table 3.

$S_{TX,0}(t)$ = the baseline post-transplant survival probability at time t, according to Table 4.

$S_{WL}(t)$ = the expected waiting list survival probability at time t for an individual candidate

X_i = the value of the i^{th} characteristic for an individual candidate.

Table 1
Factors Used in the Waiting List Morality Calculation: Covariates and their Coefficients

For this covariate:	**The following coefficient is used in the LAS calculation:**
1. Age (year)	0.0083990318885565*age
2. Bilirubin (mg/dL)	0.0431682188302477*(bilirubin – 1) if bilirubin is more than 1.0 mg/dL (see Policy 3.7.6.1.4) 0 when bilirubin is 1.0 mg/dL or less
3. Bilirubin increase of at least 50%	1.4144058906830200 for Group B (see Policy 3.7.6.1.4) 0 for Groups A, C, and D (see Policy 3.7.6.1.2)
4. Body mass index (BMI; kg/m^2)	0.1261444133358100*(20 – BMI) for BMI less than 20 kg/m^2 0 if BMI is at least 20 kg/m^2
5. Cardiac index prior to any exercise	0.5435368888028200 if the cardiac index is less than 2 $L/min/m^2$ 0 if the cardiac index is at least 2 $L/min/m^2$
6. Central venous pressure (CVP; mm Hg) at rest, prior to any exercise	0.0173841981251578*(CVP – 7) for CVP greater than 7 mm Hg (Group B only – see Policy 3.7.6.1.2.b) 0 if less than or equal to 7 mm Hg for Group B (see Policy 3.7.6.1.2.b) 0 for candidates in Groups A, C, and D (see Policy 3.7.6.1.2)

For this covariate:	The following coefficient is used in the LAS calculation:
7. Ventilation status if candidate is hospitalized	1.6771121096052300 if continuous mechanical ventilation needed 0 if no continuous mechanical ventilation needed
8. Creatinine (serum, mg/dL)	0.5034346761960600*creatinine if at least 18 years of age (see Policy 3.7.6.1.5) 0 if less than 18 years of age
9. Diabetes	0.4680254026735700 if diabetic 0 if not diabetic
10. Diagnosis Group A (see Policy 3.7.6.1.2.a for the diseases included in this group)	0
Diagnosis Group B (see Policy 3.7.6.1.2.b for the diseases included in this group)	1.5774243292137200
Diagnosis Group C (see Policy 3.7.6.1.2.c for the diseases included in this group)	1.2313926484343600
Diagnosis Group D (see Policy 3.7.6.1.2.d for the diseases included in this group)	0.6259577164157700
11. Detailed diagnosis: Bronchiectasis (Group A – see Policy 3.7.6.1.2.a)	0.6680518055684700
Detailed diagnosis: Eisenmenger's syndrome (Group B – see Policy 3.7.6.1.2.b)	-0.6278657824830000
Detailed diagnosis: Lymphangioleiomyomatosis (Group A – see Policy 3.7.6.1.2.a)	-0.3162937838984600
Detailed Diagnosis: Obliterative bronchiolitis (not-retransplant) (Group D – see Policy 3.7.6.1.2.d)	0.4453284411081100
Detailed Diagnosis: Pulmonary fibrosis, not idiopathic (Group D – see Policy 3.7.6.1.2.d)	-0.2091170018125500
Detailed Diagnosis: Sarcoidosis with PA mean pressure greater than 30 mm Hg (Group D – see Policy 3.7.6.1.2.d)	-0.4577749354638600

For this covariate:	The following coefficient is used in the LAS calculation:
Detailed Diagnosis: Sarcoidosis with PA mean pressure of 30 mm Hg or less (Group A – see Policy 3.7.6.1.2.a)	0.9330846239906700
12. Forced vital capacity (FVC)	0.1829476350587400*(80 – FVC)/10 if FVC is less than 80% for Group D (see Policy 3.7.6.1.2.d) 0 if FVC is greater than or equal to 80% for Group D (see Policy 3.7.6.1.2.d) 0 for candidates in Groups A, B, and C (see Policy 3.7.6.1.2)
13. Functional Status	-0.4471034284458400 if no assistance needed with activities of daily living 0 if some or total assistance needed with activities of daily living
14. Oxygen needed to maintain adequate oxygen saturation (80% or greater) at rest (L/min)	0.0213187586203456*O_2 for Group B (see Policy 3.7.6.1.2.b) 0.1188479817592500 for Groups A, C, and D (see Policy 3.7.6.1.2)
15. PCO_2 (mm Hg): current	0.1104609835819100*PCO_2/10 if PCO_2 is at least 40 mm Hg (see Policy 3.7.6.1.3)
16. PCO_2 increase of at least 15% (see Policy 3.7.6.1.3)	0.2331149280428300 if PCO_2 increase is at least 15% (see Policy 3.7.6.1.3) 0 if PCO_2 increase is less than 15% (see Policy 3.7.6.1.3)
17. Pulmonary artery (PA) systolic pressure (10 mm Hg) at rest, prior to any exercise	0.4155116686114300*(PA systolic – 40)/10 for Group A if the PA systolic pressure is greater than 40 mm Hg (see Policy 3.7.6.1.2.a) 0 for Group A if the PA systolic pressure is 40 mm Hg or less (see Policy 3.7.6.1.2.a) 0.0462410402627318*PA systolic/10 for Groups B, C, and D (see Policy 3.7.6.1.2)

For this covariate:	The following coefficient is used in the LAS calculation:
18. Six minute walk distance (feet) obtained while the candidate is receiving supplemental oxygen required to maintain an oxygen saturation of 88% or greater at rest. Increase in supplemental oxygen during this test is at the discretion of the center performing the test.	-0.0844896372724000*Six-minute walk distance/100

~~**Table 1**~~
~~**Factors Used to Predict Risk of Death on the Lung Transplant Waitlist**~~

~~1. Forced vital capacity (FVC)~~
~~2. Pulmonary artery (PA) systolic pressure (Groups A, C, and D[1] – see 3.7.6.1.a)~~
~~3. O_2 required at rest (Groups A, C, and D[1] – see 3.7.6.1.a)~~
~~4. Age~~
~~5. Body mass index (BMI)~~
~~6. Diabetes~~
~~7. Functional Status~~
~~8. Six-minute walk distance~~
~~9. Continuous mechanical ventilation~~
~~10. Diagnosis~~
~~11. PCO_2 (see 3.7.6.1.b)~~

Table 2
Factors Used in the Post-Transplant Survival Calculation: Covariates and their Coefficients

For this covariate:	The following coefficient is used in the LAS calculation:
1. Age (years)	0.0246579831271869*(age – 45) if greater than 45 years of age 0 if 45 years of age or younger
2. Creatinine (serum) at transplant (mg/dL)	0.0895569900508900*creatinine if at least 18 years of age (see Policy 3.7.6.1.5) 0 if less than 18 years of age

For this covariate:	The following coefficient is used in the LAS calculation:
3. Creatinine increase of at least 150%	0.7708616024698100 if increase in creatinine is at least 150%, and when the higher value determining this increase is at least 1 mg/dL (see Policy 3.7.6.1.5) 0 if increase in creatinine of 150% if the higher value determining this increase is less than 1 mg/dL (see Policy 3.7.6.1.5) 0 if increase in creatinine less than 150% or creatinine decreases (see Policy 3.7.6.1.5)
4. Cardiac index (L/min/m^2) at rest, prior to any exercise	0.3499381679822400 if less than 2 L/min/m^2 0 if at least 2 L/min/m^2
5. Ventilation status if candidate is hospitalized	0.6094478988424900 if continuous mechanical ventilation needed 0 if no continuous mechanical ventilation needed
6. Diagnosis Group A (see Policy 3.7.6.1.2.a for the diseases included in this group)	0
Diagnosis Group B (see Policy 3.7.6.1.2.b for the diseases included in this group)	0.6115547319209300
Diagnosis Group C (see Policy 3.7.6.1.2.c for the diseases included in this group)	0.3627014422464200
Diagnosis Group D (see Policy 3.7.6.1.2.d for the diseases included in this group)	0.4641392063023200
7. Detailed diagnosis: Bronchiectasis (Group A – see Policy 3.7.6.1.2.a)	0.1889100379099400
Detailed diagnosis: Eisenmenger's syndrome (Group B – see Policy 3.7.6.1.2.b)	0.9146727886744700
Detailed diagnosis: Lymphangioleiomyomatosis (Group A – see Policy 3.7.6.1.2.a)	-1.5194416206749400
Detailed Diagnosis: Obliterative bronchiolitis (not-retransplant) (Group D – see Policy 3.7.6.1.2.d)	-1.2050508750702600

For this covariate:	The following coefficient is used in the LAS calculation:
Detailed Diagnosis: Pulmonary fibrosis, not idiopathic (Group D – see Policy 3.7.6.1.2.d)	-0.0723596761367600
Detailed Diagnosis: Sarcoidosis with PA mean pressure greater than 30 mm Hg (Group D – see Policy 3.7.6.1.2.d)	-0.0437880049066331
Detailed Diagnosis: Sarcoidosis with PA mean pressure of 30 mm Hg or less (Group A – see Policy 3.7.6.1.2.a)	-0.1389363636019300
8. Oxygen needed to maintain adequate oxygen saturation (80% or greater) at rest (L/min)	0.0747978926517300*O_2 for Group A (see Policy 3.7.6.1.2.a) 0.0164276945879309 for Groups B, C, and D (see Policy 3.7.6.1.2)
9. Functional Status	-0.1900086366785100 if no assistance needed with activities for daily living 0 if some or total assistance needed with activities for daily living
10. Six-minute-walk-distance (feet) obtained while candidate is receiving supplemental oxygen required to maintain an oxygen saturation of 88% or greater at rest. Increase in supplemental oxygen during this test is at the discretion of the center performing the test.	0.0004594953809594*(1200-6mw) 0 if six-minute-distance-walked is at least 1200 feet

~~**Table 2**~~
~~**Factors that Predict Survival after Lung Transplant**~~

~~1. FVC (Groups B and D – see 3.7.6.1.a)~~
~~2. PCW pressure ≥ 20 (Group D – see 3.7.6.1.a)~~
~~3. Continuous mechanical ventilation~~
~~4. Age~~
~~5. Serum Creatinine~~
~~6. Functional Status~~
~~7. Diagnosis~~

Tables 3 and 4 provide the baseline waiting list and post-transplant survival probabilities, which are used in the LAS calculation.

Table 3: Baseline Waiting List Survival ($S_{WL}(t)$) Probability

Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$
0	1.000000	49	0.996644	98	0.993160	147	0.990540	196	0.987299
1	0.999991	50	0.996543	99	0.993098	148	0.990540	197	0.987263
2	0.999925	51	0.996518	100	0.993061	149	0.990540	198	0.987155
3	0.999867	52	0.996397	101	0.993005	150	0.990540	199	0.987122
4	0.999746	53	0.996397	102	0.993005	151	0.990540	200	0.986530
5	0.999598	54	0.996363	103	0.992938	152	0.990384	201	0.986530
6	0.999499	55	0.996305	104	0.992938	153	0.990333	202	0.986480
7	0.999371	56	0.996191	105	0.992883	154	0.990333	203	0.985963
8	0.999305	57	0.996119	106	0.992883	155	0.990333	204	0.985926
9	0.999218	58	0.995942	107	0.992851	156	0.990245	205	0.985926
10	0.999085	59	0.995942	108	0.992762	157	0.990245	206	0.985820
11	0.998990	60	0.995909	109	0.992724	158	0.990245	207	0.985820
12	0.998887	61	0.995909	110	0.992643	159	0.990145	208	0.985742
13	0.998816	62	0.995873	111	0.992643	160	0.989689	209	0.985742
14	0.998730	63	0.995846	112	0.992562	161	0.989689	210	0.985742
15	0.998660	64	0.995846	113	0.992089	162	0.989652	211	0.985708
16	0.998588	65	0.995614	114	0.992064	163	0.989575	212	0.985708
17	0.998455	66	0.995553	115	0.992040	164	0.989575	213	0.985541
18	0.998362	67	0.995553	116	0.991997	165	0.988903	214	0.985541
19	0.998259	68	0.995553	117	0.991966	166	0.988873	215	0.985541
20	0.998220	69	0.995500	118	0.991940	167	0.988873	216	0.985450
21	0.998068	70	0.995479	119	0.991940	168	0.988784	217	0.985450
22	0.998036	71	0.995349	120	0.991940	169	0.988722	218	0.985450
23	0.997972	72	0.995293	121	0.991514	170	0.988695	219	0.985330
24	0.997868	73	0.995136	122	0.991514	171	0.988695	220	0.985265
25	0.997770	74	0.994965	123	0.991514	172	0.988695	221	0.985265
26	0.997742	75	0.994821	124	0.991514	173	0.988655	222	0.985265
27	0.997667	76	0.994774	125	0.991488	174	0.988655	223	0.985265
28	0.997626	77	0.994702	126	0.991462	175	0.988655	224	0.985265
29	0.997540	78	0.994702	127	0.991393	176	0.988625	225	0.984621
30	0.997473	79	0.994634	128	0.991307	177	0.988548	226	0.984549
31	0.997391	80	0.994565	129	0.991307	178	0.988548	227	0.984549
32	0.997327	81	0.994547	130	0.991270	179	0.988548	228	0.984549
33	0.997297	82	0.994465	131	0.991236	180	0.988062	229	0.984549
34	0.997274	83	0.994465	132	0.991236	181	0.988062	230	0.984489
35	0.997242	84	0.994297	133	0.991053	182	0.988062	231	0.984489
36	0.997242	85	0.994297	134	0.991012	183	0.988021	232	0.984396
37	0.997181	86	0.994297	135	0.991012	184	0.987934	233	0.984324
38	0.997137	87	0.994297	136	0.990978	185	0.987885	234	0.984280
39	0.997121	88	0.994181	137	0.990978	186	0.987885	235	0.984079
40	0.997121	89	0.994077	138	0.990978	187	0.987885	236	0.984079
41	0.997019	90	0.994035	139	0.990936	188	0.987885	237	0.984015
42	0.996946	91	0.994008	140	0.990901	189	0.987856	238	0.984015
43	0.996916	92	0.993866	141	0.990901	190	0.987856	239	0.984015
44	0.996849	93	0.993831	142	0.990811	191	0.987856	240	0.984015
45	0.996849	94	0.993807	143	0.990739	192	0.987856	241	0.983835
46	0.996820	95	0.993715	144	0.990595	193	0.987856	242	0.983835
47	0.996780	96	0.993308	145	0.990595	194	0.987608	243	0.983792
48	0.996731	97	0.993220	146	0.990540	195	0.987359	244	0.983753

Table 3: Baseline Waiting List Survival ($S_{WL}(t)$) Probability (Continued)

Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$	Time (days): t	$S_{WL}(t)$
245	0.983753	**269**	0.982960	**293**	0.981827	**317**	0.980218	**341**	0.978597
246	0.983753	**270**	0.982960	**294**	0.981827	**318**	0.980129	**342**	0.978597
247	0.983697	**271**	0.982797	**295**	0.981573	**319**	0.980129	**343**	0.978301
248	0.983636	**272**	0.982797	**296**	0.981319	**320**	0.980016	**344**	0.978250
249	0.983636	**273**	0.982797	**297**	0.980775	**321**	0.980016	**345**	0.978250
250	0.983636	**274**	0.982797	**298**	0.980775	**322**	0.980016	**346**	0.978250
251	0.983636	**275**	0.982700	**299**	0.980519	**323**	0.979773	**347**	0.978117
252	0.983243	**276**	0.982603	**300**	0.980397	**324**	0.979773	**348**	0.978037
253	0.983243	**277**	0.982603	**301**	0.980397	**325**	0.979671	**349**	0.978037
254	0.983243	**278**	0.982511	**302**	0.980397	**326**	0.979671	**350**	0.978037
255	0.983097	**279**	0.982457	**303**	0.980397	**327**	0.979164	**351**	0.978037
256	0.983097	**280**	0.982457	**304**	0.980397	**328**	0.979164	**352**	0.977937
257	0.983097	**281**	0.982457	**305**	0.980397	**329**	0.979164	**353**	0.977937
258	0.983097	**282**	0.982413	**306**	0.980397	**330**	0.979164	**354**	0.977937
259	0.983097	**283**	0.982323	**307**	0.980339	**331**	0.979100	**355**	0.977855
260	0.983097	**284**	0.982323	**308**	0.980339	**332**	0.979100	**356**	0.977855
261	0.983097	**285**	0.982323	**309**	0.980339	**333**	0.978935	**357**	0.977855
262	0.983052	**286**	0.982323	**310**	0.980339	**334**	0.978935	**358**	0.977710
263	0.983052	**287**	0.982323	**311**	0.980339	**335**	0.978817	**359**	0.977710
264	0.983052	**288**	0.982323	**312**	0.980339	**336**	0.978817	**360**	0.976881
265	0.983052	**289**	0.982323	**313**	0.980339	**337**	0.978817	**361**	0.976881
266	0.983052	**290**	0.982323	**314**	0.980339	**338**	0.978817	**362**	0.976881
267	0.983052	**291**	0.981916	**315**	0.980218	**339**	0.978817	**363**	0.976709
268	0.982960	**292**	0.981878	**316**	0.980218	**340**	0.978817	**364**	0.976709

Table 4: Baseline Post-Transplant Survival ($S_{TX}(t)$) Probability

Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$
0	1.000000	48	0.981882	97	0.972415	146	0.965165	195	0.958585
0	0.998946	49	0.981394	98	0.972415	147	0.965018	196	0.958585
1	0.997558	50	0.981115	99	0.972128	148	0.965018	197	0.958511
2	0.996895	51	0.980836	100	0.971984	149	0.964724	198	0.958361
3	0.996364	52	0.980416	101	0.971769	150	0.964651	199	0.958062
4	0.995498	53	0.980207	102	0.971697	151	0.964504	200	0.958062
5	0.995165	54	0.980137	103	0.971553	152	0.964357	201	0.957987
6	0.994565	55	0.979926	104	0.971337	153	0.964063	202	0.957987
7	0.994164	56	0.979646	105	0.971265	154	0.963843	203	0.957913
8	0.993963	57	0.979436	106	0.971193	155	0.963696	204	0.957763
9	0.993360	58	0.979085	107	0.971121	156	0.963475	205	0.957613
10	0.993159	59	0.978874	108	0.971049	157	0.963328	206	0.957538
11	0.992487	60	0.978733	109	0.970977	158	0.963107	207	0.957388
12	0.992353	61	0.978452	110	0.970761	159	0.962738	208	0.957313
13	0.991949	62	0.978382	111	0.970689	160	0.962517	209	0.957238
14	0.991679	63	0.978170	112	0.970617	161	0.962443	210	0.957163
15	0.991207	64	0.978100	113	0.970545	162	0.962296	211	0.957163
16	0.990531	65	0.977959	114	0.970473	163	0.962074	212	0.956938
17	0.990260	66	0.977818	115	0.970329	164	0.961927	213	0.956863
18	0.989921	67	0.977818	116	0.969968	165	0.961705	214	0.956788
19	0.989582	68	0.977536	117	0.969824	166	0.961631	215	0.956713
20	0.989514	69	0.977254	118	0.969679	167	0.961557	216	0.956638
21	0.988902	70	0.977042	119	0.969607	168	0.961483	217	0.956488
22	0.988220	71	0.976971	120	0.969390	169	0.961483	218	0.956263
23	0.987810	72	0.976901	121	0.969101	170	0.961409	219	0.956263
24	0.987469	73	0.976759	122	0.968956	171	0.961113	220	0.956187
25	0.987263	74	0.976547	123	0.968667	172	0.961113	221	0.956112
26	0.987058	75	0.976476	124	0.968594	173	0.961039	222	0.956037
27	0.986578	76	0.976193	125	0.968377	174	0.960965	223	0.955887
28	0.986304	77	0.975909	126	0.968159	175	0.960891	224	0.955736
29	0.986030	78	0.975767	127	0.968086	176	0.960743	225	0.955736
30	0.985961	79	0.975625	128	0.967868	177	0.960595	226	0.955736
31	0.985755	80	0.975483	129	0.967796	178	0.960446	227	0.955661
32	0.985480	81	0.975483	130	0.967504	179	0.960446	228	0.955661
33	0.985136	82	0.975483	131	0.967359	180	0.960372	229	0.955510
34	0.984929	83	0.974985	132	0.967140	181	0.960298	230	0.955510
35	0.984515	84	0.974985	133	0.967140	182	0.960149	231	0.955209
36	0.984446	85	0.974700	134	0.966994	183	0.960075	232	0.955209
37	0.984170	86	0.974700	135	0.966702	184	0.959852	233	0.955134
38	0.983825	87	0.974415	136	0.966483	185	0.959778	234	0.954983
39	0.983479	88	0.973987	137	0.966483	186	0.959703	235	0.954832
40	0.983202	89	0.973845	138	0.966410	187	0.959629	236	0.954681
41	0.983063	90	0.973630	139	0.966263	188	0.959554	237	0.954530
42	0.982855	91	0.973416	140	0.966190	189	0.959480	238	0.954455
43	0.982716	92	0.973416	141	0.966190	190	0.959256	239	0.954228
44	0.982578	93	0.973202	142	0.965971	191	0.959107	240	0.954228
45	0.982300	94	0.973059	143	0.965751	192	0.959033	241	0.954077
46	0.982160	95	0.972916	144	0.965678	193	0.959033	242	0.954077
47	0.981952	96	0.972629	145	0.965311	194	0.958735	243	0.953925

Table 4: Baseline Post-Transplant Survival ($S_{TX}(t)$) Probability (Continued)

Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$	Time (days): t	$S_{TX}(t)$
244	0.953850	**269**	0.951190	**293**	0.948589	**317**	0.946359	**341**	0.943729
245	0.953850	**270**	0.950961	**294**	0.948359	**318**	0.946359	**342**	0.943651
246	0.953774	**271**	0.950656	**295**	0.948282	**319**	0.946204	**343**	0.943573
247	0.953774	**272**	0.950579	**296**	0.948128	**320**	0.946204	**344**	0.943418
248	0.953698	**273**	0.950427	**297**	0.948052	**321**	0.946127	**345**	0.943341
249	0.953623	**274**	0.950274	**298**	0.947975	**322**	0.946050	**346**	0.943108
250	0.953395	**275**	0.950121	**299**	0.947821	**323**	0.946050	**347**	0.943030
251	0.953319	**276**	0.950121	**300**	0.947667	**324**	0.945896	**348**	0.943030
252	0.953016	**277**	0.949815	**301**	0.947667	**325**	0.945818	**349**	0.942952
253	0.953016	**278**	0.949662	**302**	0.947360	**326**	0.945587	**350**	0.942719
254	0.952712	**279**	0.949662	**303**	0.947360	**327**	0.945432	**351**	0.942719
255	0.952712	**280**	0.949585	**304**	0.947360	**328**	0.945432	**352**	0.942719
256	0.952712	**281**	0.949585	**305**	0.947360	**329**	0.945355	**353**	0.942641
257	0.952484	**282**	0.949432	**306**	0.947283	**330**	0.945278	**354**	0.942485
258	0.952408	**283**	0.949355	**307**	0.947283	**331**	0.945123	**355**	0.942485
259	0.952332	**284**	0.949279	**308**	0.947206	**332**	0.945123	**356**	0.942173
260	0.952256	**285**	0.949279	**309**	0.947129	**333**	0.944968	**357**	0.942017
261	0.952180	**286**	0.949202	**310**	0.946975	**334**	0.944891	**358**	0.941783
262	0.952104	**287**	0.949202	**311**	0.946821	**335**	0.944736	**359**	0.941705
263	0.951876	**288**	0.949126	**312**	0.946821	**336**	0.944581	**360**	0.941627
264	0.951800	**289**	0.949049	**313**	0.946821	**337**	0.944504	**361**	0.941549
265	0.951648	**290**	0.948896	**314**	0.946744	**338**	0.944194	**362**	0.941549
266	0.951648	**291**	0.948819	**315**	0.946590	**339**	0.944039	**363**	0.941315
267	0.951572	**292**	0.948819	**316**	0.946436	**340**	0.943961	**364**	0.941315
268	0.951495								

3.7.6.1.2 Lung Disease Diagnosis Group Classification in the Lung Allocation Score (LAS)

The LAS calculation includes four diagnosis groups: A, B, C, and D. The diagnoses that comprise each group are:

a. Group A
- Allergic bronchopulmonary aspergillosis
- Alpha-1 antitrypsin deficiency
- Bronchiectasis
- Bronchopulmonary dysplasia
- Chronic obstructive pulmonary disease/emphysema
- Ehlers-Danlos syndrome
- Granulomatous lung disease
- Inhalation burns/trauma
- Kartagener's syndrome
- Lymphangioleiomyomatosis
- Obstructive lung disease
- Primary ciliary dyskinesia;
- Sarcoidosis with mean pulmonary artery pressure of 30 mm Hg or less
- Tuberous sclerosis
- Wegener's granuloma – bronchiectasis

b. Group B
- Congenital malformation
- CREST – pulmonary hypertension
- Eisenmenger's syndrome: atrial septal defect
- Eisenmenger's syndrome: multi-congenital anomalies
- Eisenmenger's syndrome: other specify
- Eisenmenger's syndrome: Patent ductus arteriosus (PDA)
- Eisenmenger's syndrome: Ventricular septal defect (VSD)
- Portopulmonary hypertension
- Primary pulmonary hypertension/pulmonary arterial hypertension
- Pulmonary capillary hemangiomatosis
- Pulmonary telangiectasia – pulmonary hypertension
- Pulmonary thromboembolic disease
- Pulmonary vascular disease
- Pulmonary veno-occlusive disease
- Pulmonic stenosis
- Right hypoplastic lung
- Scleroderma – pulmonary hypertension
- Secondary pulmonary hypertension
- Thromboembolic pulmonary hypertension

c. Group C
- Common variable immune deficiency
- Cystic fibrosis
- Fibrocavitary lung disease
- Hypogammaglobulinemia
- Schwachman-Diamond syndrome

d. Group D
- ABCA3 transporter mutation
- Alveolar proteinosis

- Amyloidosis
- Acute respiratory distress syndrome or pneumonia
- Bronchoalveolar carcinoma (BAC)
- Carcinoid tumorlets
- Chronic pneumonitis of infancy
- Constrictive bronchiolitis
- CREST – Restrictive
- Eosinophilic granuloma
- Fibrosing Mediastinitis
- Graft versus host disease (GVHD)
- Hermansky Pudlak syndrome
- Hypersensitivity pneumonitis
- Idiopathic interstitial pneumonia, with one or more of the following disease entities:
  - Acute interstitial pneumonia
  - Cryptogenic organizing pneumonia/Bronchiolitis obliterans with organizing pneumonia (BOOP)
  - Desquamative interstitial pneumonia
  - Idiopathic pulmonary fibrosis
  - Nonspecific interstitial pneumonia
  - Lymphocytic interstitial pneumonia
  - Respiratory bronchiolitis-associated interstitial lung disease
- Idiopathic pulmonary hemosiderosis
- Lung retransplant or graft failure: acute rejection
- Lung retransplant or graft failure: non-specific
- Lung retransplant or graft failure: obliterative bronchiolitis-obstructive
- Lung retransplant or graft failure: obliterative bronchiolitis-restrictive
- Lung retransplant or graft failure: obstructive
- Lung retransplant or graft failure: other specify
- Lung retransplant or graft failure: primary graft failure
- Lung retransplant or graft failure: restrictive
- Lupus
- Mixed connective tissue disease
- Obliterative bronchiolitis: non-retransplant
- Occupational lung disease: other specify
- Paraneoplastic pemphigus associated Castleman's disease
- Polymyositis
- Pulmonary fibrosis other specify cause
- Pulmonary hyalinizing granuloma
- Pulmonary telangiectasia – restrictive
- Rheumatoid disease
- Sarcoidosis with mean pulmonary artery pressure higher than 30 mm Hg
- Scleroderma – restrictive
- Secondary pulmonary fibrosis (specify cause)
- Silicosis
- Sjogren's syndrome
- Surfactant protein B mutation
- Surfactant protein C mutation
- Teratoma
- Wegener's granuloma – restrictive

3.7.6.1.3 PCO_2 in the Lung Allocation Score (LAS)

UNet[SM] will use two measures of PCO_2 in a candidate's lung allocation score calculation: current PCO_2, and change in PCO_2. There are two types of PCO_2 change calculations: "threshold change" and "threshold change maintenance." The following explanations (a-f) and illustrations (Figures 1-3) detail how UNet[SM] uses PCO_2 in the lung allocation score.

a. *Use of Arterial, Venous, or Capillary PCO_2 Values*
In UNet[SM], a center may enter a PCO_2 value from an arterial, venous, or capillary blood gas test. UNet[SM] will convert a venous or capillary value to estimate an arterial value as follows:
- a capillary value will equal an arterial value; and,
- UNet[SM] will subtract 6 mmHg from a venous value to equal an arterial value.

In the lung allocation score calculation, UNet[SM] will use the PCO_2 value with the most recent test date, regardless of the blood gas type. Exception: if an arterial value and either a venous or capillary value have the same test date, UNet[SM] will use the arterial value in the lung allocation score calculation.

b. *Definition of Current PCO_2*
Current PCO_2 is the PCO_2 value with the most recent test date entered in UNet[SM].

c. *Expiration of Current PCO_2 Value*
UNet[SM] will evaluate a current PCO_2 value as expired according to Policy 3.7.6.3.

d. *Use of Normal Clinical Value for Current PCO_2*
The normal clinical value of PCO_2 is 40 mmHg. UNet[SM] will substitute this normal clinical value in the lung allocation score calculation when the value of current PCO_2 is less than 40 mmHg, missing, or expired.

e. *PCO_2 Values Used in the Change Calculations*
There are two types of PCO_2 change calculations: threshold change and threshold change maintenance.
The threshold change calculation evaluates whether the PCO_2 change is 15% or higher. In this calculation, UNet[SM] will use highest and lowest values of PCO_2. The test date of the lowest value must be earlier than the test date of the highest value. Test dates of these highest and lowest values cannot be more than 6 months apart. If necessary, UNet[SM] will use an expired lowest value, but not an expired highest value. If a value is less than 40 mmHg, UNet[SM] will substitute the normal clinical value of 40 mmHg before calculating change. The equation for threshold change is:

$$\frac{\textbf{Highest } PCO_2 - \textbf{Lowest } PCO_2}{\textbf{Lowest } PCO_2}$$

The threshold change maintenance calculation occurs *after* the candidate receives the impact from threshold change in the lung allocation score. This maintenance calculation determines the candidate's eligibility for retaining the impact

from threshold change in the lung allocation score. To maintain the impact from threshold change in the lung allocation score, the current PCO_2 value must be at least 15% higher than the lowest value used in the threshold change calculation. The equation for threshold change maintenance is:

$$\frac{\textbf{Current } PCO_2 \textbf{- Lowest } PCO_2}{\textbf{Lowest } PCO_2}$$

UNet[SM] will perform the threshold change maintenance calculation either when the current PCO_2 value expires (Policy 3.7.6.3) or a new current PCO_2 value is entered. For this calculation, the lowest and highest values that were used in the threshold change calculation can be expired. The current PCO_2 value can be the highest one that was used in the threshold change calculation. If a current PCO_2 value expires, the candidate's lung allocation score will lose the impact from threshold change. The reason for this loss is that when a current PCO_2 value expires, UNet[SM] will substitute that expired value with the normal clinical value of 40 mmHg. This normal value, therefore, cannot be 15% *higher* than the lowest value in the threshold change calculation.

If a center enters a new current PCO_2 value for a candidate who has lost the impact from threshold change, UNet[SM] will perform the threshold change maintenance calculation. If the new current PCO_2 value is at least 15% higher than the lowest value used in the threshold change calculation, UNet[SM] will *reapply* the impact from threshold change to the candidate's lung allocation score.

f. *Impact of PCO_2 Threshold Change in the Lung Allocation Score*

A change in PCO_2 that is 15% or higher, or threshold change, will impact a candidate's lung allocation score. The candidate will not lose the lung allocation score impact from threshold change provided that the current PCO_2 is at least 15% higher than the lowest value used in the threshold change calculation.

Figure 1
Use of Current PCO_2 in the Lung Allocation Score

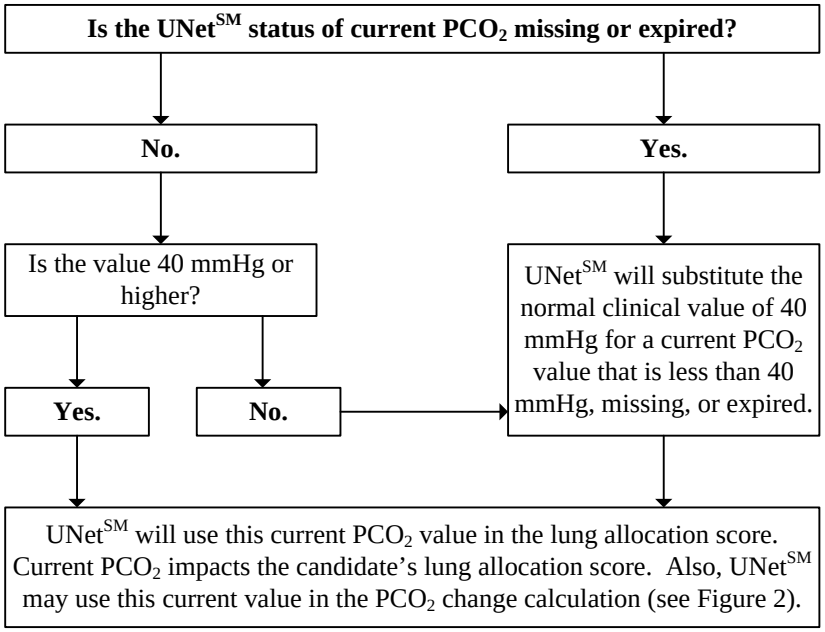


Figure 2
PCO_2 Threshold Change Calculation

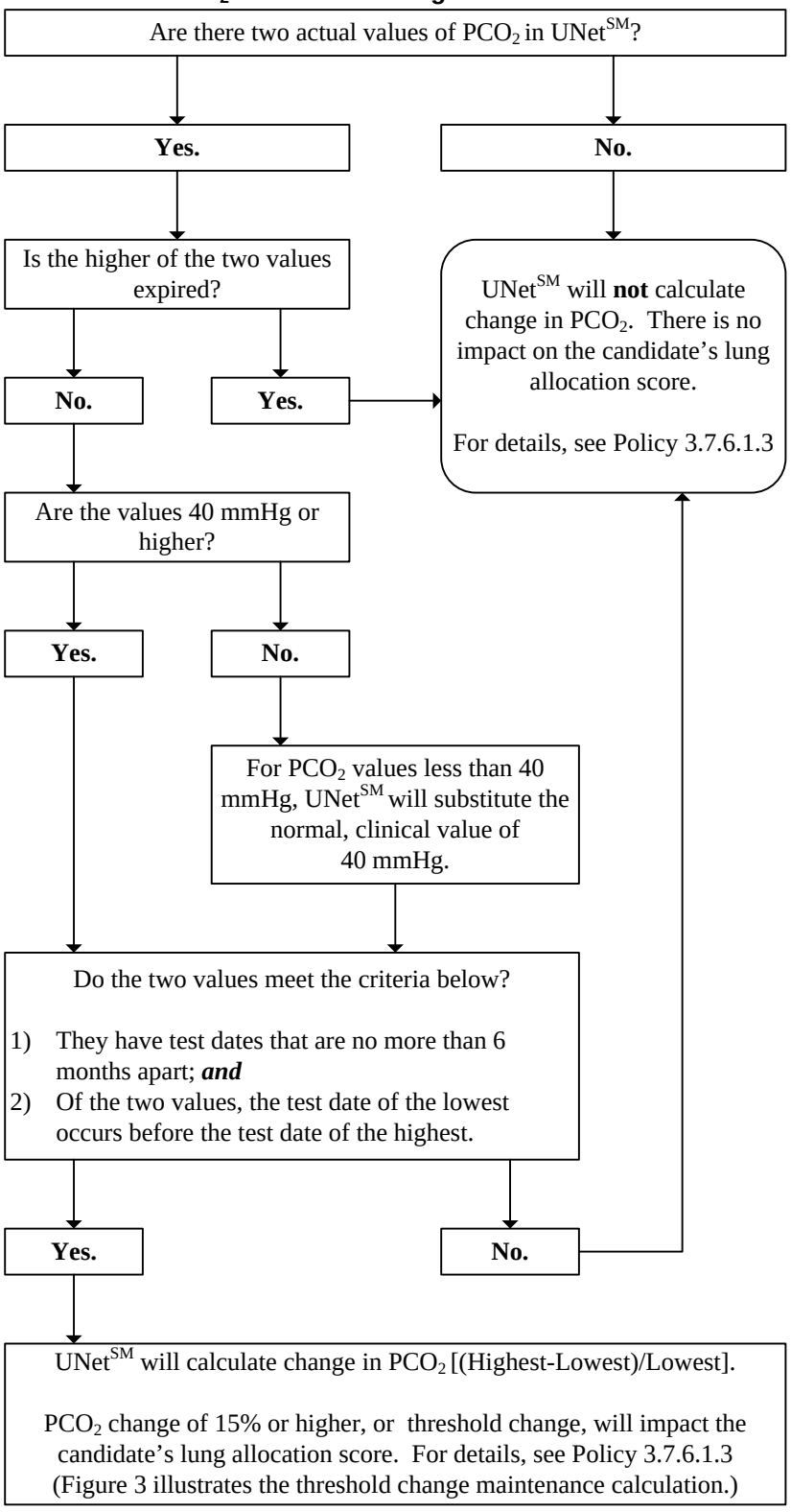
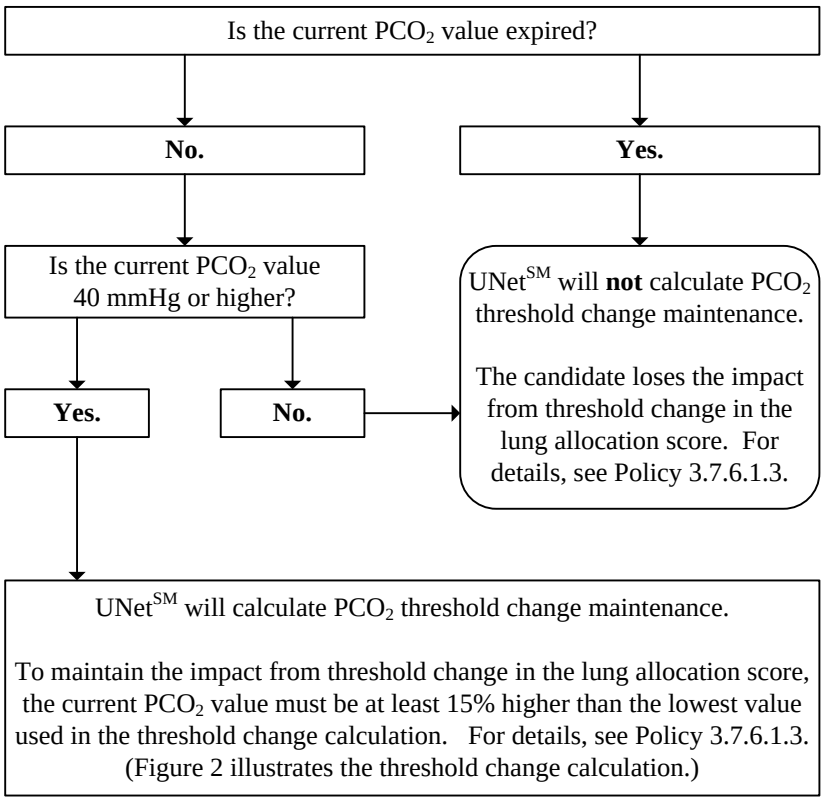


Figure 3
PCO_2 Threshold Change Maintenance Calculation



3.7.6.1.4 Bilirubin in the Lung Allocation Score (LAS)

UNet℠ will use two measures of total bilirubin in a candidate's lung allocation score calculation: current bilirubin (for all candidates), and change in bilirubin (for Group B only). There are two types of bilirubin change calculations: "threshold change" and "threshold change maintenance." This section of Policy 3.7.6.1 explains how UNet℠ uses bilirubin in the lung allocation score.

a. *Definition of Current Bilirubin*
Current bilirubin is the total bilirubin value with the most recent test date and time entered in UNet℠. UNet℠ will include in the lung allocation score calculation a current bilirubin value that is at least 1.0 mg/dL.

b. *Expiration of Current Bilirubin Value*
UNet℠ will evaluate a current bilirubin value as expired according to Policy 3.7.6.3.

c. *Use of Normal Clinical Value for Current Bilirubin*
The normal clinical value of current bilirubin is 0.7 mg/dL. UNet℠ will substitute this normal clinical value in the lung allocation score calculation when the value of current bilirubin is less than 0.7 mg/dL, missing, or expired.

d. *Bilirubin Values Used in the Change Calculations (Group B Only)*

There are two types of bilirubin change calculations: threshold change and threshold change maintenance.

The threshold change calculation evaluates whether the bilirubin change is 50% or higher. In this calculation, UNet[SM] will use highest and lowest values of bilirubin. The test date of the lowest value must be earlier than the test date of the highest value. The highest value must be at least 1.0 mg/dL. Test dates of these highest and lowest values cannot be more than 6 months apart. If necessary, UNet[SM] will use an expired lowest value, but not an expired highest value. If a value is less than 0.7 mg/dL, UNet[SM] will substitute the normal clinical value of 0.7 mg/dL before calculating change. The equation for threshold change is:

$$\frac{\textbf{Highest Bilirubin-Lowest Bilirubin}}{\textbf{Lowest Bilirubin}}$$

The threshold change maintenance calculation occurs *after* the candidate receives the impact from threshold change in the lung allocation score. This maintenance calculation determines the candidate's eligibility for retaining the impact from threshold change in the lung allocation score. To maintain the impact from threshold change in the lung allocation score, the current bilirubin value must be at least 50% higher than the lowest value used in the threshold change calculation. The equation for threshold change maintenance is:

$$\frac{\textbf{Current Bilirubin-Lowest Bilirubin}}{\textbf{Lowest Bilirubin}}$$

UNet[SM] will perform the threshold change maintenance calculation either when the current bilirubin value expires (Policy 3.7.6.3) or a new current bilirubin value is entered. For this calculation, the lowest and highest values that were used in the threshold change calculation can be expired. The current bilirubin value can be the highest one that was used in the threshold change calculation. If a current bilirubin value expires, the candidate's lung allocation score will lose the impact from threshold change. The reason for this loss is that when a current bilirubin value expires, UNet[SM] will substitute that expired value with the normal clinical value of 0.7 mg/dL. This normal value, therefore, cannot be 50% *higher* than the lowest value in the threshold change calculation.

If a center enters a new current bilirubin value for a candidate who has lost the impact from threshold change, UNet[SM] will perform the threshold change maintenance calculation. If the new current bilirubin value is at least 50% higher than the lowest value used in the threshold change calculation, UNet[SM] will *reapply* the impact from threshold change to the candidate's lung allocation score.

e. *Impact of Bilirubin Threshold Change in the Lung Allocation Score (Group B only)*

A change in bilirubin that is 50% or higher, or threshold

change, will impact a candidate's lung allocation score. The candidate will not lose the lung allocation score impact from threshold change provided that the current bilirubin is at least 50% higher than the lowest value used in the threshold change calculation.

3.7.6.1.5 Creatinine in the Lung Allocation Score (LAS)

The LAS calculation uses two measures of creatinine: current creatinine and increase in creatinine.

a. Current Creatinine
Current creatinine is the serum creatinine value from the most recent test date and time reported to the OPTN Contractor. The LAS calculation only uses current creatinine for candidates who are at least 18 years of age.

b. Increase in Creatinine
An increase in creatinine will influence a candidate's LAS only if it is at least 150%. The Increase-In-Creatinine calculation uses the highest and lowest values of creatinine. For this variable to impact a candidate's LAS, the test date of the lowest value must be earlier than the test date of the highest value. The highest value must be at least 1.0 mg/dL. Test dates of the highest and lowest values cannot be more than 6 months apart. The Increase-In-Creatinine calculation can use an expired lowest value, but not an expired highest value. The equation for this increase-in-creatinine calculation is:

$$\frac{\textbf{Highest Creatinine-Lowest Creatinine}}{\textbf{Lowest Creatinine}}$$

If a candidate's LAS is influenced by an increase in creatinine, then the LAS calculation will assess whether to maintain that influence. To maintain the influence of the increase in creatinine, the candidate's current creatinine value must be at least 150% higher than the lowest value used in the Increase-In-Creatinine calculation. The equation for this maintenance calculation is:

$$\frac{\textbf{Current Creatinine-Lowest Creatinine}}{\textbf{Lowest Creatinine}}$$

If the current creatinine value expires or a new creatinine value is entered, then the increase maintenance calculation will occur.

3.7.6.2 Candidates Age 0 - 11. UNet^{SM} ranks candidates who are 0 – 11 years old for lung offers according to the priorities defined below. Within each priority, UNet^{SM} will rank candidates by ABO (according to Policy 3.7.8.2) and then by waiting time, in descending order. For Priority 1, UNet^{SM} will only consider the most current period of time a candidate has spent as Priority 1, i.e, UNet^{SM} will not tally the time waiting during multiple Priority 1 periods. For Priority 2, and if there is ever a tie among Priority 1 candidates, UNet^{SM} will use these candidates' total waiting time to determine the order for receiving lung offers. Total waiting time includes time spent waiting as Priority 1, Priority 2, and inactive.

A program may update clinical data used to justify a candidate's priority at any time it believes a candidate's medical condition warrants such modifications. For a candidate listed as Priority 1, a program must update each qualifying criterion, except that which is obtained only by heart catheterization, at least once in each six month period following the candidate's registration on the lung Waitlist[SM]. If more than six months elapse without data updates after the candidate's last six-month "anniversary" of his or her Waitlist[SM] registration, then the candidate's Priority 1will revert to Priority 2. UNet[SM] will assess the currency of lung variables for each candidate on every six-month "anniversary" date. (For example, if a candidate is first registered on the Waitlist[SM] on January 1, 2011, and the most recent six-month "anniversary" is January 1, 2012, then UNet[SM] will consider any variables collected on or after July 1, 2011 as current until June 30, 2012. UNet[SM] will reassess the currency of the lung variables on July 1, 2012, and then any variables with test dates that are on or after January 1, 2012 would be considered current.)

Priority 1: Candidates with one or more of the following criteria:

- **Respiratory failure, defined as:**
  - Requiring continuous mechanical ventilation; ***or***
  - Requiring supplemental oxygen delivered by any means to achieve FiO_2 greater than 50% in order to maintain oxygen saturation levels greater than 90%; ***or,***
  - Having an arterial or capillary PCO_2 greater than 50 mmHg, or a venous PCO_2 greater than 56mmHg.

- **Pulmonary hypertension, defined as:**
  - Having pulmonary vein stenosis involving 3 or more vessels; ***or***
  - Exhibiting any of the following, in spite of medical therapy: suprasystemic PA pressure on cardiac catheterization or by echocardiogram estimate, cardiac index less than 2 L/min/M^2, syncope, or hemoptysis

    Examples of accepted medical therapy for pulmonary hypertension will be listed in UNet[SM]. Transplant centers must indicate which of these medical therapies the candidate has received. If the candidate has not received any of the listed therapies, the transplant center must submit an exception request to the Lung Review Board as described below.

- **An exception case approved by the Lung Review Board:**
  - In its review of exception requests, the Lung Review Board will follow the ~~prospective~~ retrospective review process described in Policy 3.7.6.4 (Lung Candidates with Exceptional Cases).

Priority 2: Candidates who do not meet the criteria for Priority 1 must be listed as Priority 2.

3.7.6.3 Reporting Data for Candidates Who Receive Lung Allocation Scores (LAS)

When registering a candidate who is at least 12 years of age for lung transplantation, transplant programs must report to the OPTN Contractor clinical data corresponding to the covariates shown in Tables 1 and 2 in Policy 3.7.6.1.1. Data reported upon registering the candidate must be no more than six months older than the registration date. The transplant program must maintain source documentation for

the reported data in the candidate's chart.

Except as noted in Policy 3.7.6.3.1, transplant programs must report to the OPTN Contractor each element of a candidate's clinical data at every six-month anniversary date. A six-month anniversary date first occurs six months after the date of initial registration, then every six months after. A covariate's value expires if the covariate's test date is six-months older than the most recent six-month anniversary date. Actual values or estimated values for pulmonary pressures are valid until the transplant program submits new actual values or new estimated values to the OPTN Contractor according to Policy 3.7.6.4.

Transplant programs may determine how often to update clinical data that must be obtained through heart catheterization. However, if a transplant program performs a heart catheterization on the candidate during any six month interval, then it must report the relevant results to the OPTN Contractor. The transplant program must maintain source documentation of all heart catheterization test results in the candidate's chart.

If values for certain covariates are missing, expired, or below a threshold as defined by Table 5, then the LAS calculation will substitute normal or least beneficial values to calculate the candidate's LAS. A normal value is one that a healthy individual is likely to exhibit. A least beneficial value is one that will calculate the lowest LAS for a candidate. Table 5 lists the normal and least beneficial values that will be substituted.

Table 5
Data Substituted for Missing, Expired, or Below Threshold Actual Values in Calculating the LAS

If this covariate's value is missing, expired, or below the threshold value:	**Then the LAS calculation will use this substituted value:**
Bilirubin: current	1.0 mg/dL if the actual value is missing, expired, or less than 1.0 mg/dL
Body mass index (BMI)	100 kg/m^2 if the actual value is missing or expired
Cardiac index	3.0 $L/min/m^2$ if the actual value is missing
Central venous pressure (CVP)	5 mm Hg if the actual value is missing or less than 5 mm Hg
Continuous mechanical ventilation	No mechanical ventilation in the waiting list model if the actual value is missing or expired Continuous mechanical ventilation in the post-transplant model if the actual value is missing or expired
Creatinine: serum	0.1 mg/dL in the waiting list model if the actual value is missing or expired 40 mg/dL in the post-transplant model for candidates at least 18 years of age if the actual value is missing or expired

If this covariate's value is missing, expired, or below the threshold value:	Then the LAS calculation will use this substituted value:
	0 mg/dL in the post-transplant model for candidates less than 18 years of age if the actual value is missing or expired
Diabetes	No diabetes if the actual value is missing or expired
Forced vital capacity (FVC)	150% for Group D if the actual value is missing or expired, according to Policy 3.7.6.1.2(d)
Functional status	No assistance needed in the waiting list model if the actual value is missing or expired Some or total assistance needed in the post-transplant model if the actual value is missing or expired
Oxygen needed at rest	No supplemental oxygen needed in the waiting list model if the actual value is missing or expired 26.33 L/min in the post-transplant model if the actual value is missing or expired
PCO_2: current	40 mm Hg if the actual value is missing, expired, or less than 40 mm Hg
Pulmonary artery (PA) systolic pressure	20 mm Hg if the actual value is missing or less than 20 mm Hg
Six minute walk distance	4000 feet in the waiting list urgency model if the actual value is missing or expired 0 feet in the post-transplant survival model if the actual value is missing or expired

Programs are permitted to enter a medically reasonable estimated value if a test needed to obtain an actual value for a variable cannot be performed due to the medical condition of a candidate. Before entering such estimated values, programs must receive approval from the Lung Review Board, which will determine whether the estimated values are appropriate. Estimated values will remain valid until those values are either updated with an actual value, or a new estimated value is entered according to Policy 3.7.6.4.

~~**3.7.6.3 Candidate Variables in UNet℠.** Entry into UNet℠ of candidate clinical data corresponding to the variables shown in Tables 1 and 2 in Policy 3.7.6.1 is required when listing a candidate for lung transplantation. Diagnosis, birth date (used to calculate age), height and weight (used to calculate BMI) must be entered for a candidate to be added to the waitlist. Candidates will receive a Lung Allocation Score of zero if the Functional Status class or assisted ventilation variable is missing a value at any time.~~

~~If values for pulmonary artery systolic pressure, pulmonary capillary wedge pressure, or pulmonary artery mean pressure are missing, then a default value will be assigned that represents a normal clinical value for these missing pulmonary pressure variables. A default value of 20 mm Hg will be assigned for missing pulmonary artery systolic pressure, a default value of 5 mm Hg will be assigned for missing pulmonary capillary wedge pressure, and a default value of 15 mm Hg will be assigned for missing pulmonary artery mean pressure. The default values for pulmonary pressures will also be used in the calculation of Lung Allocation Scores for those candidates whose actual values are provided, but are lower than the default value. If any other candidate variables are missing, then a default value, which will be the value that results in the lowest contribution to the Lung Allocation Score for that variable field ("Least Beneficial Value"), will be selected for the candidate.~~

~~Programs are permitted to enter a value deemed medically reasonable in the event a test needed to obtain an actual value for a variable cannot be performed due to the medical condition of a specific candidate. Prior to entering such estimated values, programs must request review and approval from the Lung Review Board to determine whether the estimated values are appropriate. Estimated values will remain valid until those values are either updated with an actual value or a new estimated value is entered pursuant to Policy 3.7.6.4.~~

3.7.6.3.1 Reporting Data for Candidates with LASs of 50 or Greater

A program must report three key variables to the OPTN Contractor no more than 14 days after a candidate's LAS becomes 50 or greater:

a. Assisted ventilation,
b. Supplemental oxygen
c. Current PCO_2.

If a program does not perform a PCO_2 test in that time, then it does not need to report this updated value to the OPTN Contractor. While the candidate's LAS remains 50 or greater, the program must continue to assess and report any observed change in the three clinical variables every 14 days.

The transplant program must maintain source documentation for each assessment in the candidate's chart.

~~**Updating Candidate Variables.** Programs may update their candidates' clinical data at any time they believe a change in candidate medical condition warrants such modification. Programs must update each element of a candidate's clinical data in UNet℠ every six months, except those data obtainable only by heart catheterization. Also, as described further below, programs must update three clinical variables more frequently than six months for candidates with LAS of 50 or higher.~~

~~UNet℠ defines a "six month anniversary date," which first occurs six months from the date of initial listing, then every six months thereafter. UNet℠ will consider a variable to be expired if the variable's test date is six-months older than the most recent anniversary date.~~

~~If the test dates of the Functional Status or assisted ventilation~~

~~variable expire, then the candidate's Lung Allocation Score will be zero. If any other candidate variable expires - excluding pulmonary artery systolic pressure, pulmonary capillary wedge pressure, or pulmonary artery mean pressure- then the candidate will receive the Least Beneficial Value for that variable. The transplant center determines the frequency of updating those candidate variables that are required to be obtained by heart catheterization (pulmonary artery pressures and pulmonary capillary wedge pressure) If a transplant center repeats a heart catheterization test, it must report the results in UNet^{SM}.~~

~~UNet^{SM} will consider actual values or estimated values for pulmonary pressures to be valid until the transplant center updates them with new actual values or new estimated values pursuant to Policy 3.7.6.4.~~

~~A program must update three key variables in UNet^{SM} no more than 14 days after a candidate's LAS becomes greater than 50: assisted ventilation, supplemental oxygen, and current PCO_2. If a program does not perform a PCO_2 test in that time, then it does not need to update this value in UNet^{SM}. While the candidate's score remains 50 or higher, a program must continue to assess and report any observed change in the three clinical variables no less frequently than 14 days from the date of the previous assessment.~~

3.7.6.4 Lung Candidates With Exceptional Cases. Special cases require prospective review by the Lung Review Board. Transplant programs may request approval of estimated values, diagnosis, or a specific Lung Allocation Score. The transplant center will accompany each request for special case review with a supporting narrative. Once complete, the request must be sent to the OPTN contractor. The Lung Review Board will have seven (7) calendar days to reach a decision, starting from the date that the contractor sends the request to the Lung Review Board. If a request is denied by the Lung Review Board upon initial review, then the center may choose to appeal the decision for reconsideration by the Lung Review Board. The center will have seven (7) calendar days from the date of the initial request denial to appeal. The Lung Review Board will have seven (7) calendar days to reach a decision on the appeal, starting from the date that the contractor sends the appealed request to the Lung Review Board. If the Lung Review Board has not completed its review of an initial request or an appeal within seven (7) calendar days of receiving it, then the candidate will <u>not</u> receive the requested Lung Allocation Score, diagnosis, or estimated value, and the request or appeal will be forwarded to the Thoracic Organ Transplantation Committee for further review.

Should the Lung Review Board deny a transplant center's initial request or appealed request for an estimated value or a specific Lung Allocation Score, the transplant center has the option to override the decision of the LRB. If the transplant center elects to override the decision of the Lung Review Board, then the request or appeal will be automatically referred to the Thoracic Organ Transplantation Committee for review; this review by the Thoracic Organ Transplantation Committee may result in further referral of the matter to the Membership and Professional Standards Committee for appropriate action in accordance with *Appendix L: Reviews, Actions, and Due Process* of the OPTN Bylaws.

Estimated values will remain valid until an actual value is entered in the

system or a new estimated value is entered pursuant to the procedures described in this policy. A diagnosis that has been approved by the Lung Review Board or the Thoracic Organ Transplantation Committee will remain valid indefinitely or until an adjustment is requested and, if necessary, approved by the Lung Review Board. Lung Allocation Scores will remain valid for six (6) months from the entry date (or the candidate's twelfth birthday, whichever occurs later). If the candidate continues to be on the Waiting List six months after the entry date, then the candidate's Lung Allocation Score will be computed as described in Policy 3.7.6.1 and Policy 3.7.6.3 unless a new Lung Allocation Score request is entered pursuant to the procedures described in this policy or the center chooses to use the computed Lung Allocation Score instead.

The Thoracic Committee shall establish guidelines for special case review by the Lung Review Board.

3.7.7 Allocation of Thoracic Organs to Heart-Lung Candidates. When the candidate is eligible to receive a heart in accordance with Policy 3.7, or an approved variance to this policy, the lung shall be allocated to the heart-lung candidate from the same donor. When the candidate is eligible to receive a lung in accordance with Policy 3.7, or an approved variance to this policy, the heart shall be allocated to the heart-lung candidate from the same donor if no suitable Status 1A isolated heart candidates are eligible to receive the heart. Heart-lung candidates shall use the ABO matching requirements described in Policy 3.7.8 when they are included in the heart match run results. Heart-lung candidates shall use the ABO matching requirements described in policy 3.7.8.2 when they are included in the lung match run results.

3.7.8 ABO Typing for Heart Allocation. Within each heart status category, hearts will be allocated to patients according to the following ABO matching requirements:

(i) Blood type O donor hearts shall only be allocated to blood type O or blood type B patients;

(ii) Blood type A donor hearts shall only be allocated to blood type A or blood type AB patients;

(iii) Blood type B donor hearts shall only be allocated to blood type B or blood type AB patients;

(iv) Blood type AB donor hearts shall only be allocated to blood type AB patients.

(v) If there is no patient available who meets these matching requirements, donor hearts shall be allocated first to patients who have a blood type that is compatible with the donor's blood type.

(vi) Following allocation for all born transplant candidates who have blood types that are compatible with donors, hearts will be allocated locally first and then within zones in the sequence described in 3.7.10, by heart status category to born Status 1A or 1B pediatric heart candidates who are eligible to receive a heart from any blood type donor. Allocation to *in utero* candidates eligible for any blood type donors is initiated after all eligible born candidates have received offers.

A center may specify on the waiting list that a candidate is eligible to accept a heart from any blood type donor if one of the following conditions is met:

(i) Candidate is *in utero*;

(ii) Candidate is less than 1 year of age, and meets all of the following:

a. Listed at Status 1A or 1B, and
b. Current isohemagglutinin titer information for A and/or B blood type antigens reported in UNet[SM].

(iii) Candidate is greater than or equal to 1 year of age, and meets all of the following:

a. Is listed prior to age 2;
b. Is listed at Status 1A or 1B;
c. Has current isohemagglutinin titer level(s) less than or equal to 1:4 for A and/or B blood type antigens reported in UNet[SM]; and,
d. Has *not* received treatments within the prior 30 days that may have reduced titer values to 1:4 or less.

3.7.8.1 Heart Allocation to Pediatric Candidates Eligible to Accept a Donor Heart of Any Blood Type. A center may specify on the waiting list that a candidate is eligible to accept a heart from any blood type donor if the eligibility requirements set forth in Policy 3.7.8 are met.

Anti-A and/or Anti-B titers must be reported:

(i) At time of listing (except for *in utero* candidates);

(ii) Every 30 days after listing (**all** eligible born candidates);

(iii) At transplant; and

(iv) In the event of graft loss or death within one year after transplant (for all candidates transplanted with other than blood type identical or compatible donor hearts).

Listing and transplant outcomes for candidates determined to be eligible under this policy will be monitored on a quarterly basis by a subcommittee of the Pediatric Transplantation Committee, including at least two non-Committee members with analytical and/or other professional expertise in this area of medicine, and reported to the Pediatric Committee. Transplant programs that list candidates for receipt of donor hearts of any blood type shall be required to provide information requested for review by the subcommittee, including, for example, autopsy reports.

3.7.8.2 ABO Typing for Lung Allocation. Candidates who have the identical blood type as the donor and are awaiting an isolated lung transplant will be allocated thoracic organs before candidates who have a compatible (but not identical) blood type with that of the donor and are awaiting an isolated lung transplant

3.7.9 Time Waiting for Thoracic Organ Candidates. Calculation of the time a candidate has been waiting for a thoracic organ transplant begins with the date and time the candidate is first registered as active on the Waiting List. Waiting time will not be accrued by candidates awaiting a thoracic organ transplant while they are registered on the Waiting List as inactive, except as specified in Policy 3.7.9.3 (Waiting Time Accrual for Lung Candidates Less than 12 Years of Age). When time waiting is used for thoracic organ allocation, a candidate will receive a preference over other candidates who have accumulated less waiting time within the same status/priority category. Where applicable, waiting time accrued by a candidate for a single thoracic organ transplant (heart or single lung) while

waiting on the Waiting List also may be accrued for a second thoracic organ, when it is determined that the candidate requires a multiple thoracic organ (heart-lung or double lung) transplant. In addition, where applicable, waiting time accrued by a candidate for a multiple thoracic organ transplant while waiting on the Waiting List may be transferred to the Waiting List for a single thoracic organ transplant.

3.7.9.1 Waiting Time Accrual for Heart Candidates. Candidates listed as a Status 1A, 1B, or 2 will accrue waiting time within each heart status; however, waiting time accrued while listed at a lower status will not be counted toward heart allocation if the candidate is upgraded to a higher status. For example, a candidate who is listed as a Status 2 for 3 months and then is upgraded to a Status 1A for one week will accrue one week of waiting time as a Status 1A. If the candidate is downgraded to a Status 2 for another 3 weeks, then the candidate will have 4 months of total accrued time. If the candidate subsequently is upgraded for another week as a Status 1A, then the candidate's Status 1A waiting time will be 2 weeks.

3.7.9.2 Waiting Time Accrual for Lung Candidates liat Least 12 Years of Age Following Implementation of Lung Allocation Scores (LAS) System ~~Described in Policy 3.7.6~~ ~~Waiting time accrued by lung candidates age 12 and older at the time of implementation of the Lung Allocation Score described in Policy 3.7.6~~ **~~and thereafter~~** ~~will be used to determine priority in lung allocation among candidates with Lung Allocation Scores of zero~~ **~~In the event that multiple candidates receive identical Lung Allocation Scores greater than zero, whether computed Lung Allocation Scores or assigned Lung Allocation Scores that have been approved by the Lung Review Board pursuant to an exceptional case request, and have identical priority for a lung offer considering all other allocation factors, then priority among those candidates will be determined by their total active waiting time accrued.~~**

** **BOLD** *language that appears in Policy 3.7.9.2 was approved by the Executive Committee on March 11, 2005, and was implemented on May 4, 2005.*

In the event that multiple candidates receive identical computed Lung Allocation Scores greater than zero, and have identical priority for a lung offer considering all other allocation factors, then priority among those candidates will be determined by the earliest date and time of each candidate's most recent update in UNet^{SM} by the member, of variables used in calculation of the Lung Allocation Score. (For example, if Candidate A and Candidate B have an identical Lung Allocation Score and identical priority for a lung offer, and Candidate A's data variables were most recently updated by the transplant center on May 1, 2005, and Candidate B's data variables were most recently updated by the transplant center on June 1, 2005, then Candidate A would receive higher priority for the lung offer because his most recent data update by the transplant center occurred first and the same set of data variables has been used to calculate Candidate A's Lung Allocation Score for the longest amount of time.)

In the event that multiple candidates receive identical assigned Lung Allocation Scores pursuant to an exceptional case request, and have identical priority for a lung offer considering all other allocation factors, then priority among those candidates will be determined by the earliest date and time that each candidate's most recent approval of that Lung

Allocation Score by the Lung Review Board was entered in UNet^{SM} (For example, if Candidate X and Candidate Y have identical Lung Allocation Scores assigned to them by the Lung Review Board and identical priority for a lung offer, and the approval for Candidate X's score was entered in UNet^{SM} on June 1, 2005, and the approval for Candidate Y's score was entered in UNet^{SM} on July 1, 2005, then Candidate X would receive higher priority for the lung offer because his most recent Lung Allocation Score was approved and entered in UNet^{SM} first.)

~~Candidates that receive a Lung Allocation Score of zero due to missing or expired candidate variables as described in Policy 3.7.6.3 will be screened from the lung match following notification of the listing center, and will not receive isolated lung offers. Upon the entry or update of previously missing or expired candidate variables as described in Policy 3.7.6.3, those candidates will appear on the lung match.~~

Candidates awaiting a lung transplant on the Waiting List at inactive status will be subject to the same requirements for updating candidates' clinical data as indicated in Policy 3.7.6.3 and Policy 3.7.6.4 and will not accrue any waiting time while at inactive status.

NOTE: Policy 3.7.9.2 (Waiting Time Accrual for Lung Candidates Age 12 and Older Following Implementation of Lung Allocation Scores Described in Policy 3.7.6) (BOLDED and as of the June 24, 2005 Board of Directors Meeting) shall be approved and implemented pending distribution of appropriate notice and programming on UNet^{SM}, if and as applicable.

3.7.9.3 Waiting Time Accrual for Lung Candidates Less than 12 Years of Age. Candidates listed as a Priority 1 or Priority 2 will accrue waiting time within each priority. Priority 1 and Priority 2 candidates will receive a preference over other candidates within a match run classification who have accumulated less waiting time. For Priority 1 candidates, UNet^{SM} will only consider the most recent time spent as Priority 1, i.e., UNet^{SM} will not tally the time waiting during multiple Priority 1 periods.

For Priority 2 candidates, and if there is ever a tie among Priority 1 candidates, UNet^{SM} will use total waiting time. Total waiting time includes time spent waiting as Priority 1, Priority 2, and inactive.

3.7.10 Sequence of Adult Heart Allocation. Donor hearts recovered from donors age 18 and older shall be allocated in the following sequence in accordance with Policies 3.7.3, 3.7.4, 3.7.5, 3.7.7, 3.7.8, and 3.7.9:

Local
1. Status 1A candidates
2. Status 1B candidates

Zone A
3. Status 1A candidates
4. Status 1B candidates

Local
5. Status 2 candidate s

Zone B
6. Status 1A candidates
7. Status 1B candidates

Zone A
8. Status 2 candidates

Zone B
9. Status 2 candidates

Zone C
10. Status 1A candidates
11. Status 1B candidates
12. Status 2 candidates

Zone D
13 Status 1A candidates
14. Status 1B candidates
15. Status 2 candidates

Zone E
16. Status 1A candidates
17. Status 1B candidates
18. Status 2 candidates

3.7.10.1 Sequence of Pediatric Heart Allocation. Hearts recovered from pediatric donors shall be allocated in the following sequence in accordance with Policies 3.7.3, 3.7.4, 3.7.5, 3.7.7, 3.7.8, and 3.7.9:

1. Common OPO and Zone A Status 1A ABO Primary Ped Candidates for Pediatric Donor
2. Common OPO and Zone A Status 1A ABO Secondary Ped Candidates for Pediatric Donor
3. Common OPO Status 1A ABO Primary Candidates
4. Common OPO Status 1A ABO Secondary Candidates
5. Common OPO and Zone A Status 1B ABO Primary Ped Candidates for Pediatric Donor
6. Common OPO and Zone A Status 1B ABO Secondary Ped Candidates for Pediatric Donor
7. Common OPO Status 1B ABO Primary Candidates
8. Common OPO Status 1B ABO Secondary Candidates
9. Zone A Status 1A ABO Primary Candidates
10. Zone A Status 1A ABO Secondary Candidates
11. Zone A Status 1B ABO Primary Candidates
12. Zone A Status 1B ABO Secondary Candidates
13. Common OPO Status 2 ABO Primary Ped Candidates for Pediatric Donor
14. Common OPO Status 2 ABO Secondary Ped Candidates for Pediatric Donor
15. Common OPO Status 2 ABO Primary Candidates
16. Common OPO Status 2 ABO Secondary Candidates
17. Zone B Status 1A ABO Primary Ped Candidates for Pediatric Donor
18. Zone B Status 1A ABO Secondary Ped Candidates for Pediatric Donor
19. Zone B Status 1A ABO Primary Candidates
20. Zone B Status 1A ABO Secondary Candidates
21. Zone B Status 1B ABO Primary Ped Candidates for Pediatric Donor
22. Zone B Status 1B ABO Secondary Ped Candidates for Pediatric Donor
23. Zone B Status 1B ABO Primary Candidates
24. Zone B Status 1B ABO Secondary Candidates
25. Zone A Status 2 ABO Primary Ped Candidates for Pediatric Donor
26. Zone A Status 2 ABO Secondary Ped Candidates for Pediatric Donor
27. Zone A Status 2 ABO Primary Candidates
28. Zone A Status 2 ABO Secondary Candidates
29. Zone B Status 2 ABO Primary Ped Candidates for Pediatric Donor
30. Zone B Status 2 ABO Secondary Ped Candidates for Pediatric Donor
31. Zone B Status 2 ABO Primary Candidates
32. Zone B Status 2 ABO Secondary Candidates
33. Zone C Status 1A ABO Primary Ped Candidates for Pediatric Donor
34. Zone C Status 1A ABO Secondary Ped Candidates for Pediatric Donor

35. Zone C Status 1A ABO Primary Candidates
36. Zone C Status 1A ABO Secondary Candidates
37. Zone C Status 1B ABO Primary Ped Candidates for Pediatric Donor
38. Zone C Status 1B ABO Secondary Ped Candidates for Pediatric Donor
39. Zone C Status 1B ABO Primary Candidates
40. Zone C Status 1B ABO Secondary Candidates
41. Zone C Status 2 ABO Primary Ped Candidates for Pediatric Donor
42. Zone C Status 2 ABO Secondary Ped Candidates for Pediatric Donor
43. Zone C Status 2 ABO Primary Candidates
44. Zone C Status 2 ABO Secondary Candidates
45. Zone D Status 1A ABO Primary Ped Candidates for Pediatric Donor
46. Zone D Status 1A ABO Secondary Ped Candidates for Pediatric Donor
47. Zone D Status 1A ABO Primary Candidates
48. Zone D Status 1A ABO Secondary Candidates
49. Zone D Status 1B ABO Primary Ped Candidates for Pediatric Donor
50. Zone D Status 1B ABO Secondary Ped Candidates for Pediatric Donor
51. Zone D Status 1B ABO Primary Candidates
52. Zone D Status 1B ABO Secondary Candidates
53. Zone D Status 2 ABO Primary Ped Candidates for Pediatric Donor
54. Zone D Status 2 ABO Secondary Ped Candidates for Pediatric Donor
55. Zone D Status 2 ABO Primary Candidates
56. Zone D Status 2 ABO Secondary Candidates
57. Zone E Status 1A ABO Primary Ped Candidates for Pediatric Donor
58. Zone E Status 1A ABO Secondary Ped Candidates for Pediatric Donor
59. Zone E Status 1A ABO Primary Candidates
60. Zone E Status 1A ABO Secondary Candidates
61. Zone E Status 1B ABO Primary Ped Candidates for Pediatric Donor
62. Zone E Status 1B ABO Secondary Ped Candidates for Pediatric Donor
63. Zone E Status 1B ABO Primary Candidates
64. Zone E Status 1B ABO Secondary Candidates
65. Zone E Status 2 ABO Primary Ped Candidates for Pediatric Donor
66. Zone E Status 2 ABO Secondary Ped Candidates for Pediatric Donor
67. Zone E Status 2 ABO Primary Candidates
68. Zone E Status 2 ABO Secondary Candidates
69. Common OPO and Zone A Status 1A ABO Incompatible Ped Candidates for Pediatric Donor
70. Common OPO and Zone A Status 1B ABO Incompatible Ped Candidates for Pediatric Donor
71. Common OPO Status 2 ABO Incompatible Candidates
72. Zone B Status 1A ABO Incompatible Candidates
73. Zone B Status 1B ABO Incompatible Candidates
74. Zone C Status 1A ABO Incompatible Candidates
75. Zone C Status 1B ABO Incompatible Candidates
76. Zone D Status 1A ABO Incompatible Candidates
77. Zone D Status 1B ABO Incompatible Candidates
78. Zone E Status 1A ABO Incompatible Candidates
79. Zone E Status 1B ABO Incompatible Candidates
80. Common OPO and Zone A ABO Primary In Utero Candidates
81. Common OPO and Zone A ABO Secondary In Utero Candidates
82. Common OPO and Zone A ABO Incompatible In Utero Candidates
83. Zone B ABO Primary In Utero Candidates
84. Zone B ABO Secondary In Utero Candidates
85. Zone B ABO Incompatible In Utero Candidates
86. Zone C ABO Primary In Utero Candidates
87. Zone C ABO Secondary In Utero Candidates
88. Zone C ABO Incompatible In Utero Candidates
89. Zone D ABO Primary In Utero Candidates
90. Zone D ABO Secondary In Utero Candidates
91. Zone D ABO Incompatible In Utero Candidates
92. Zone E ABO Primary In Utero Candidates
93. Zone E ABO Secondary In Utero Candidates
94. Zone E ABO Incompatible In Utero Candidates

3.7.11 Sequence of Adult Donor Lung Allocation. Candidates age 12 and older awaiting a lung transplant whether it is a single lung transplant or a double lung transplant will be grouped together for adult (18 years old and older) donor lung

allocation. If one lung is allocated to a candidate needing a single lung transplant, the other lung will be then allocated to another candidate waiting for a single lung transplant.

Lungs from adult donors will first be offered to candidates age 12 and older, and then to candidates 0 – 11 years old. Lungs from adult donors will be allocated locally first, then to candidates in Zone A, then to candidates in Zone B, then to candidates in Zone C, then to candidates in Zone D and finally to candidates in Zone E. In each of those six geographic areas, candidates will be grouped so that candidates who have an ABO blood type that is identical to that of the donor are ranked according to applicable allocation priority; the lungs will be allocated in descending order to candidates in that ABO identical type. If the lungs are not allocated to candidates in that ABO identical type, they will be allocated in descending order according to applicable allocation priority to the remaining candidates in that geographic area who have a blood type that is compatible (but not identical) with that of the donor. In summary, the allocation sequence for adult donor lungs is as follows:

1. Local ABO identical candidates age 12 and older according to Lung Allocation Score in descending order;
2. Local ABO compatible candidates age 12 and older according to Lung Allocation Score in descending order;
3. Local ABO identical Priority 1 candidates 0 – 11 years old according to length of waiting time;
4. Local ABO compatible Priority 1 candidates 0 – 11 years old according to length of waiting time;
5. Local ABO identical Priority 2 candidates 0 – 11 years old according to length of waiting time;
6. Local ABO compatible Priority 2 candidates 0 – 11 years old according to length of waiting time;
7. ABO identical candidates age 12 and older in Zone A according to Lung Allocation Score in descending order;
8. ABO compatible candidates age 12 and older in Zone A according to Lung Allocation Score in descending order;
9. ABO identical Priority 1 candidates 0 – 11 years old in Zone A according to length of waiting time;
10. ABO compatible Priority 1 candidates 0 – 11 years old in Zone A according to length of waiting time;
11. ABO identical Priority 2 candidates 0 – 11 years old in Zone A according to length of waiting time;
12. ABO compatible Priority 2 candidates 0 – 11 years old in Zone A according to length of waiting time;
13. ABO identical candidates age 12 and older in Zone B according to Lung Allocation Score in descending order;
14. ABO compatible candidates age 12 and older in Zone B according to Lung Allocation Score in descending order;
15. ABO identical Priority 1 candidates 0 – 11 years old in Zone B according to length of waiting time;
16. ABO compatible Priority 1 candidates 0 – 11 years old in Zone B according to length of waiting time;
17. ABO identical Priority 2 candidates 0 – 11 years old in Zone B according to length of waiting time;
18. ABO compatible Priority 2 candidates 0 – 11 years old in Zone B according to length of waiting time;
19. ABO identical candidates age 12 and older in Zone C according to Lung Allocation Score in descending order;
20. ABO compatible candidates age 12 and older in Zone C according to Lung Allocation Score in descending order;
21. ABO identical Priority 1 candidates 0 – 11 years old in Zone C according to length of waiting time;

22. ABO compatible Priority 1 candidates 0 – 11 years old in Zone C according to length of waiting time;
23. ABO identical Priority 2 candidates 0 – 11 years old in Zone C according to length of waiting time;
24. ABO compatible Priority 2 candidates 0 – 11 years old in Zone C according to length of waiting time;
25. ABO identical candidates age 12 and older in Zone D according to Lung Allocation Score in descending order;
26. ABO compatible candidates age 12 and older in Zone D according to Lung Allocation Score in descending order;
27. ABO identical Status 1 candidates 0 – 11 years old in Zone D according to length of waiting time;
28. ABO compatible Status 1 candidates 0 – 11 years old in Zone D according to length of waiting time;
29. ABO identical Priority 2 candidates 0 – 11 years old in Zone D according to length of waiting time;
30. ABO compatible Priority 2 candidates 0 – 11 years old in Zone D according to length of waiting time;
31. ABO identical candidates age 12 and older in Zone E according to Lung Allocation Score in descending order;
32. ABO compatible candidates age 12 and older in Zone E according to Lung Allocation Score in descending order;
33. ABO identical Priority 1 candidates 0 – 11 years old in Zone E according to length of waiting time;
34. ABO compatible Priority 1 candidates 0 – 11 years old in Zone E according to length of waiting time;
35. ABO identical Priority 2 candidates 0 – 11 years old in Zone E according to length of waiting time; and
36. ABO compatible Priority 2 candidates 0 – 11 years old in Zone E according to length of waiting time.

3.7.11.1 Sequence of Pediatric Donor Lung Allocation. Candidates 0 – 11 years old awaiting a single or double lung transplant will be grouped together for allocation purposes. If one lung is allocated to a candidate waiting for a single lung transplant, the other lung will be then allocated to another candidate waiting for a single lung transplant.

Candidates 12 – 17 years old awaiting a single or double lung transplant will be grouped together for pediatric (0 – 17 years old) donor lung allocation. If one lung is allocated to a candidate waiting for a single lung transplant, the other lung will be then allocated to another candidate waiting for a single lung transplant.

Lungs from donors 0 – 11 years old will first be offered to candidates age 0 – 11; then to candidates age 12 – 17; then to candidates 18 years and older. Candidates will be grouped so that those who have an ABO blood type that is identical to that of the donor are ranked according to applicable allocation priority; the lungs will be allocated in descending order to candidates in that ABO identical type. If the lungs are not allocated to candidates in that ABO identical type, they will be allocated in descending order according to applicable allocation priority to the remaining candidates in that geographic area who have a blood type that is compatible (but not identical) with that of the donor.

- Offers for 0-11 year-olds will first be made to **combined** local, Zone A and Zone B candidates by priority and waiting time. After adolescent and adult offers are completed through Zone B, offers will continue to these younger candidates in Zones C, D and E prior to adolescents and adults within in each zone.

- Offers for 12-17 year-olds will first be made to **combined** local and Zone A candidates according to lung allocation score in descending order after the completion of 0-11 year-old offers through Zone B. Once adult Zone A offers are completed, offers will continue to adolescent candidates in Zones B, C, D and E after the younger 0-11 candidates and before the adult candidates within each zone.

- Offers to adult candidates (18 years and older) will be made after the completion of 0-11 year old offers through Zone B and adolescent offers through Zone A. After local and Zone A adult offers are completed, offers will continue in Zones B, C, D and E after the completion of all pediatric offers within each zone.

In summary, the allocation sequence for lungs from donors 0-11 years old is as follows:

1. Combined local, Zone A and Zone B ABO identical Priority 1 candidates 0-11 years old according to length of waiting time;
2. Combined local, Zone A and Zone B ABO compatible Priority 1 candidates 0-11 years old according to length of waiting time;
3. Combined local, Zone A and Zone B ABO identical Priority 2 candidates 0-11 years old according to length of waiting time;
4. Combined local, Zone A and Zone B ABO compatible Priority 2 candidates 0-11 years old according to length of waiting time;
5. Combined local and Zone A ABO identical candidates 12 – 17 years old according to Lung Allocation Score in descending order;
6. Combined Local and Zone A ABO compatible candidates 12 – 17 years old according to Lung Allocation Score in descending order;
7. Local ABO identical candidates 18 years old and older according to Lung Allocation Score in descending order;
8. Local ABO compatible candidates 18 years old and older according to Lung Allocation Score in descending order;
9. ABO identical candidates 18 years old and older in Zone A according to Lung Allocation Score in descending order;
10. ABO compatible candidates 18 years old and older in Zone A according to Lung Allocation Score in descending order;
11. ABO identical candidates 12 – 17 years old in Zone B according to Lung Allocation Score in descending order;
12. ABO compatible candidates 12 – 17 years old in Zone B according to Lung Allocation Score in descending order;
13. ABO identical candidates 18 years old and older in Zone B according to Lung Allocation Score in descending order;
14. ABO compatible candidates 18 years old and older in Zone B according to Lung Allocation Score in descending order;
15. ABO identical Priority 1 candidates 0 – 11 years old in Zone C according to length of time waiting;
16. ABO compatible Priority 1 candidates 0 – 11 years old in Zone C according to length of time waiting;
17. ABO identical Status 2 candidates 0-11 years old in Zone C according to length of waiting time;
18. ABO compatible Priority 2 candidates 0-11 years old in Zone C according to length of waiting time;
19. ABO identical candidates 12 – 17 years old in Zone C according to Lung Allocation Score in descending order;
20. ABO compatible candidates 12 – 17 years old in Zone C according to Lung Allocation Score in descending order;
21. ABO identical candidates 18 years old and older old in Zone C according to Lung Allocation Score in descending order;

22. ABO compatible candidates 18 years old and older in Zone C according to Lung Allocation Score in descending order;
23. ABO identical Priority 1 candidates 0 – 11 years old in Zone D according to length of time waiting;
24. ABO compatible Priority 1 candidates 0 – 11 years old in Zone D according to length of time waiting;
25. ABO identical Priority 2 candidates 0-11 years old in Zone D according to length of waiting time;
26. ABO compatible Priority 2 candidates 0-11 years old in Zone D according to length of waiting time;
27. ABO identical candidates 12 – 17 years old in Zone D according to Lung Allocation Score in descending order;
28. ABO compatible candidates 12 – 17 years old in Zone D according to Lung Allocation Score in descending order;
29. ABO identical candidates 18 years old and older in Zone D according to Lung Allocation Score in descending order; and
30. ABO compatible candidates 18 years old and older in Zone D according to Lung Allocation Score in descending order.
31. ABO identical Priority 1 candidates 0 – 11 years old in Zone E according to length of time waiting;
32. ABO compatible Priority 1 candidates 0 – 11 years old in Zone E according to length of time waiting;
33. ABO identical Priority 2 candidates 0-11 years old in Zone E according to length of waiting time;
34. ABO compatible Priority 2 candidates 0-11 years old in Zone E according to length of waiting time;
35. ABO identical candidates 12 – 17 years old in Zone E according to Lung Allocation Score in descending order;
36. ABO compatible candidates 12 – 17 years old in Zone E according to Lung Allocation Score in descending order;
37. ABO identical candidates 18 years old and older in Zone E according to Lung Allocation Score in descending order; and
38. ABO compatible candidates 18 years old and older in Zone E according to Lung Allocation Score in descending order.

Lungs from donors 12 – 17 years old will first be offered to candidates age 12 – 17 years old; then to candidates age 0 – 11; then to candidates 18 years and older. Lungs will be allocated locally first, then to candidates in Zone A, then to candidates in Zone B, then to candidates in Zone C, then to candidates in Zone D and finally to candidates in Zone E. In each of those six geographic areas, candidates will be grouped so that those who have an ABO blood type that is identical to that of the donor are ranked according to applicable allocation priority; the lungs will be allocated in descending order to candidates in that ABO identical type. If the lungs are not allocated to candidates in that ABO identical type, they will be allocated in descending order according to applicable allocation priority to the remaining candidates in that geographic area who have a blood type that is compatible (but not identical) with that of the donor.

In summary, the allocation sequence for lungs from donors 12 – 17 years old is as follows:

1. Local ABO identical candidates 12 – 17 years old according to Lung Allocation Score in descending order;
2. Local ABO compatible candidates 12 – 17 years old according to Lung Allocation Score in descending order;
3. Local ABO identical Status 1 candidates 0 – 11 years old according to length of time waiting;
4. Local ABO compatible Status 1candidates 0 – 11 years old

according to length of time waiting;
5. Local ABO identical Status 2 candidates 0 – 11 years old according to length of time waiting;
6. Local ABO compatible Status 2 candidates 0 – 11 years old according to length of time waiting;
7. Local ABO identical candidates 18 years old and older according to Lung Allocation Score in descending order;
8. Local ABO compatible candidates 18 years old and older according to Lung Allocation Score in descending order;
9. ABO identical candidates 12 – 17 years old in Zone A according to Lung Allocation Score in descending order;
10. ABO compatible candidates 12 – 17 years old in Zone A according to Lung Allocation Score in descending order;
11. ABO identical Priority 1 candidates 0 – 11 years old in Zone A according to length of time waiting;
12. ABO compatible Priority 1candidates 0 – 11 years old in Zone A according to length of time waiting;
13. ABO identical Priority 2 candidates 0 – 11 years old in Zone A according to length of time waiting;
14. ABO compatible Priority 2 candidates 0 – 11 years old in Zone A according to length of time waiting;
15. ABO identical candidates 18 years old and older in Zone A according to Lung Allocation Score in descending order;
16. ABO compatible candidates 18 years old and older in Zone A according to Lung Allocation Score in descending order;
17. ABO identical candidates 12 – 17 years old in zone B according to Lung Allocation Score in descending order;
18. ABO compatible candidates 12 – 17 years old in zone B according to Lung Allocation Score in descending order;
19. ABO identical Priority 1candidates 0 – 11 years old in Zone B according to length of time waiting;
20. ABO compatible Priority 1 candidates 0 – 11 years old in Zone B according to length of time waiting;
21. ABO identical Priority 2 candidates 0 – 11 years old in Zone B according to length of time waiting;
22. ABO compatible Priority 2 candidates 0 – 11 years old in Zone B according to length of time waiting;
23. ABO identical candidates 18 years old and older in Zone B according to Lung Allocation Score in descending order;
24. ABO compatible candidates 18 years old and older in Zone B according to Lung Allocation Score in descending order;
25. ABO identical candidates 12 – 17 years old in zone C according to Lung Allocation Score in descending order;
26. ABO compatible candidates 12 – 17 years old in zone C according to Lung Allocation Score in descending order;
27. ABO identical Priority 1 candidates 0 – 11 years old in Zone C according to length of time waiting;
28. ABO compatible Priority 1 candidates 0 – 11 years old in Zone C according to length of time waiting;
29. ABO identical Priority 2 candidates 0 – 11 years old in Zone C according to length of time waiting;
30. ABO compatible Priority 2 candidates 0 – 11 years old in Zone C according to length of time waiting;
31. ABO identical candidates 18 years old and older old in Zone C according to Lung Allocation Score in descending order;
32. ABO compatible candidates 18 years old and older in Zone C according to Lung Allocation Score in descending order;
33. ABO identical candidates 12 – 17 years old in zone D according to Lung Allocation Score in descending order;
34. ABO compatible candidates 12 – 17 years old in zone D according

to Lung Allocation Score in descending order;
35. ABO identical Priority 1candidates 0 – 11 years old in Zone D according to length of time waiting;
36. ABO compatible Priority 1 candidates 0 – 11 years old in Zone D according to length of time waiting;
37. ABO identical Priority 2 candidates 0 – 11 years old in Zone D according to length of time waiting;
38. ABO compatible Priority 2 candidates 0 – 11 years old in Zone D according to length of time waiting;
39. ABO identical candidates 18 years old and older in Zone D according to Lung Allocation Score in descending order; and
40. ABO compatible candidates 18 years old and older in Zone D according to Lung Allocation Score in descending order.
41. ABO identical candidates 12 – 17 years old in Zone E according to Lung Allocation Score in descending order;
42. ABO compatible candidates 12 – 17 years old in Zone E according to Lung Allocation Score in descending order;
43. ABO identical Priority 1 candidates 0 – 11 years old in Zone E according to length of time waiting;
44. ABO compatible Priority 1 candidates 0 – 11 years old in Zone E according to length of time waiting;
45. ABO identical Priority 2 candidates 0 – 11 years old in Zone E according to length of time waiting;
46. ABO compatible Priority 2 candidates 0 – 11 years old in Zone E according to length of time waiting;
47. ABO identical candidates 18 years old and older in Zone E according to Lung Allocation Score in descending order; and
48. ABO compatible candidates 18 years old and older in Zone E.

3.7.12 Minimum Information for Thoracic Organ Offers.

3.7.12.1 Essential Information. The Host OPO or donor center must provide the following donor information to the recipient center with each thoracic organ offer:

(i) The cause of brain death;
(ii) The details of any documented cardiac arrest or hypotensive episodes;
(iii) Vital signs including blood pressure, heart rate and temperature;
(iv) Cardiopulmonary, social, and drug activity histories;
(v) Serologies as indicated in 2.2.4.1 (qualified specimens preferred as noted in Policy 2.2.3.1);
(vi) Accurate height, weight, age and sex;
(vii) ABO type;
(viii) ABO subtype when used for allocation;
(ix) Interpreted electrocardiogram and chest radiograph;
(x) History of treatment in hospital including vasopressors and hydration;
(xi) Arterial blood gas results and ventilator settings;
(xii) Echocardiogram, if the donor hospital has the facilities; and
(xiii) Human leukocyte antigen (HLA) type if requested by the transplant center.

If a transplant center requires donor HLA type prior to submitting a final organ acceptance, it must communicate this request to the OPO; the transplant center must document this request. If a transplant center requests donor HLA type prior to submitting a final organ acceptance, the OPO must provide the following, identified splits before the organ's final acceptance:

HLA-A, HLA-B, HLA-Bw4, HLA-Bw6, HLA-Cw, HLA-DR, and HLA-DQ antigens. The transplant center may request HLA-DP type, but the OPO need only provide it if its affiliated laboratory performs related testing. The OPO must document provision of HLA type to the requesting transplant center.

The thoracic organ procurement team must have the opportunity to speak directly with responsible ICU personnel or the on-site donor coordinator in order to obtain current first-hand information about the donor physiology.

3.7.12.2 Desirable Information for Heart Offers. With each heart offer, the donor center is encouraged to provide the recipient center with the following information:

(i) Coronary angiography for male donors over the age of 40 and female donors over the age of 45;
(ii) CVP or Swan Ganz instrumentation;
(iii) Cardiology consult; and
(iv) Cardiac enzymes including CPK isoenzymes.

With each heart offer, it is reasonable for the transplanting center to request a heart catheterization of the donor where the donor history reveals one or more of the following:

(a) The donor is a male over the age of 40 or a female over the age of 45;
(b) Segmental wall motion abnormality;
(c) Troponin elevation;
(d) History of chest pain;
(e) Abnormal EKG consistent with ischemia or myocardial infarction; or
(f) Two or more of the following:

i. History of hypertension
ii. History of significant smoking
iii. Intra-cerebral bleed
iv. Strong family history of coronary artery disease
v. History of Hyperlipidemia
vi. History of diabetes
vii. History of cocaine or amphetamine use

3.7.12.3 Essential Information for Lung Offers. In addition to the essential information specified above for a thoracic organ offer, the Host OPO shall provide the following specific information with each lung offer:

(i) Arterial blood gases on 5 cm/H_20/PEEP including PO_2/FiO_2 ratio and preferably 100% FiO_2 within 2 hours prior to the offer;

(ii) Bronchoscopy results. Bronchoscopy of a lung donor is recognized as an important element of donor evaluation. The Host OPO must document if it is unable to provide bronchoscopy results. Confirmatory bronchoscopy may be performed by the lung retrieval team provided unreasonable delays are avoided. A lung transplant program may not insist upon performing its own bronchoscopy before being subject to the 60 minute response time limit as specified in Policy 3.4.2;

(iii) Chest radiograph interpreted by a radiologist or qualified physician within 3 hours prior to the offer;

(iv) Sputum gram stain with a description of the sputum character; and

(v) Smoking history.

3.7.12.4 Desirable Information for Lung Offers. With each lung offer, the Host OPO is encouraged to provide the transplant center with the following information:

(i) Mycology smear;
(ii) Measurement of chest circumference in inches or centimeters at the level of the nipples and x-ray measurement vertically from the apex of the chest to the apex of the diaphragm and transverse at the level of the diaphragm, if requested; and
(iii) Non-contrast computed tomography (CT) scan of the chest, if requested by the transplant center.

3.7.13 Removal of Thoracic Organ Transplant Candidates from Thoracic Organ Waiting Lists When Transplanted or Deceased. If a heart, lung, or heart-lung transplant candidate on the Waiting List has received a transplant from a deceased or living donor, or has died while awaiting a transplant, the listing center, or centers if the candidate is multiple listed, shall immediately remove that candidate from all Thoracic Organ Waiting Lists for that transplanted organ and shall notify the OPTN contractor within 24 hours of the event. If the thoracic organ recipient is again added to a Thoracic Organ Waiting List, waiting time shall begin as of the date and time the candidate is relisted.

3.7.14 Local Conflicts Involving Thoracic Organ Allocation. Regarding allocation of hearts, lungs and heart-lung combinations, locally unresolvable inequities or conflicts that arise from prevailing OPO policies may be submitted by any interested local member for review and adjudication to the Thoracic Organ Transplantation Committee and the Board of Directors.

3.7.15 Allocation of Domino Donor Hearts. A domino heart transplant occurs when the native heart of a combined heart-lung transplant recipient is procured and transplanted into a candidate who requires an isolated heart transplant. First consideration for donor hearts procured for this purpose will be given to the candidates of the participating transplant program from which the native heart was procured. If the program elects not to use the heart, then the heart will be allocated according to Policy 3.7, or an approved variance to this policy. For the purpose of Policy 3.7.16, the Local Unit of allocation for the domino heart shall be defined as the CMS-designated service area of the OPO where the domino heart is procured.

3.7.16 Crossmatching for Thoracic Organs. The transplant program and its histocompatibility laboratory must have a joint written policy that states when a crossmatch is necessary. Guidelines for policy development, including assigning risk and timing of crossmatch testing, are set out in Appendix D of Policy 3.