

OPTN Lung Transplantation Committee

Descriptive Data Request

## Lung Continuous Distribution Six Month Monitoring Report

DHHS Contract No. 250-2019-00001C  
Date Completed: October 27th, 2023

**Prepared for:**

Lung Transplantation Committee  
Committee Meeting  
Date of Meeting: October 27th, 2023

**By:**

Samantha Weiss, MS  
and Chelsea Weibel, PhD  
UNOS Research Department

### Contents

<b>Executive Summary</b>	<b>2</b>
<b>Background/Purpose</b>	<b>3</b>
<b>Committee Request</b>	<b>3</b>
<b>Methods</b>	<b>4</b>
<b>Results</b>	<b>7</b>
Overall . . . . .	7
Continuous Distribution Attributes . . . . .	21
Medical Urgency . . . . .	21
Post-Transplant Survival . . . . .	29
Pediatric . . . . .	36
Prior Living Donor . . . . .	48
Blood Type . . . . .	48
CPRA . . . . .	57
Height . . . . .	64
Efficiency . . . . .	71
Exceptions . . . . .	102
Multiorgan . . . . .	114
<b>Appendix</b>	<b>120</b>
Age . . . . .	120
Diagnosis Group . . . . .	127
Geography . . . . .	134
Race/Ethnicity . . . . .	142
Birth Sex . . . . .	149

## Executive Summary

Monitoring began upon implementation of continuous distribution on March 9, 2023. Based on the first 6 months of data collection, compared to the pre policy era (September 06, 2022 - March 08, 2023), in the post policy era (March 09, 2023 - September 08, 2023):

### *Overall*

- The number of lung-alone transplants increased by 11.2% (from 1387 to 1543).
- The transplant rate increased from 291 transplants per 100 patient years to 321 transplants per 100 patient years.
- Fewer candidates were removed from the waiting list due to death or being too sick to transplant (a decrease from 111 to 82).
- The waiting list mortality rate decreased from 23 deaths or removals for too sick per 100 patient years to 17 deaths or removals for too sick per 100 patient years.

### *Continuous Distribution Attributes*

- The greatest proportion of candidates removed from the waiting list for death or too sick to transplant were those with the highest medical urgency scores, lowest post-transplant survival scores, and highest CAS subscores.
- The number of transplants to pediatric recipients remained similar, though the pediatric donor non-use rate increased (from 5.43% to 10.93%).
- The number of transplants decreased for blood type O recipients (from 646 to 601) and increased for recipients of all other blood types.
- The number of candidates ever waiting with unacceptable antigens entered in the OPTN Waiting List remained small (28.6%).
- The number of transplants increased for recipients across all height groupings; however, the number of candidates removed from the waiting list for death or too sick also increased for adult candidates between >158cm and 165cm (approximately 5'2" to 5'5").
- The median distance between the donor hospital and transplant center increased overall from 195 nautical miles to 353 nautical miles.
- Distances between the donor hospital and transplant center were greatest for recipients with the highest medical urgency scores, lowest post-transplant survival scores, highest CAS subscores, and both the highest and lowest CAS (with lungs for intermediate CAS scores traveling shorter distances).

### *Other Noteworthy Results*

- The number of registrations with at least one submitted exception request increased from 87 to 198.
- A larger percent of exception requests were denied (an increase from 17.4% to 32.5%).
- The number of lung/liver transplants increased (from 6 to 16), while the occurrence of other multiorgan transplants decreased slightly.
- The number of transplants decreased for recipients aged 65+ years and increased for all other adult recipient age groups.
- The number of transplants increased for all diagnosis groups; however, the number of candidates removed from the waiting list for death or too sick also increased for candidates in diagnosis group B.
- There was no negative impact on lung utilization (pre: 16.73%, post: 17.90%).
- The median cold ischemic time increased slightly from 6.08 hours to 6.62 hours.
- The median time from first electronic offer to cross clamp increased from 29.66 hours to 32.14 hours.
- The median sequence number of the final acceptor increased from 8 to 15.
- The median number of programs offered up to the final acceptor increased from 4 to 10.

Overall, it is still early post-implementation. Changes such as those to behavior or clinical practice may have an impact on the system. The implications of the policy change will continue to be monitored closely with regular reports to the OPTN Lung Transplantation Committee.

## Background/Purpose

On March 9, 2023 the lung allocation policy switched to a continuous distribution framework. Continuous distribution (CD) uses a composite allocation score to determine the preferential order of candidates on a match run when a medically suitable lung donor becomes available. This point-based system replaces the previous, classification-based system. Under the classification-based system, candidates were first arranged into ordered groups (e.g., “blood type identical, within 250 nautical miles of the donor hospital”) and then, within each group, preferentially ordered by Lung Allocation Score (LAS). In contrast, continuous distribution does not use candidate groupings. All candidates are prioritized using a composite allocation score (CAS) that takes into account medical, biological, and other factors permitted by the Final Rule to determine preferential ordering on a match run. These attributes include:

- Medical urgency: a metric that captures the patient’s predicted 1-year survival on the waiting list without a transplant (this measure was a component of LAS)
- Post-transplant survival: a metric that captures the patient’s predicted 5-year survival were they to receive a transplant (a 1-year version of this measure was a component of LAS)
- Biological disadvantage: a measure of how disadvantaged a candidate is to receive a transplant based on aspects of their biology, including blood type, CPRA (calculated panel reactive antibody), and height
- Patient access: a measure that considers whether the candidate is pediatric or a prior living donor
- Efficiency: a measure that captures the efficiency of the transplant, in terms of both distance from the donor hospital to transplant center and logistical planning

Based on data from the three month monitoring report showing that the number of transplants declined in the first three months of CD for blood type O candidates, a policy change was implemented on September 27, 2023 which altered the blood type rating scale. The data in this report were collected before this policy change went into affect and therefore do not reflect the altered blood type rating scale.

The purpose of this report is to provide early metrics summarizing the impact of the policy change. In an effort to provide data as soon as possible, this report was produced before the 90 day data lag allotted by OPTN policy has fully passed; therefore, data are subject to change. As more data accumulate over time, more extensive analyses will be performed. The OPTN will respond to further requests by the OPTN Lung Transplantation Committee.

## Committee Request

Monitoring reports using pre vs. post comparisons will be presented to the Committee after approximately 3 months, 6 months and then annually for 3 years following the allocation change.

The Committee will consider overall waiting list deaths and post-transplant deaths, as well as variance in waiting list deaths, post-transplant deaths, and distance between donor and candidate transplant hospitals as key metrics to evaluate the effectiveness of the proposal.

Metrics to be evaluated include:

- Waiting List
  - Number of candidates ever waiting, additions, and removals
  - Distribution of WLAUC and PTAUC
  - Population characteristics such as CPRA, prior living donor, height, age group at time of listing, and diagnosis group
  - Number of candidates by OPTN region
  - Candidate waiting time by OPTN region
  - Numbers of patient deaths, overall and by diagnosis group, medical urgency score, post-transplant survival score, and OPTN region
  - Overall waiting list mortality rate and transplant rate by diagnosis group, WLAUC and PTAUC groups, and OPTN region
  - Number of exception requests, overall and by diagnosis group
  - Number of multiorgan candidates

- Transplants
  - Number of recipients
  - Distribution of WLAUC and PTAUC
  - Population characteristics such as CPRA, prior living donor, height, age group at time of listing, and diagnosis group
  - Number of recipients by OPTN region
  - Patient post-transplant survival
  - Number of recipients transplanted with an exception request, overall and by diagnosis group
  - Distance between the donor hospital and transplant center
  - Distance between the donor hospital and transplant center by medical urgency group, post-transplant survival, and by composite allocation score group
  - Transplant rate changes by transplant program size (small, medium, large)
  - Distribution of ischemic time
  - Number of multiorgan recipients
- Utilization
  - Non-use rate by OPTN region and donation after circulatory death (DCD) vs. non-DCD
  - Utilization rate by OPTN region and DCD vs. non-DCD
  - Number & percentage of perfused lungs by OPTN region
  - Number & percentage of DCD lungs transplanted by OPTN region
  - Time from first electronic offer to cross clamp
  - Distribution of sequence number of the final acceptor

Analysis of post-transplant outcomes will be performed after sufficient follow-up data have accrued, which is dependent on submission of follow-up forms. The OPTN and SRTR contractors will work with the committee to define the specific analyses requested for ongoing monitoring for each update. The OPTN equity in access dashboard will also be used to evaluate the impact of this policy on transplant rates by various candidate attributes.

## Methods

### Data Sources:

Organ Procurement and Transplantation Network (OPTN) data were used for this analysis. The OPTN data system includes data on all donors, waitlisted candidates, and transplant recipients in the US, submitted by members of the OPTN. Continuous distribution was implemented on March 9, 2023. This report compares metrics for the 6 months before and after the implementation date. The dates for the pre and post era were defined such that both eras contain exactly 183 days, with the pre era spanning September 06, 2022 to March 08, 2023 and the post era spanning March 09, 2023 to September 08, 2023. In an effort to provide data as soon as possible, this report was produced with OPTN data as of October 13, 2023 and before the 90 day data lag allotted by OPTN policy has fully passed. Data are subject to change due to future database submission or correction.

All analyses described below compare metrics pre versus post policy change, unless otherwise stated. For categorical variables, counts and frequencies were reported. For continuous variables, medians and ranges were reported. Diagnosis groups utilized in this monitoring report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease {OPTN Policies, [https://optn.transplant.hrsa.gov/media/1200/optn\\_policies.pdf](https://optn.transplant.hrsa.gov/media/1200/optn_policies.pdf) Accessed 10/13/2023}.

### Waiting List

Cohort: Candidates added to the lung waiting list, removed from the waiting list, or ever waiting for a lung-alone transplant from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post) were included. A separate analysis was conducted for candidates listed for a lung-multiorgan transplant, which included all candidates waiting for a lung and at least one other organ from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post).

Analysis: All of the CAS attributes were calculated based on clinical data entered in the OPTN Waiting List. For

all candidates on the waiting list, a CAS subscore was calculated. This subscore summed all the CAS attribute points except for the efficiency points (i.e., medical urgency points, post-transplant survival points, biological disadvantage points, and patient access points). Efficiency points are not known until the time a match is made and the distance between the donor hospital and transplant center is known. For this reason, all analyses in this section used the CAS subscore, rather than the final CAS.

For all CAS attributes (including medical urgency, post-transplant survival, and the CAS subscore), candidates have both a calculated and a match score; these differ when a candidate has an approved exception request, which causes the match score to be higher than the calculated score. For all analyses, the match scores (the same scores used for allocation) were used as reported at the time of removal from the waiting list.

Exceptions in each era were determined based on submissions to the National Lung Review Board. Under the previous allocation system (LAS), a single registration could only have one approved and active exception request at a time (although a registration could submit more than one request if the first request was denied). Under continuous distribution, using the CAS, a single registration can have multiple exception requests. Prior to CD implementation, centers could submit CAS exception requests through an interim process so that those requests, if approved, would be in place at the start of implementation. Twenty-six lung requests and one heart/lung request were submitted through this process and were not included in these analyses. Exceptions were analyzed at the registration level whenever possible (where one registration can have more than one exception request submitted and approved under CD). However, when the metric of interest depended on the outcome of a specific request submission (i.e., request approvals), analyses were performed at the form submission level.

Waiting list mortality rates are reported as the number of deaths or removals for too sick per 100 patient-years. This rate is calculated by dividing the number of individuals who died on the waiting list or were removed from the waiting list for being too sick to transplant by the number of years patients spent waiting. For each policy era, active and inactive waiting time were used for the patient-years calculation. Since some candidates may spend several months or years on the waiting list, a candidate may contribute waiting time to both eras, but a death is attributed only to the era in which it occurred.

### **Transplant**

**Cohort:** Recipients that received a lung-alone transplant from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post) were included. A separate analysis was conducted for lung-multiorgan transplants which included all recipients who received a lung and at least one other organ from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post).

**Analysis:** For all analyses using CAS attributes, the match score at the time of transplant was used. Transplant rates are reported as the number of transplants per 100 patient-years. This rate is calculated by dividing the number of all deceased donor lung transplants by the number of years patients spent waiting. For each policy era, active and inactive waiting time within the era analyzed were used for the patient-years calculation. Since some candidates may spend several months or years on the waiting list, a candidate may contribute waiting time to both eras, but a transplant is attributed only to the era in which it occurred.

### **Utilization**

**Cohort:** All donors from which at least one organ was recovered for the purposes of transplantation from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post) were included.

**Analysis:** The utilization rate is defined as the percent of lungs that are transplanted based on all possible lungs from every deceased donor with at least one organ recovered for the purpose of transplant; this assumes that each donor has two possible lungs for donation. The non-use rate is defined as the number of lungs recovered for the purpose of transplant but not transplanted out of all lungs recovered for transplant.

### **Median Waiting Time**

**Cohort:** All registrations added to the waiting list for a lung-alone transplant from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post) were included.

**Analysis:** We calculated the median waiting time based on a variety of different attributes using a competing risk analysis. Because these analyses were run without the data lag, results may vary slightly as more data accrue.

**Match run analysis**

Cohort: All lung-alone match runs submitted from September 06, 2022 through March 08, 2023 (pre) and March 09, 2023 through September 08, 2023 (post) were included. For most analyses, only matches with an acceptance were included, and offers after the final acceptance were excluded. However, when counting the number of programs offered after the final acceptor, all offers up until the match was closed (which includes offers after the final acceptance) were included.

Analysis: We calculated descriptive metrics for the number of offers sent in the pre and post eras, as well as the sequence number of the final acceptor. We also calculated the cumulative percent of offers received for pediatric candidates up to each sequence number on the match run, using the following equation:

$$\frac{\text{Number of offers received by pediatric candidates up to sequence number } i}{\text{Number of offers sent to all candidates up to sequence number } i}$$

## Results

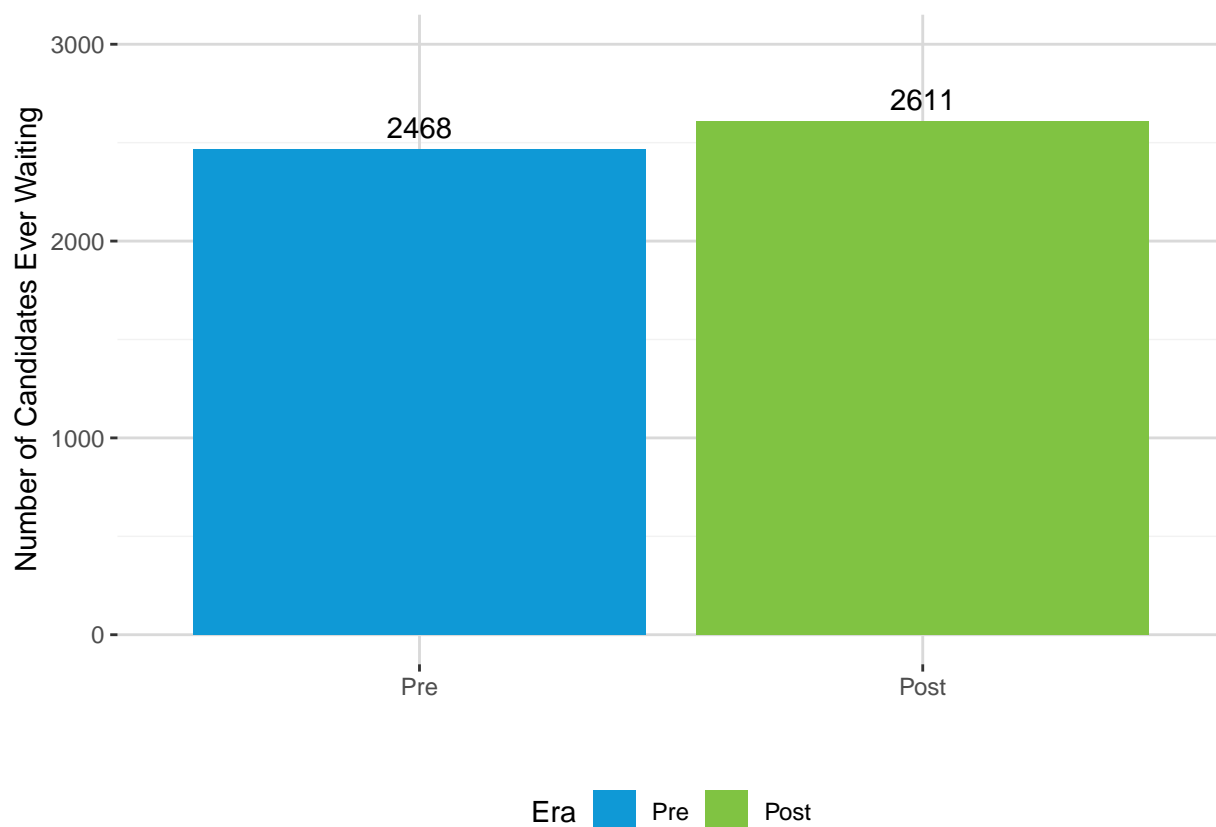
For this report, the Results are broken into four main subsections:

- The **Overall** subsection focuses on general trends associated with the implementation of Continuous Distribution.
- The **Continuous Distribution Attributes** subsection evaluates trends associated with each of the individual attributes of Continuous Distribution in an effort to determine whether the specific goals of the policy are being met.
- The **Exceptions** subsection tracks trends in exception request submission and approval.
- The **Multiorgan** subsection evaluates trends in multiorgan listings and transplants.

### Overall

There was a slight increase in the number of candidates ever waiting in the post policy era.

**Figure 1: Number of Lung Candidates Ever Waiting by Era**

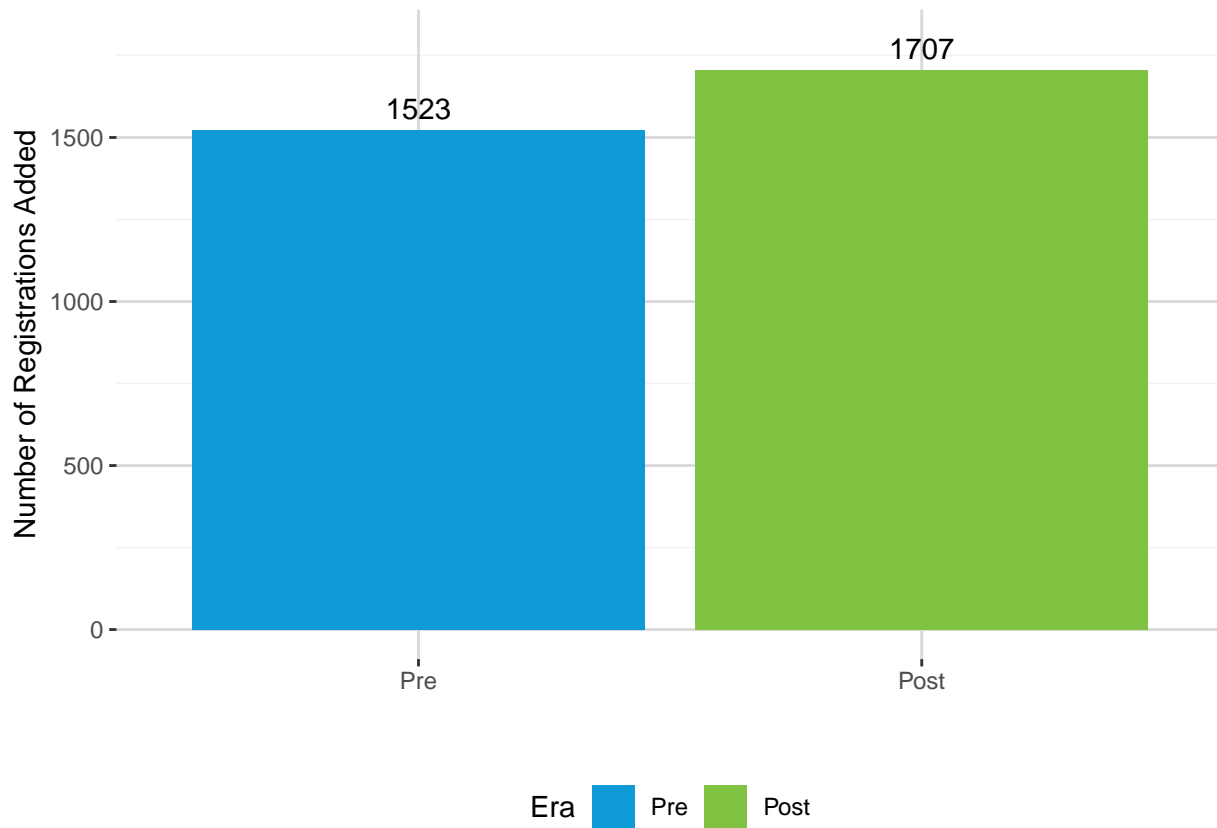


**Table 1: Number of Lung Candidates Ever Waiting by Era**

Era	N Ever Waiting
Pre	2468
Post	2611

The number of registrations added to the waiting list increased slightly in the post era.

**Figure 2: Number of Registrations Added to the Waiting List by Era**



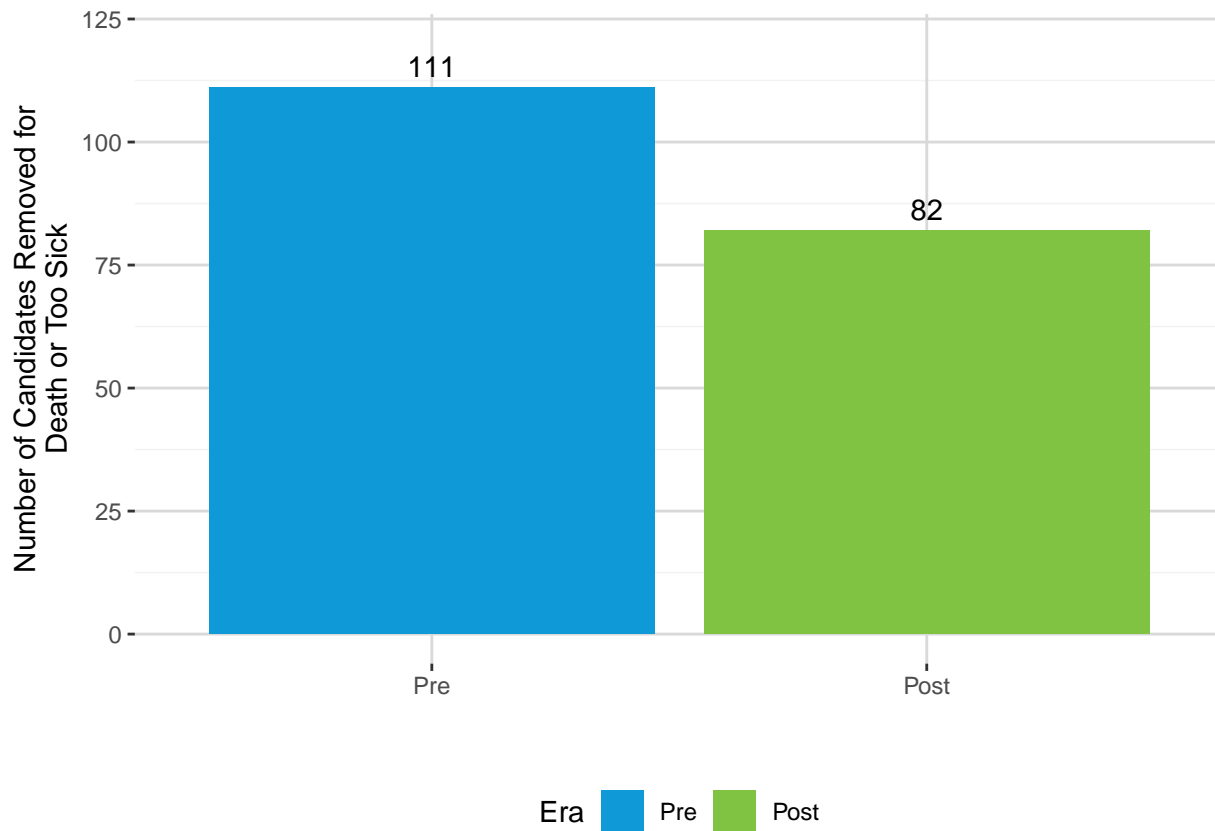
**Table 2: Number of Registrations Added to the Waiting List by Era**

Era	N Additions
Pre	1523
Post	1707



The number of candidates removed from the waiting list for death or too sick decreased from 111 in the pre era to 82 in the post era.

**Figure 3: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era**

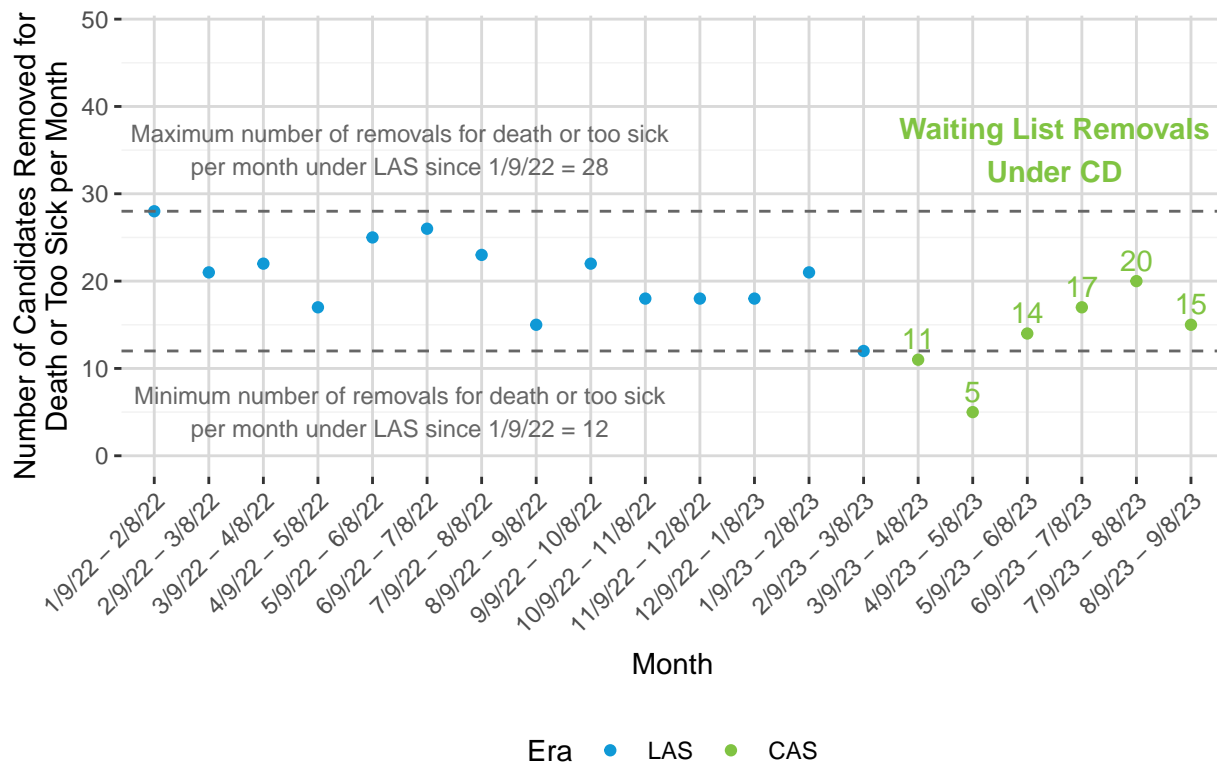


**Table 3: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era**

Era	N Candidates Removed for Death or Too Sick
Pre	111
Post	82

Since January 9th, 2022 the number of candidates removed from the waiting list per month for death or too sick under LAS ranged from 12 to 28. The number of candidates removed from the waiting list per month for death or too sick under CD ranged from 5 to 20.

**Figure 4: Number of Candidates Removed from the Waiting List for Death or Too Sick Per Month**



Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

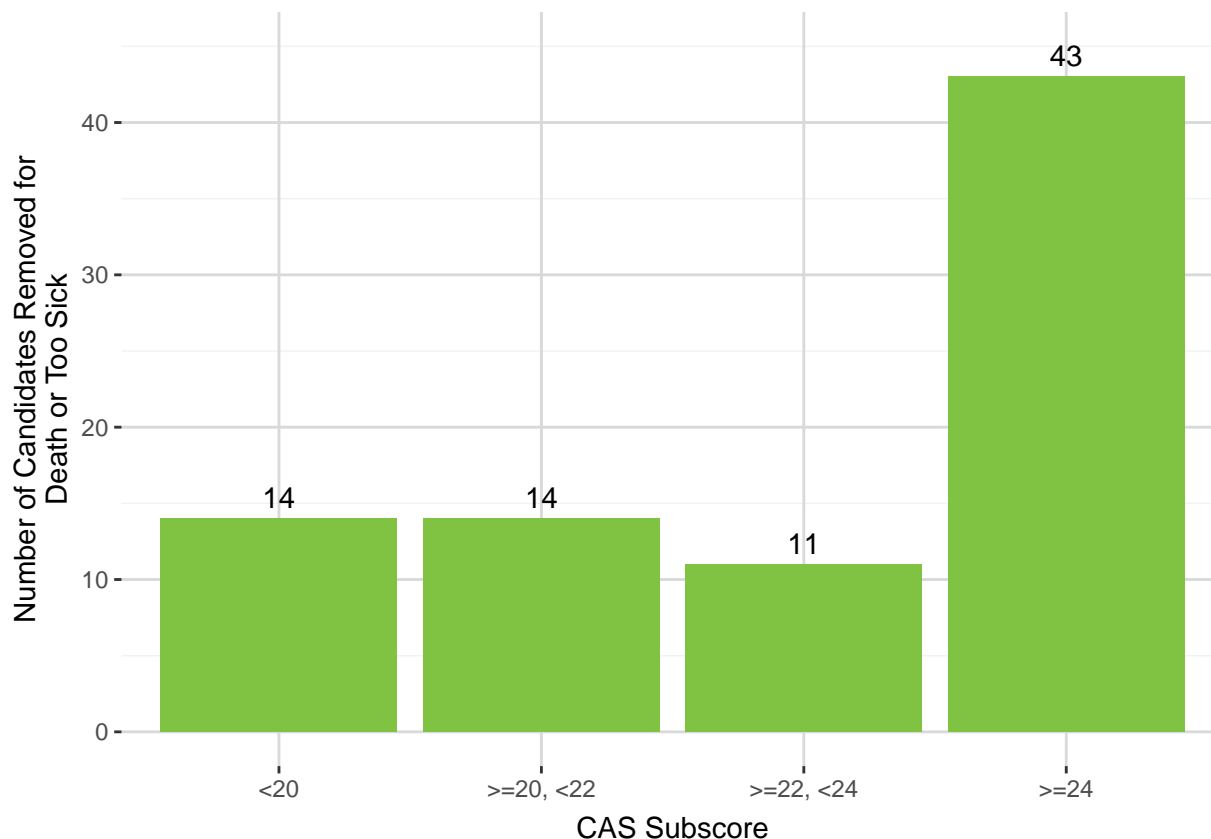
**Table 4: Number of Candidates Removed from the Waiting List for Death or Too Sick Per Month**

Policy Era	Month	N Candidates Removed for Death or Too Sick
LAS	1/9/22 - 2/8/22	28
	2/9/22 - 3/8/22	21
	3/9/22 - 4/8/22	22
	4/9/22 - 5/8/22	17
	5/9/22 - 6/8/22	25
	6/9/22 - 7/8/22	26
	7/9/22 - 8/8/22	23
	8/9/22 - 9/8/22	15
	9/9/22 - 10/8/22	22
	10/9/22 - 11/8/22	18
	11/9/22 - 12/8/22	18
	12/9/22 - 1/8/23	18
CAS	1/9/23 - 2/8/23	21
	2/9/23 - 3/8/23	12
	3/9/23 - 4/8/23	11
	4/9/23 - 5/8/23	5
	5/9/23 - 6/8/23	14
	6/9/23 - 7/8/23	17
	7/9/23 - 8/8/23	20
8/9/23 - 9/8/23	15	

<sup>a</sup> Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

In the post policy era, the majority of candidates removed from the waiting list for death or too sick had a CAS subscore of at least 24 points. CAS subscores are calculated by summing all components of the CAS, except for the efficiency points; this includes the sum of medical urgency points, post-transplant survival points, biological disadvantage points, and patient access points.

**Figure 5: Number of Candidates Removed from the Waiting List for Death or Too Sick by CAS Subscore in the Post Policy Era**

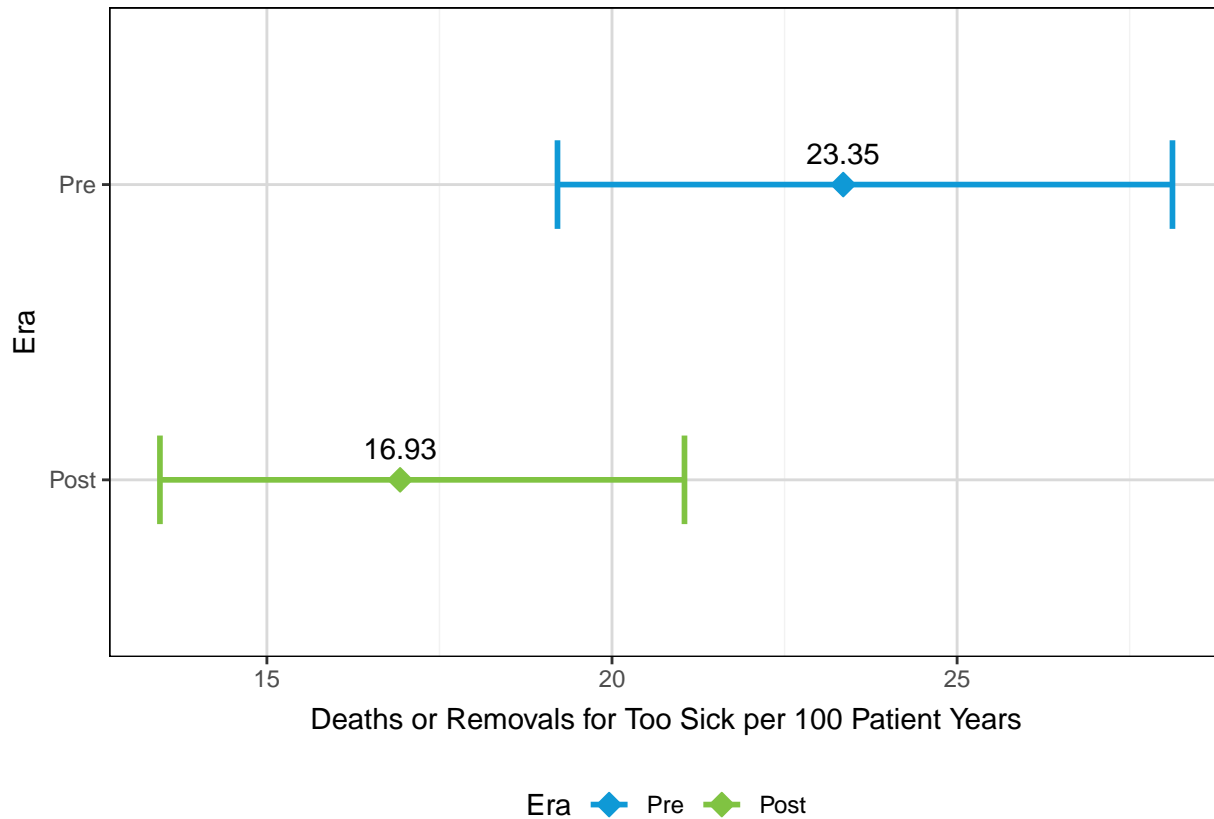


**Table 5: Number of Candidates Removed from the Waiting List for Death or Too Sick by CAS Subscore in the Post Policy Era**

CAS Subscore	N Candidates Removed for Death or Too Sick
<20	14 (17.1%)
>=20, <22	14 (17.1%)
>=22, <24	11 (13.4%)
>=24	43 (52.4%)
Total	82 (100.0%)

The number of deaths or removals for too sick per 100 patient years on the waiting list decreased from 23.35 in the pre era to 16.93 in the post era.

**Figure 6: Deaths or Removals for Too Sick per 100 Patient Years on the Waiting List by Era**

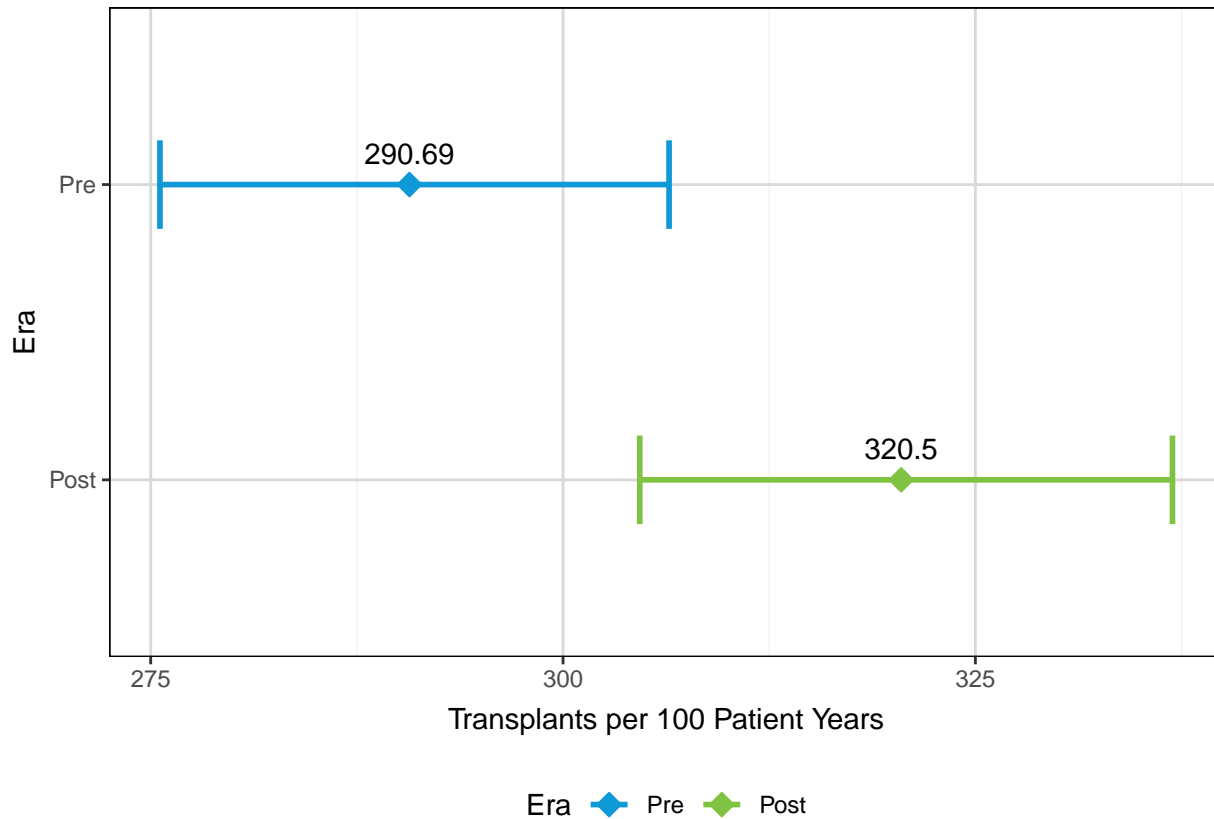


**Table 6: Deaths or Removals for Too Sick per 100 Patient Years on the Waiting List by Era**

Era	Deaths or Removals for Too Sick per 100 Patient Years	95% Confidence Interval
Pre	23.35	(19.21, 28.12)
Post	16.93	(13.45, 21.05)

The number of transplants per 100 patient years on the waiting list increased from 290.69 in the pre era to 320.5 in the post era.

**Figure 7: Lung Transplants per 100 Patient Years on the Waiting List by Era**

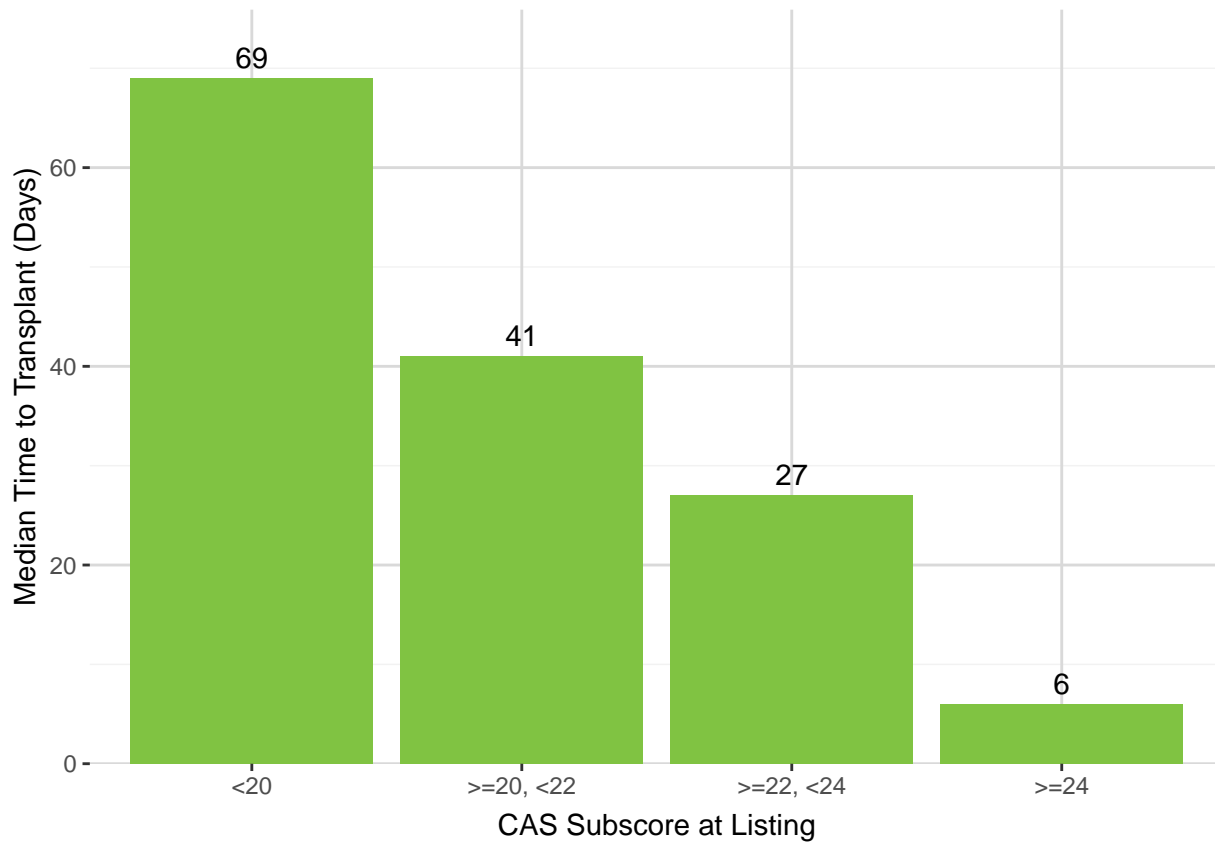


**Table 7: Lung Transplants per 100 Patient Years on the Waiting List by Era**

Era	Transplants per 100 Patient Years	95% Confidence Interval
Pre	290.69	(275.56, 306.43)
Post	320.50	(304.65, 336.95)

Median time to a transplant was shortest for candidates who had a CAS subscore of at least 24 at the time of listing. CAS subscores are calculated by summing all components of the CAS, except for the efficiency points; this includes the sum of medical urgency points, post-transplant survival points, biological disadvantage points, and patient access points.

**Figure 8: Median Time to Transplant (Days) by CAS Subscore at Listing in the Post Policy Era**

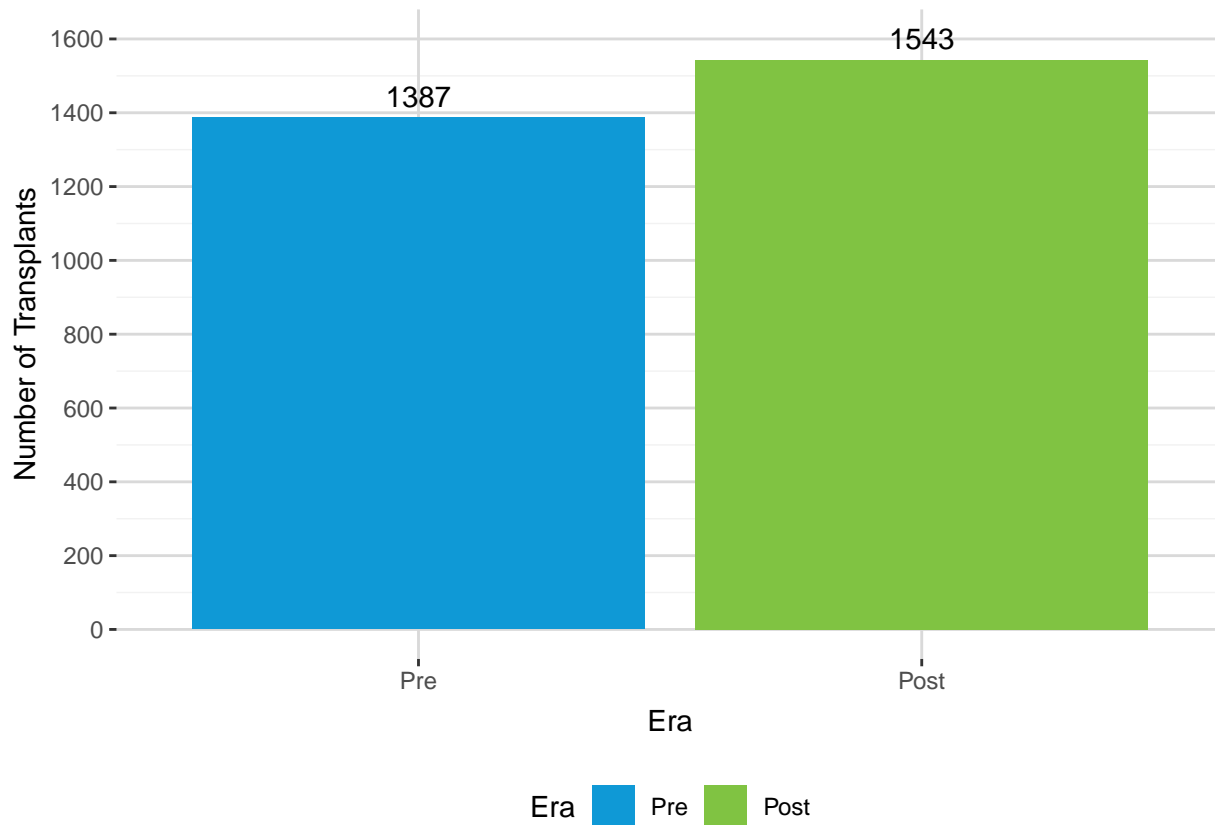


**Table 8: Median Time to Transplant (Days) by CAS Subscore at Listing in the Post Policy Era**

CAS Subscore at Listing	N Registrations	Median Time to Transplant (Days)
<20	452	69
>=20, <22	866	41
>=22, <24	134	27
>=24	255	6

There were a total of 1387 lung-alone transplants in the pre era and a total of 1543 lung-alone transplants in the post era; this represents a 11.2% increase in transplants in the post era compared to the pre era.

**Figure 9: Number of Lung Transplants by Era**



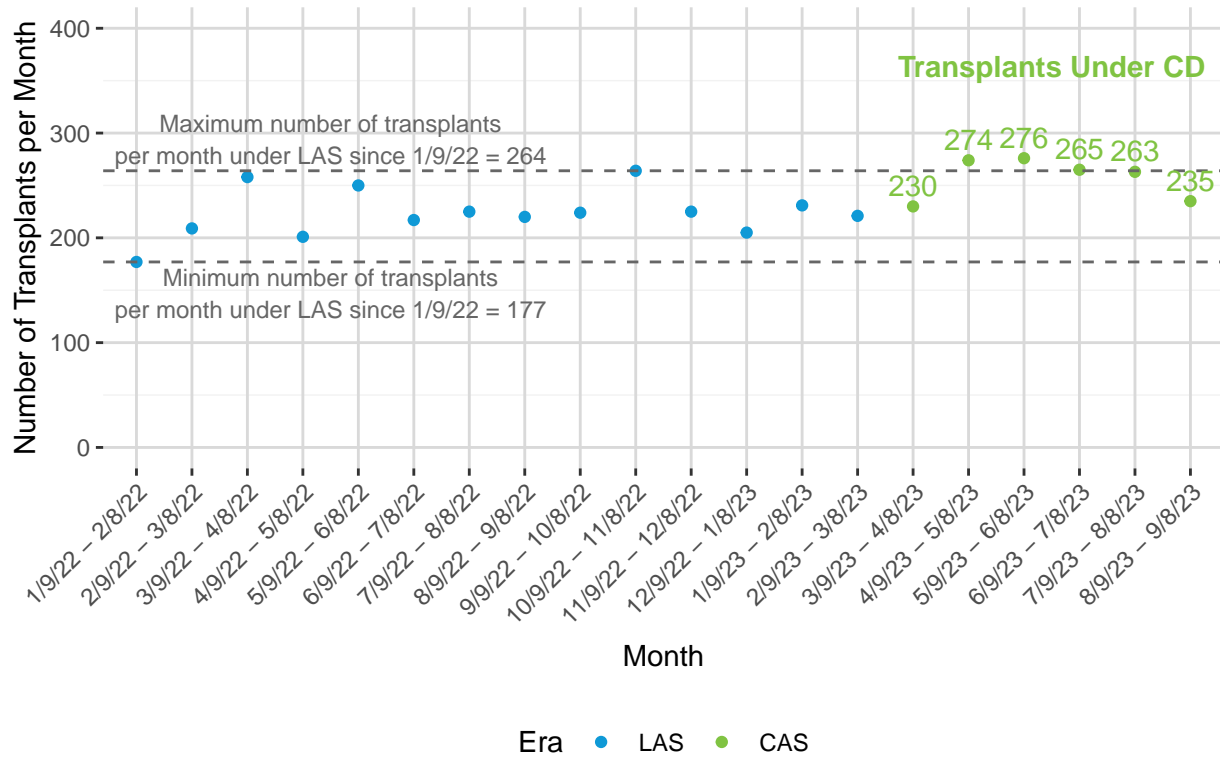
**Table 9: Number of Lung Transplants by Era**

Era	N Transplants
Pre	1387
Post	1543



The number of lung-alone transplants performed per month vary widely. In 2022, under LAS, the number of transplants performed per month varied from 177 to 264. The number of transplants per month under CAS have been at the upper end of this range and higher, ranging from 230 to 276.

**Figure 10: Number of Lung Transplants Per Month**



Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

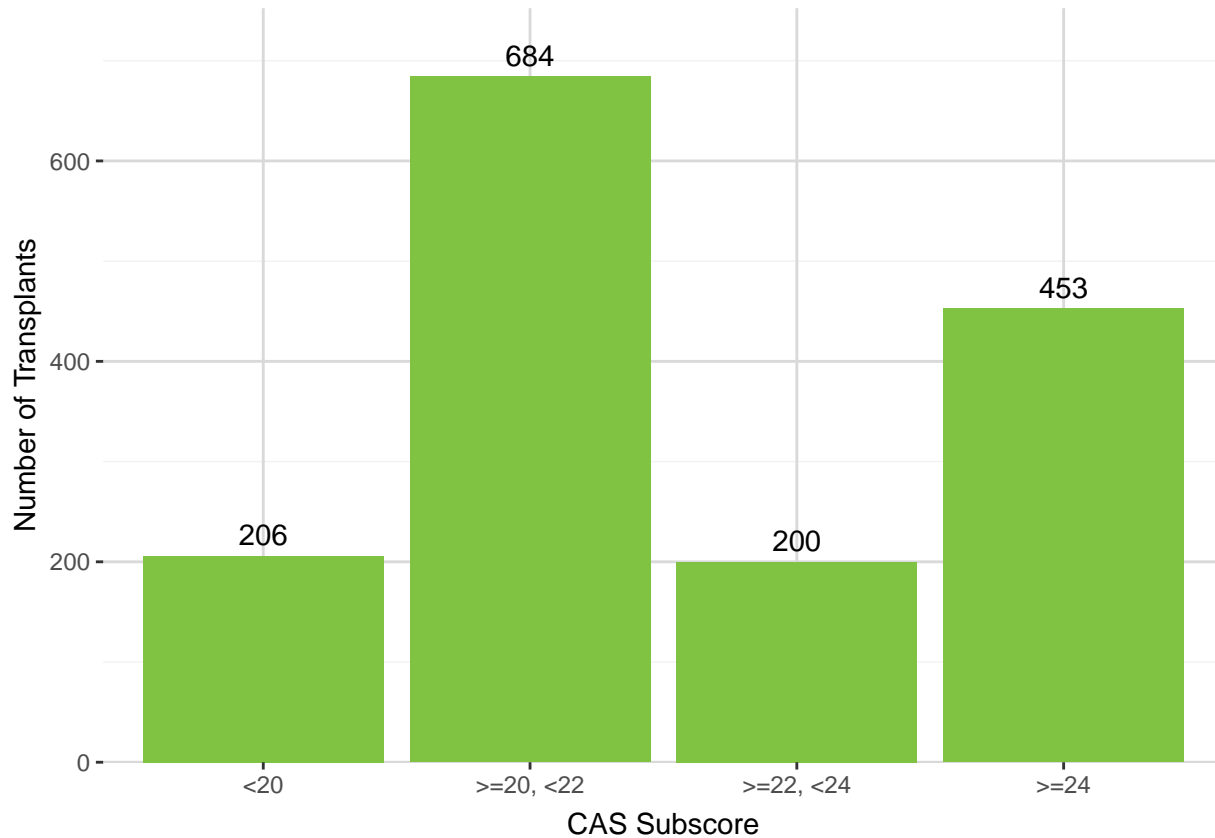
**Table 10: Number of Lung Transplants Per Month**

Policy Era	Month	Number of Lung Transplants
LAS	1/9/22 - 2/8/22	177
	2/9/22 - 3/8/22	209
	3/9/22 - 4/8/22	258
	4/9/22 - 5/8/22	201
	5/9/22 - 6/8/22	250
	6/9/22 - 7/8/22	217
	7/9/22 - 8/8/22	225
	8/9/22 - 9/8/22	220
	9/9/22 - 10/8/22	224
	10/9/22 - 11/8/22	264
	11/9/22 - 12/8/22	225
	12/9/22 - 1/8/23	205
CAS	1/9/23 - 2/8/23	231
	2/9/23 - 3/8/23	221
	3/9/23 - 4/8/23	230
	4/9/23 - 5/8/23	274
	5/9/23 - 6/8/23	276
	6/9/23 - 7/8/23	265
	7/9/23 - 8/8/23	263
	8/9/23 - 9/8/23	235

<sup>a</sup> Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

The majority of candidates who received a lung transplant in the post policy era had a CAS subscore between 20 and <22 or  $\geq 24$ . CAS subscores are calculated by summing all components of the CAS, except for the efficiency points; this includes the sum of medical urgency points, post-transplant survival points, biological disadvantage points, and patient access points.

**Figure 11: Number of Lung Transplants by CAS Subscore in the Post Policy Era**

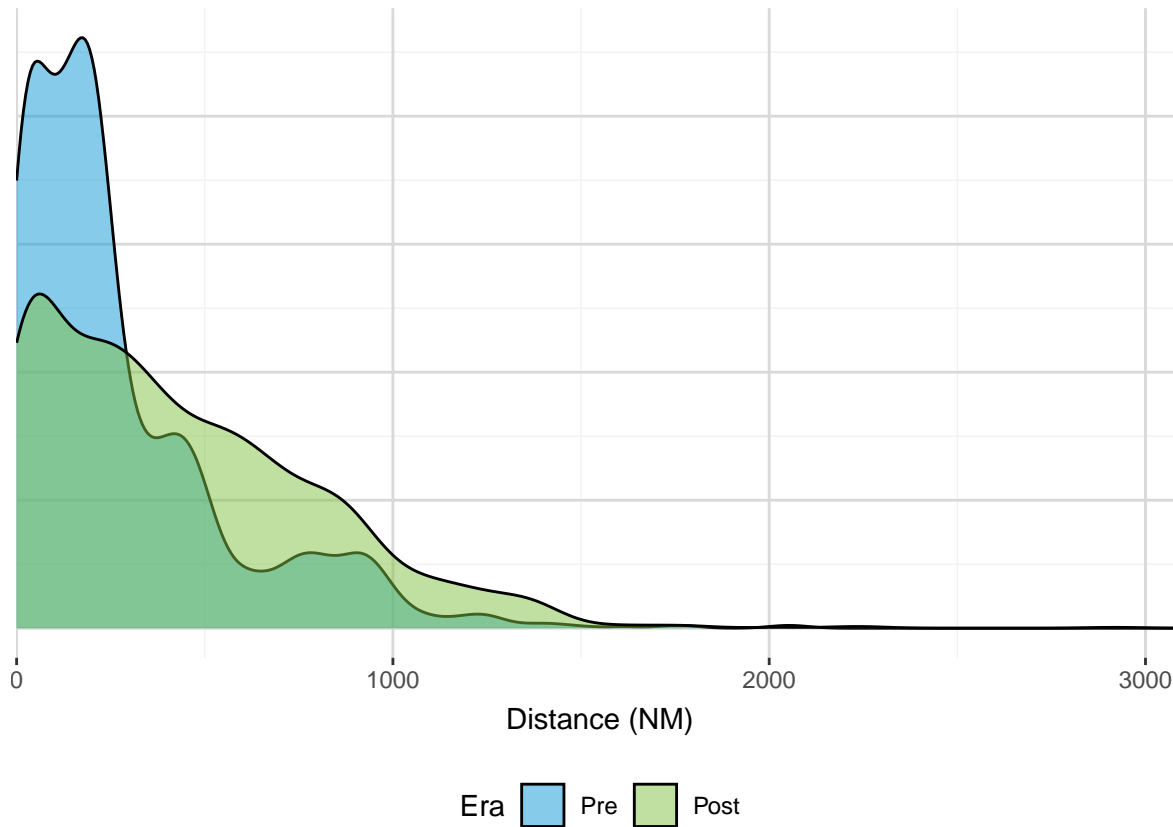


**Table 11: Number of Lung Transplants by CAS Subscore in the Post Policy Era**

CAS Subscore	N Transplants
<20	206 (13.4%)
$\geq 20, < 22$	684 (44.3%)
$\geq 22, < 24$	200 (13.0%)
$\geq 24$	453 (29.4%)
Total	1,543 (100.0%)

In the post policy era, the median distance from the donor hospital to transplant program (353 Nautical Miles (NM)) was greater compared to the pre era (195 NM). SRTR pre-implementation modeling indicated that travel distance would increase for highly medically urgent candidates.

**Figure 12: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program for Lung Transplants by Era**



**Table 12: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program for Lung Transplants by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	1387	0	0	78	195	279.35	391.0	2069
Post	1543	0	0	129	353	433.55	662.5	2920

## Continuous Distribution Attributes

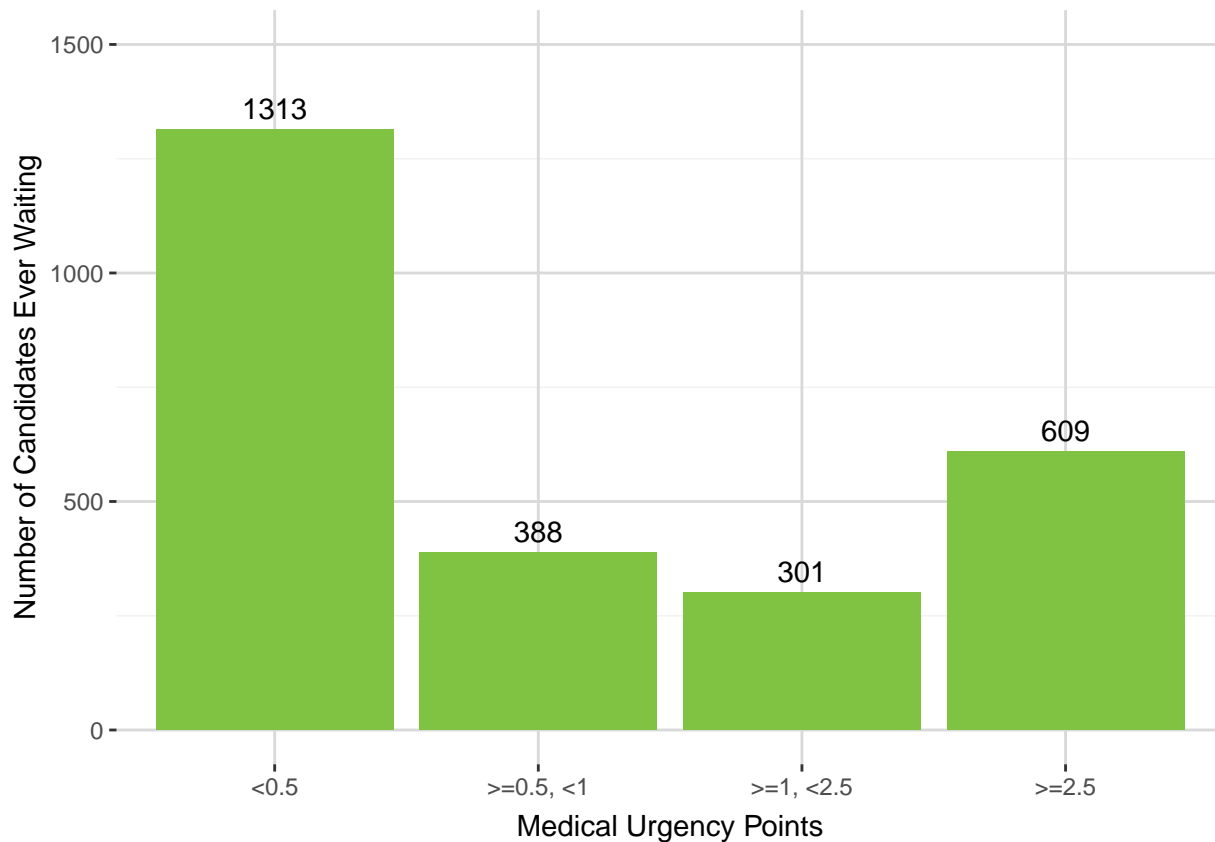
This subsection evaluates trends associated with each of the individual attributes of Continuous Distribution in an effort to determine whether the specific goals of the policy are being met.

### Medical Urgency

Medical Urgency Points were not calculated in the pre era; thus, all metrics in this section only include data from the post policy era (from March 09, 2023 to September 08, 2023). Points are reported at the time of listing for waiting list additions and median time to transplant, but the most recent value is used for all other analyses.

The majority of candidates ever waiting during the post policy era had less than 0.5 medical urgency points.

**Figure 13: Number of Candidates Ever Waiting by Medical Urgency Points in the Post Policy Era**

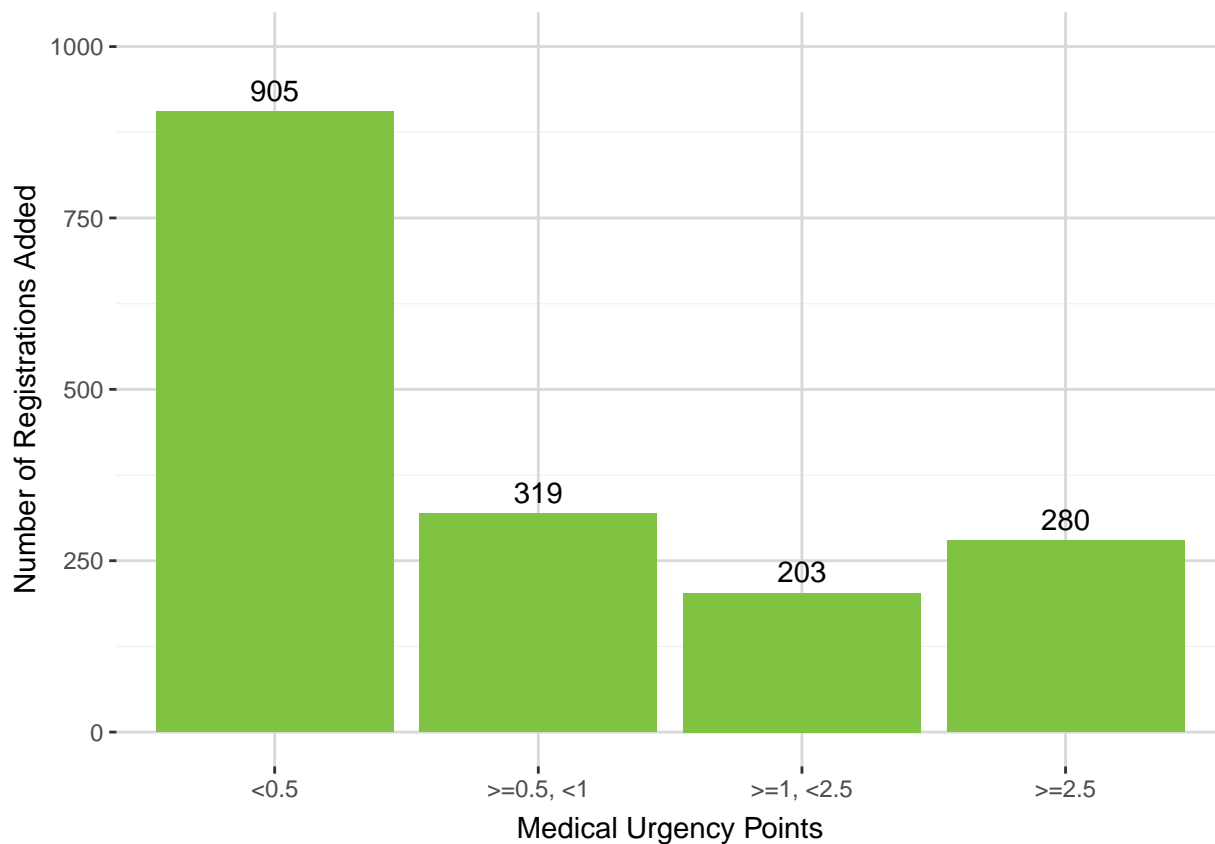


**Table 13: Number of Candidates Ever Waiting by Medical Urgency Points in the Post Policy Era**

Medical Urgency Points	N Ever Waiting
<0.5	1,313 (50.3%)
>=0.5, <1	388 (14.9%)
>=1, <2.5	301 (11.5%)
>=2.5	609 (23.3%)
Total	2,611 (100.0%)

In the post policy era, most registrations added to the waiting list had less than 0.5 medical urgency points at the time of listing.

**Figure 14: Number of Registrations Added to the Waiting List by Medical Urgency Points at Listing in the Post Policy Era**

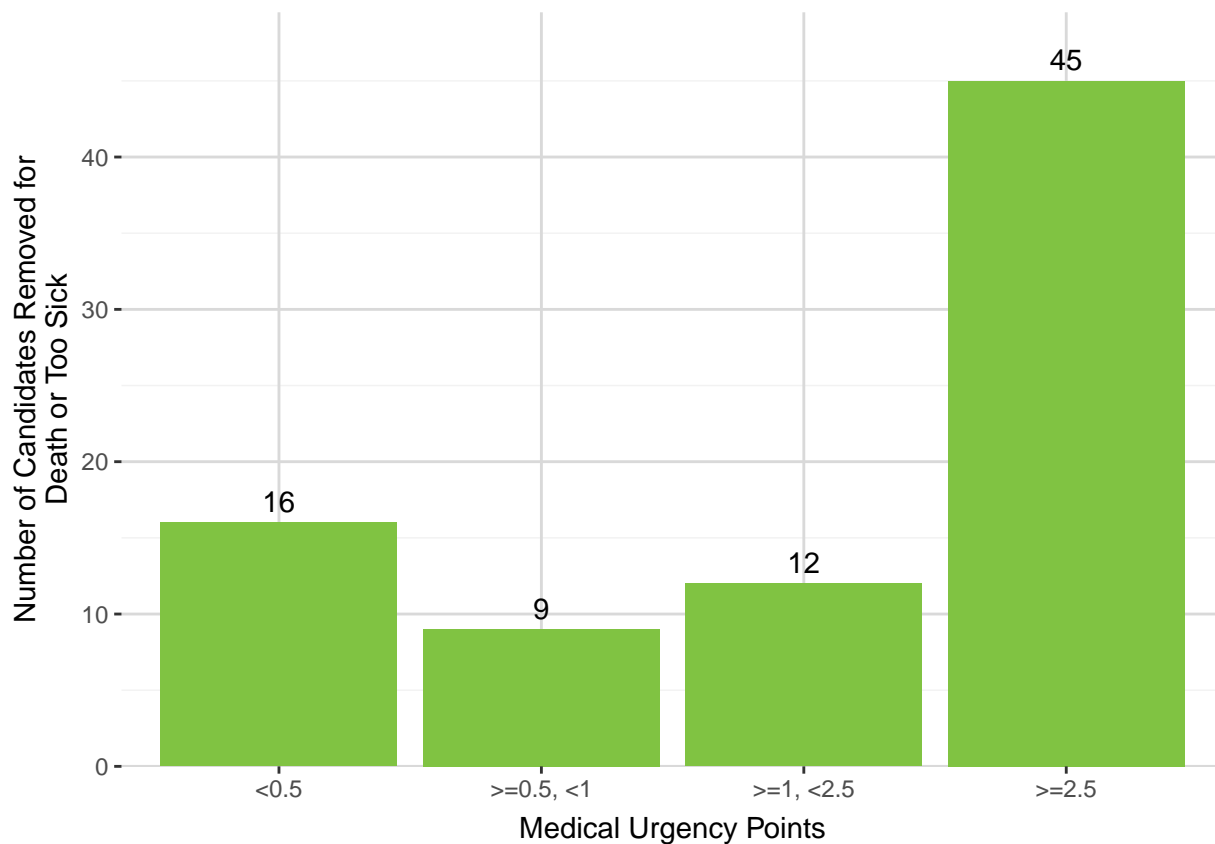


**Table 14: Number of Registrations Added to the Waiting List by Medical Urgency Points at Listing in the Post Policy Era**

Medical Urgency Points	N Additions
<0.5	905 (53.0%)
>=0.5, <1	319 (18.7%)
>=1, <2.5	203 (11.9%)
>=2.5	280 (16.4%)
Total	1,707 (100.0%)

In the post policy era, the majority of candidates removed from the waiting list for death or too sick to transplant had at least 2.5 medical urgency points.

**Figure 15: Number of Candidates Removed from the Waiting List for Death or Too Sick by Medical Urgency Points in the Post Policy Era**

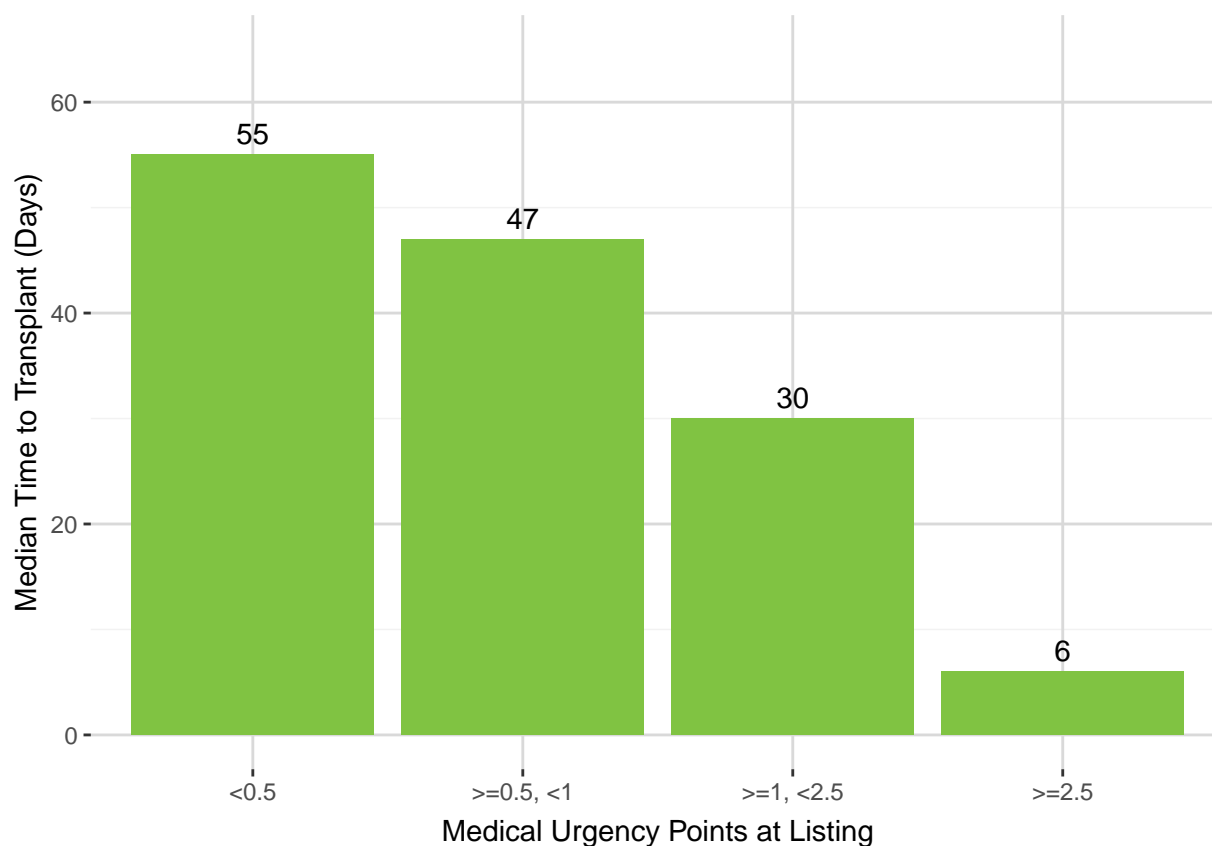


**Table 15: Number of Candidates Removed from the Waiting List for Death or Too Sick by Medical Urgency Points in the Post Policy Era**

Medical Urgency Points	N Candidates Removed for Death or Too Sick
<0.5	16 (19.5%)
>=0.5, <1	9 (11.0%)
>=1, <2.5	12 (14.6%)
>=2.5	45 (54.9%)
Total	82 (100.0%)

Median time to transplant was shortest for the most medically urgent candidates (candidates with at least 2.5 medical urgency points at the time of listing).

**Figure 16: Median Time to Transplant (Days) by Medical Urgency Points at Listing in the Post Policy Era**



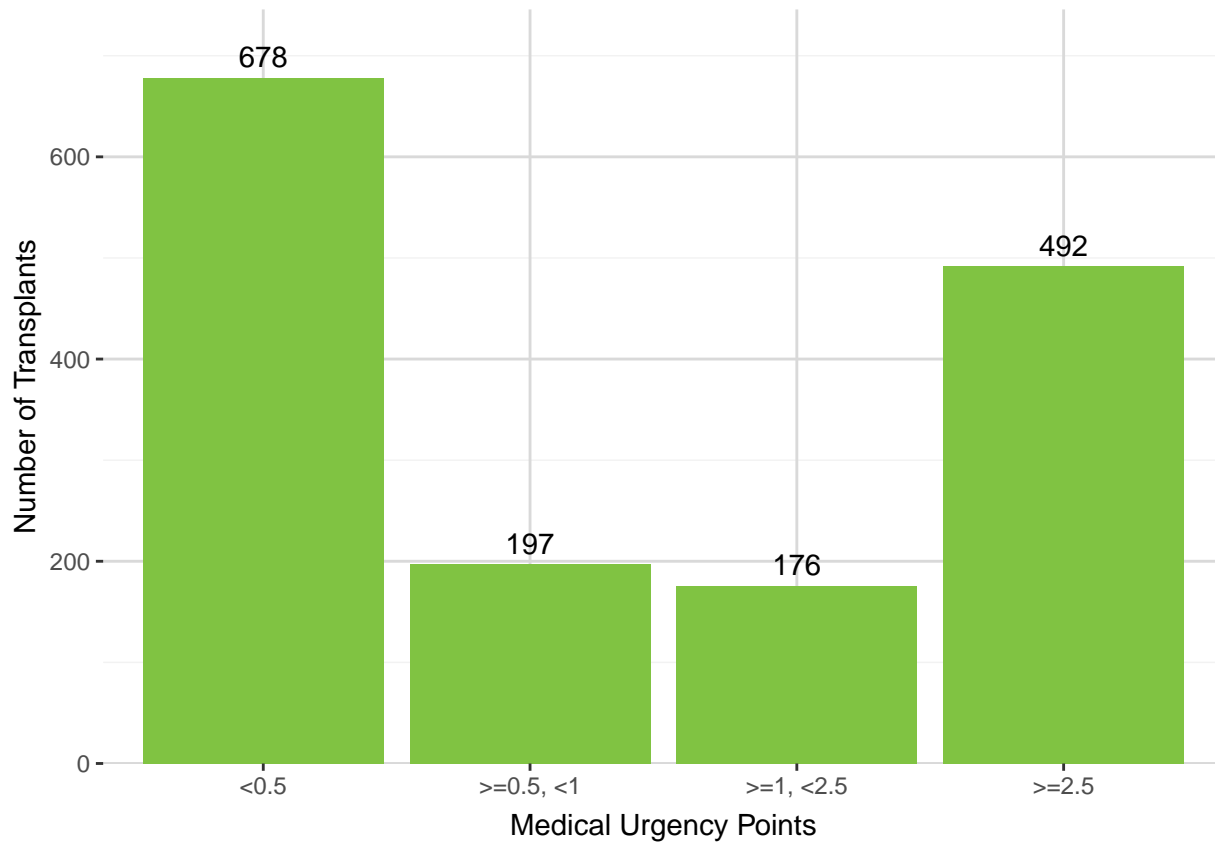
**Table 16: Median Time to Transplant (Days) by Medical Urgency Points at Listing in the Post Policy Era**

Medical Urgency Points at Listing	N Registrations	Median Time to Transplant (Days)
<0.5	905	55
>=0.5, <1	319	47
>=1, <2.5	203	30
>=2.5	280	6



In the post policy era, the majority of patients that received a lung transplant had less than 0.5 or at least 2.5 medical urgency points.

**Figure 17: Number of Lung Transplants by Medical Urgency Points in the Post Policy Era**

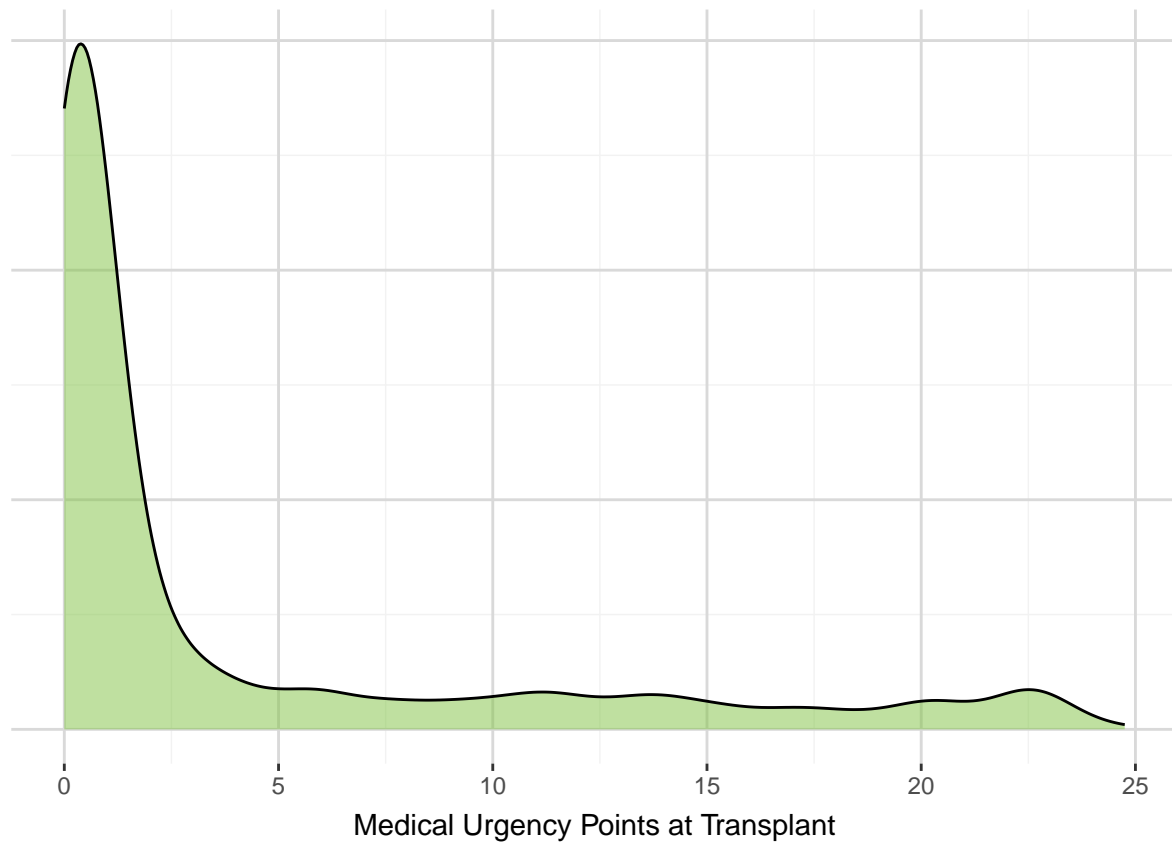


**Table 17: Number of Lung Transplants by Medical Urgency Points in the Post Policy Era**

Medical Urgency Points	N Transplants
<0.5	678 (43.9%)
>=0.5, <1	197 (12.8%)
>=1, <2.5	176 (11.4%)
>=2.5	492 (31.9%)
Total	1,543 (100.0%)

In the post policy era, the median number of medical urgency points at the time of transplant was 0.66.

**Figure 18: Distribution of Medical Urgency Points at Transplant in the Post Policy Era**

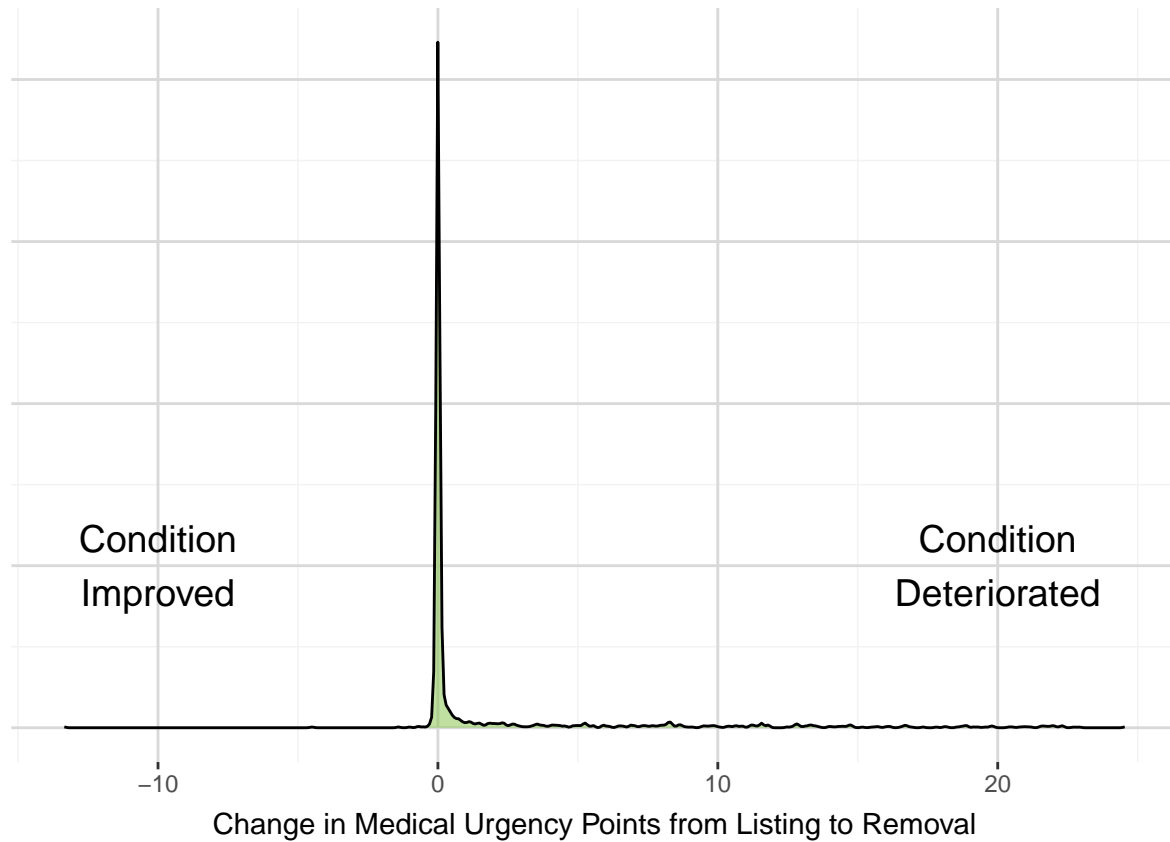


**Table 18: Distribution of Medical Urgency Points at Transplant in the Post Policy Era**

Era	N Transplants	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Post	1543	0	0	0.2	0.66	4.16	5.23	24.75

For candidates added and removed from the waiting list in the post policy era, the median change in medical urgency points from listing to removal was 0. This includes individuals removed from the waiting list for any reason, including deceased donor transplant, death, too sick to transplant, condition improved, etc. A positive value means that the candidate's medical urgency points increased (their condition deteriorated), while a negative value means that the candidate's medical urgency points decreased (their condition improved).

**Figure 19: Distribution of the Change in Medical Urgency Points from Listing to Removal in the Post Policy Era**

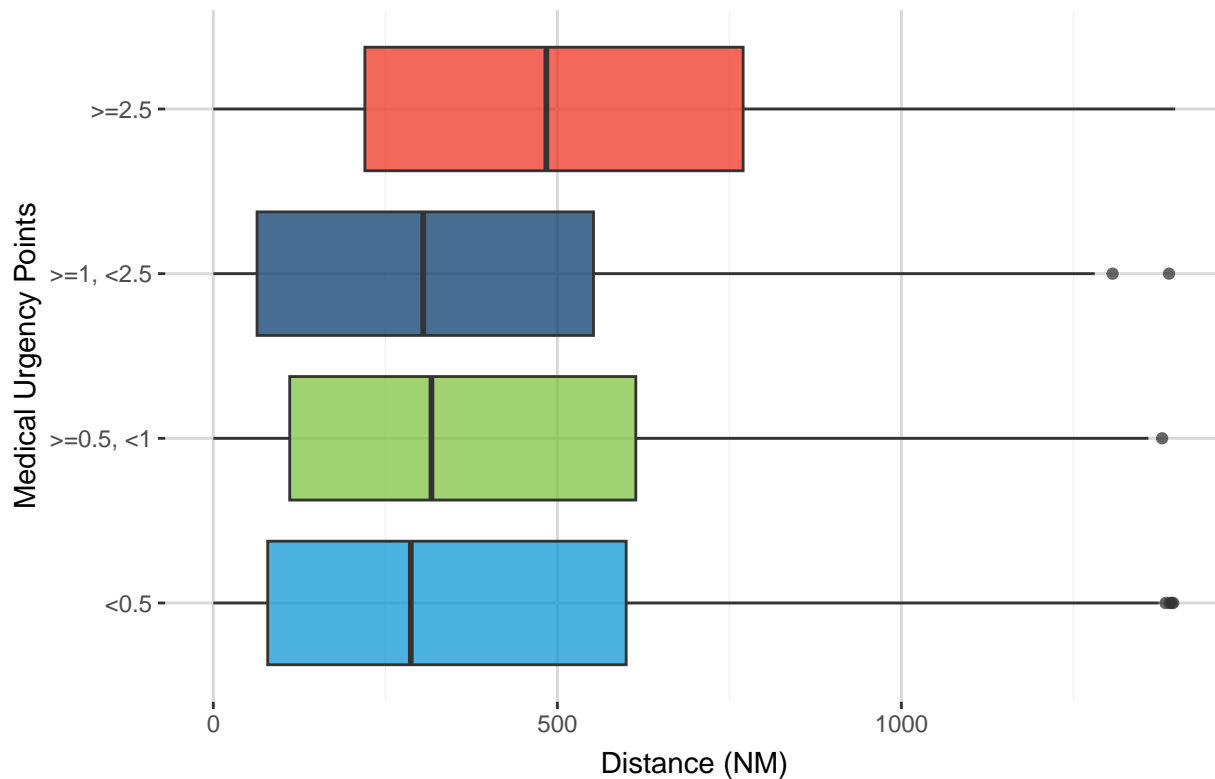


**Table 19: Distribution of the Change in Medical Urgency Points from Listing to Removal in the Post Policy Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Post	1310	0	-13.35	0.00	0.00	1.92	0.35	24.54

In the post era, median distance for the most medically urgent patients (medical urgency points  $\geq 2.5$ ) was greater (489.5 NM) than the median distance for all other recipients. SRTR modeling indicated travel distances would increase for the most medically urgent recipients.

**Figure 20: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Medical Urgency Points in the Post Policy Era**



**Table 20: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Medical Urgency Points in the Post Policy Era**

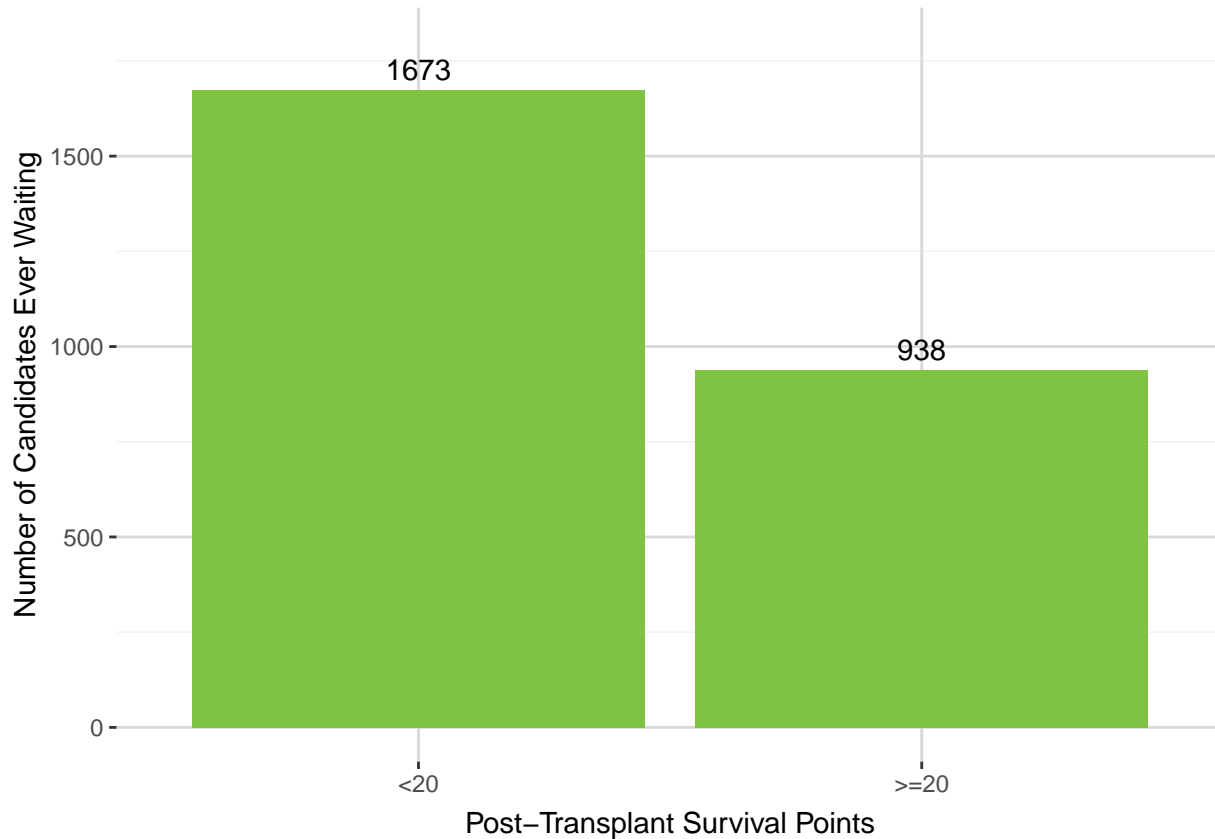
Medical Urgency Points	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
<0.5	Post	678	0	0	82.25	289.0	381.72	607.25	2920
$\geq 0.5, < 1$	Post	197	0	0	112.00	332.0	428.24	648.00	2021
$\geq 1, < 2.5$	Post	176	0	0	65.25	310.5	367.22	556.50	1736
$\geq 2.5$	Post	492	0	0	221.75	489.5	530.84	789.50	2244
Total	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

### Post-Transplant Survival

Post-Transplant Survival Points were not calculated in the pre era; thus, all metrics in this section only include data from the post policy era (from March 09, 2023 to September 08, 2023). Points are reported at the time of listing for waiting list additions and median time to transplant, but the most recent value is used for all other analyses.

The majority of candidates ever waiting during the post policy era had less than 20 post-transplant survival points.

**Figure 21: Number of Candidates Ever Waiting by Post-Transplant Survival Points in the Post Policy Era**

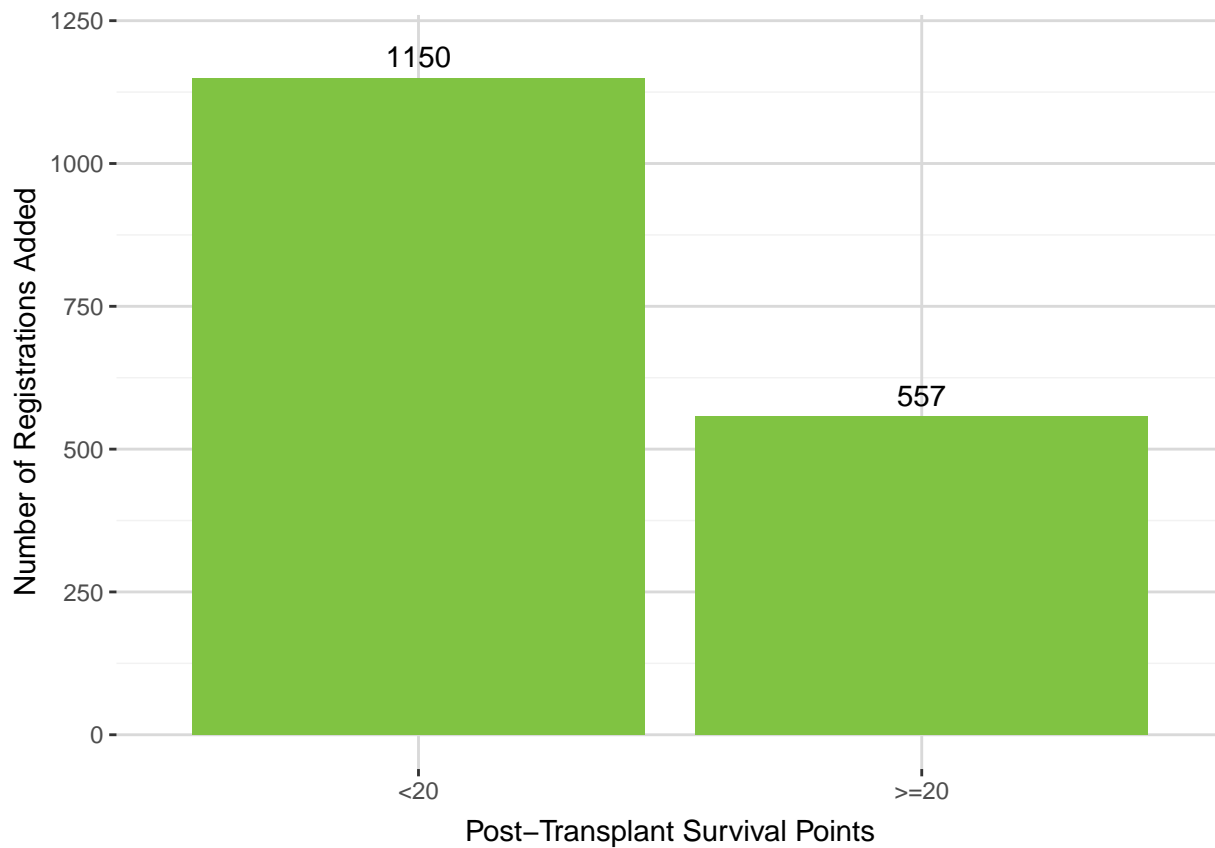


**Table 21: Number of Candidates Ever Waiting by Post-Transplant Survival Points in the Post Policy Era**

Post-Transplant Survival Points	N Ever Waiting
<20	1,673 (64.1%)
>=20	938 (35.9%)
Total	2,611 (100.0%)

In the post policy era, the majority of registrations added to the waiting list had less than 20 post-transplant survival points at the time of listing.

**Figure 22: Number of Registrations Added to the Waiting List by Post-Transplant Survival Points at Listing in the Post Policy Era**

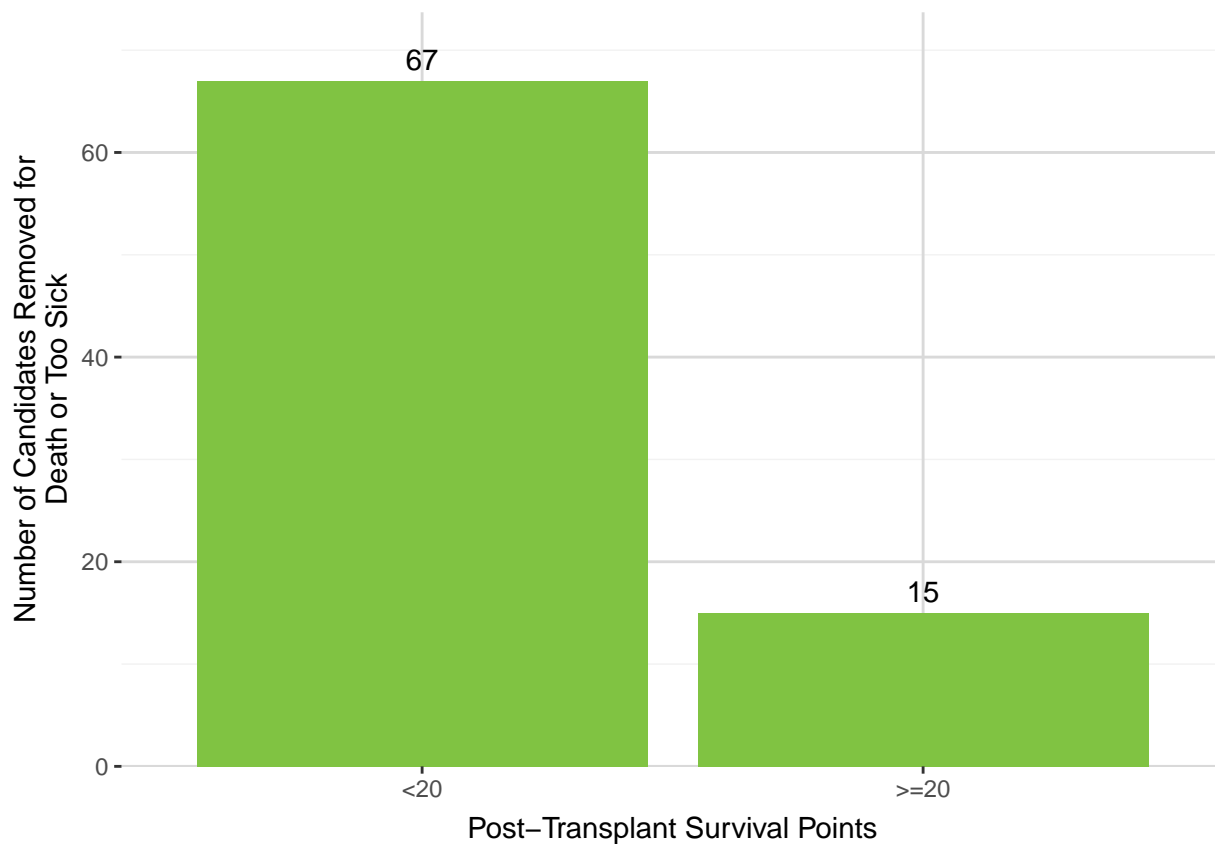


**Table 22: Number of Registrations Added to the Waiting List by Post-Transplant Survival Points at Listing in the Post Policy Era**

Post-Transplant Survival Points	N Additions
<20	1,150 (67.4%)
>=20	557 (32.6%)
Total	1,707 (100.0%)

In the post policy era, the majority of candidates removed from the waiting list for death or too sick had less than 20 post-transplant survival points.

**Figure 23: Number of Candidates Removed from the Waiting List for Death or Too Sick by Post-Transplant Survival Points in the Post Policy Era**

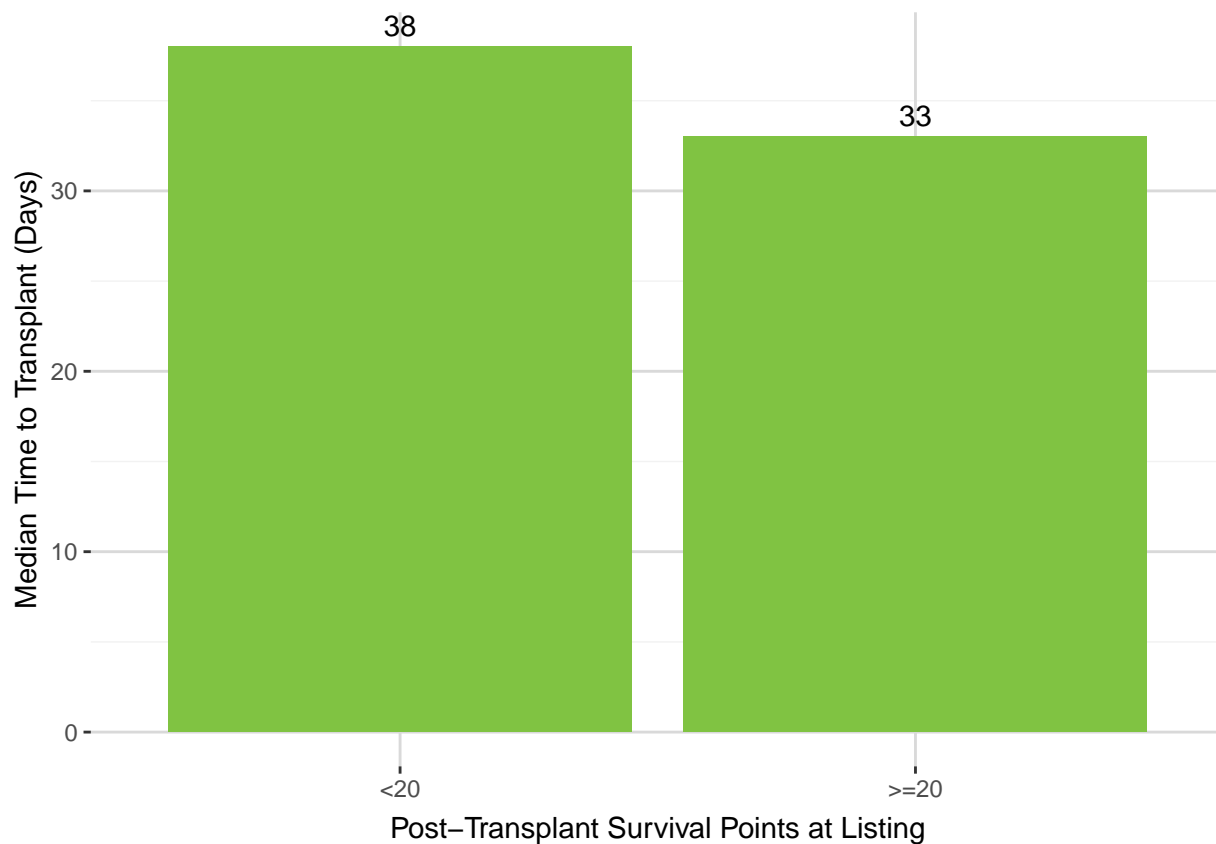


**Table 23: Number of Candidates Removed from the Waiting List for Death or Too Sick by Post-Transplant Survival Points in the Post Policy Era**

Post-Transplant Survival Points	N Candidates Removed for Death or Too Sick
<20	67 (81.7%)
>=20	15 (18.3%)
Total	82 (100.0%)

Median time to a transplant was similar for patients with  $<20$  and  $\geq 20$  post-transplant survival points at the time of listing.

**Figure 24: Median Time to Transplant (Days) by Post-Transplant Survival Points at Listing in the Post Policy Era**



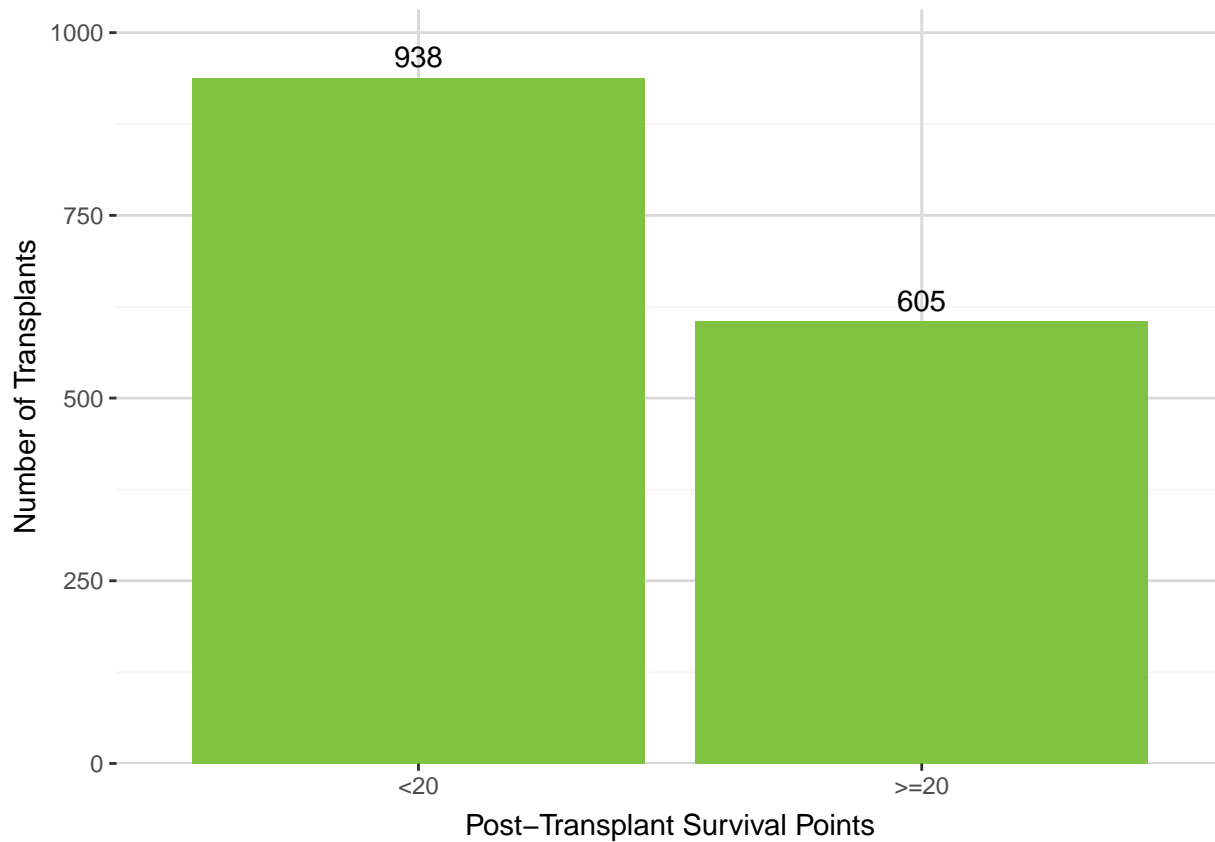
**Table 24: Median Time to Transplant (Days) by Post-Transplant Survival Points at Listing in the Post Policy Era**

Post-Transplant Survival Points at Listing	N Registrations	Median Time to Transplant (Days)
$<20$	1150	38
$\geq 20$	557	33



In the post policy era, the majority of patients that received a lung transplant had less than 20 post-transplant survival points.

**Figure 25: Number of Lung Transplants by Post-Transplant Survival Points in the Post Policy Era**

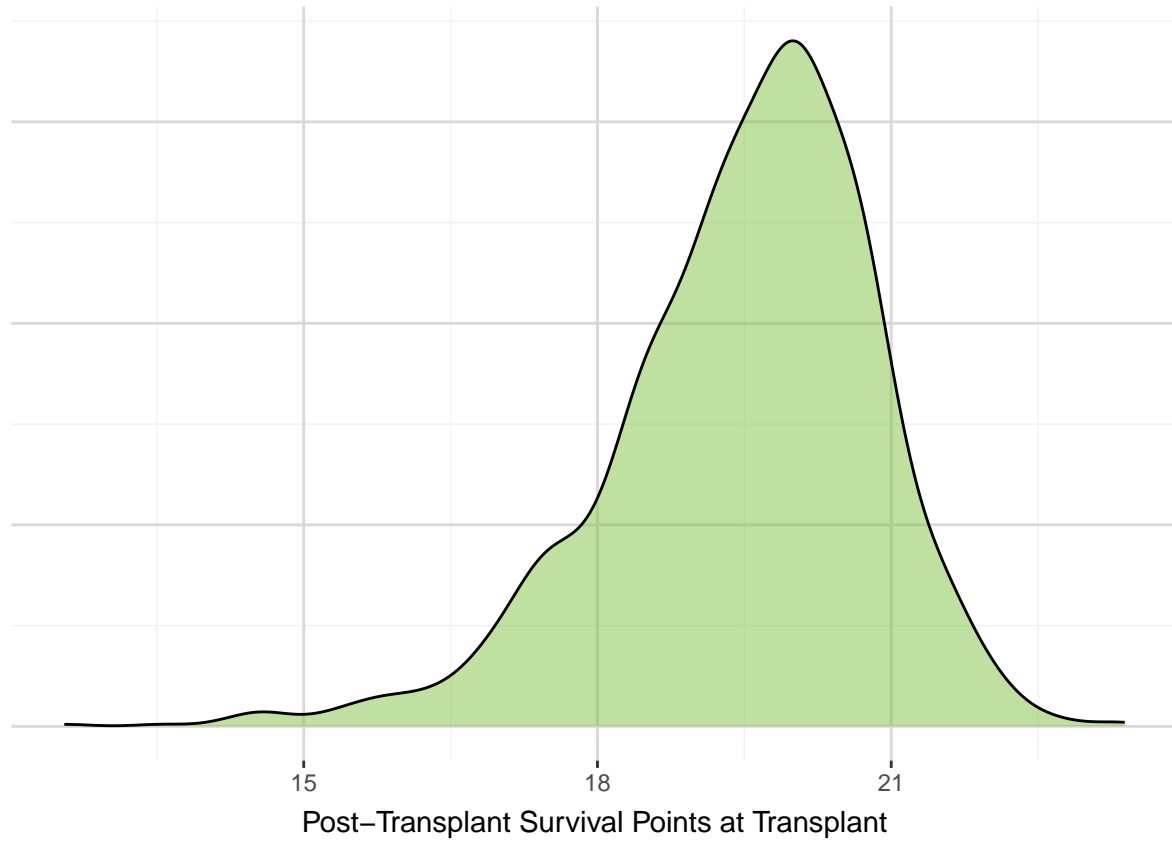


**Table 25: Number of Lung Transplants by Post-Transplant Survival Points in the Post Policy Era**

Post-Transplant Survival Points	N Transplants
<20	938 (60.8%)
>=20	605 (39.2%)
Total	1,543 (100.0%)

In the post policy era, the median number of post-transplant survival points at the time of transplant was 19.69.

**Figure 26: Distribution of Post-Transplant Survival Points at Transplant in the Post Policy Era**

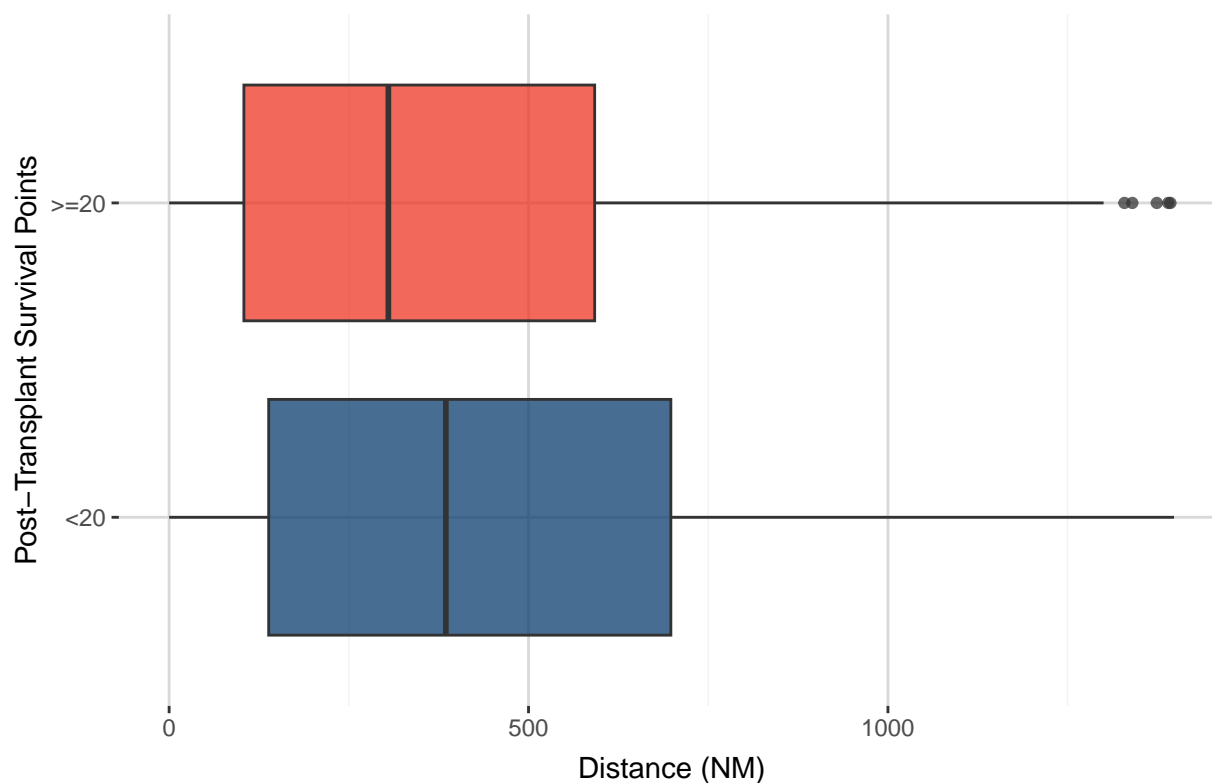


**Table 26: Distribution of Post-Transplant Survival Points at Transplant in the Post Policy Era**

Era	N Transplants	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Post	1543	0	12.55	18.73	19.69	19.49	20.41	23.39

In the post era, median distance for patients with less than 20 post-transplant survival points (392.5 NM) was greater than the median distance for patients with 20 or more post-transplant survival points (305 NM).

**Figure 27: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Post-Transplant Survival Points in the Post Policy Era**



View is restricted to the 99th percentile of distance (1399 NM). There were 16 cases where lungs traveled further than this distance in the post policy era.

**Table 27: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Post-Transplant Survival Points in the Post Policy Era**

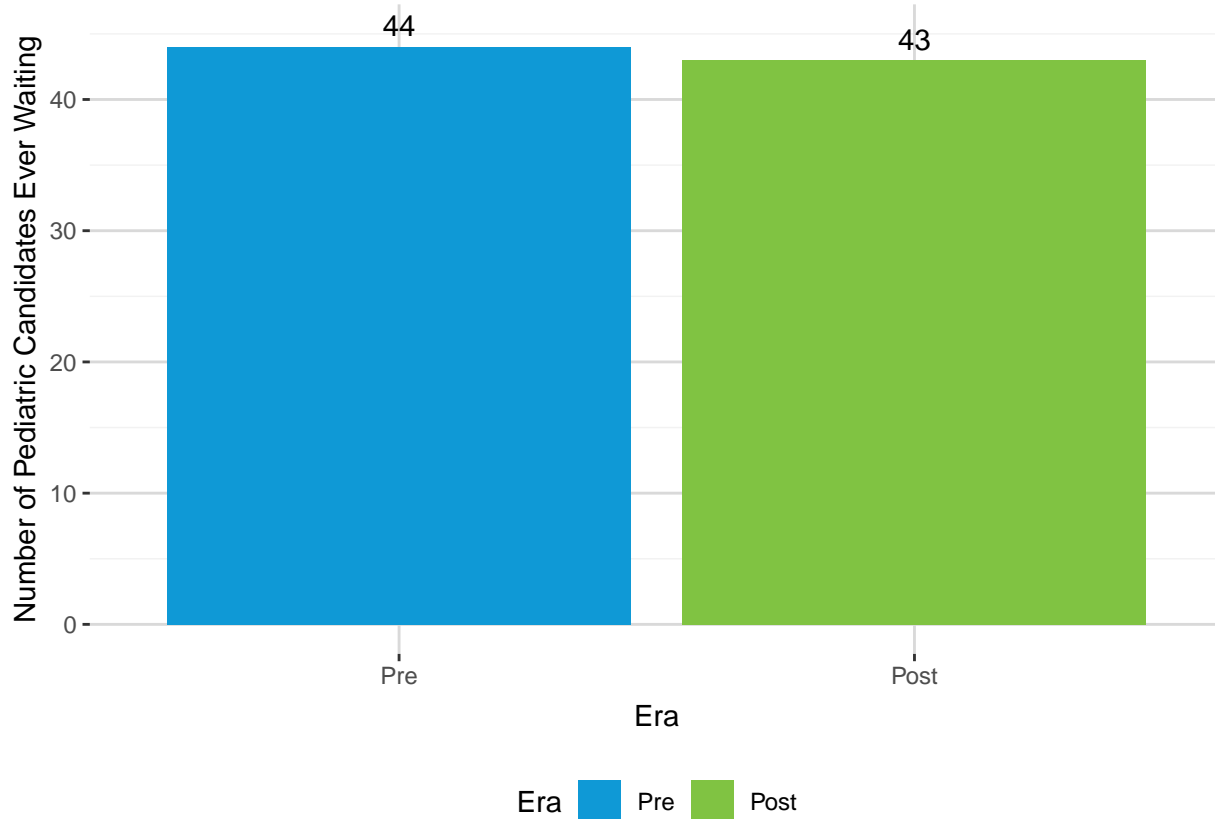
Post-Transplant Survival Points	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
<20	Post	938	0	0	140.5	392.5	460.14	707.75	2244
≥20	Post	605	0	0	105.0	305.0	392.34	599.00	2920
Total	Post	1543	0	0	129.0	353.0	433.55	662.50	2920

## Pediatric

Pediatric candidates are defined as those who are less than 18 years old at the time of listing. Additionally, pediatric recipients are defined as those who are less than 18 years old at the time of listing, even if they are 18 years or older at the time of transplant. The sample sizes for pediatrics are currently too small to definitively determine implications of the policy change; however, below we describe trends we are observing so far. We will continue to monitor pediatrics in upcoming monitoring reports as more data become available.

The number of pediatric candidates ever waiting was similar in the pre and post eras.

**Figure 28: Number of Pediatric Candidates Ever Waiting by Era**

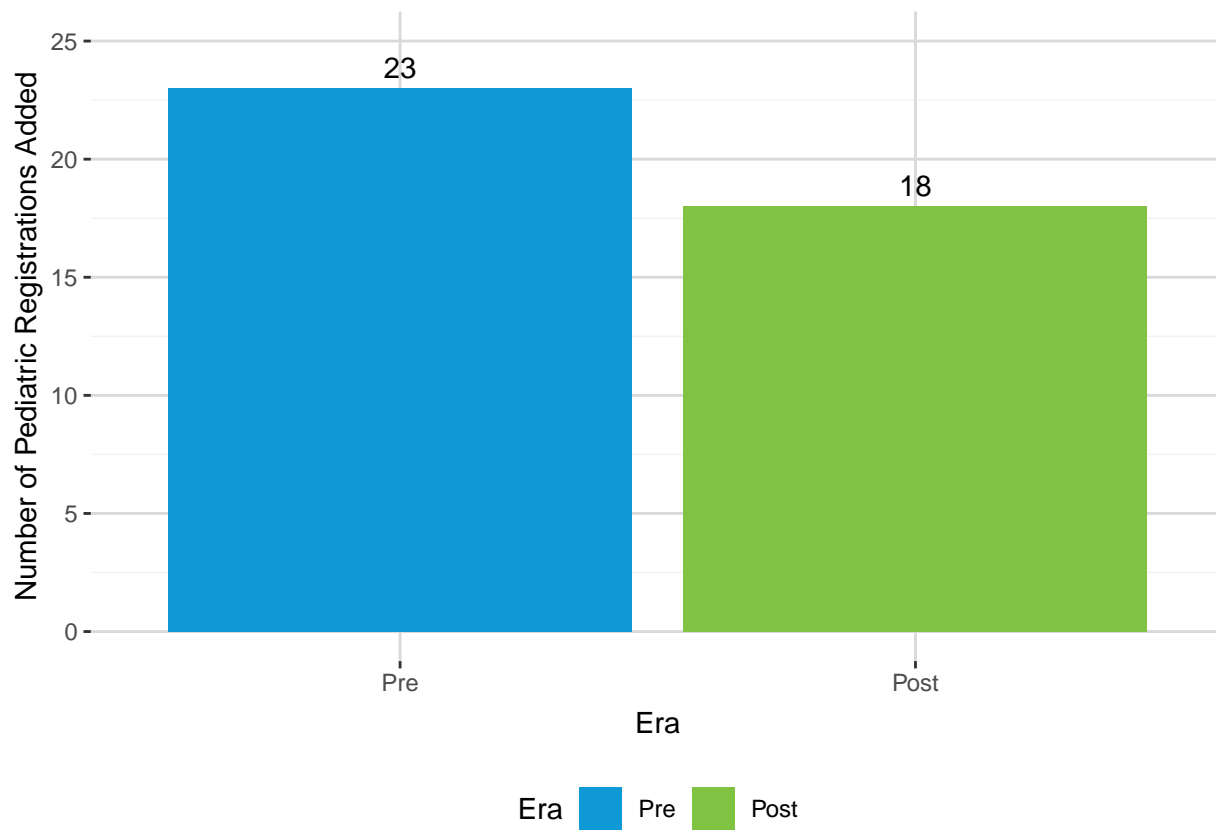


**Table 28: Number of Pediatric Candidates Ever Waiting by Era**

Era	N Pediatric Candidates Ever Waiting
Pre	44
Post	43

There was a slight decrease in the number of pediatric registrations added to the waiting list in the post policy era.

**Figure 29: Number of Pediatric Registrations Added to the Waiting List by Era**

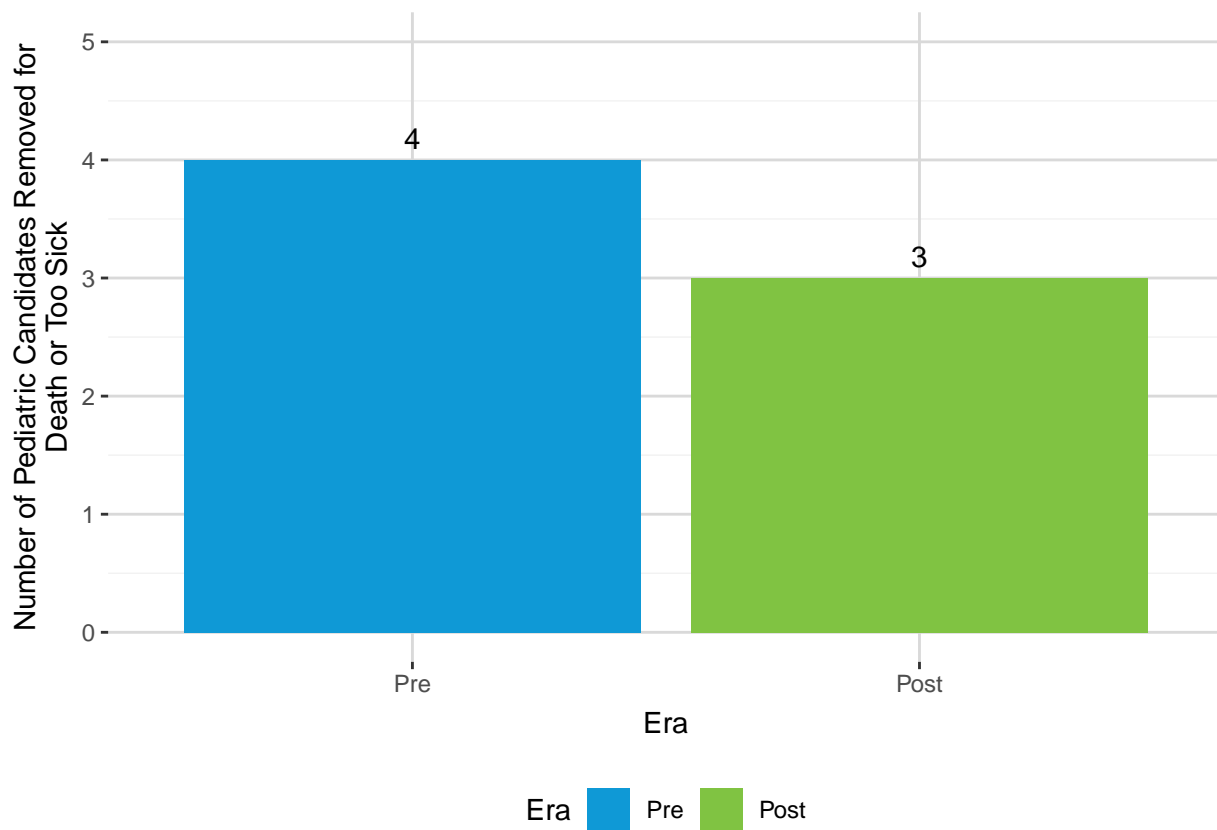


**Table 29: Number of Pediatric Registrations Added to the Waiting List by Era**

Era	N Pediatric Registrations Added
Pre	23
Post	18

There were 4 pediatric candidates removed from the waiting list for death or being too sick to transplant in the pre era and 3 pediatric candidates removed from the waiting list for death or being too sick to transplant in the post era.

**Figure 30: Number of Pediatric Candidates Removed from the Waiting List for Death or Too Sick by Era**

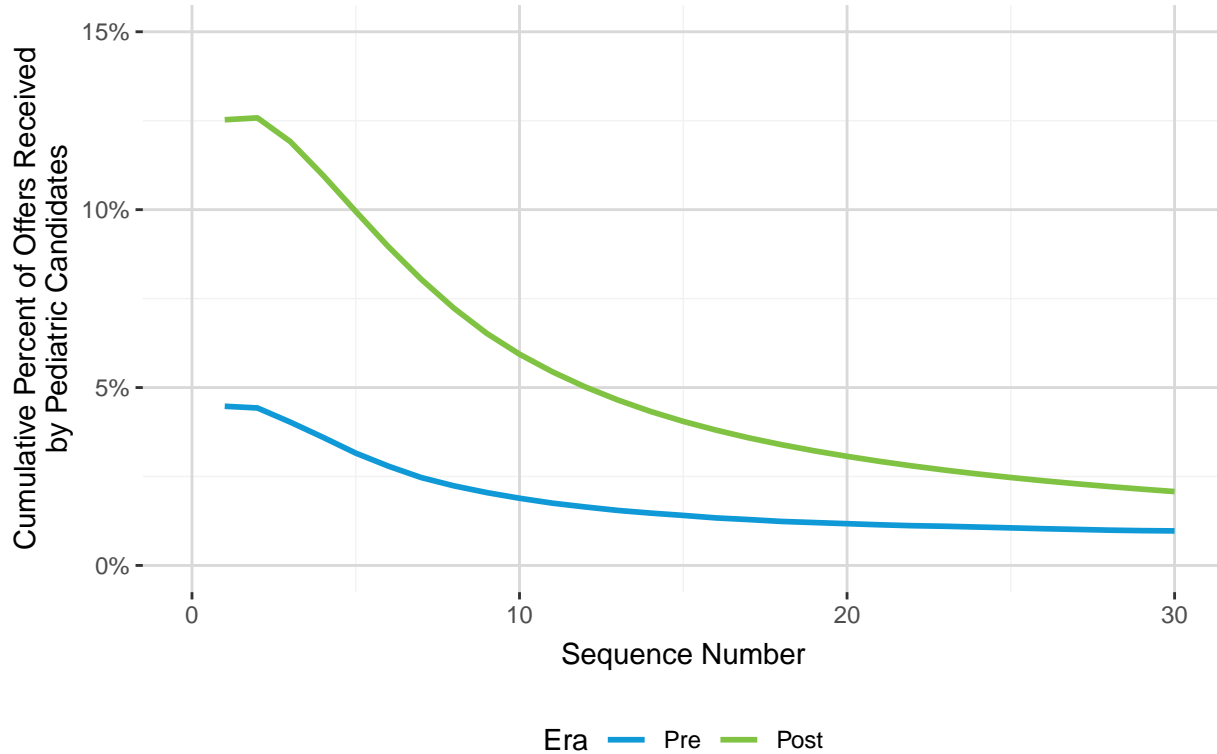


**Table 30: Number of Pediatric Candidates Removed from the Waiting List for Death or Too Sick by Era**

Era	N Pediatric Candidates Removed for Death or Too Sick
Pre	4
Post	3

The following figure and table describe how pediatric candidates were ranked on the match run in the pre and post policy eras by depicting the cumulative percent of offers received by pediatric candidates at the top of the match run (from sequence numbers 1 to 30). In the post era, pediatric candidates had greater access to transplants and received the first offer on a match run 12.53% of the time, compared to the pre era where they received the first offer on a match run only 4.47% of the time.

**Figure 31: Cumulative Percent of Offers Received by Pediatric Candidates by Era and Sequence Number**



View is restricted to match run sequence numbers 1 through 30 to highlight differences at the top of the match run between the pre and post eras.

**Table 31: Cumulative Percent of Offers Received by Pediatric Candidates by Era and Sequence Number**

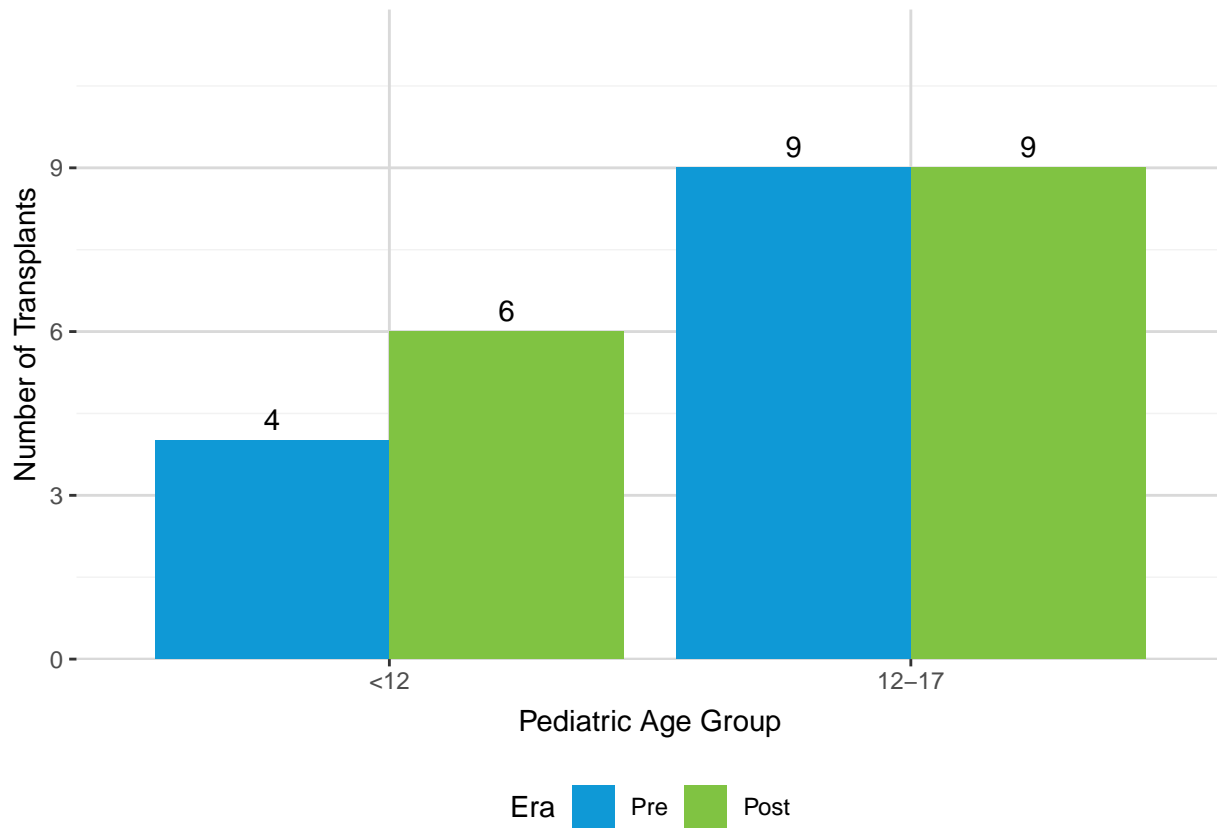
Sequence Number	Pre	Post
1	4.47%	12.53%
2	4.43%	12.58%
3	4.03%	11.91%
4	3.60%	10.97%
5	3.16%	9.95%
6	2.79%	8.96%
7	2.47%	8.04%
8	2.24%	7.23%
9	2.05%	6.52%
10	1.89%	5.94%
11	1.75%	5.44%
12	1.64%	5.02%
13	1.55%	4.65%
14	1.47%	4.33%
15	1.41%	4.05%
16	1.34%	3.80%
17	1.29%	3.59%
18	1.24%	3.39%
19	1.21%	3.22%
20	1.17%	3.07%
21	1.14%	2.92%
22	1.12%	2.80%
23	1.10%	2.68%
24	1.08%	2.57%
25	1.06%	2.47%
26	1.03%	2.38%
27	1.01%	2.30%
28	0.99%	2.22%
29	0.98%	2.14%
30	0.97%	2.08%

<sup>a</sup> Cumulative percent of offers received by pediatric candidates are only listed through match run sequence number 30 to highlight differences in pediatric offers at the top of the match run in the pre and post eras.



The number of transplants was similar for pediatric candidates in the pre and post eras.

**Figure 32: Number of Lung Transplants by Era and Pediatric Age Group**

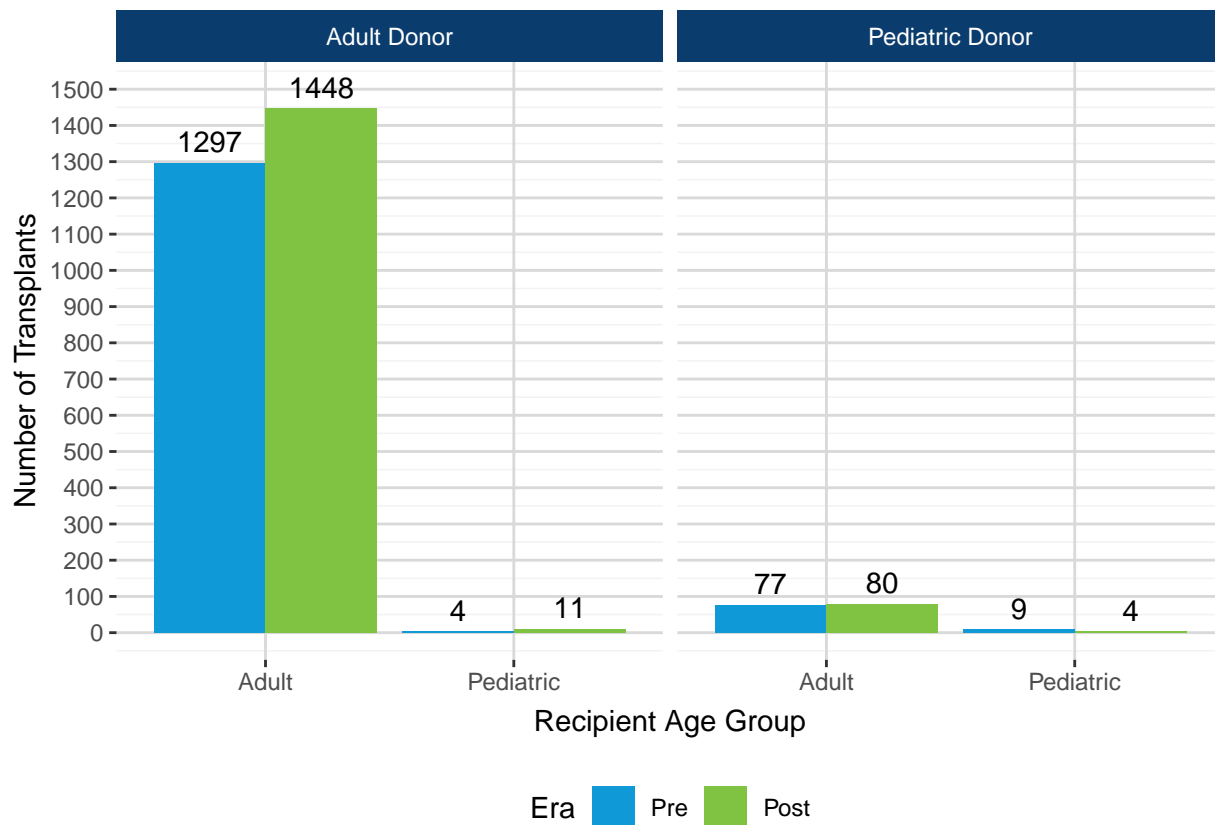


**Table 32: Number of Lung Transplants by Era and Pediatric Age Group**

Pediatric Age Group	Pre	Post
<12	4 (30.8%)	6 (40.0%)
12-17	9 (69.2%)	9 (60.0%)
Total	13 (100.0%)	15 (100.0%)

In the post era, the number of pediatric lungs transplanted to adult recipients increased slightly and the number transplanted to pediatric recipients decreased slightly. In addition, more adult lungs were transplanted to pediatric recipients in the post era compared to the pre era.

**Figure 33: Number of Lung Transplants by Era, Recipient Age Group, and Donor Age Group**

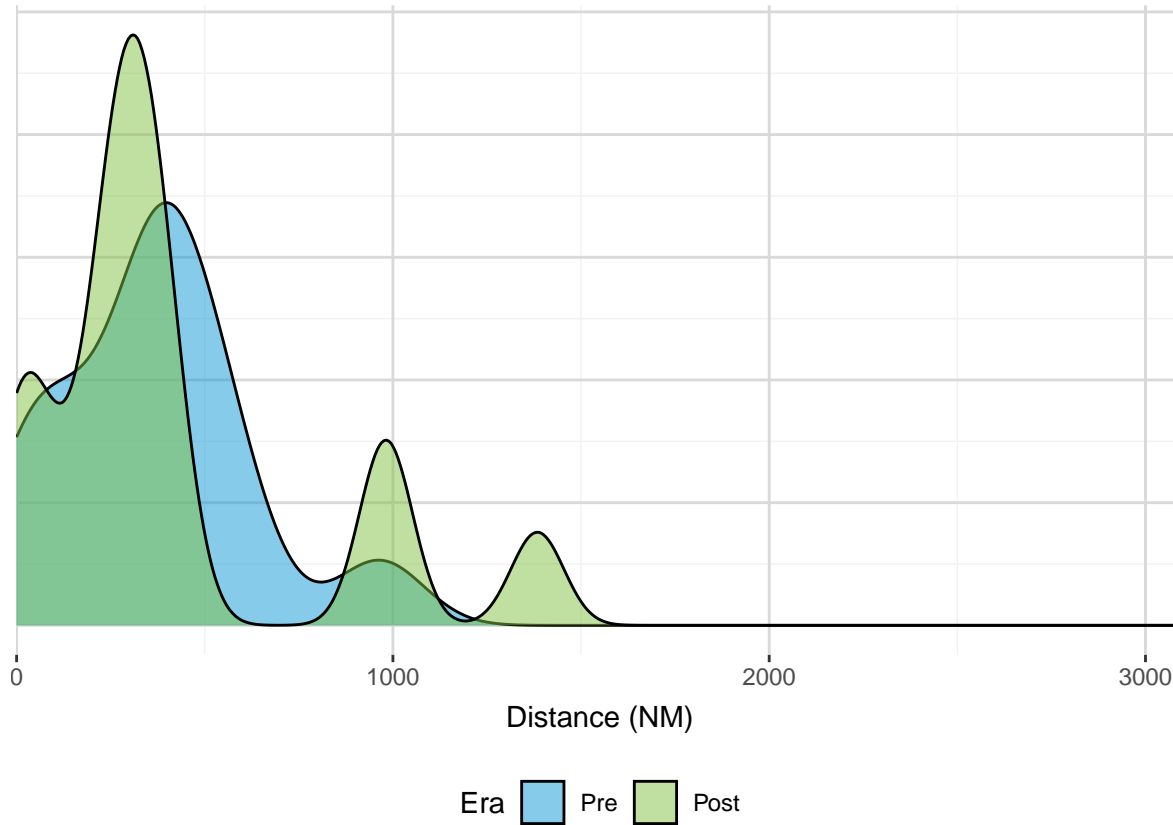


**Table 33: Number of Lung Transplants by Era, Recipient Age Group, and Donor Age Group**

Era	Recipient Age Group	Adult Donor	Pediatric Donor
Pre	Adult	1,297 (99.7%)	77 (89.5%)
	Pediatric	4 (0.3%)	9 (10.5%)
	Total	1,301 (100.0%)	86 (100.0%)
Post	Adult	1,448 (99.2%)	80 (95.2%)
	Pediatric	11 (0.8%)	4 (4.8%)
	Total	1,459 (100.0%)	84 (100.0%)

In the post policy era, median distance from the donor hospital to transplant program decreased for pediatric recipients from 383 NM to 297 NM, though sample sizes were small.

**Figure 34: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program for Pediatric Recipients by Era**

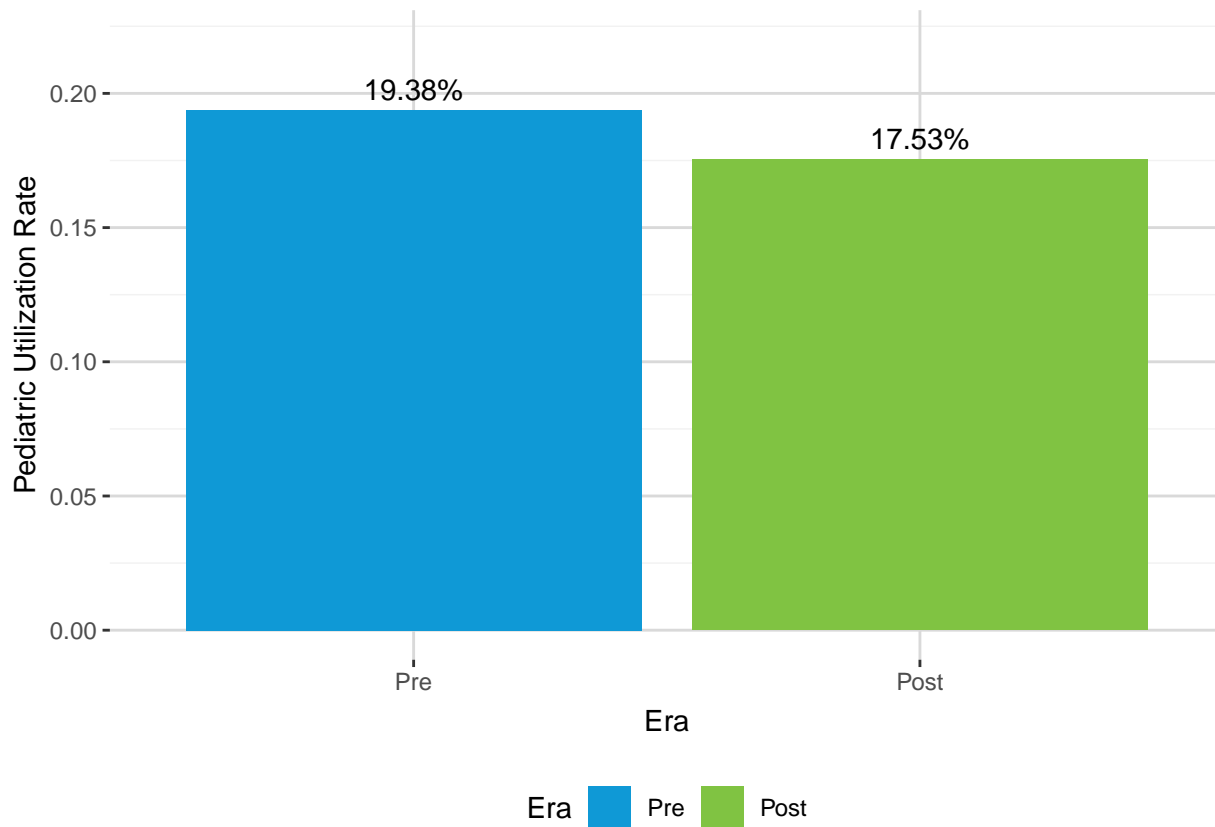


**Table 34: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program for Pediatric Recipients by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	13	0	22	197	383	367.38	486	965
Post	15	0	3	219	297	416.00	398	1384

There was a slight decrease in pediatric lung utilization rates in the post era compared to the pre era. The pediatric utilization rate is defined as the percent of lungs that are transplanted based on all possible lungs from every deceased pediatric donor (< 18 years) with at least one organ recovered for the purpose of transplant; this assumes that each donor has two possible lungs for donation.

**Figure 35: Pediatric Lung Donor Utilization Rates by Era**

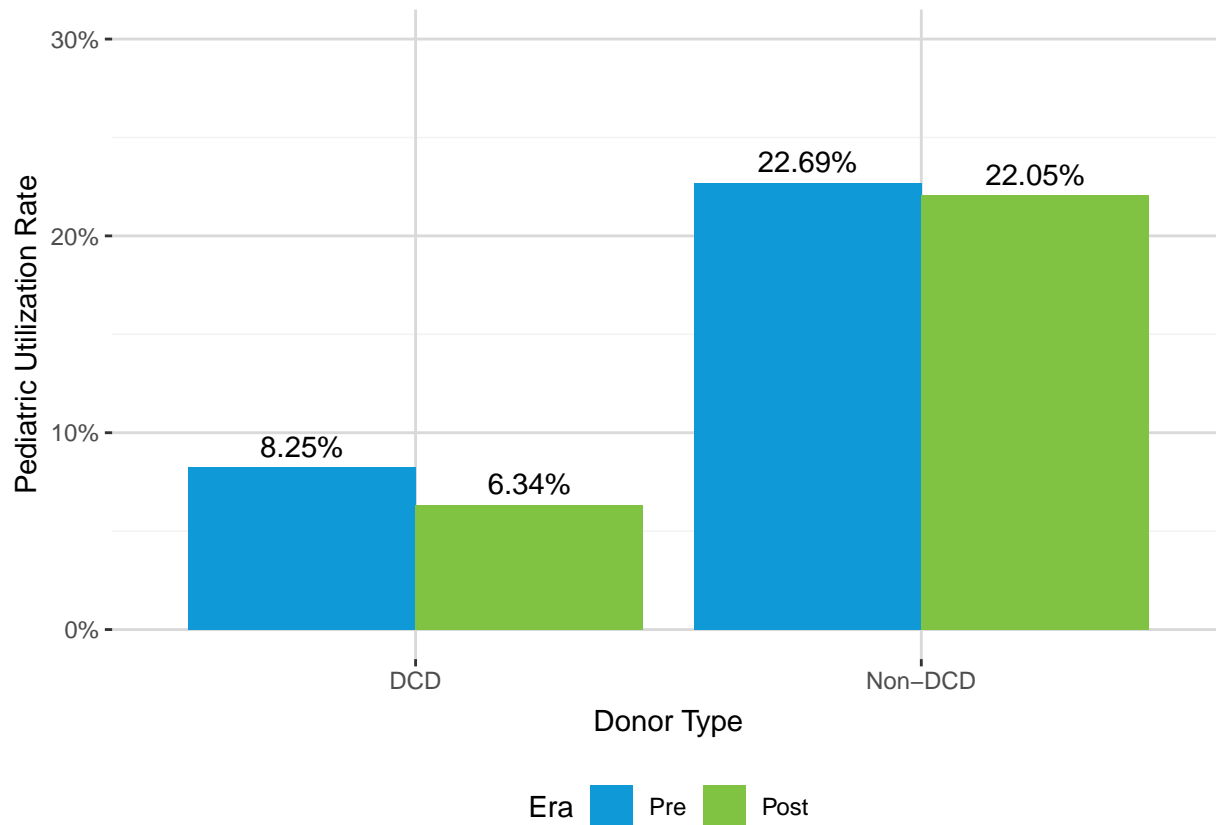


**Table 35: Pediatric Lung Donor Utilization Rates by Era**

Era	N Donors	N Lungs Transplanted	Pediatric Utilization Rate
Pre	449	174	19.38%
Post	465	163	17.53%

The pediatric lung utilization rate decreased slightly for both DCD and non-DCD donors.

**Figure 36: Pediatric Lung Donor Utilization Rates by Era and Donor Type**

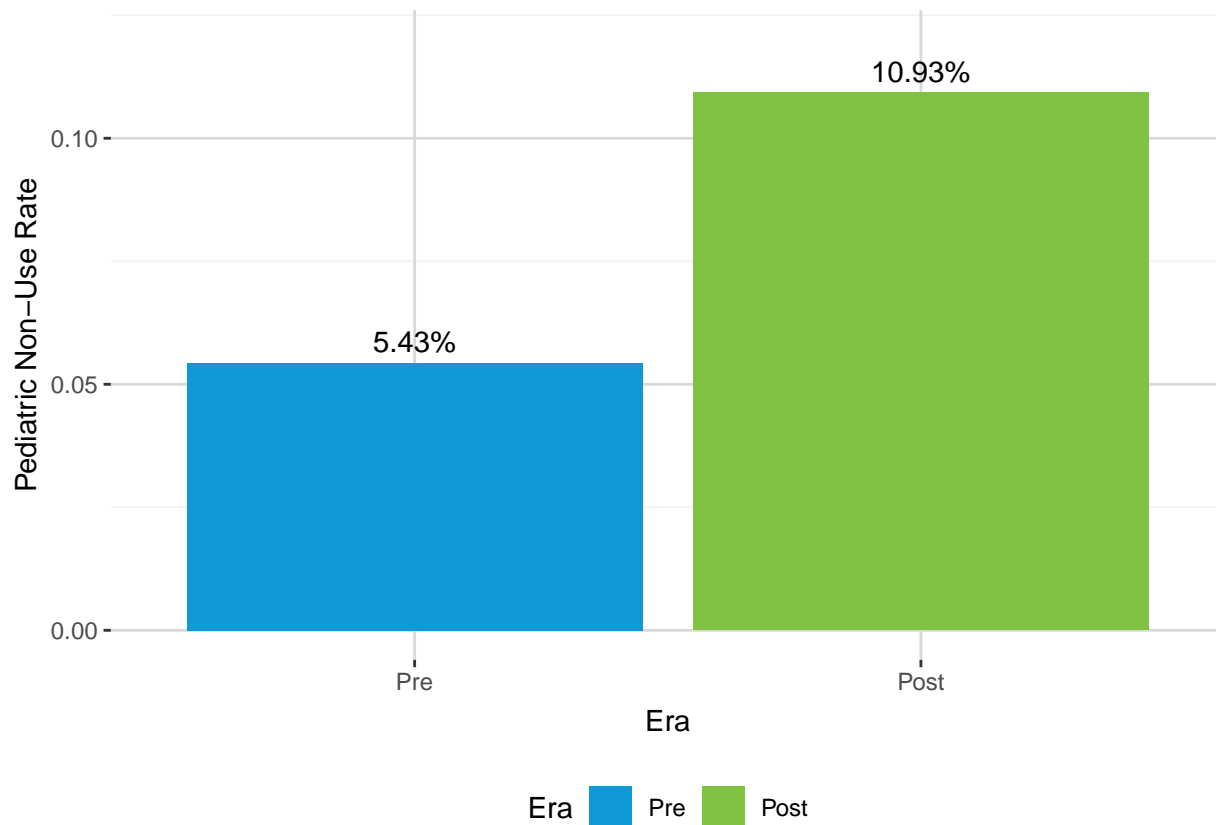


**Table 36: Pediatric Lung Donor Utilization Rates by Era and Donor Type**

DCD Status	Era	N Donors	N Lungs Transplanted	Pediatric Utilization Rate
DCD	Pre	103	17	8.25%
	Post	134	17	6.34%
Non-DCD	Pre	346	157	22.69%
	Post	331	146	22.05%
All Pediatric Donors	Pre	449	174	19.38%
	Post	465	163	17.53%

The pediatric lung non-use rate increased in the post era, though sample sizes were small. The pediatric non-use rate is defined as the number of pediatric lungs recovered for the purpose of transplant but not transplanted out of all pediatric lungs recovered for transplant.

**Figure 37: Pediatric Lung Donor Non-Use Rates by Era**

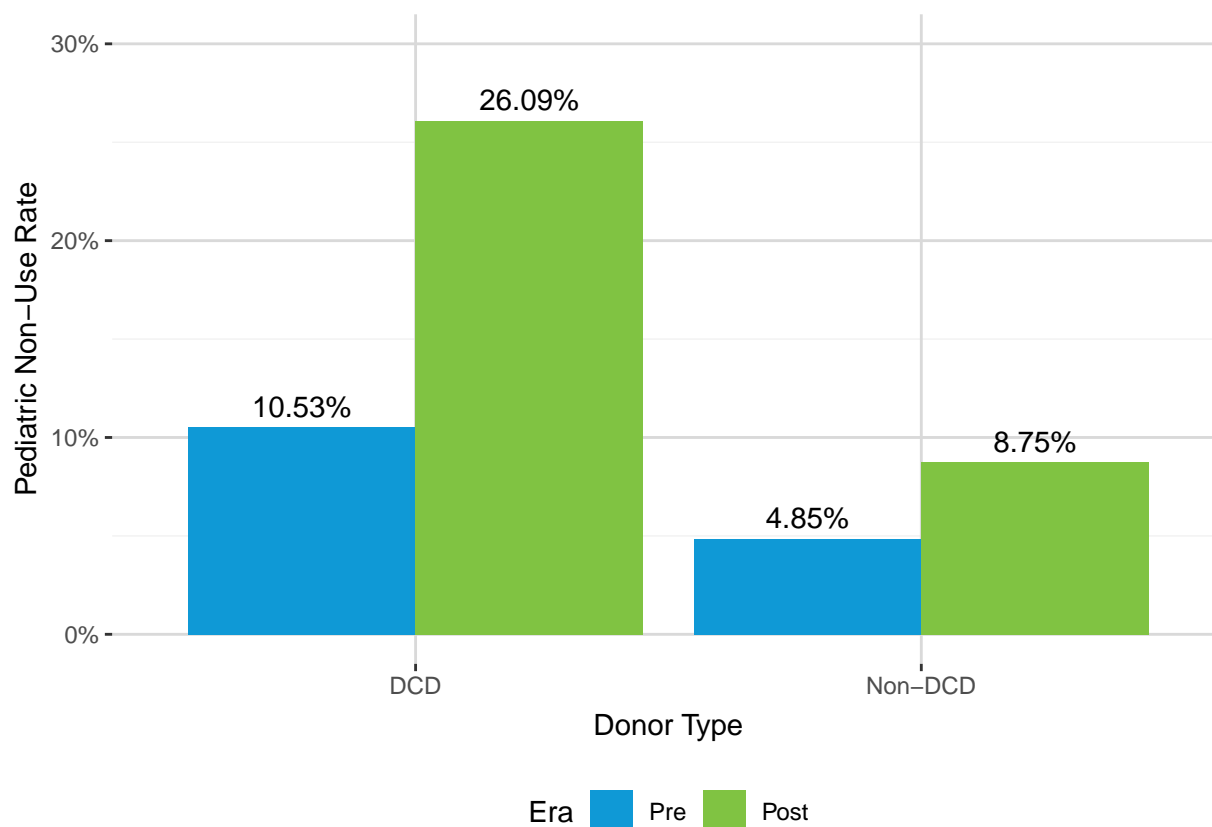


**Table 37: Pediatric Lung Donor Non-Use Rates by Era**

Era	N Lungs Recovered	N Lungs Transplanted	Pediatric Non-Use Rate
Pre	184	174	5.43%
Post	183	163	10.93%

The pediatric lung non-use rate increased for both DCD and non-DCD donors in the post era. More DCD lungs were recovered in the post era; however the same number of DCD lungs were transplanted in both the pre and post eras, resulting in an increase in the pediatric DCD non-use rate in the post era.

**Figure 38: Pediatric Lung Donor Non-Use Rates by Era and Donor Type**



**Table 38: Pediatric Lung Donor Non-Use Rates by Era and Donor Type**

DCD Status	Era	N Lungs Recovered	N Lungs Transplanted	Pediatric Non-Use Rate
DCD	Pre	19	17	10.53%
	Post	23	17	26.09%
Non-DCD	Pre	165	157	4.85%
	Post	160	146	8.75%
All Pediatric Donors	Pre	184	174	5.43%
	Post	183	163	10.93%

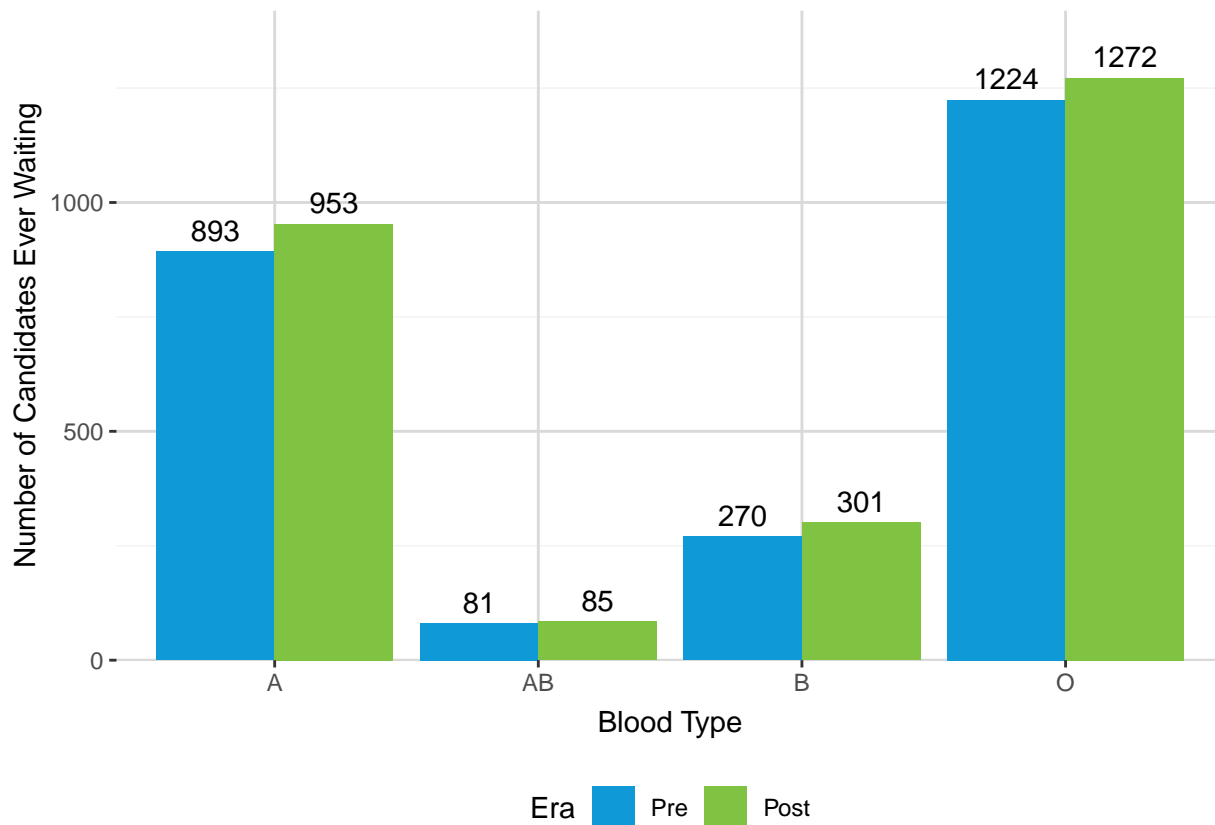
### Prior Living Donor

In the first six months of Continuous Distribution there have been less than 10 prior living donors on the waiting list. To protect patient privacy, we cannot provide any additional information about these individuals. We will continue to monitor the prior living donor population and will include more information when it is available.

### Blood Type

The number of candidates ever waiting across blood types increased slightly in the post era.

**Figure 39: Number of Candidates Ever Waiting by Era and Blood Type**



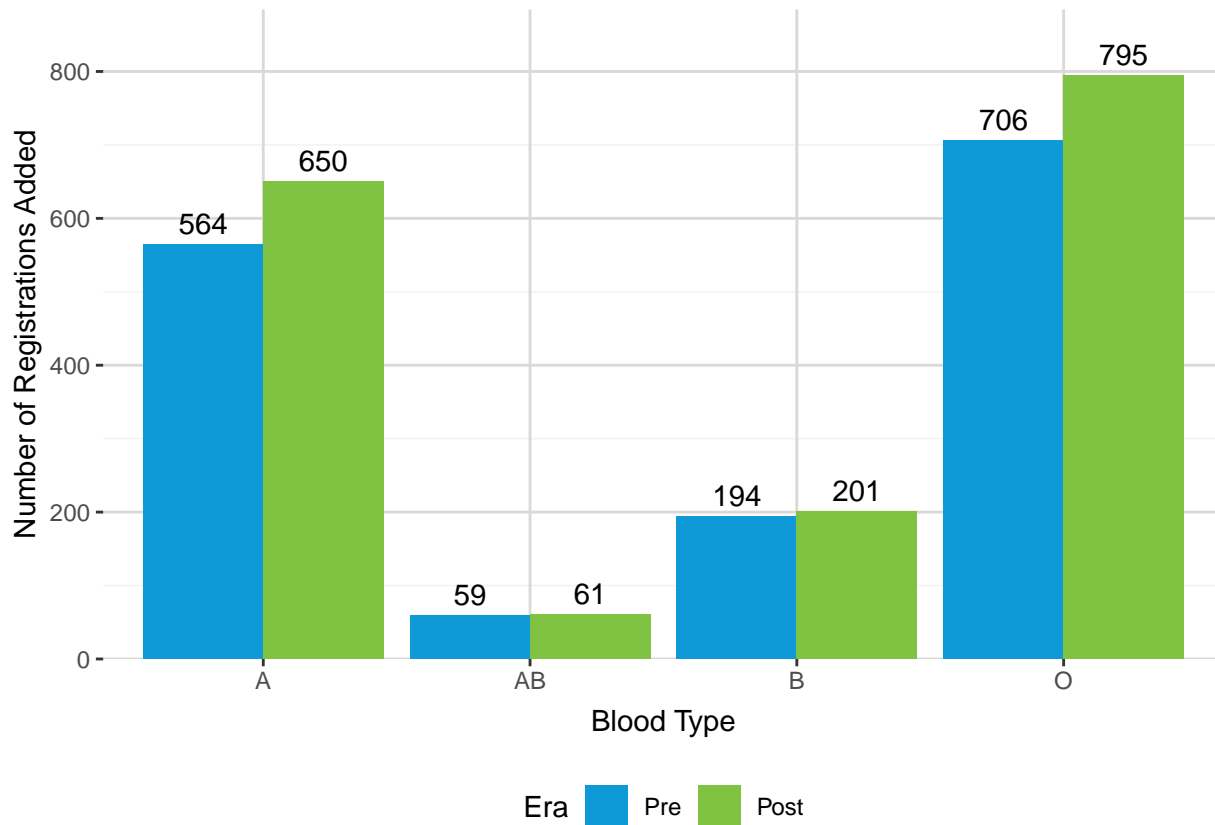
**Table 39: Number of Candidates Ever Waiting by Era and Blood Type**

Blood Type	Pre	Post
A	893 (36.2%)	953 (36.5%)
AB	81 (3.3%)	85 (3.3%)
B	270 (10.9%)	301 (11.5%)
O	1,224 (49.6%)	1,272 (48.7%)
Total	2,468 (100.0%)	2,611 (100.0%)



The number of registrations added to the waiting list increased for blood types A and O in the post era compared to the pre era.

**Figure 40: Number of Registrations Added to the Waiting List by Era and Blood Type**

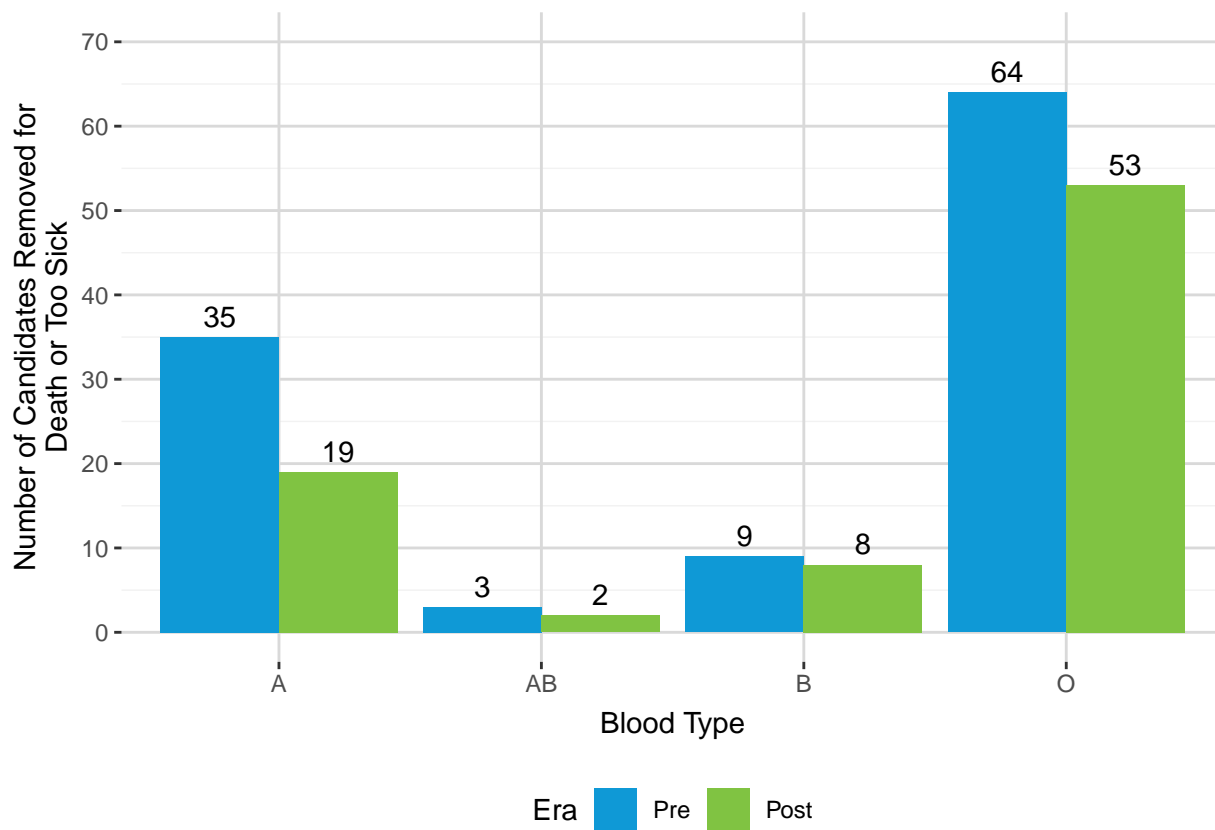


**Table 40: Number of Registrations Added to the Waiting List by Era and Blood Type**

Blood Type	Pre	Post
A	564 (37.0%)	650 (38.1%)
AB	59 (3.9%)	61 (3.6%)
B	194 (12.7%)	201 (11.8%)
O	706 (46.4%)	795 (46.6%)
Total	1,523 (100.0%)	1,707 (100.0%)

The number of candidates removed from the waiting list for death or too sick to transplant decreased or remained similar in the post era for candidates of all blood types.

**Figure 41: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Blood Type**

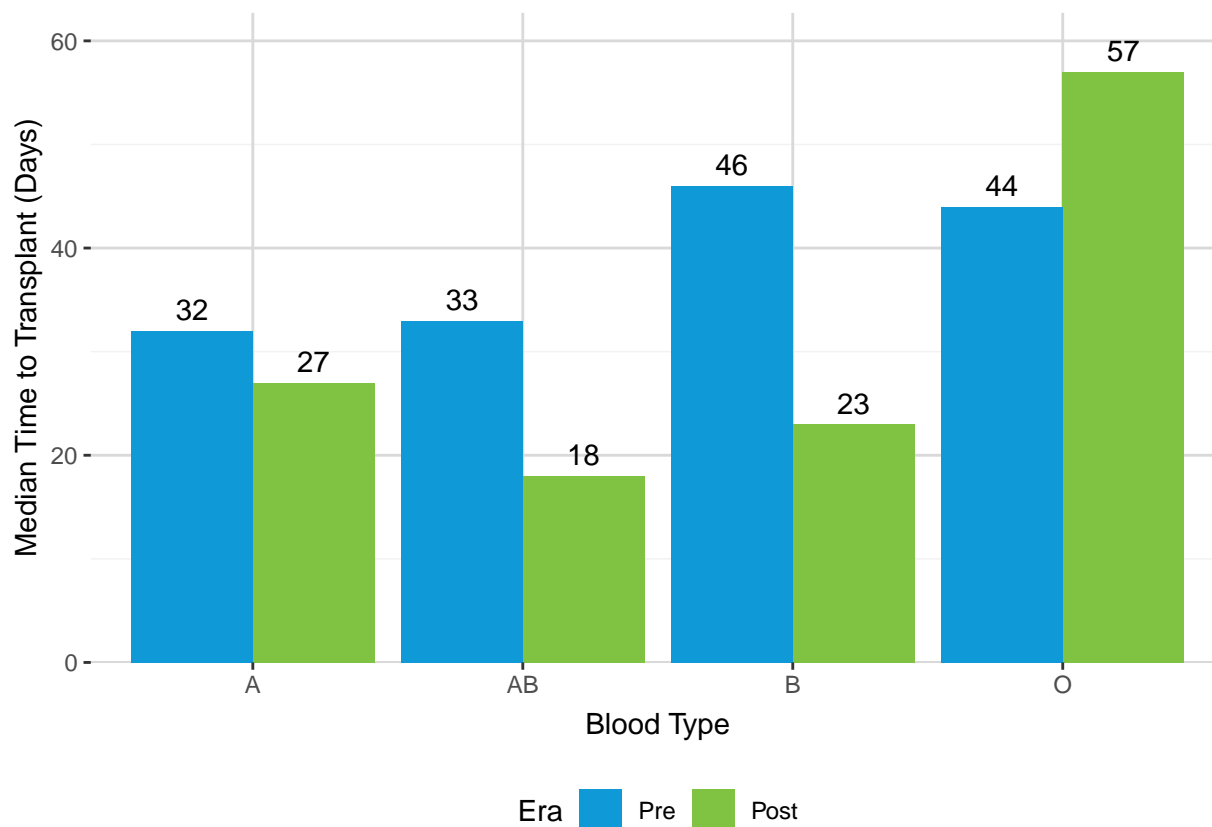


**Table 41: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Blood Type**

Blood Type	Pre	Post
A	35 (31.5%)	19 (23.2%)
AB	3 (2.7%)	2 (2.4%)
B	9 (8.1%)	8 (9.8%)
O	64 (57.7%)	53 (64.6%)
Total	111 (100.0%)	82 (100.0%)

In the post policy era, median time to transplant increased for candidates with blood type O and decreased for candidates of all other blood types.

**Figure 42: Median Time to Transplant (Days) by Era and Blood Type**

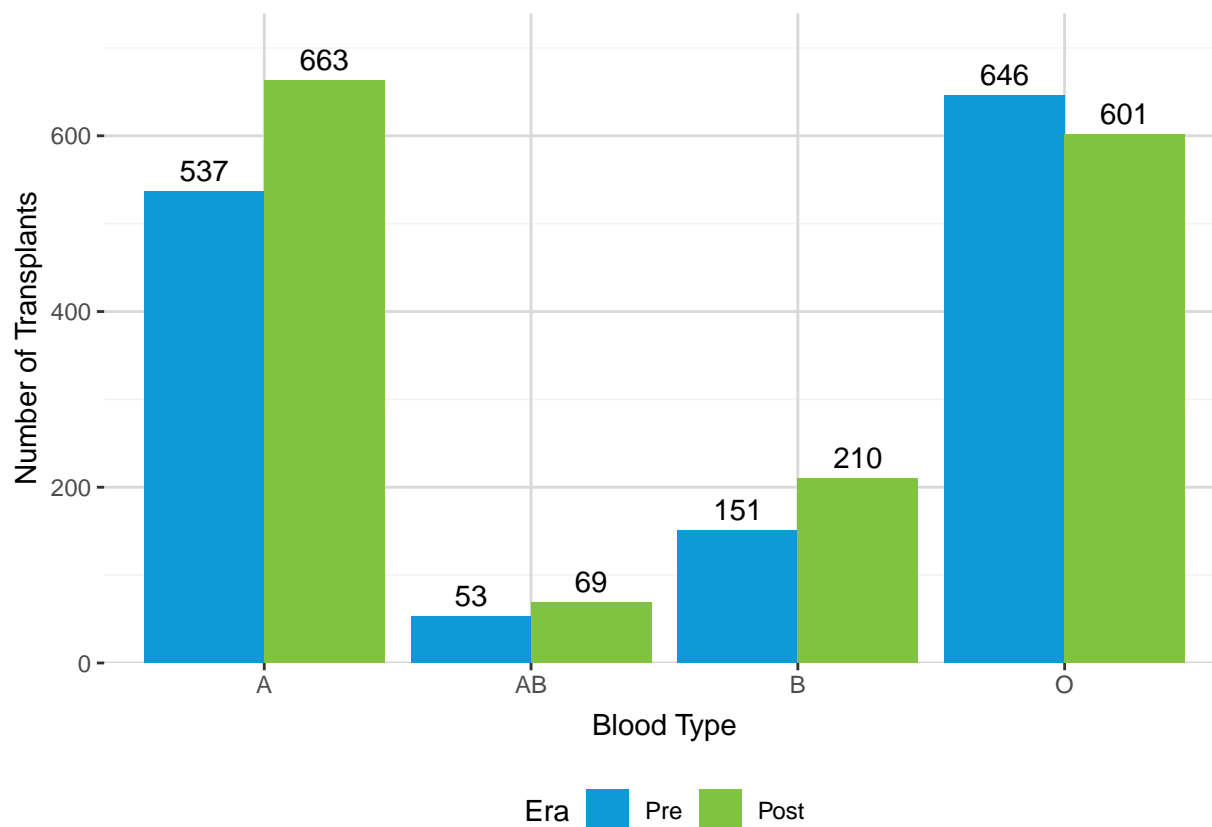


**Table 42: Median Time to Transplant (Days) by Era and Blood Type**

Blood Type	Era	N Registrations	Median Time to Transplant (Days)
A	Pre	564	32
	Post	650	27
AB	Pre	59	33
	Post	61	18
B	Pre	194	46
	Post	201	23
O	Pre	706	44
	Post	795	57

Compared to the pre era, in the post era, the number of lung-alone transplants decreased for blood type O recipients (from 646 to 601) and increased for recipients of all other blood types.

**Figure 43: Number of Lung Transplants by Era and Blood Type**

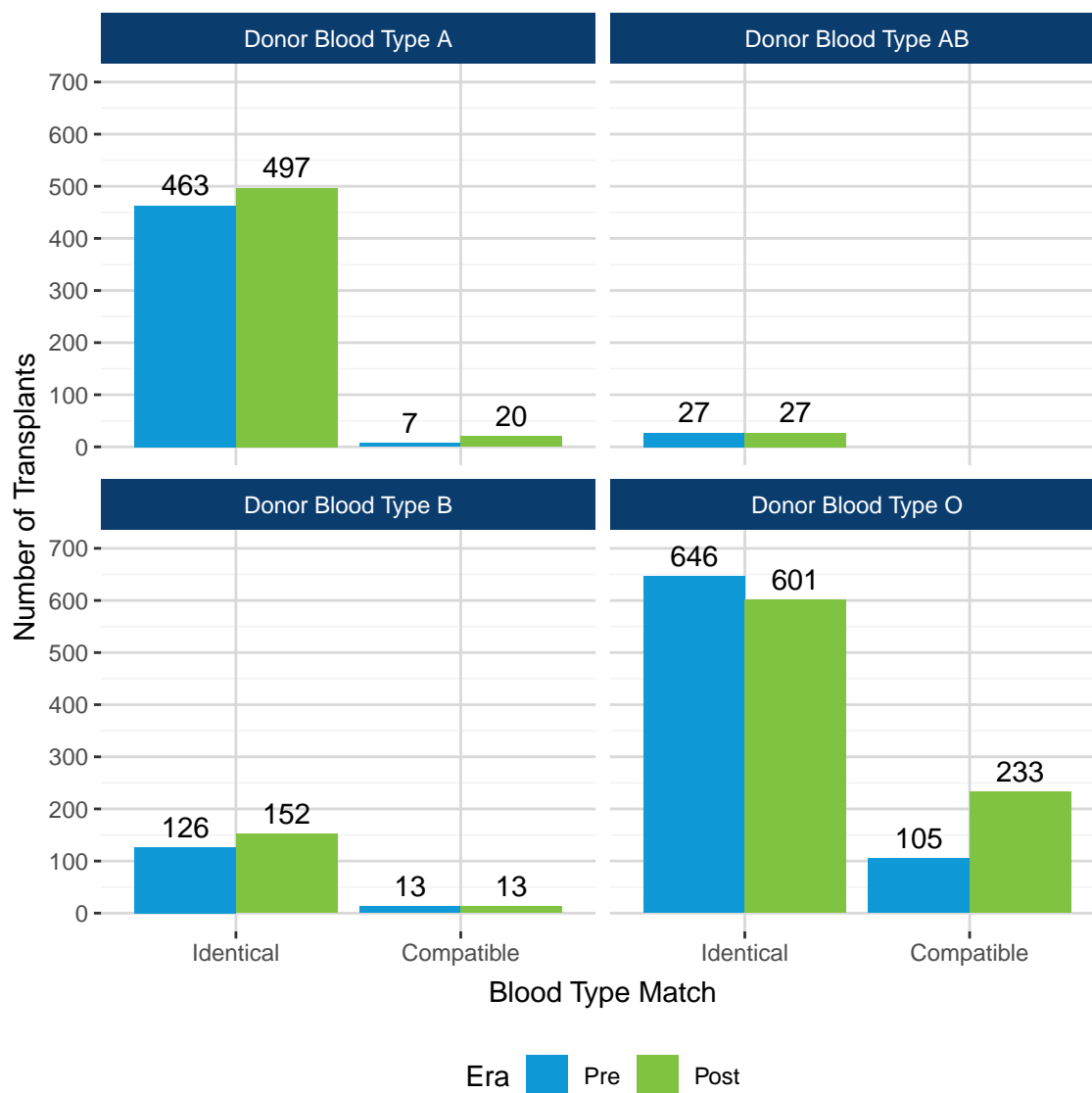


**Table 43: Number of Lung Transplants by Era and Blood Type**

Blood Type	Pre	Post
A	537 (38.7%)	663 (43.0%)
AB	53 (3.8%)	69 (4.5%)
B	151 (10.9%)	210 (13.6%)
O	646 (46.6%)	601 (39.0%)
Total	1,387 (100.0%)	1,543 (100.0%)

In the post era, more lungs from blood type O donors were transplanted to blood type compatible recipients and fewer lungs were transplanted to identical blood type recipients.

**Figure 44: Number of Lung Transplants by Era, Donor Blood Type, and Blood Type Match**

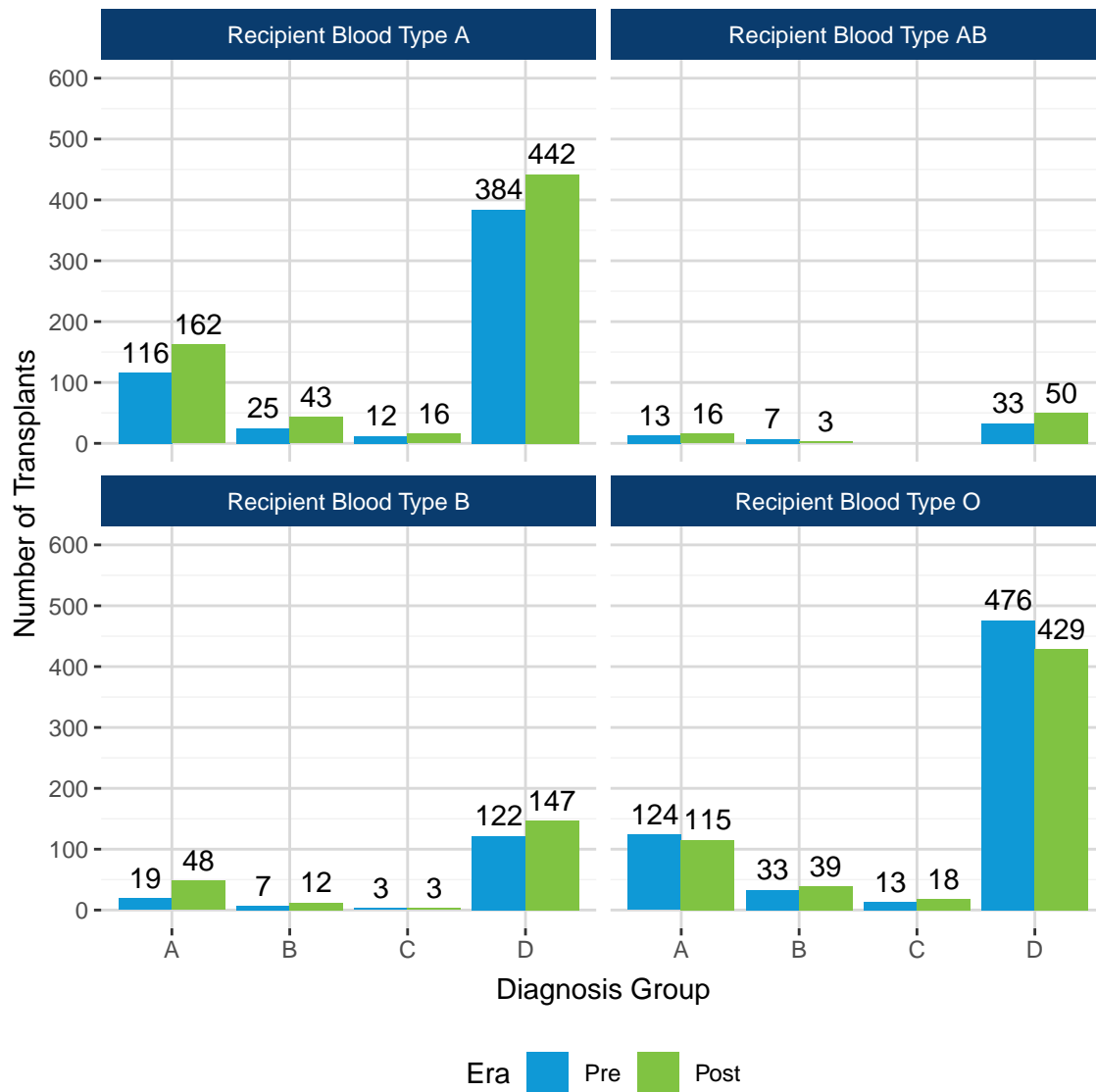


**Table 44: Number of Lung Transplants by Era, Donor Blood Type, and Blood Type Match**

Era	Blood Type Match	Donor Blood Type			
		A	B	AB	O
Pre	Identical	463 (98.5%)	126 (90.6%)	27 (100.0%)	646 (86.0%)
	Compatible	7 (1.5%)	13 (9.4%)	0 (0.0%)	105 (14.0%)
	Total	470 (100.0%)	139 (100.0%)	27 (100.0%)	751 (100.0%)
Post	Identical	497 (96.1%)	152 (92.1%)	27 (100.0%)	601 (72.1%)
	Compatible	20 (3.9%)	13 (7.9%)	0 (0.0%)	233 (27.9%)
	Total	517 (100.0%)	165 (100.0%)	27 (100.0%)	834 (100.0%)

In the post era, the number of transplants increased or remained similar for all blood type and diagnosis group pairings except for individuals with blood type O and diagnosis group A or D.

**Figure 45: Number of Lung Transplants by Era, Recipient Blood Type, and Diagnosis Group**

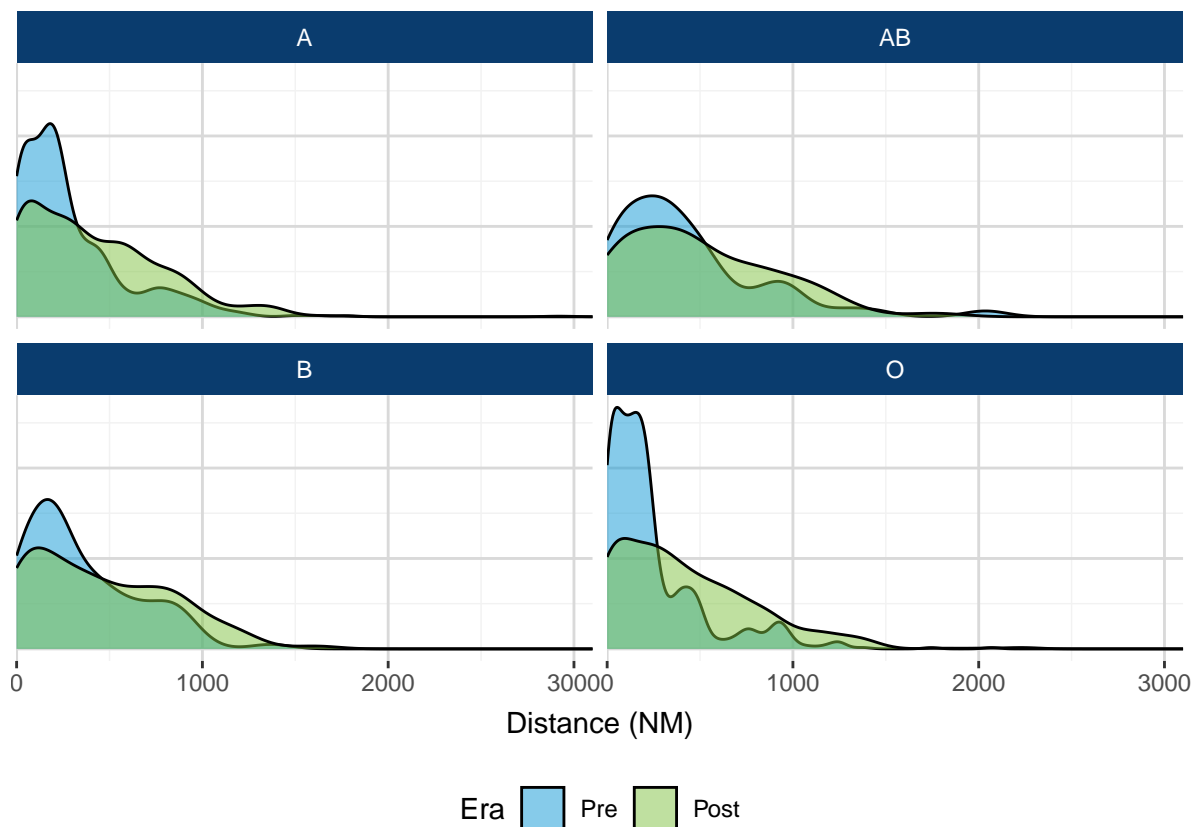


**Table 45: Number of Lung Transplants by Era, Recipient Blood Type, and Diagnosis Group**

Era	Diagnosis Group	Recipient Blood Type			
		A	AB	B	O
Pre	A	116 (21.6%)	13 (24.5%)	19 (12.6%)	124 (19.2%)
	B	25 (4.7%)	7 (13.2%)	7 (4.6%)	33 (5.1%)
	C	12 (2.2%)	0 (0.0%)	3 (2.0%)	13 (2.0%)
	D	384 (71.5%)	33 (62.3%)	122 (80.8%)	476 (73.7%)
	Total	537 (100.0%)	53 (100.0%)	151 (100.0%)	646 (100.0%)
Post	A	162 (24.4%)	16 (23.2%)	48 (22.9%)	115 (19.1%)
	B	43 (6.5%)	3 (4.3%)	12 (5.7%)	39 (6.5%)
	C	16 (2.4%)	0 (0.0%)	3 (1.4%)	18 (3.0%)
	D	442 (66.7%)	50 (72.5%)	147 (70.0%)	429 (71.4%)
	Total	663 (100.0%)	69 (100.0%)	210 (100.0%)	601 (100.0%)

Compared to the pre era, median distance increased for all blood types in the post era.

**Figure 46: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Recipient Blood Type**



**Table 46: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Recipient Blood Type**

Blood Type	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
A	Pre	537	0	0	79.00	203.0	286.95	400.0	1777
	Post	663	0	0	116.00	340.0	422.04	634.5	2920
AB	Pre	53	0	1	148.00	325.0	429.15	531.0	2036
	Post	69	0	0	186.00	410.0	502.75	778.0	1769
B	Pre	151	0	0	128.00	235.0	352.34	528.5	1410
	Post	210	0	0	129.25	394.5	460.83	739.5	1652
O	Pre	646	0	0	67.25	160.5	243.68	299.0	2069
	Post	601	0	0	132.00	347.0	428.78	644.0	2244
Total	Pre	1387	0	0	78.00	195.0	279.35	391.0	2069
	Post	1543	0	0	129.00	353.0	433.55	662.5	2920

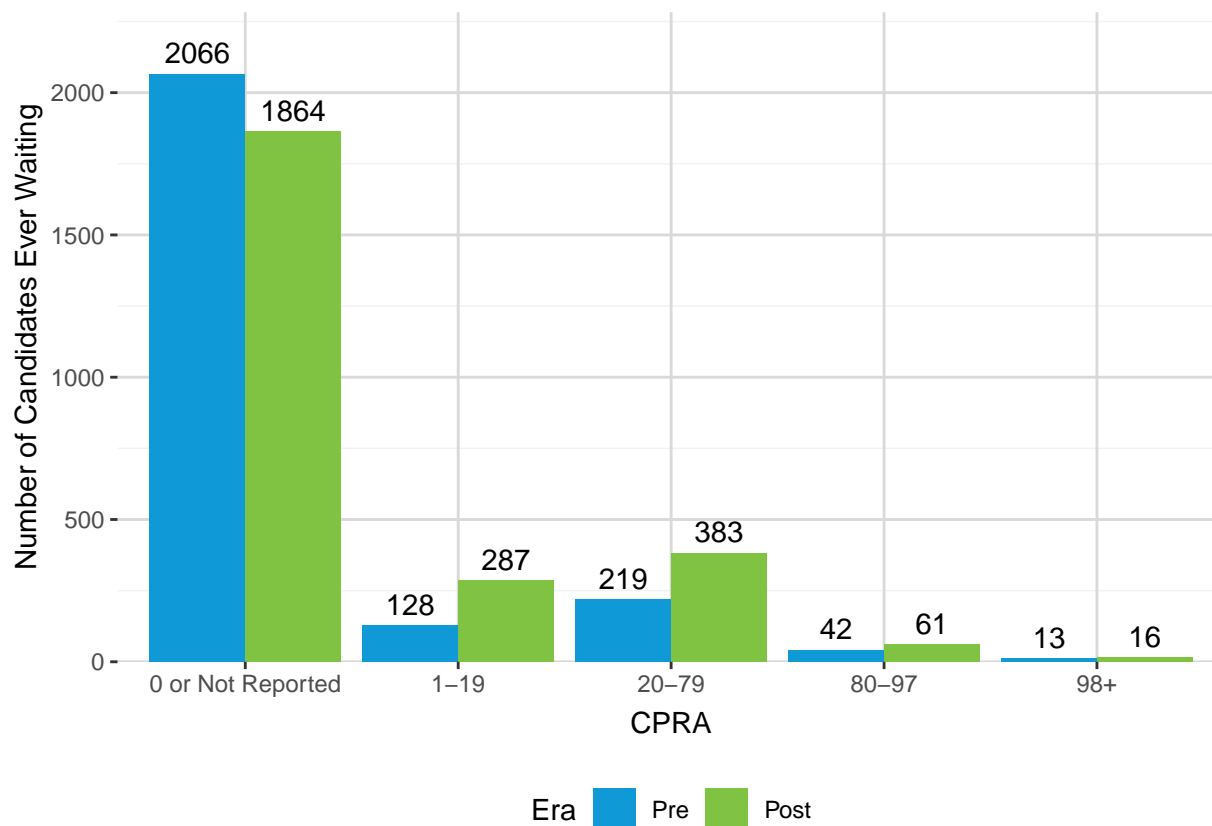


## CPRA

For all waiting list analyses, we report the most recent CPRA recorded in the system. For transplant analyses, we report the CPRA at the time of transplant, which is collected through the Histocompatibility form that has a three month time frame for submission; thus, all transplant analyses account for this data lag and are limited to three months of data pre and post implementation. For all CPRA analyses, NULL and 0 entries are combined because they are treated the same in allocation (amounting to 0 CPRA points).

In both the pre and post eras, the majority of candidates did not have any unacceptable antigens reported in the OPTN Waiting List.

**Figure 47: Number of Candidates Ever Waiting by Era and CPRA**

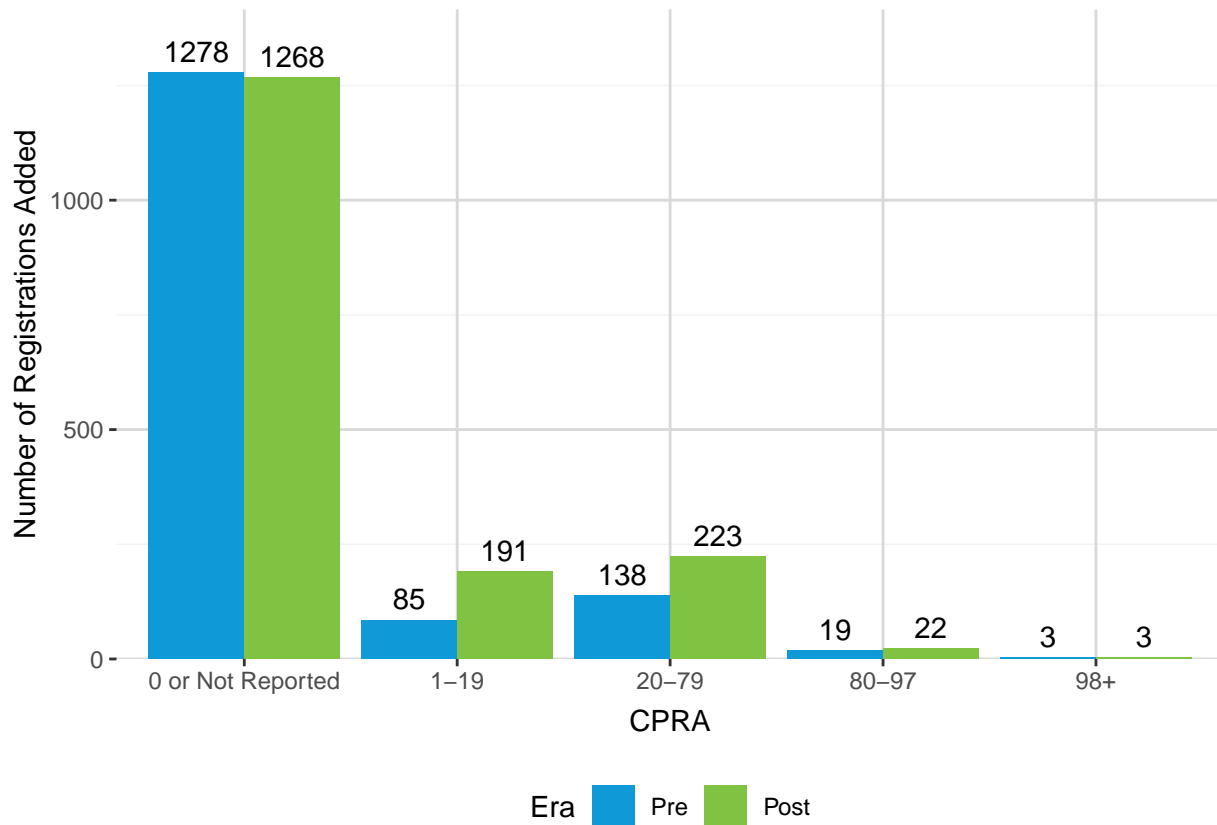


**Table 47: Number of Candidates Ever Waiting by Era and CPRA**

CPRA	Pre	Post
0 or Not Reported	2,066 (83.7%)	1,864 (71.4%)
1-19	128 (5.2%)	287 (11.0%)
20-79	219 (8.9%)	383 (14.7%)
80-97	42 (1.7%)	61 (2.3%)
98+	13 (0.5%)	16 (0.6%)
Total	2,468 (100.0%)	2,611 (100.0%)

In both the pre and post eras, the majority of registrations added to the waiting list did not have any unacceptable antigens reported.

**Figure 48: Number of Registrations Added to the Waiting List by Era and CPRA**

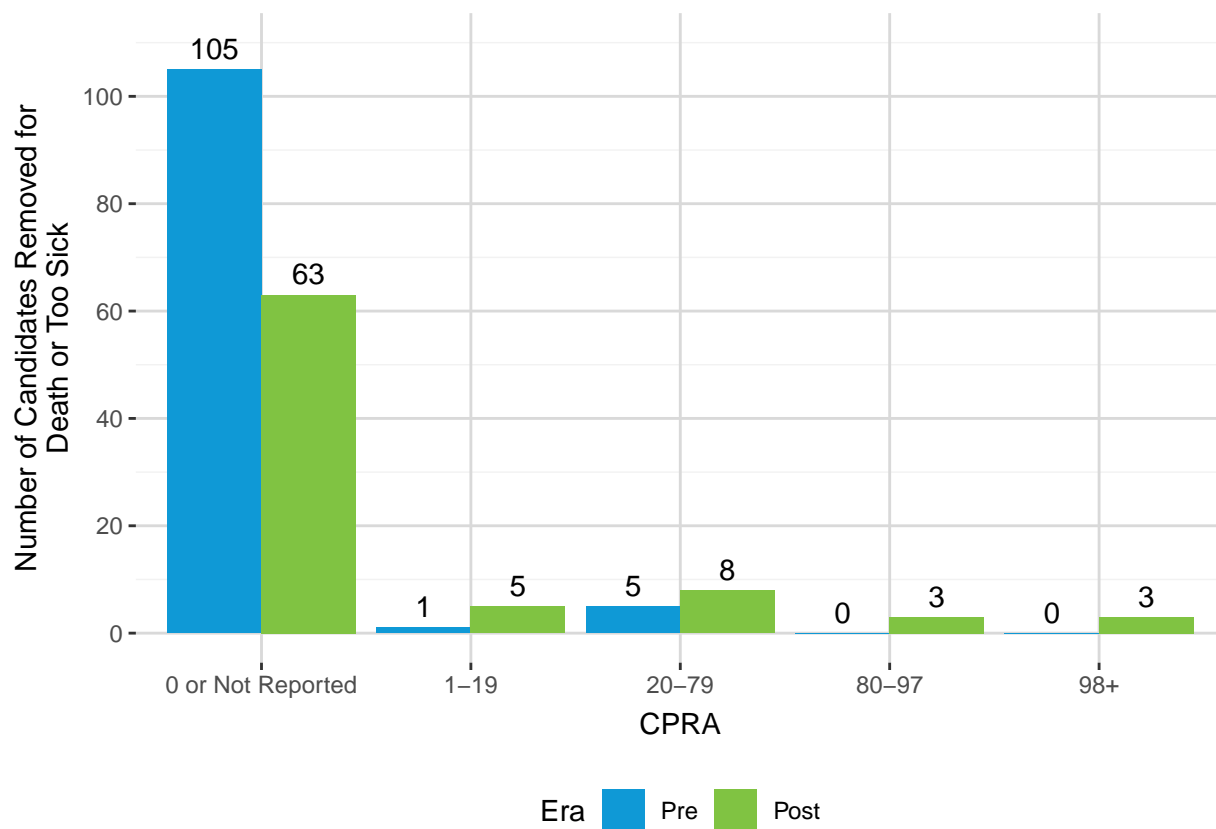


**Table 48: Number of Registrations Added to the Waiting List by Era and CPRA**

CPRA	Pre	Post
0 or Not Reported	1,278 (83.9%)	1,268 (74.3%)
1-19	85 (5.6%)	191 (11.2%)
20-79	138 (9.1%)	223 (13.1%)
80-97	19 (1.2%)	22 (1.3%)
98+	3 (0.2%)	3 (0.2%)
Total	1,523 (100.0%)	1,707 (100.0%)

In both the pre and post era the majority of candidates removed from the waiting list for death or too sick to transplant did not have unacceptable antigens reported.

**Figure 49: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and CPRA**

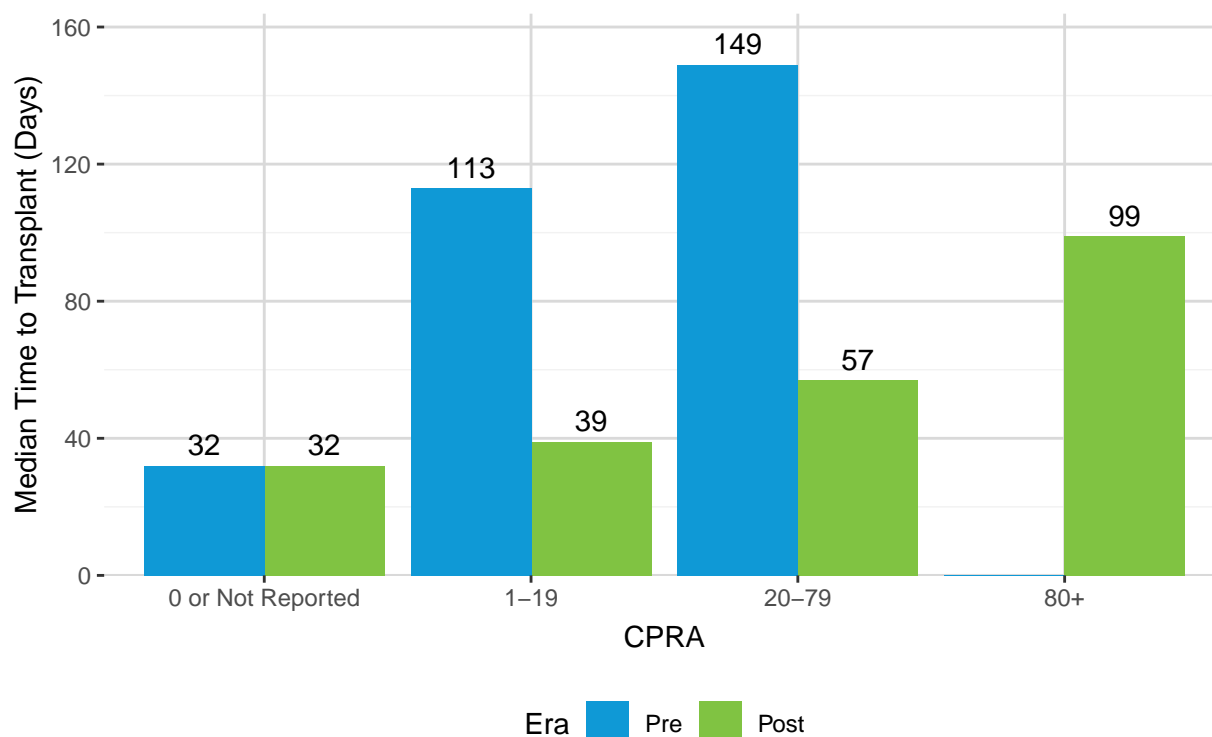


**Table 49: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and CPRA**

CPRA	Pre	Post
0 or Not Reported	105 (94.6%)	63 (76.8%)
1-19	1 (0.9%)	5 (6.1%)
20-79	5 (4.5%)	8 (9.8%)
80-97	0 (0.0%)	3 (3.7%)
98+	0 (0.0%)	3 (3.7%)
Total	111 (100.0%)	82 (100.0%)

In the post policy era, median time to transplant decreased for candidates with a CPRA reported in the OPTN Waiting List between 1 and 79. Even when combining candidates in the 80-97 and 98+ groups (into an 80+ group), median time to transplant could not be calculated for the pre era because <50% of the cohort had been transplanted at the time this report was generated.

**Figure 50: Median Time to Transplant (Days) by Era and CPRA**



We were unable to calculate the median time to transplant in the pre era for patients with a CPRA of 80+ because 50% of the cohort had not yet been transplanted at the time this report was generated.

**Table 50: Median Time to Transplant (Days) by Era and CPRA**

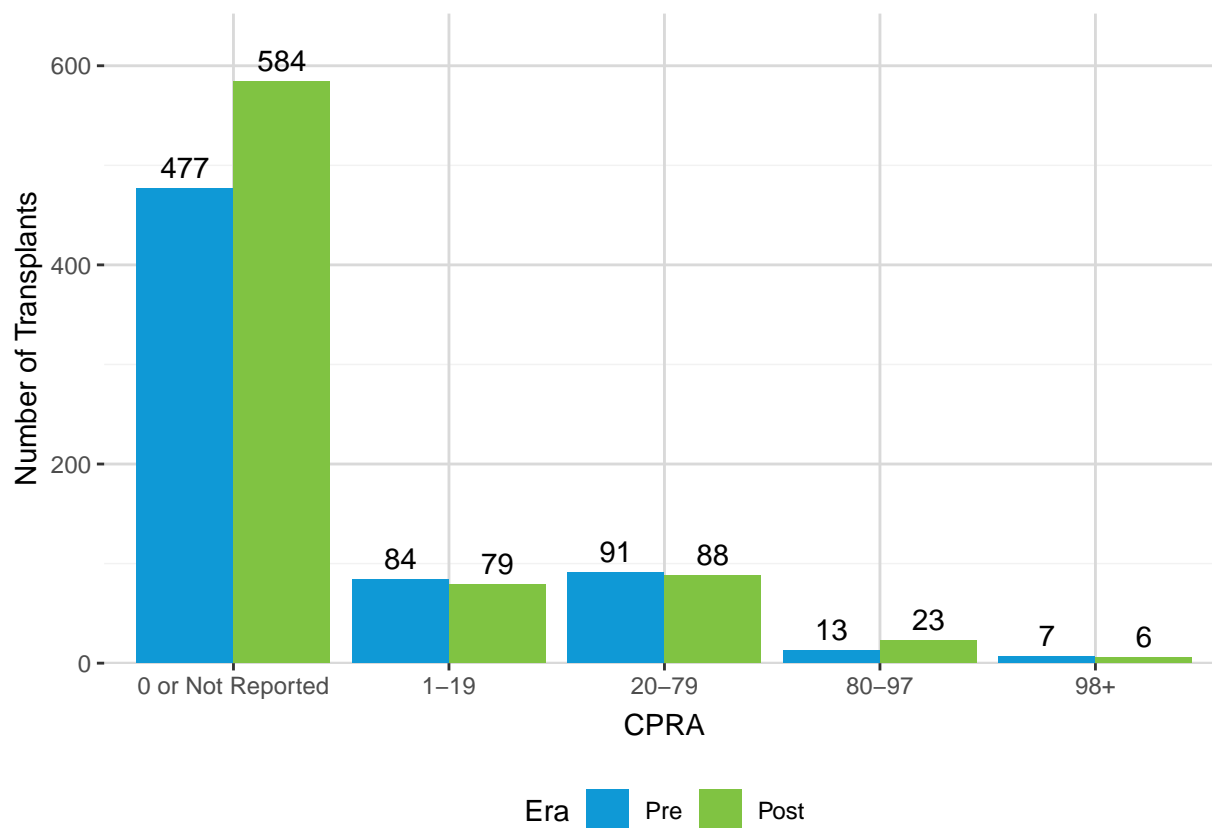
CPRA	Era	N Registrations	Median Time to Transplant (Days)
0 or Not Reported	Pre	1278	32
	Post	1268	32
1-19	Pre	85	113
	Post	191	39
20-79	Pre	138	149
	Post	223	57
80+	Pre	22	<50% of cohort transplanted
	Post	25	99

<sup>a</sup> We were unable to calculate the median time to transplant in the pre era for patients with a CPRA of 80+ because 50% of the cohort had not yet been transplanted at the time this report was generated.

Due to the 90 day data lag for reporting CPRA at the time of transplant, the below analysis is limited to three months before and after the implementation of continuous distribution (Pre: December 07, 2022 to March 08, 2023; Post: March 09, 2023 to June 08, 2023).

The proportion of transplants were similar across CPRA groupings in the pre and post eras.

**Figure 51: Number of Lung Transplants by Era and CPRA (December 7, 2022 through June 8, 2023)**



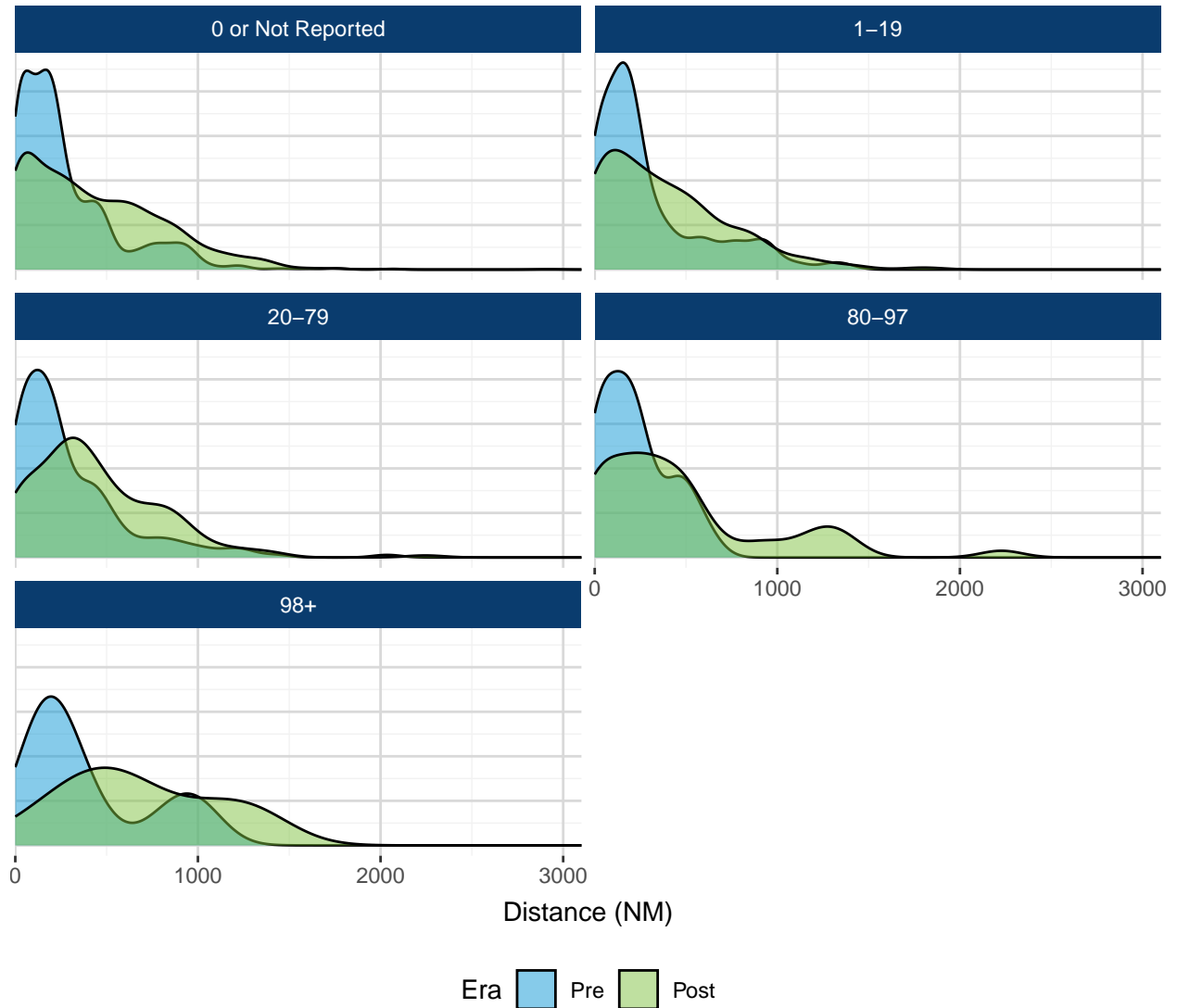
**Table 51: Number of Lung Transplants by Era and CPRA (December 7, 2022 through June 8, 2023)**

CPRA	Pre	Post
0 or Not Reported	477 (71.0%)	584 (74.9%)
1-19	84 (12.5%)	79 (10.1%)
20-79	91 (13.5%)	88 (11.3%)
80-97	13 (1.9%)	23 (2.9%)
98+	7 (1.0%)	6 (0.8%)
Total	672 (100.0%)	780 (100.0%)

Due to the 90 day data lag for reporting CPRA at the time of transplant, the below analysis is limited to three months before and after the implementation of continuous distribution (Pre: December 07, 2022 to March 08, 2023; Post: March 09, 2023 to June 08, 2023).

In the post era, median distance increased across all CPRA groupings compared to the pre era and was greatest for recipients with a CPRA of 98 and above, though sample sizes were small.

**Figure 52: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and CPRA**



**Table 52: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and CPRA**

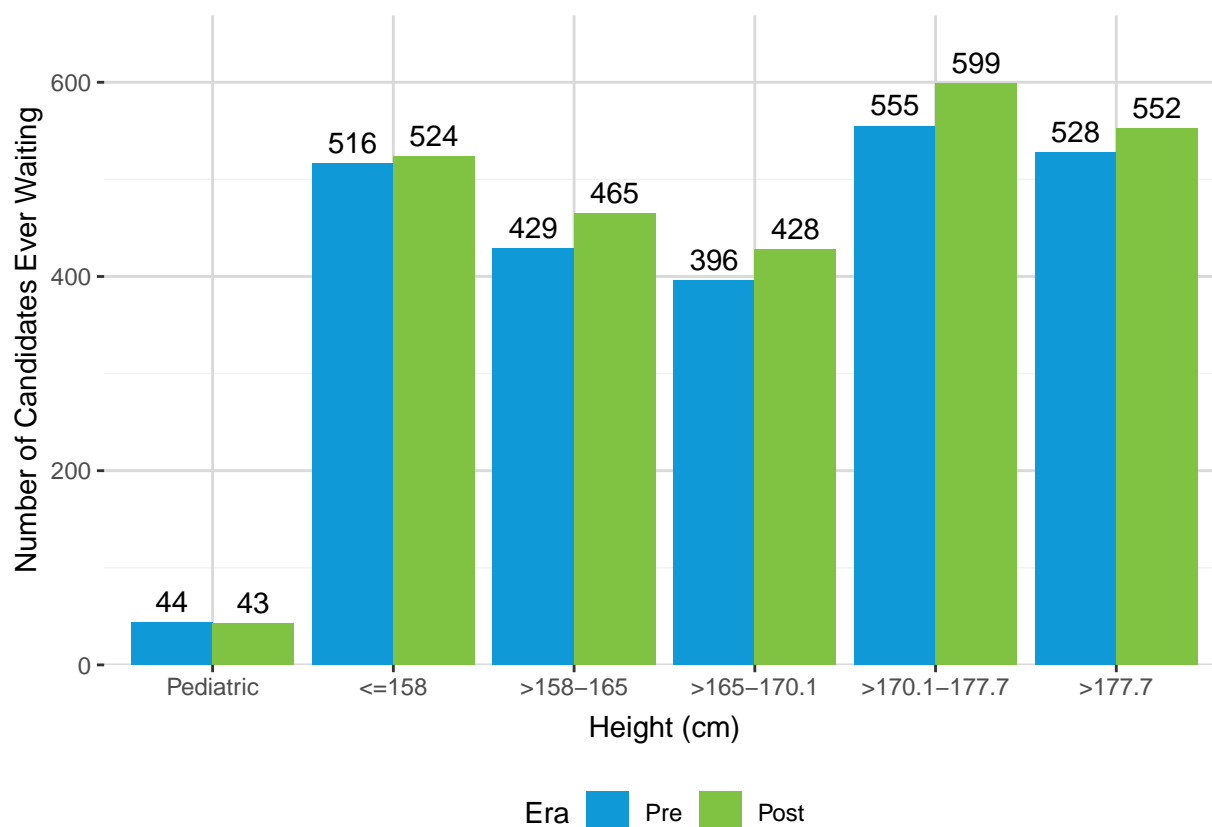
CPRA	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
0 or Not Reported	Pre	477	0	0	69.00	189.0	258.07	328.00	1613
	Post	584	0	0	133.50	350.5	427.01	637.00	2920
1-19	Pre	84	0	0	66.00	174.5	264.67	354.00	1327
	Post	79	0	0	57.00	255.0	361.15	592.50	1396
20-79	Pre	91	0	0	95.50	209.0	314.74	418.00	2036
	Post	88	0	0	217.50	326.5	413.31	586.75	1405
80-97	Pre	13	0	1	143.00	217.0	286.08	466.00	621
	Post	23	0	1	188.50	377.0	478.43	572.00	1333
98+	Pre	7	0	92	189.00	239.0	423.86	621.50	1015
	Post	6	0	2	353.25	461.5	489.17	677.75	943
Total	Pre	672	0	0	75.00	193.0	268.84	370.50	2036
	Post	780	0	0	138.00	343.5	420.79	633.25	2920

## Height

In all height analyses, pediatric candidates are grouped separately from adult candidates. Although points for height are assigned in the same manner for pediatric and adult candidates, we report the results this way to closely monitor how short adults are impacted by Continuous Distribution, and to not conflate their data with that of pediatrics, who tend to be shorter and also receive pediatric allocation points.

The number of individuals ever waiting increased slightly for all adult height groupings in the post era compared to the pre era.

**Figure 53: Number of Candidates Ever Waiting by Era and Height**



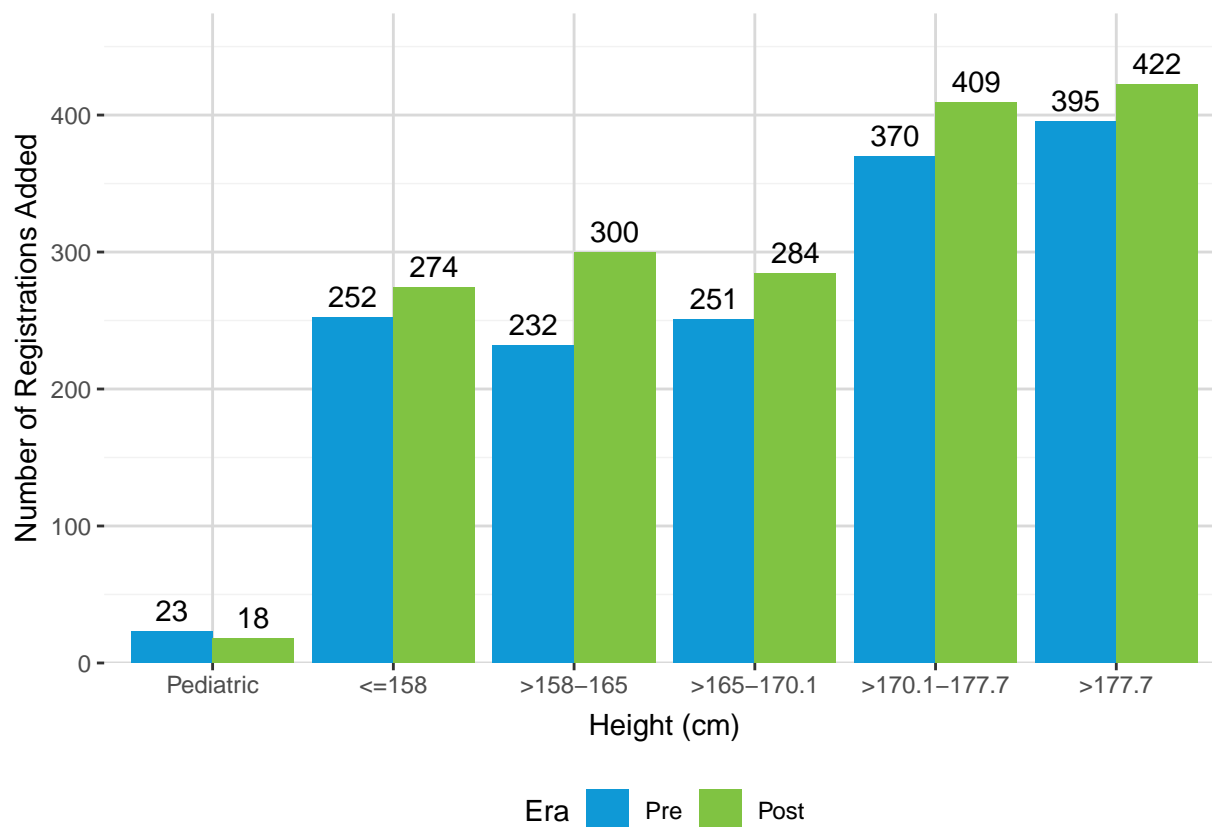
**Table 53: Number of Candidates Ever Waiting by Era and Height**

Height (cm)	Pre	Post
Pediatric	44 (1.8%)	43 (1.6%)
<=158	516 (20.9%)	524 (20.1%)
>158-165	429 (17.4%)	465 (17.8%)
>165-170.1	396 (16.0%)	428 (16.4%)
>170.1-177.7	555 (22.5%)	599 (22.9%)
>177.7	528 (21.4%)	552 (21.1%)
Total	2,468 (100.0%)	2,611 (100.0%)



Compared to the pre era, in the post era the number of registrations added to the waiting list increased slightly across all adult height groupings.

**Figure 54: Number of Registrations Added to the Waiting List by Era and Height**

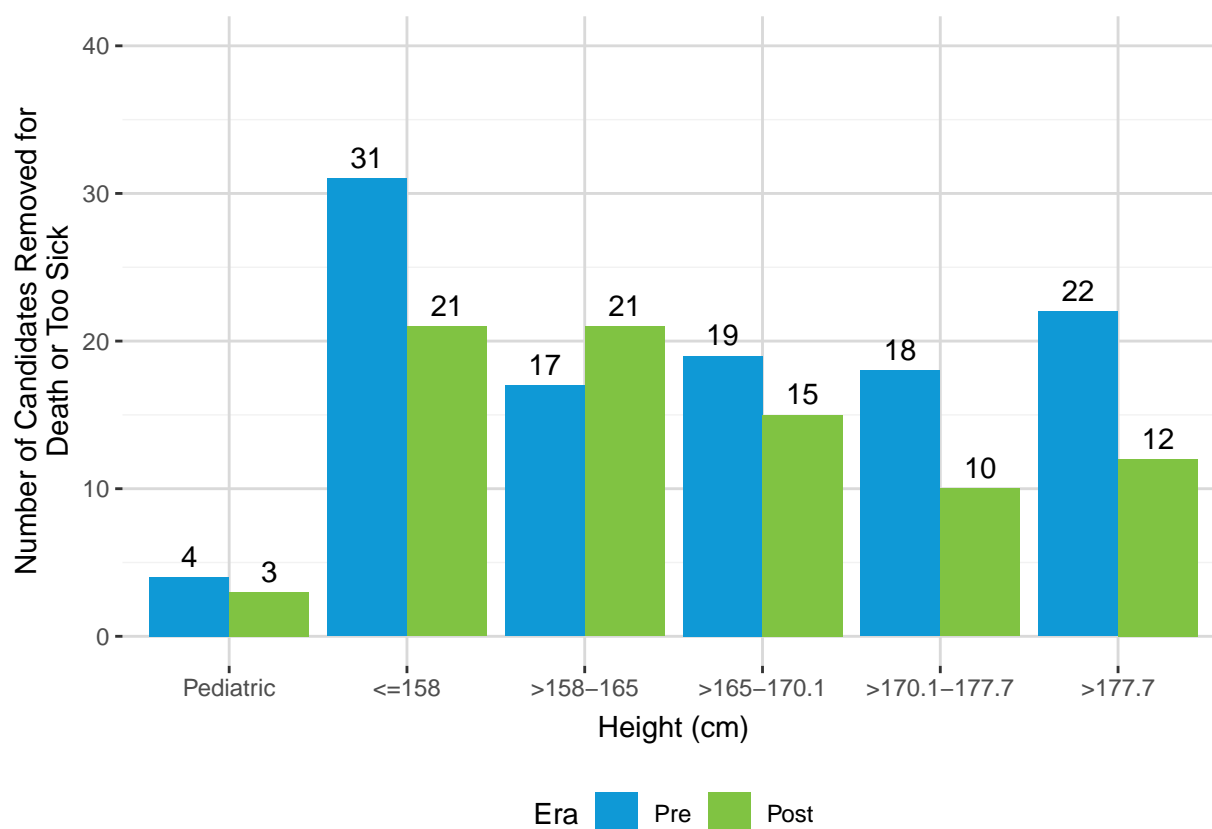


**Table 54: Number of Registrations Added to the Waiting List by Era and Height**

Height (cm)	Pre	Post
Pediatric	23 (1.5%)	18 (1.1%)
<=158	252 (16.5%)	274 (16.1%)
>158-165	232 (15.2%)	300 (17.6%)
>165-170.1	251 (16.5%)	284 (16.6%)
>170.1-177.7	370 (24.3%)	409 (24.0%)
>177.7	395 (25.9%)	422 (24.7%)
Total	1,523 (100.0%)	1,707 (100.0%)

The number of candidates removed from the waiting list for death or too sick to transplant decreased in the post era for all height groupings except for adult candidates between 158cm and 165cm tall.

**Figure 55: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Height**

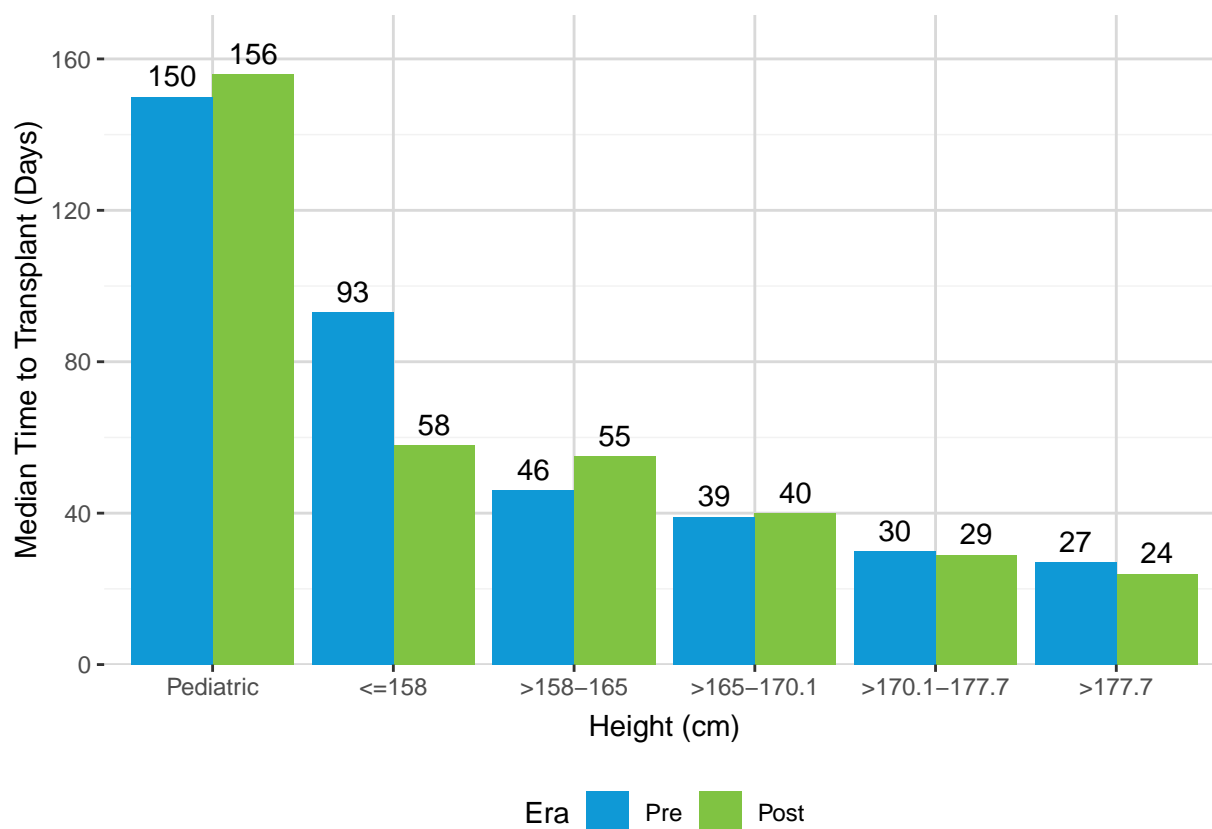


**Table 55: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Height**

Height (cm)	Pre	Post
Pediatric	4 (3.6%)	3 (3.7%)
<=158	31 (27.9%)	21 (25.6%)
>158-165	17 (15.3%)	21 (25.6%)
>165-170.1	19 (17.1%)	15 (18.3%)
>170.1-177.7	18 (16.2%)	10 (12.2%)
>177.7	22 (19.8%)	12 (14.6%)
Total	111 (100.0%)	82 (100.0%)

In the post policy era, median time to transplant decreased for the shortest and tallest adult candidates.

**Figure 56: Median Time to Transplant (Days) by Era and Height**

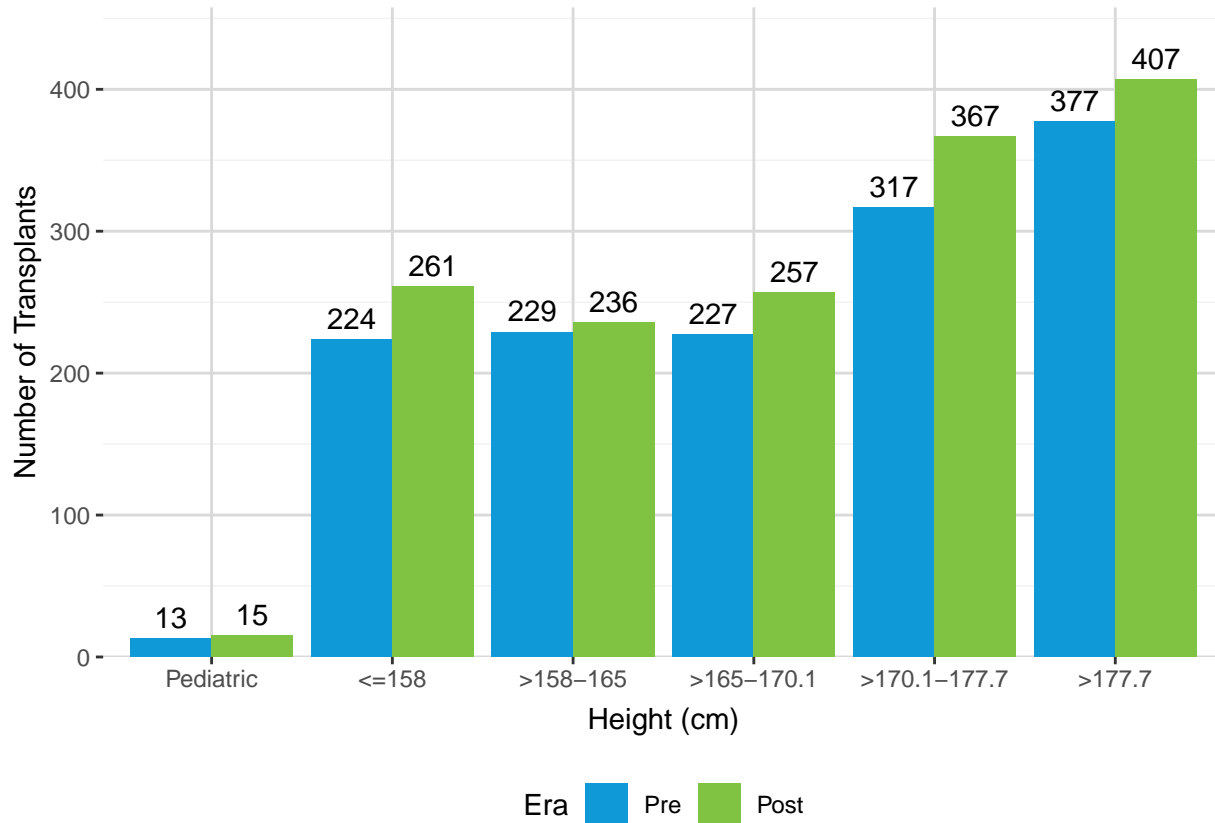


**Table 56: Median Time to Transplant (Days) by Era and Height**

Height (cm)	Era	N Registrations	Median Time to Transplant (Days)
Pediatric	Pre	23	150
	Post	18	156
<=158	Pre	252	93
	Post	274	58
>158-165	Pre	232	46
	Post	300	55
>165-170.1	Pre	251	39
	Post	284	40
>170.1-177.7	Pre	370	30
	Post	409	29
>177.7	Pre	395	27
	Post	422	24

Compared to the pre era, in the post era, the number of lung-alone transplants increased for candidates of all height groupings.

**Figure 57: Number of Lung Transplants by Era and Height**

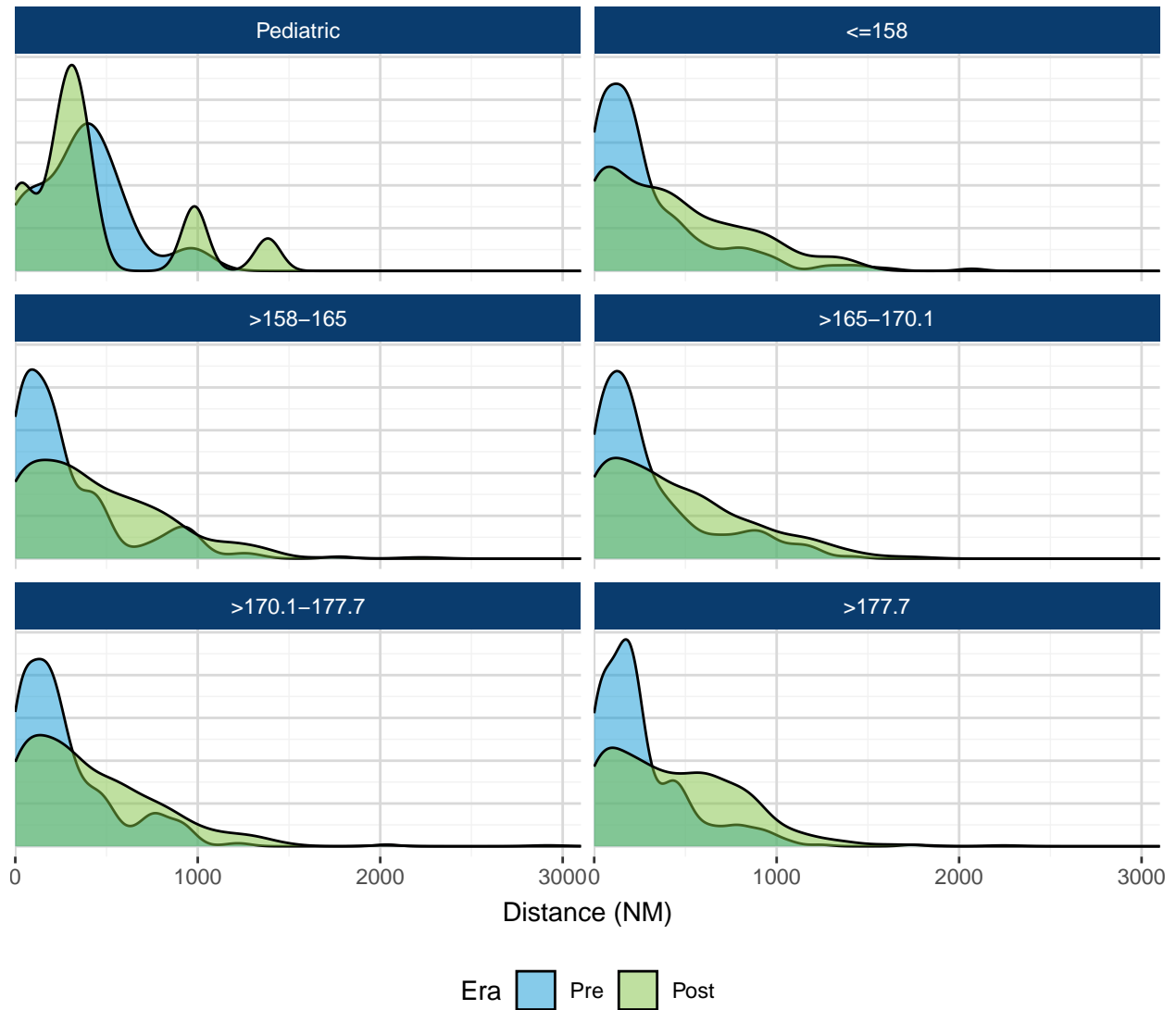


**Table 57: Number of Lung Transplants by Era and Height**

Height (cm)	Pre	Post
Pediatric	13 (0.9%)	15 (1.0%)
<=158	224 (16.1%)	261 (16.9%)
>158-165	229 (16.5%)	236 (15.3%)
>165-170.1	227 (16.4%)	257 (16.7%)
>170.1-177.7	317 (22.9%)	367 (23.8%)
>177.7	377 (27.2%)	407 (26.4%)
Total	1,387 (100.0%)	1,543 (100.0%)

In the post era, median distance increased for adult recipients of all heights and decreased for pediatric recipients.

**Figure 58: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Height**



**Table 58: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Height**

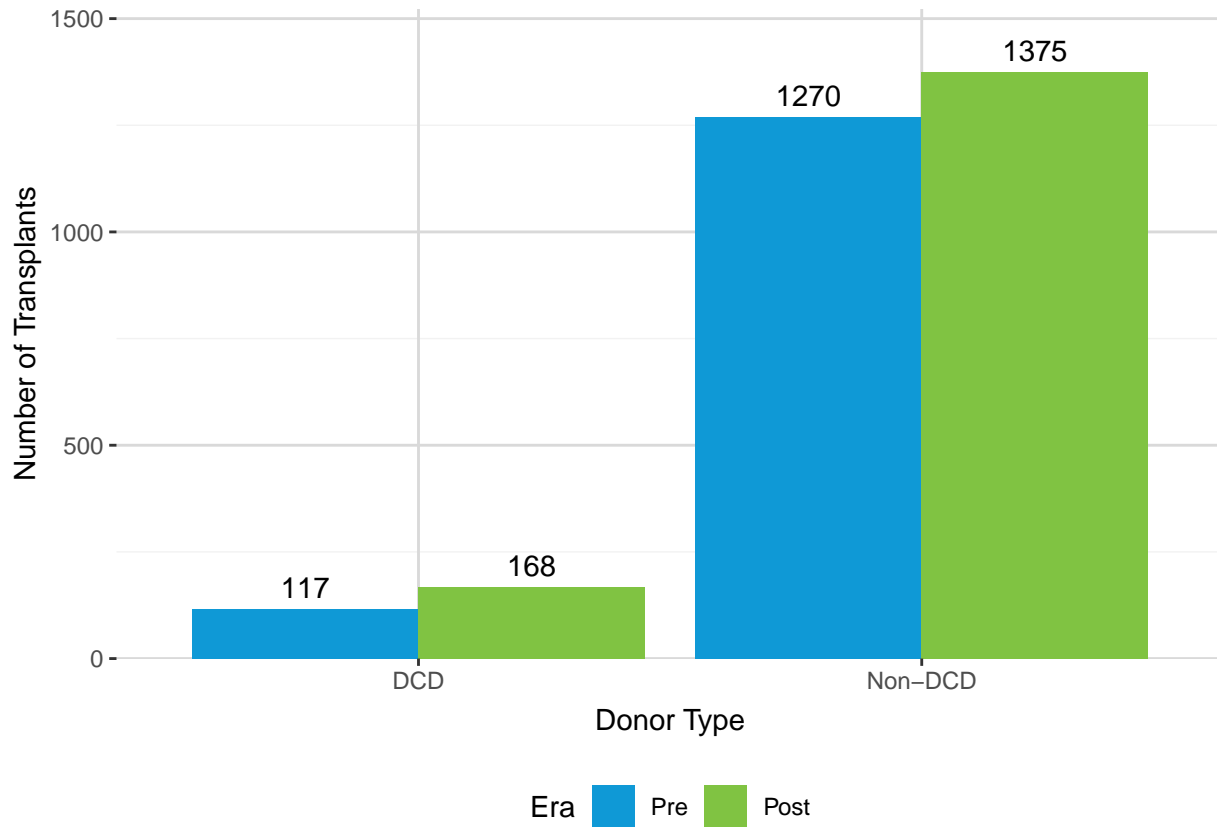
Height (cm)	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
<=158	Pre	224	0	0	74.50	189.5	288.50	383.75	2069
	Post	261	0	0	92.00	353.0	426.45	689.00	1405
>158-165	Pre	229	0	0	67.00	190.0	281.55	395.00	1777
	Post	236	0	0	154.75	354.5	440.58	669.25	2227
>165-170.1	Pre	227	0	0	83.50	194.0	303.96	401.50	1410
	Post	257	0	0	129.00	338.0	439.33	651.00	1769
>170.1-177.7	Pre	317	0	0	78.00	198.0	273.78	377.00	2036
	Post	367	0	0	128.00	317.0	415.49	619.00	2920
>177.7	Pre	377	0	0	86.00	198.0	259.40	379.00	1743
	Post	407	0	0	151.00	406.0	447.32	691.00	2244
Pediatric	Pre	13	0	22	197.00	383.0	367.38	486.00	965
	Post	15	0	3	219.00	297.0	416.00	398.00	1384
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

**Efficiency**

**Transplants**

In the post era the number of transplants increased for both DCD and non-DCD donors compared to the pre era.

**Figure 59: Number of Lung Transplants by Era and Donor Type**

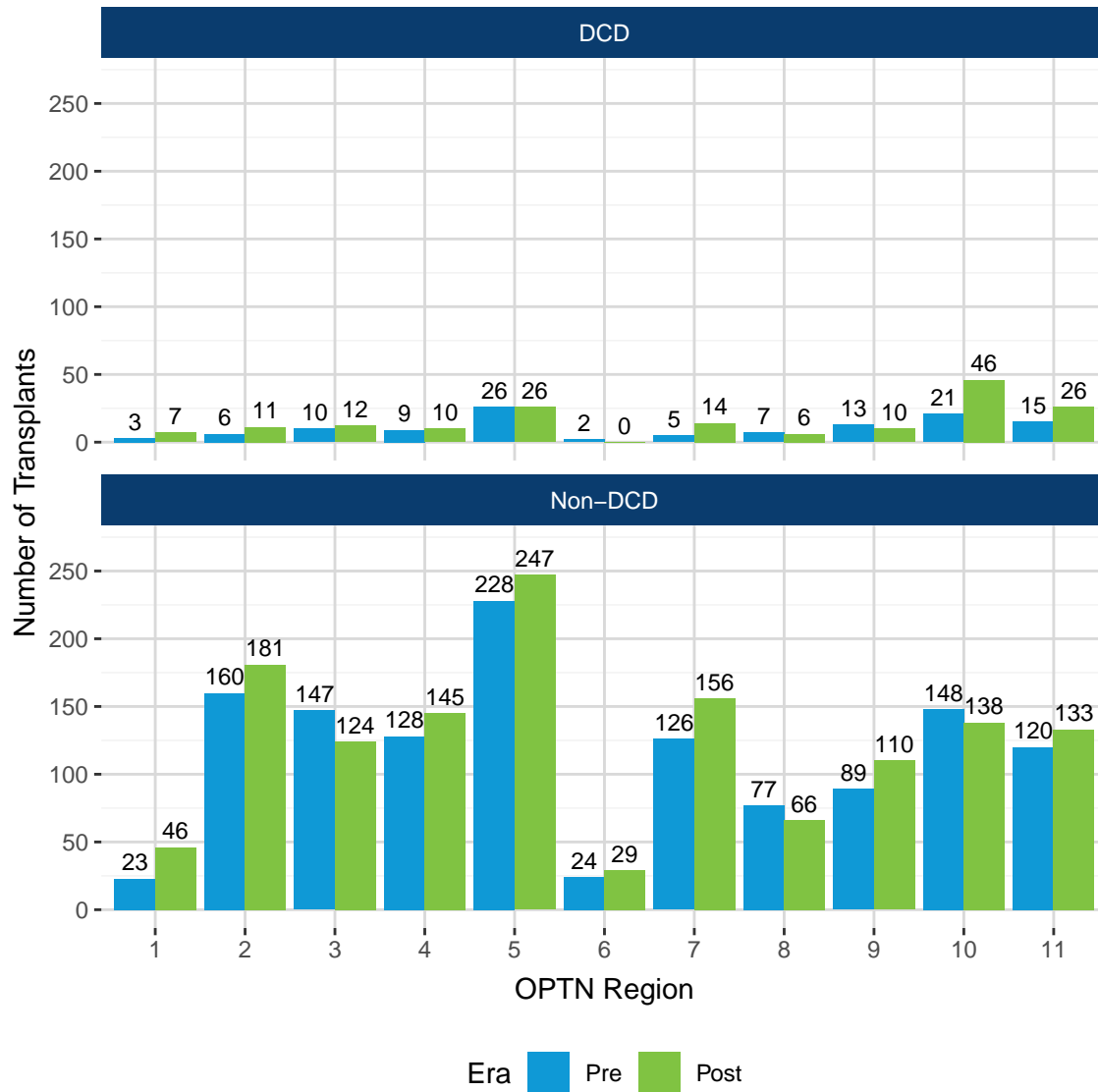


**Table 59: Number of Lung Transplants by Era and Donor Type**

Donor Type	Pre	Post
DCD	117 (8.4%)	168 (10.9%)
Non-DCD	1,270 (91.6%)	1,375 (89.1%)
Total	1,387 (100.0%)	1,543 (100.0%)

Across most regions, the number of transplants from both DCD and non-DCD donors increased in the post era compared to the pre era.

**Figure 60: Number of Lung Transplants by Era, OPTN Region, and Donor Type**





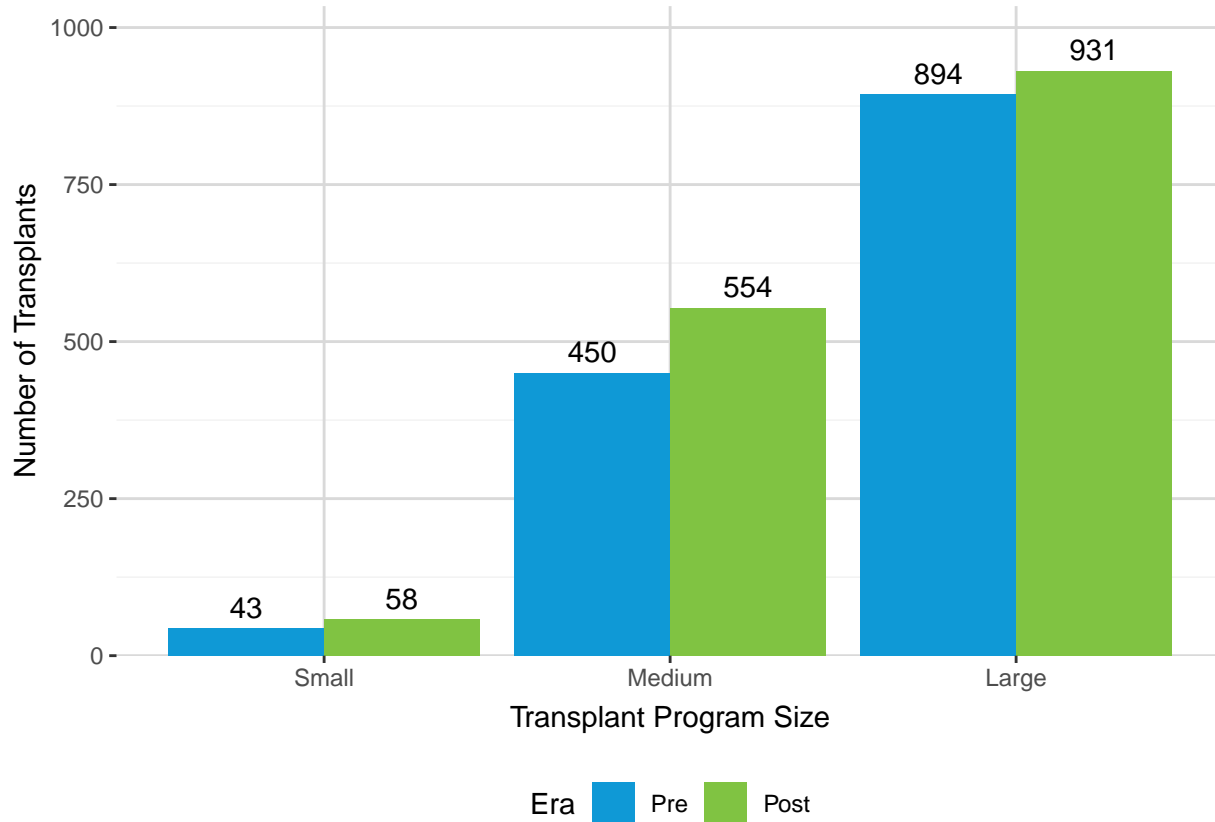
**Table 60: Number of Lung Transplants by Era, OPTN Region, and Donor Type**

OPTN Region	Era	Donor Type		
		Non-DCD	DCD	Total
1	Pre	23 (88.5%)	3 (11.5%)	26 (100.0%)
	Post	46 (86.8%)	7 (13.2%)	53 (100.0%)
2	Pre	160 (96.4%)	6 (3.6%)	166 (100.0%)
	Post	181 (94.3%)	11 (5.7%)	192 (100.0%)
3	Pre	147 (93.6%)	10 (6.4%)	157 (100.0%)
	Post	124 (91.2%)	12 (8.8%)	136 (100.0%)
4	Pre	128 (93.4%)	9 (6.6%)	137 (100.0%)
	Post	145 (93.5%)	10 (6.5%)	155 (100.0%)
5	Pre	228 (89.8%)	26 (10.2%)	254 (100.0%)
	Post	247 (90.5%)	26 (9.5%)	273 (100.0%)
6	Pre	24 (92.3%)	2 (7.7%)	26 (100.0%)
	Post	29 (100.0%)	0 (0.0%)	29 (100.0%)
7	Pre	126 (96.2%)	5 (3.8%)	131 (100.0%)
	Post	156 (91.8%)	14 (8.2%)	170 (100.0%)
8	Pre	77 (91.7%)	7 (8.3%)	84 (100.0%)
	Post	66 (91.7%)	6 (8.3%)	72 (100.0%)
9	Pre	89 (87.3%)	13 (12.7%)	102 (100.0%)
	Post	110 (91.7%)	10 (8.3%)	120 (100.0%)
10	Pre	148 (87.6%)	21 (12.4%)	169 (100.0%)
	Post	138 (75.0%)	46 (25.0%)	184 (100.0%)
11	Pre	120 (88.9%)	15 (11.1%)	135 (100.0%)
	Post	133 (83.6%)	26 (16.4%)	159 (100.0%)

Transplant program size was determined based on the rate of transplants performed in the pre policy era. Small programs performed 1 or fewer transplants per month, medium programs performed between 1 and 4 transplants per month, and large programs performed more than 4 transplants per month.

In the post era we saw an increase in the number of transplants across programs of all sizes.

**Figure 61: Number of Lung Transplants by Era and Transplant Program Size**

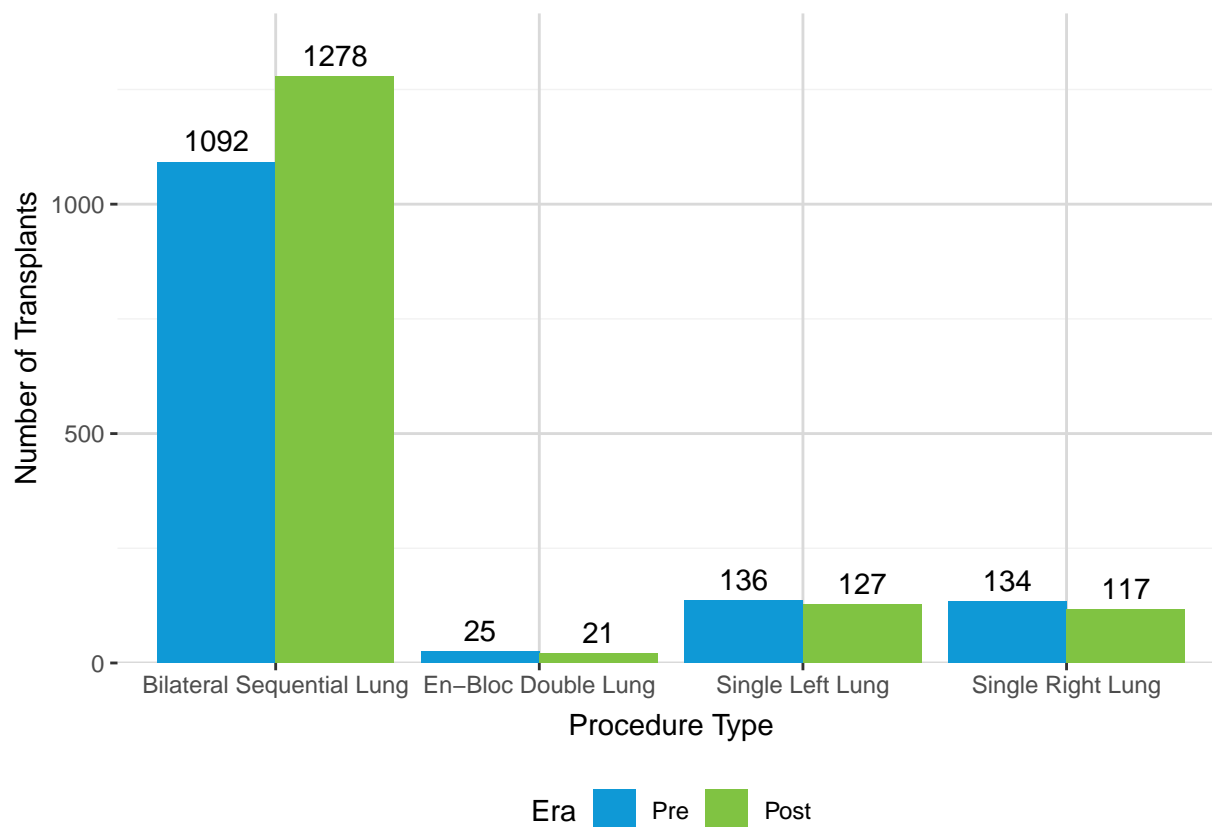


**Table 61: Number of Lung Transplants by Era and Transplant Program Size**

Transplant Program Size	Pre	Post
Small	43 (3.1%)	58 (3.8%)
Medium	450 (32.4%)	554 (35.9%)
Large	894 (64.5%)	931 (60.3%)
Total	1,387 (100.0%)	1,543 (100.0%)

In the post era, there was an increase in the number of bilateral sequential lung procedures performed (from 1092 to 1278). The occurrence of other procedure types decreased slightly in the post era.

**Figure 62: Number of Lung Transplants by Era and Procedure Type**

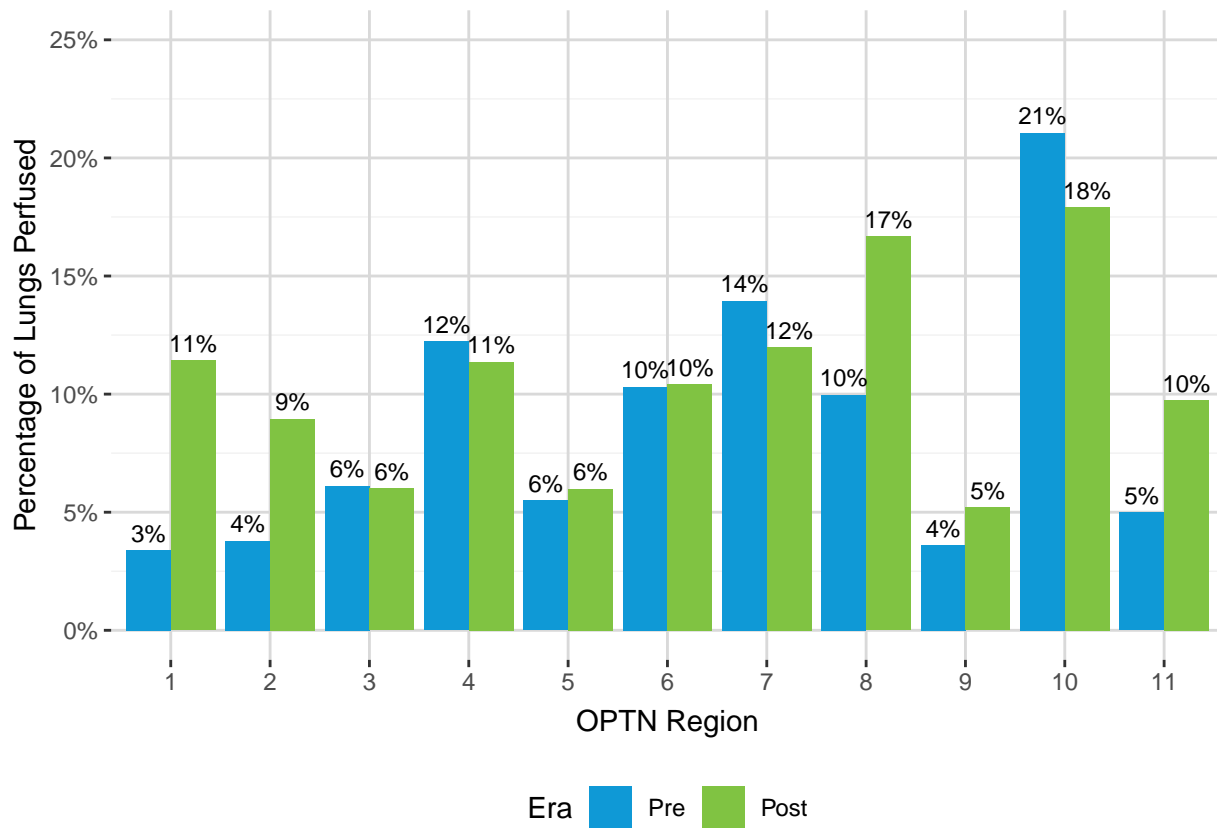


**Table 62: Number of Lung Transplants by Era and Procedure Type**

Procedure Type	Pre	Post
Bilateral Sequential Lung	1,092 (78.7%)	1,278 (82.8%)
En-Bloc Double Lung	25 (1.8%)	21 (1.4%)
Single Left Lung	136 (9.8%)	127 (8.2%)
Single Right Lung	134 (9.7%)	117 (7.6%)
Total	1,387 (100.0%)	1,543 (100.0%)

The percent of machine perfused lungs increased or remained similar in the post era in 8 OPTN regions and decreased in the remaining 3 OPTN regions.

**Figure 63: Percent of Machine Perfused Lungs by Era and OPTN Region Out of All Lungs Recovered for Transplant**

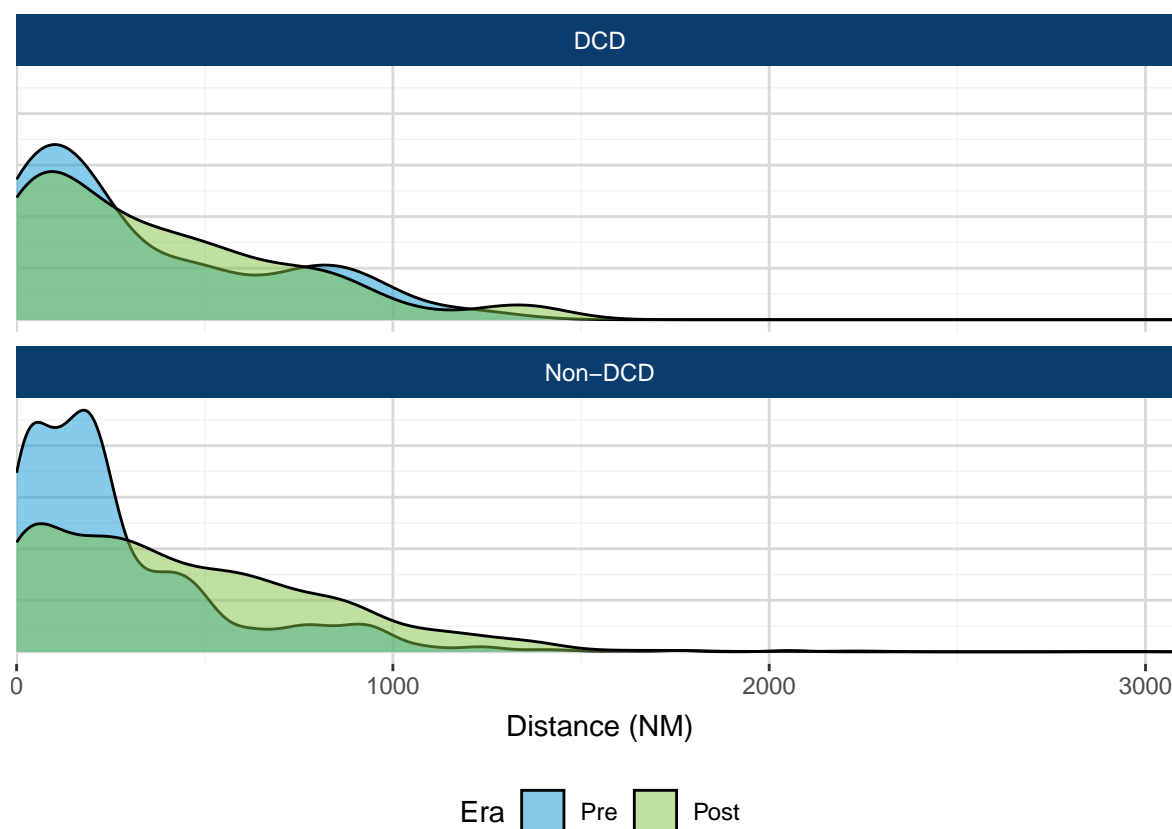


**Table 63: Percent of Machine Perfused Lungs by Era and OPTN Region Out of All Lungs Recovered for Transplant**

OPTN Region	Era	N Lungs Recovered	N Lungs Perfused	Percent Lungs Perfused
1	Pre	59	2	3.39%
	Post	70	8	11.43%
2	Pre	238	9	3.78%
	Post	257	23	8.95%
3	Pre	490	30	6.12%
	Post	516	31	6.01%
4	Pre	425	52	12.24%
	Post	405	46	11.36%
5	Pre	418	23	5.50%
	Post	484	29	5.99%
6	Pre	97	10	10.31%
	Post	144	15	10.42%
7	Pre	251	35	13.94%
	Post	242	29	11.98%
8	Pre	251	25	9.96%
	Post	276	46	16.67%
9	Pre	111	4	3.60%
	Post	154	8	5.19%
10	Pre	266	56	21.05%
	Post	374	67	17.91%
11	Pre	281	14	4.98%
	Post	349	34	9.74%
All Regions	Pre	2887	260	9.01%
	Post	3271	336	10.27%

In the post policy era, median distance from the donor hospital to transplant program increased for both DCD organs and non-DCD organs.

**Figure 64: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Donor Type**

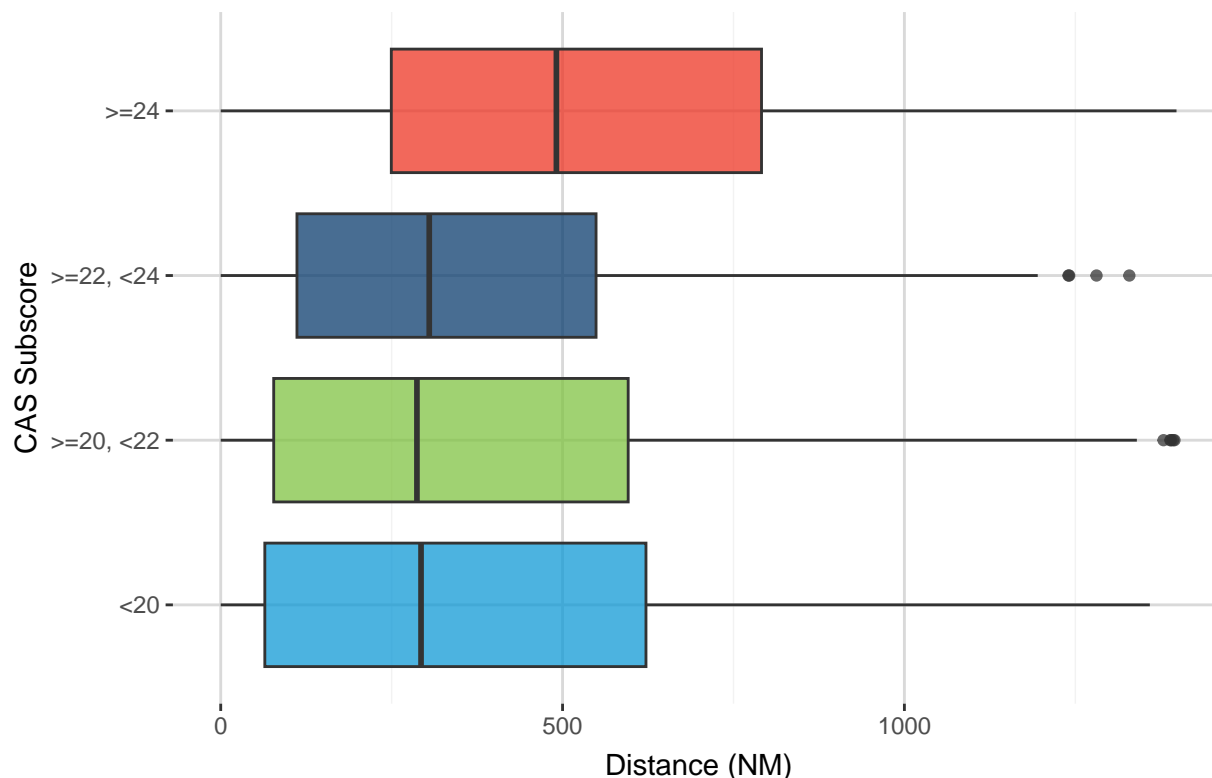


**Table 64: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Donor Type**

Donor Type	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
DCD	Pre	117	0	0	54.00	184.0	332.85	510.00	1268
	Post	168	0	0	78.75	280.5	372.64	574.25	1400
Non-DCD	Pre	1270	0	0	78.25	196.5	274.42	380.50	2069
	Post	1375	0	0	141.00	362.0	441.00	676.50	2920
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

In the post era, median distance from the donor hospital to transplant program was greatest for patients with the highest CAS subscores (subscore  $\geq 24$ ; distance = 502 NM). CAS subscores are calculated by summing all components of CAS, except for the efficiency points; this includes the sum of medical urgency points, post-transplant survival points, biological disadvantage points, and patient access points.

**Figure 65: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by CAS Subscore in the Post Policy Era**



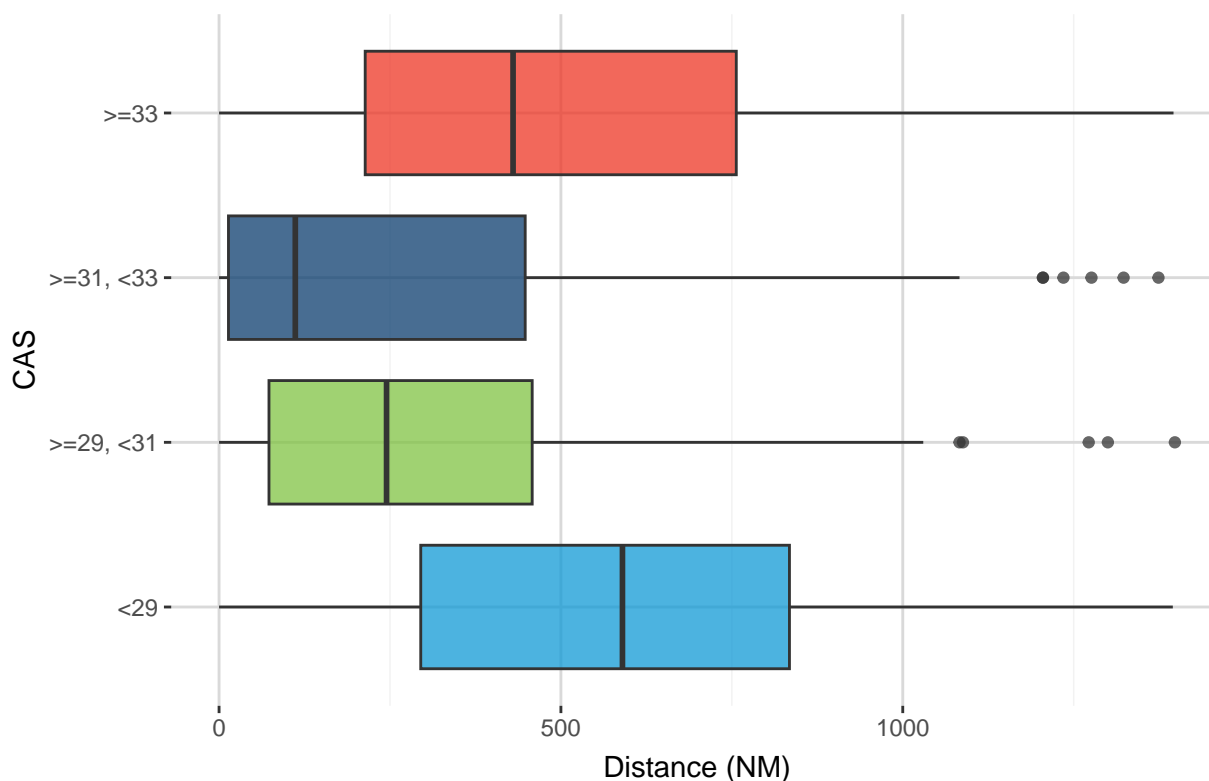
View is restricted to the 99th percentile of distance (1399 NM). There were 16 cases where lungs traveled further than this distance in the post policy era.

**Table 65: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by CAS Subscore in the Post Policy Era**

CAS Subscore	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
<20	Post	206	0	0	69.00	297	406.59	633.25	2021
>=20, <22	Post	684	0	0	78.75	290	377.51	602.50	2920
>=22, <24	Post	200	0	0	113.25	305	384.14	550.25	1405
>=24	Post	453	0	0	258.00	502	552.26	806.00	2244
Total	Post	1543	0	0	129.00	353	433.55	662.50	2920

In the post era, median distance for patients with the highest ( $\geq 33$ ) and lowest ( $< 29$ ) CAS scores was greater than the median distance for patients with intermediate CAS scores ( $\geq 29$  and  $< 33$ ). CAS scores are calculated by adding efficiency points to the CAS subscore.

**Figure 66: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by CAS in the Post Policy Era**



View is restricted to the 99th percentile of distance (1399 NM). There were 16 cases where lungs traveled further than this distance in the post policy era.

**Table 66: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by CAS In the Post Policy Era**

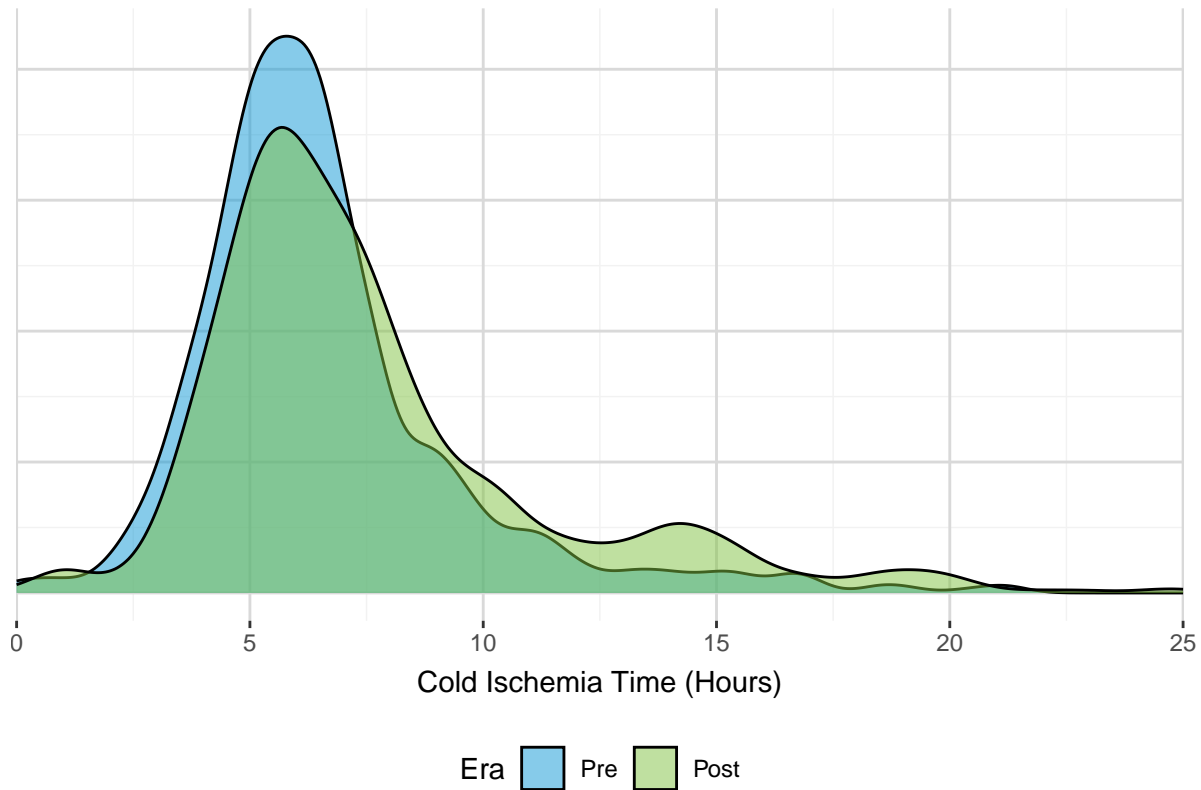
CAS	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
<29	Post	383	0	0	300.5	602.0	619.93	853.0	2920
$\geq 29, < 31$	Post	530	0	0	73.5	245.5	299.51	461.0	1399
$\geq 31, < 33$	Post	201	0	0	14.0	115.0	260.03	450.0	2244
$\geq 33$	Post	429	0	0	219.0	445.0	514.07	765.0	2227
Total	Post	1543	0	0	129.0	353.0	433.55	662.5	2920



Due to the 90 day data lag for reporting cold ischemia time, the below analysis is limited to three months before and after the implementation of continuous distribution (Pre: December 07, 2022 to March 08, 2023; Post: March 09, 2023 to June 08, 2023).

The median cold ischemia time for lung transplants in the post policy era (6.62 hours) was slightly longer than the median cold ischemia time in the pre policy era (6.08 hours).

**Figure 67: Distribution of Cold Ischemia Time for Lung Transplants by Era (December 7, 2022 to June 8, 2023)**



Cold ischemia time was missing for 7 transplants.

**Table 67: Distribution of Cold Ischemia Time for Lung Transplants by Era (December 7, 2022 to June 8, 2023)**

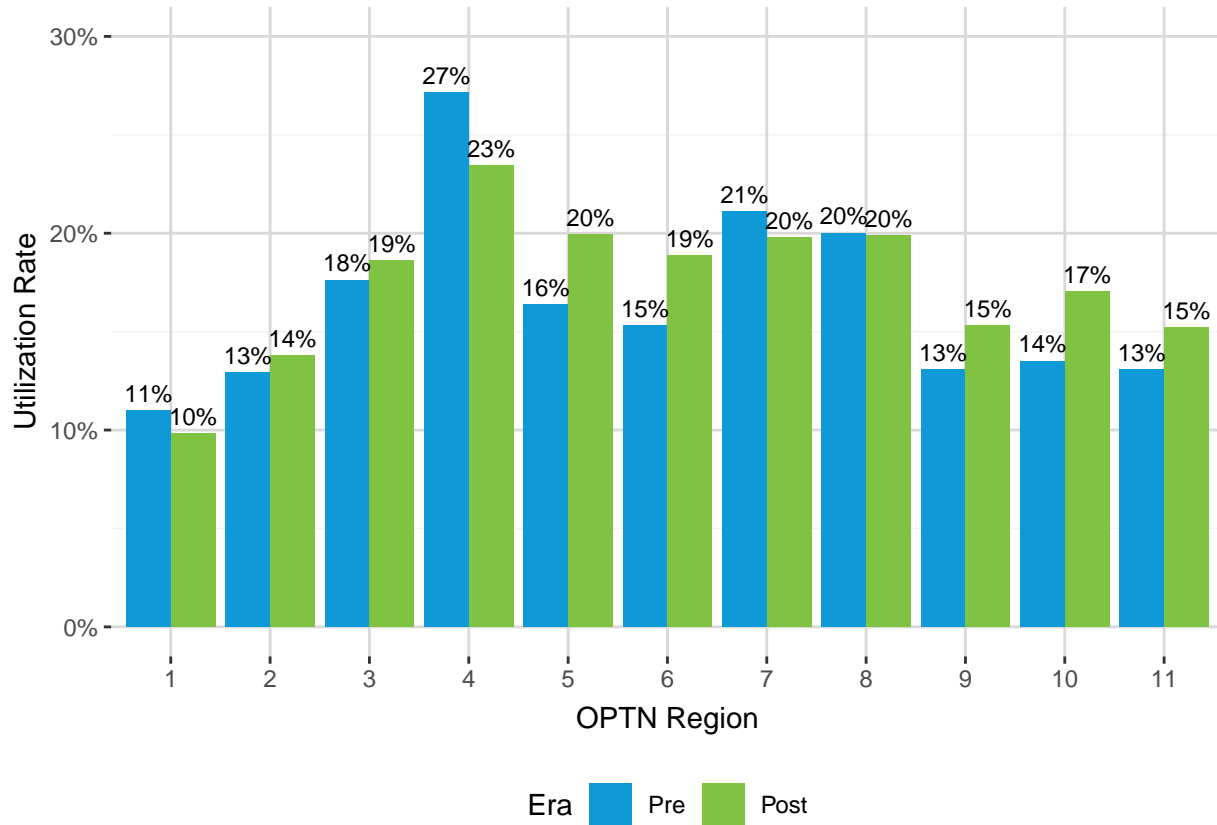
Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	672	1	0.04	4.88	6.08	6.59	7.46	21.21
Post	780	6	0.08	5.23	6.62	7.62	8.71	25.00

**Utilization Rate**

Utilization rate is defined as the percent of lungs that are transplanted based on all possible lungs from every deceased donor with at least one organ recovered for the purpose of transplant; this definition assumes that each donor has two possible lungs for donation.

Utilization rates increased or remained stable in 8 OPTN regions and decreased in 3 OPTN regions. At the national level, utilization rates did not change substantially between the pre and post policy eras.

**Figure 68: Utilization Rates by Era and OPTN Region**



**Table 68: Utilization Rates by Era and OPTN Region**

OPTN Region	Era	N Donors	N Lungs Transplanted	Utilization Rate
1	Pre	250	55	11.00%
	Post	285	56	9.82%
2	Pre	828	214	12.92%
	Post	823	227	13.79%
3	Pre	1237	436	17.62%
	Post	1286	479	18.62%
4	Pre	727	395	27.17%
	Post	774	363	23.45%
5	Pre	1233	404	16.38%
	Post	1181	471	19.94%
6	Pre	317	97	15.30%
	Post	371	140	18.87%
7	Pre	550	232	21.09%
	Post	576	228	19.79%
8	Pre	577	231	20.02%
	Post	628	250	19.90%
9	Pre	378	99	13.10%
	Post	424	130	15.33%
10	Pre	822	222	13.50%
	Post	941	321	17.06%
11	Pre	957	250	13.06%
	Post	1017	309	15.19%
All Regions	Pre	7876	2635	16.73%
	Post	8306	2974	17.90%

Utilization rates increased slightly for both DCD and non-DCD donors

**Figure 69: Utilization Rates by Era and Donor Type**

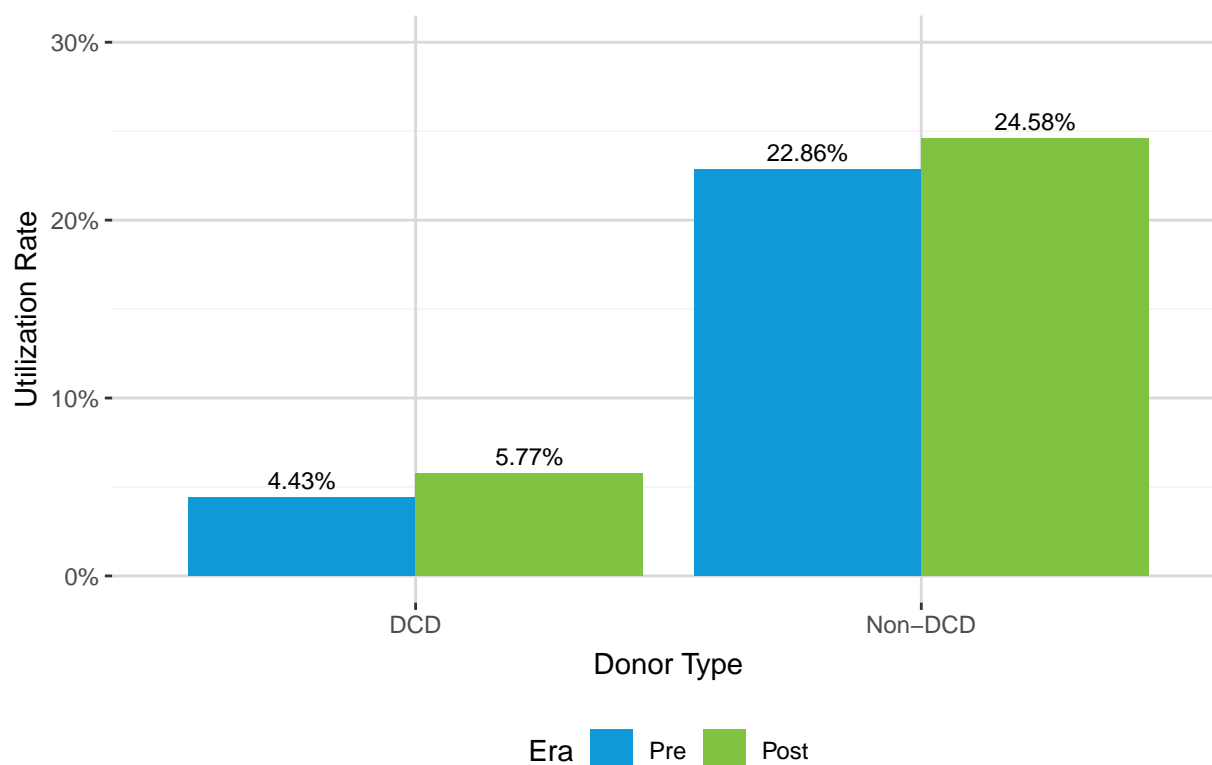


Chart does not include the 1 donor for whom DCD status was not yet reported at the time of this report's production.

**Table 69: Utilization Rates by Era and Donor Type**

DCD Status	Era	N Donors	N Lungs Transplanted	Utilization Rate
DCD	Pre	2621	232	4.43%
	Post	2947	340	5.77%
Non-DCD	Pre	5255	2403	22.86%
	Post	5358	2634	24.58%
Not Reported	Post	1	0	0.00%
All Donors	Pre	7876	2635	16.73%
	Post	8306	2974	17.90%

For DCD donors utilization rates increased or remained stable in 8 OPTN regions and for non-DCD donors utilization rates increased or remained stable for 9 OPTN regions.

**Figure 70: Utilization Rates by Era, OPTN Region, and Donor Type**

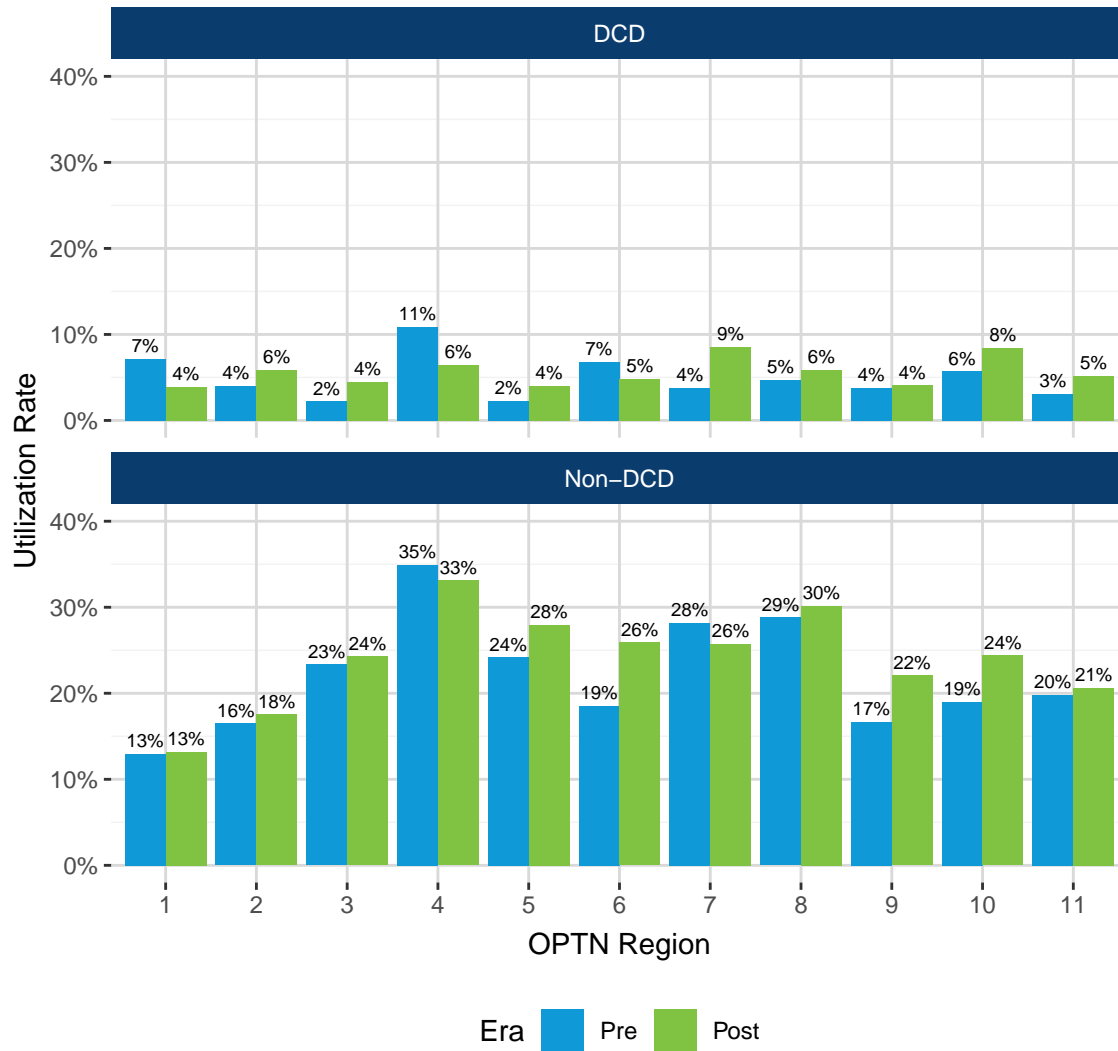


Chart does not include the 1 donor for whom DCD status was not yet reported at the time of this report's production.

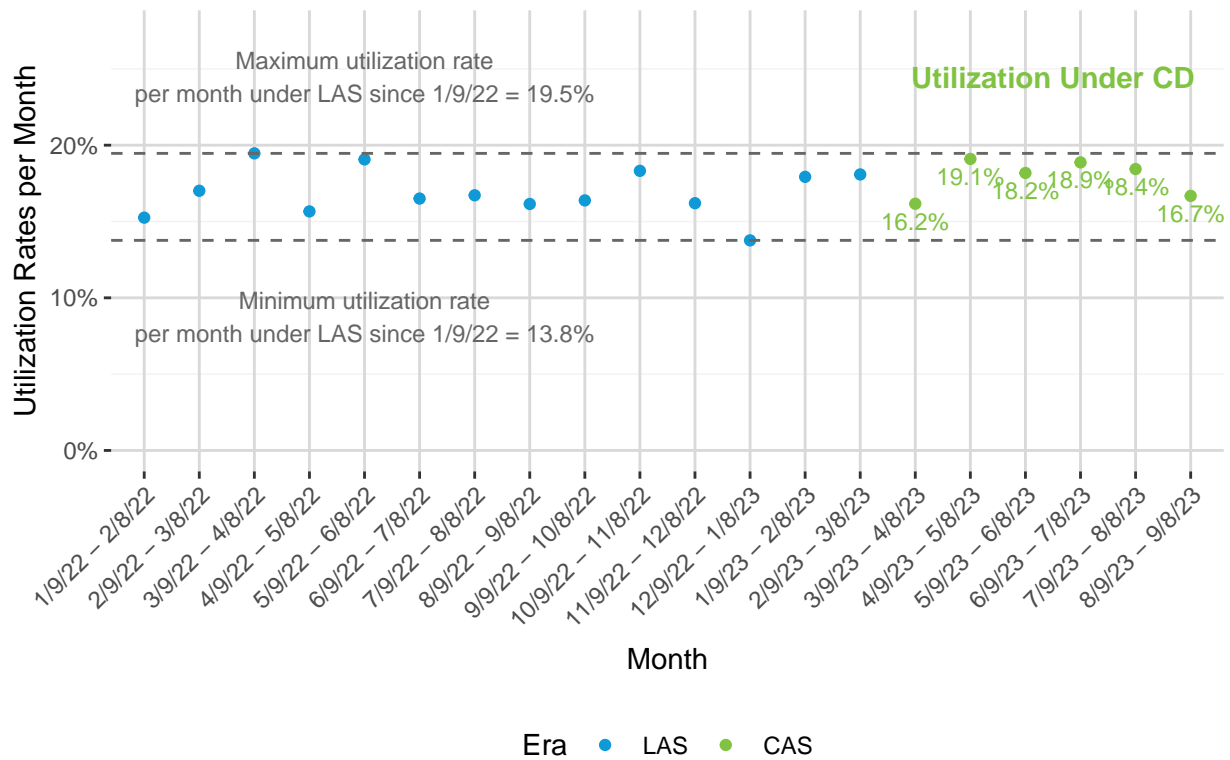
**Table 70: Utilization Rates by Era, OPTN Region, and Donor Type**

Donor Type	OPTN Region	Era	N Donors	N Lungs Transplanted	Utilization Rate
DCD	1	Pre	84	12	7.14%
		Post	103	8	3.88%
	2	Pre	237	19	4.01%
		Post	264	31	5.87%
	3	Pre	336	15	2.23%
		Post	368	33	4.48%
	4	Pre	234	51	10.90%
		Post	280	36	6.43%
	5	Pre	439	20	2.28%
		Post	395	32	4.05%
	6	Pre	88	12	6.82%
		Post	124	12	4.84%
	7	Pre	160	12	3.75%
		Post	199	34	8.54%
	8	Pre	211	20	4.74%
		Post	265	31	5.85%
	9	Pre	105	8	3.81%
		Post	159	13	4.09%
	10	Pre	341	39	5.72%
		Post	433	73	8.43%
11	Pre	386	24	3.11%	
	Post	357	37	5.18%	
All Regions	Pre	2621	232	4.43%	
	Post	2947	340	5.77%	
1	Pre	166	43	12.95%	
	Post	182	48	13.19%	
2	Pre	591	195	16.50%	
	Post	559	196	17.53%	
3	Pre	901	421	23.36%	
	Post	918	446	24.29%	
4	Pre	493	344	34.89%	
	Post	494	327	33.10%	
5	Pre	794	384	24.18%	
	Post	785	439	27.96%	
6	Pre	229	85	18.56%	
	Post	247	128	25.91%	

Non-DCD	7	Pre	390	220	28.21%
		Post	377	194	25.73%
	8	Pre	366	211	28.83%
		Post	363	219	30.17%
	9	Pre	273	91	16.67%
		Post	265	117	22.08%
	10	Pre	481	183	19.02%
		Post	508	248	24.41%
	11	Pre	571	226	19.79%
		Post	660	272	20.61%
	All Regions	Pre	5255	2403	22.86%
		Post	5358	2634	24.58%

The utilization rate per month varied widely. In 2022, under LAS, the utilization rate per month varied from 13.76% to 19.46%. The utilization rates in the first 6 months of continuous distribution were within the range of utilization rates per month in 2022.

**Figure 71: Utilization Rates Per Month**



Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.



**Table 71: Utilization Rates Per Month**

Policy Era	Month	N Donors	N Lungs Transplanted	Utilization Rate
LAS	1/9/22 - 2/8/22	1131	345	15.3%
	2/9/22 - 3/8/22	1155	393	17.0%
	3/9/22 - 4/8/22	1233	480	19.5%
	4/9/22 - 5/8/22	1226	384	15.7%
	5/9/22 - 6/8/22	1201	458	19.1%
	6/9/22 - 7/8/22	1224	404	16.5%
	7/9/22 - 8/8/22	1286	430	16.7%
	8/9/22 - 9/8/22	1254	405	16.1%
	9/9/22 - 10/8/22	1233	404	16.4%
	10/9/22 - 11/8/22	1332	488	18.3%
	11/9/22 - 12/8/22	1321	428	16.2%
	12/9/22 - 1/8/23	1384	381	13.8%
CAS	1/9/23 - 2/8/23	1297	465	17.9%
	2/9/23 - 3/8/23	1200	434	18.1%
	3/9/23 - 4/8/23	1392	450	16.2%
	4/9/23 - 5/8/23	1377	526	19.1%
	5/9/23 - 6/8/23	1466	533	18.2%
	6/9/23 - 7/8/23	1330	502	18.9%
	7/9/23 - 8/8/23	1383	510	18.4%
	8/9/23 - 9/8/23	1358	453	16.7%

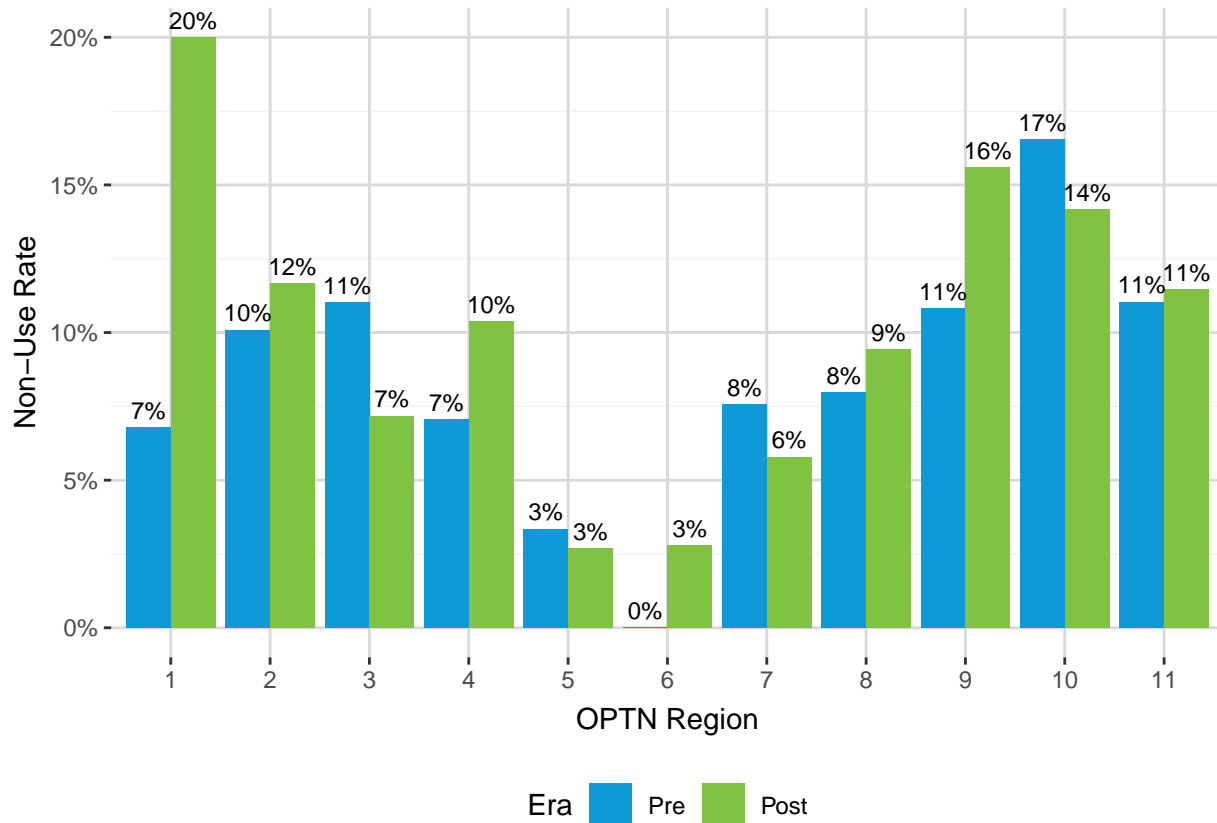
<sup>a</sup> Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

**Non-Use Rate**

Non-use rate is defined as the number of lungs recovered for the purpose of transplant but not transplanted out of all lungs recovered for transplant.

Non-use rates remained stable or decreased in the post policy era in 5 out of 11 OPTN regions and remained relatively stable at the national level. In OPTN region 1, the non-use rate increased from 7% in the pre era to 20% in the post era. This is a result of 11 more lungs being recovered in OPTN region 1 in the post era with only 1 more lung being transplanted.

**Figure 72: Non-Use Rates by Era and OPTN Region**

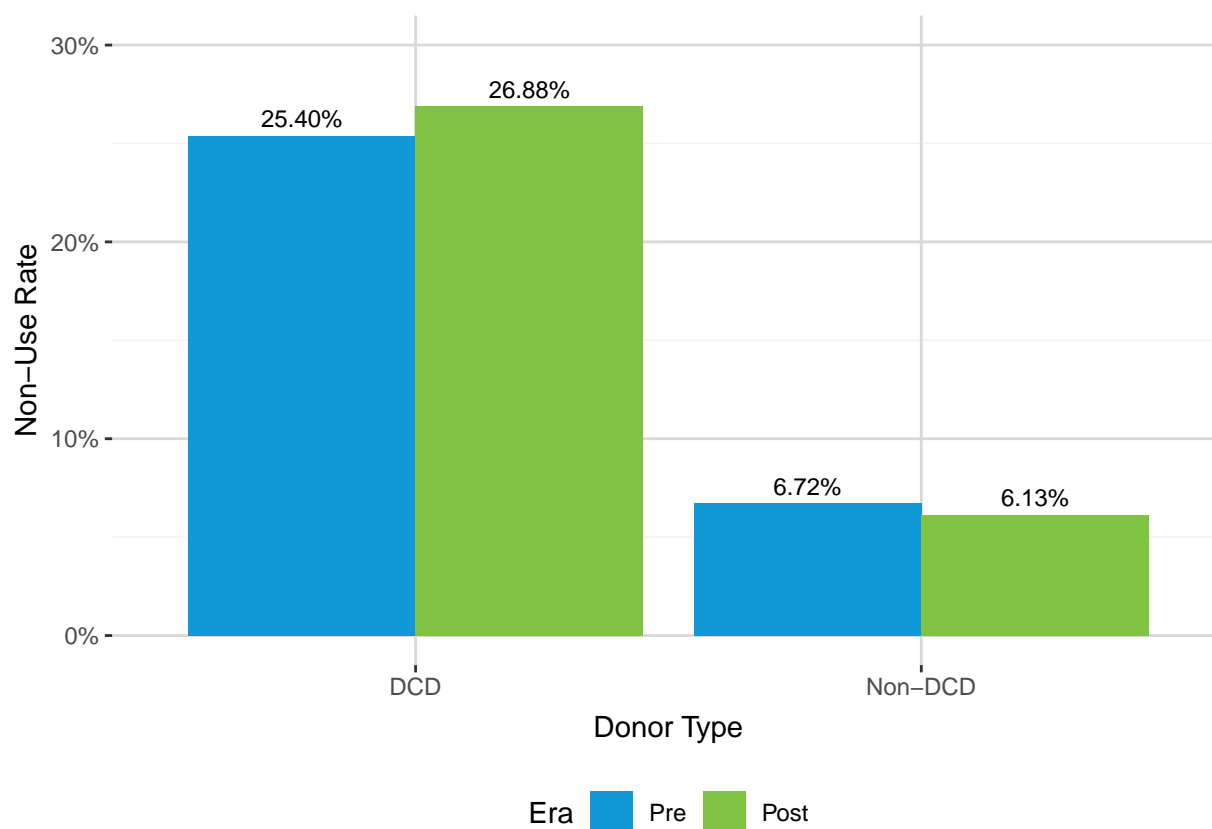


**Table 72: Non-Use Rates by Era and OPTN Region**

OPTN Region	Era	N Lungs Recovered	N Lungs Transplanted	Non-Use Rate
1	Pre	59	55	6.78%
	Post	70	56	20.00%
2	Pre	238	214	10.08%
	Post	257	227	11.67%
3	Pre	490	436	11.02%
	Post	516	479	7.17%
4	Pre	425	395	7.06%
	Post	405	363	10.37%
5	Pre	418	404	3.35%
	Post	484	471	2.69%
6	Pre	97	97	0.00%
	Post	144	140	2.78%
7	Pre	251	232	7.57%
	Post	242	228	5.79%
8	Pre	251	231	7.97%
	Post	276	250	9.42%
9	Pre	111	99	10.81%
	Post	154	130	15.58%
10	Pre	266	222	16.54%
	Post	374	321	14.17%
11	Pre	281	250	11.03%
	Post	349	309	11.46%
All Regions	Pre	2887	2635	8.73%
	Post	3271	2974	9.08%

Non-use rates remained similar for both DCD and non-DCD donors.

**Figure 73: Non-Use Rates by Era and Donor Type**

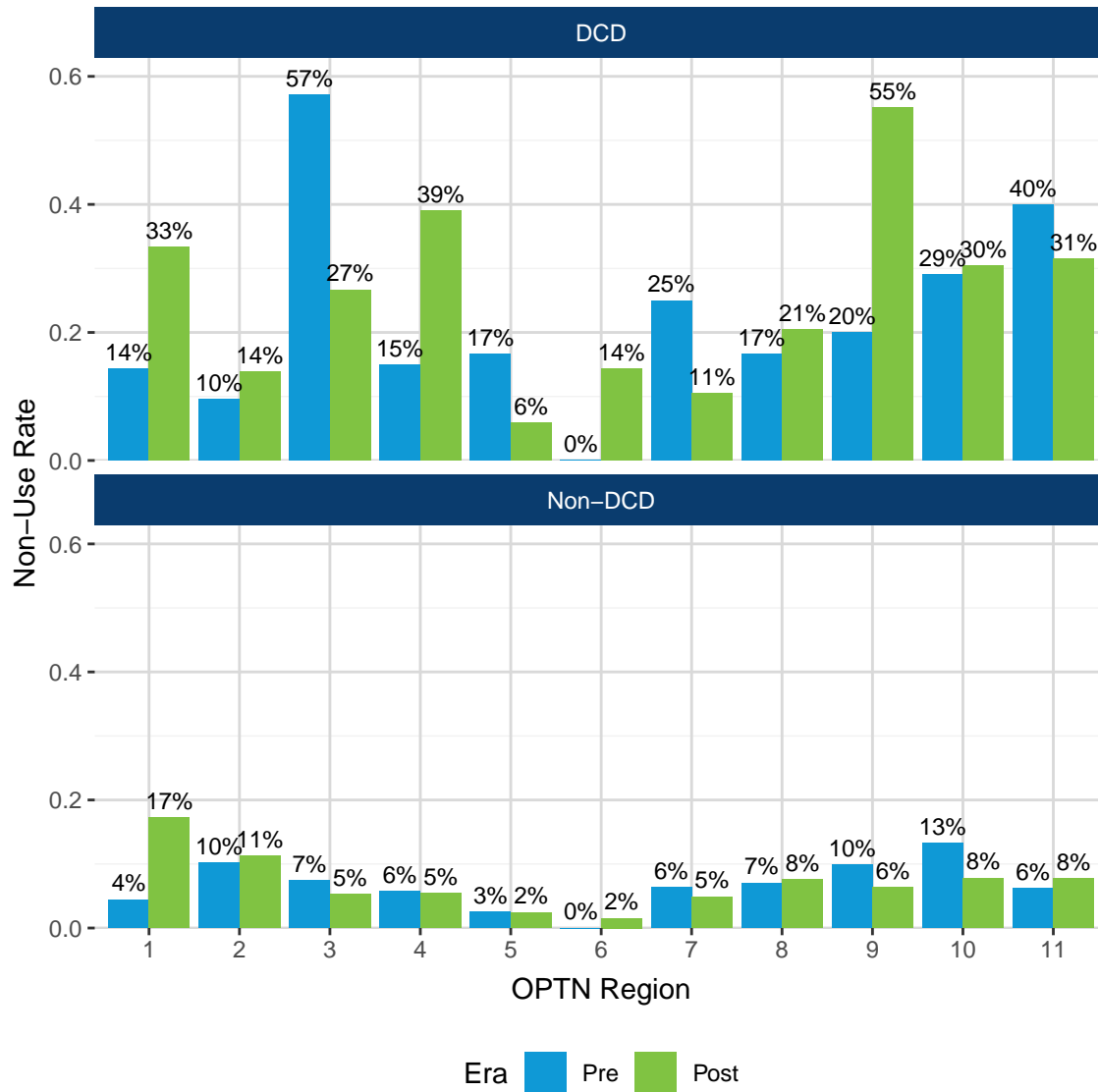


**Table 73: Non-Use Rates by Era and Donor Type**

DCD Status	Era	N Lungs Recovered	N Lungs Transplanted	Non-Use Rate
DCD	Pre	311	232	25.40%
	Post	465	340	26.88%
Non-DCD	Pre	2576	2403	6.72%
	Post	2806	2634	6.13%
All Donors	Pre	2887	2635	8.73%
	Post	3271	2974	9.08%

For DCD donors non-use rates decreased or remained stable in 4 OPTN regions and for non-DCD donors non-use rates decreased or remained stable in 6 OPTN regions.

**Figure 74: Non-Use Rates by Era, OPTN Region, and Donor Type**



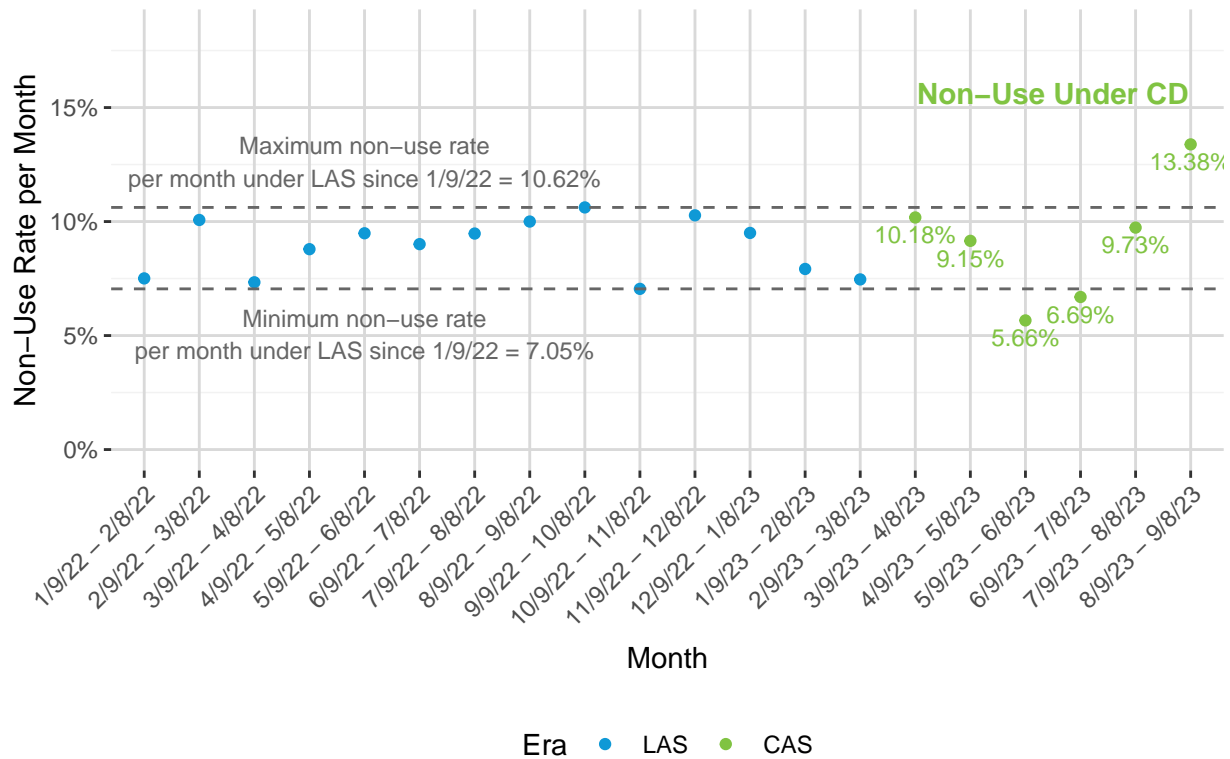
**Table 74: Non-Use Rates by Era, OPTN Region, and Donor Type**

Donor Type	OPTN Region	Era	N Lungs Recovered	N Lungs Transplanted	Non-Use Rate
DCD	1	Pre	14	12	14.29%
		Post	12	8	33.33%
	2	Pre	21	19	9.52%
		Post	36	31	13.89%
	3	Pre	35	15	57.14%
		Post	45	33	26.67%
	4	Pre	60	51	15.00%
		Post	59	36	38.98%
	5	Pre	24	20	16.67%
		Post	34	32	5.88%
	6	Pre	12	12	0.00%
		Post	14	12	14.29%
	7	Pre	16	12	25.00%
		Post	38	34	10.53%
	8	Pre	24	20	16.67%
		Post	39	31	20.51%
	9	Pre	10	8	20.00%
		Post	29	13	55.17%
	10	Pre	55	39	29.09%
		Post	105	73	30.48%
11	Pre	40	24	40.00%	
	Post	54	37	31.48%	
All Regions	Pre	311	232	25.40%	
	Post	465	340	26.88%	
1	Pre	45	43	4.44%	
	Post	58	48	17.24%	
2	Pre	217	195	10.14%	
	Post	221	196	11.31%	
3	Pre	455	421	7.47%	
	Post	471	446	5.31%	
4	Pre	365	344	5.75%	
	Post	346	327	5.49%	
5	Pre	394	384	2.54%	
	Post	450	439	2.44%	
6	Pre	85	85	0.00%	
	Post	130	128	1.54%	

Non-DCD	7	Pre	235	220	6.38%
		Post	204	194	4.90%
	8	Pre	227	211	7.05%
		Post	237	219	7.59%
	9	Pre	101	91	9.90%
		Post	125	117	6.40%
	10	Pre	211	183	13.27%
		Post	269	248	7.81%
	11	Pre	241	226	6.22%
		Post	295	272	7.80%
	All Regions	Pre	2576	2403	6.72%
		Post	2806	2634	6.13%

The non-use rates per month varied widely. In 2022, under LAS, the non-use rate per month varied from 7.05% to 10.62%. The non-use rates in the first 6 months of continuous distribution ranged from 5.66% to 13.38%.

**Figure 75: Non-Use Rates Per Month**



Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.



**Table 75: Non-Use Rate Per Month**

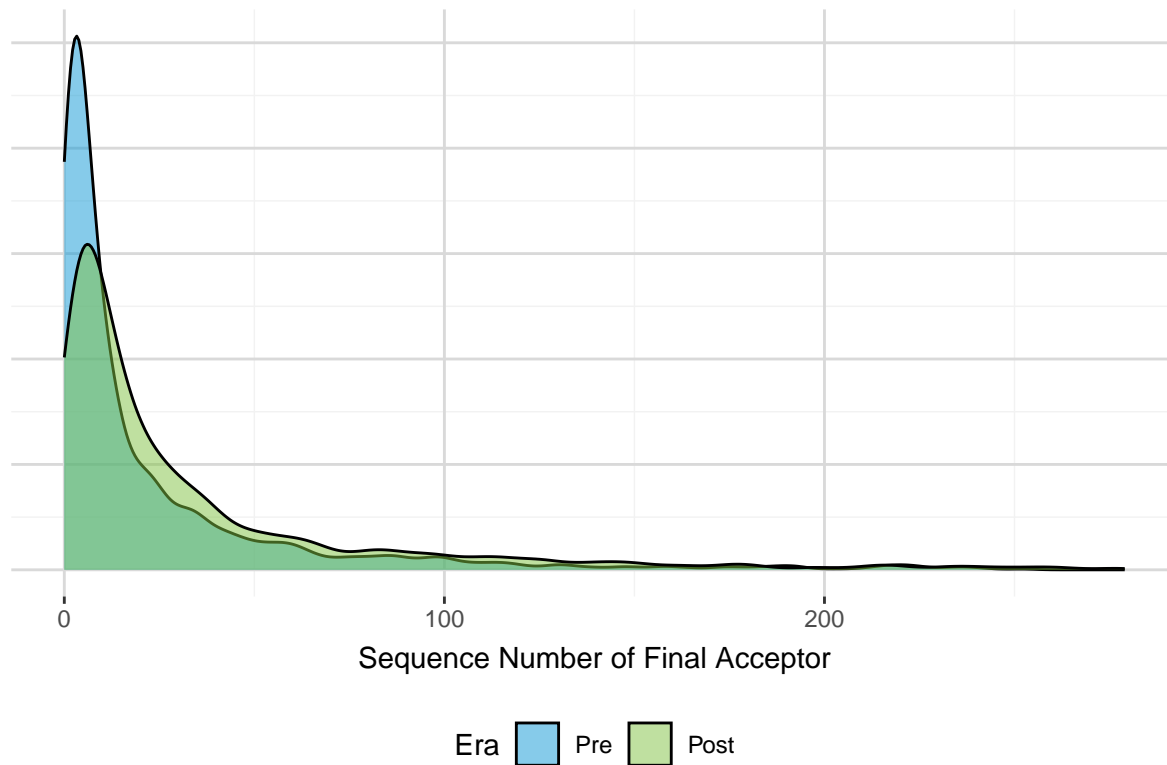
Era	Month	N Lungs Recovered	N Lungs Transplanted	Non-Use Rate
LAS	1/9/22 - 2/8/22	373	345	7.51%
	2/9/22 - 3/8/22	437	393	10.07%
	3/9/22 - 4/8/22	518	480	7.34%
	4/9/22 - 5/8/22	421	384	8.79%
	5/9/22 - 6/8/22	506	458	9.49%
	6/9/22 - 7/8/22	444	404	9.01%
	7/9/22 - 8/8/22	475	430	9.47%
	8/9/22 - 9/8/22	450	405	10.00%
	9/9/22 - 10/8/22	452	404	10.62%
	10/9/22 - 11/8/22	525	488	7.05%
	11/9/22 - 12/8/22	477	428	10.27%
	12/9/22 - 1/8/23	421	381	9.50%
CAS	1/9/23 - 2/8/23	505	465	7.92%
	2/9/23 - 3/8/23	469	434	7.46%
	3/9/23 - 4/8/23	501	450	10.18%
	4/9/23 - 5/8/23	579	526	9.15%
	5/9/23 - 6/8/23	565	533	5.66%
	6/9/23 - 7/8/23	538	502	6.69%
	7/9/23 - 8/8/23	565	510	9.73%
	8/9/23 - 9/8/23	523	453	13.38%

<sup>a</sup> Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

**Match Run Efficiency**

The median sequence number of the final acceptor increased from 8 in the pre era to 15 in the post era.

**Figure 76: Distribution of the Sequence Number of the Final Acceptor on Lung Match Run by Era**



View is restricted to the 99th percentile of sequence number (279). There were 32 instances where the sequence number of the final acceptor was greater than 279.

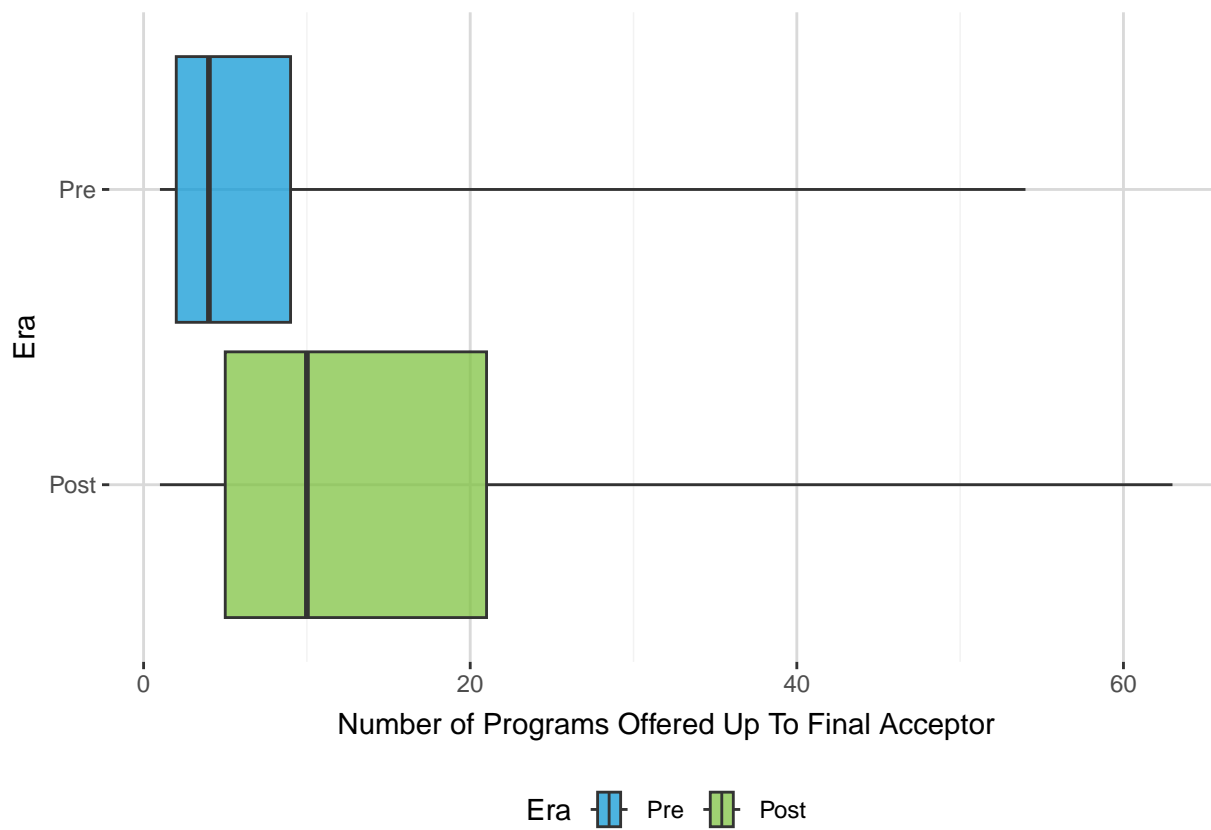
**Table 76: Distribution of the Sequence Number of the Final Acceptor on Lung Match Run by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	1506	0	1	2.25	8	24.28	25	359
Post	1676	0	1	6.00	15	39.73	41	550

<sup>a</sup> Note there are more recorded final acceptors than transplants performed in each era. Being the final acceptor of an organ does not necessarily mean that the organ was ultimately transplanted.

In the post era, more programs received organ offers on a match run. The median number of unique programs offered up to the final acceptor increased from 4 to 10.

**Figure 77: Distribution of the Number of Unique Programs Offered Up To the Final Acceptor on Lung Match Run by Era**

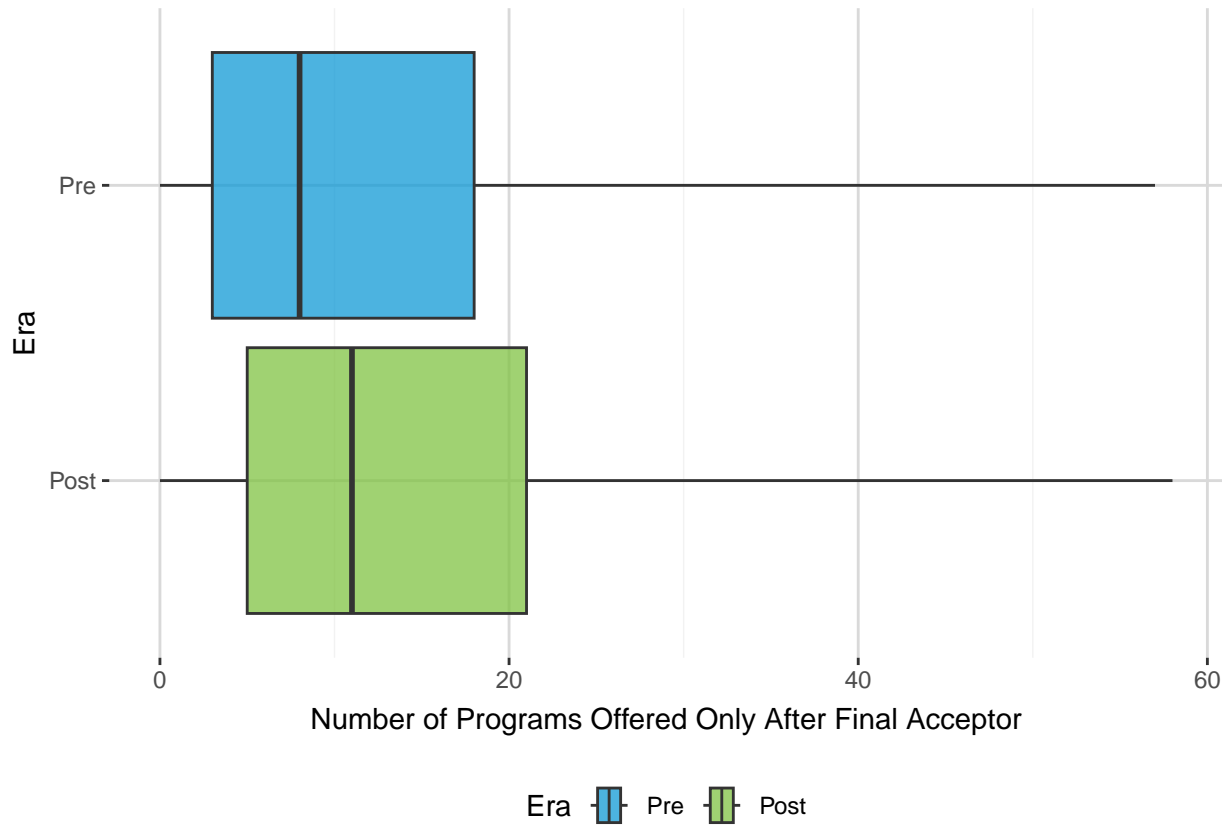


**Table 77: Distribution of the Number of Unique Programs Offered Up To the Final Acceptor on Lung Match Run by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	1506	0	1	2	4	7.02	9	54
Post	1676	0	1	5	10	14.69	21	63

In the post era, more programs received their first organ offers after the final acceptance. The median number of programs that received their first organ offer after the sequence number of the final acceptor increased from 8 to 11.

**Figure 78: Distribution of the Number of Unique Programs Offered Only After the Final Acceptor on Lung Match Run by Era**

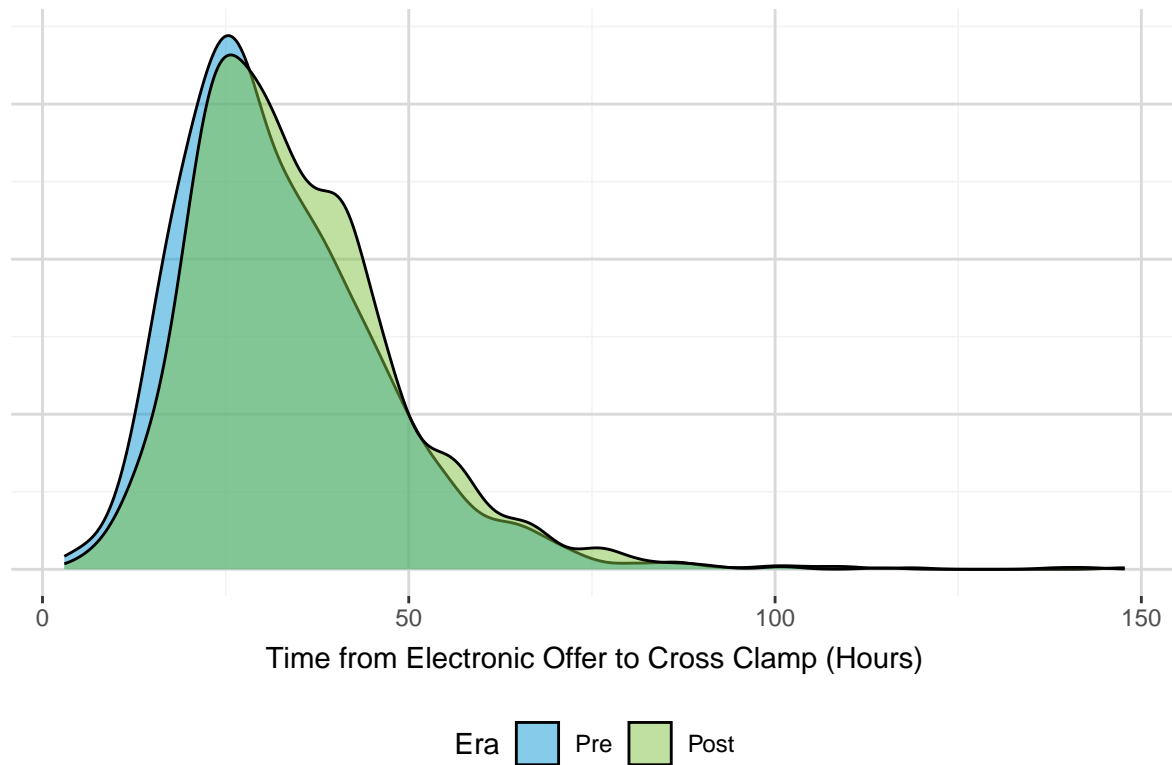


**Table 78: Distribution of the Number of Unique Programs Offered Only After the Final Acceptor on Lung Match Run by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	1506	0	0	3	8	12.37	18	57
Post	1676	0	0	5	11	14.13	21	58

The distribution of time from first electronic offer to cross clamp for lungs recovered increased from a median of 29.66 hours in the pre era to 32.14 hours in the post era.

**Figure 79: Time from First Electronic Offer to Cross Clamp (Hours) for All Lungs Recovered by Era**



There were 5 values not yet reported at the time of this report's creation. This report was created before the 90 day data lag allowed by the OPTN had passed.

**Table 79: Time from First Electronic Offer to Cross Clamp (Hours) for All Lungs Recovered by Era**

Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Pre	1559	1	2.98	22.67	29.66	32.53	39.92	147.73
Post	1740	4	3.42	24.42	32.14	34.56	41.88	143.01

<sup>a</sup> There were 5 values not yet reported at the time of this report's creation. This report was created before the 90 day data lag allowed by the OPTN had passed.

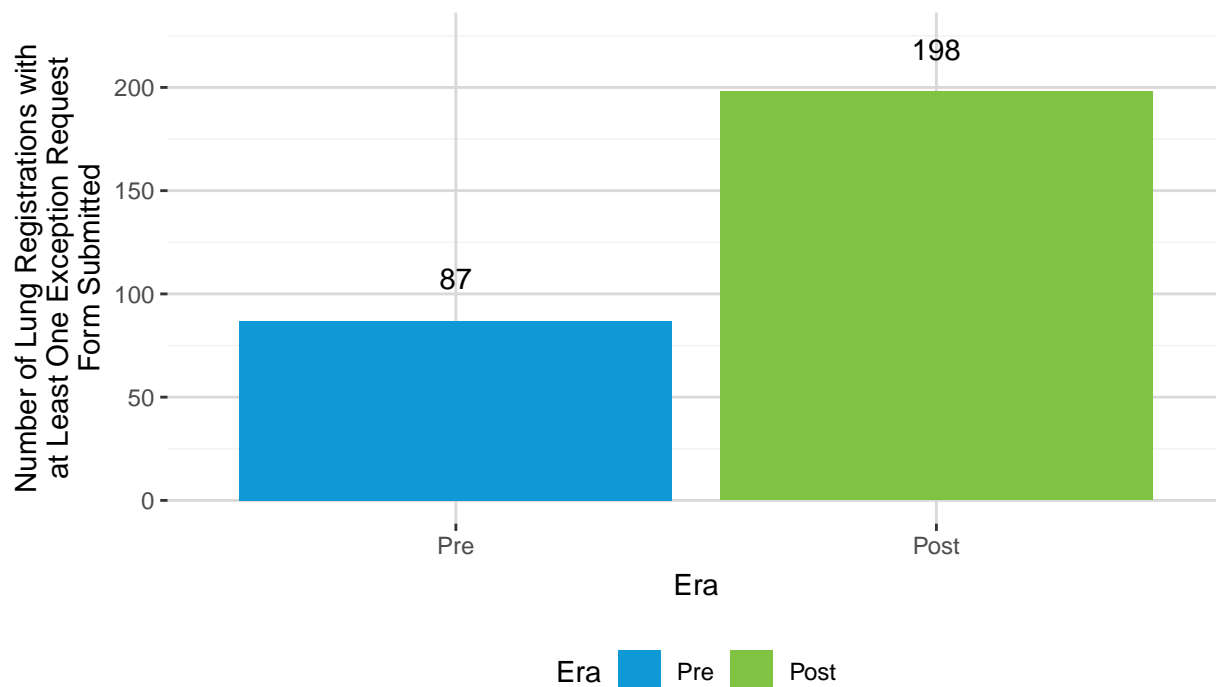
## Exceptions

The National Lung Review Board experienced a large increase in the quantity of exception forms submitted. This trend may be a bolus effect and may stabilize over time. The number of exceptions submitted will be included in future monitoring. Under LAS, a single registration could only have one exception request associated with it. Under continuous distribution (CD), a single registration can have multiple exception requests, provided the exception requests are under different goals.

Prior to implementation, programs could submit CAS exception requests through an interim process so that those requests, if approved, would be in place at the start of implementation. 26 requests were submitted through this process and were not included in the below charts. In the charts below, all LAS requests were submitted prior to lung CD implementation and all CAS requests were submitted after CD implementation.

The figure and table below show the number of registrations with exception requests submitted. Multiple exception requests can be submitted for a single registration. There were more registrations with submitted exception requests in the post policy era than in the pre policy era.

**Figure 80: Number of Lung Waiting List Registrations with at Least One Submitted Exception Request Form by Era**



This chart does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23. Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions. Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

**Table 80: Number of Lung Waiting List Registrations with at Least One Submitted Exception Request Form by Era**

Era	Number of Lung Waiting List Registrations with at Least One Submitted Exception Request
Pre	87
Post	198

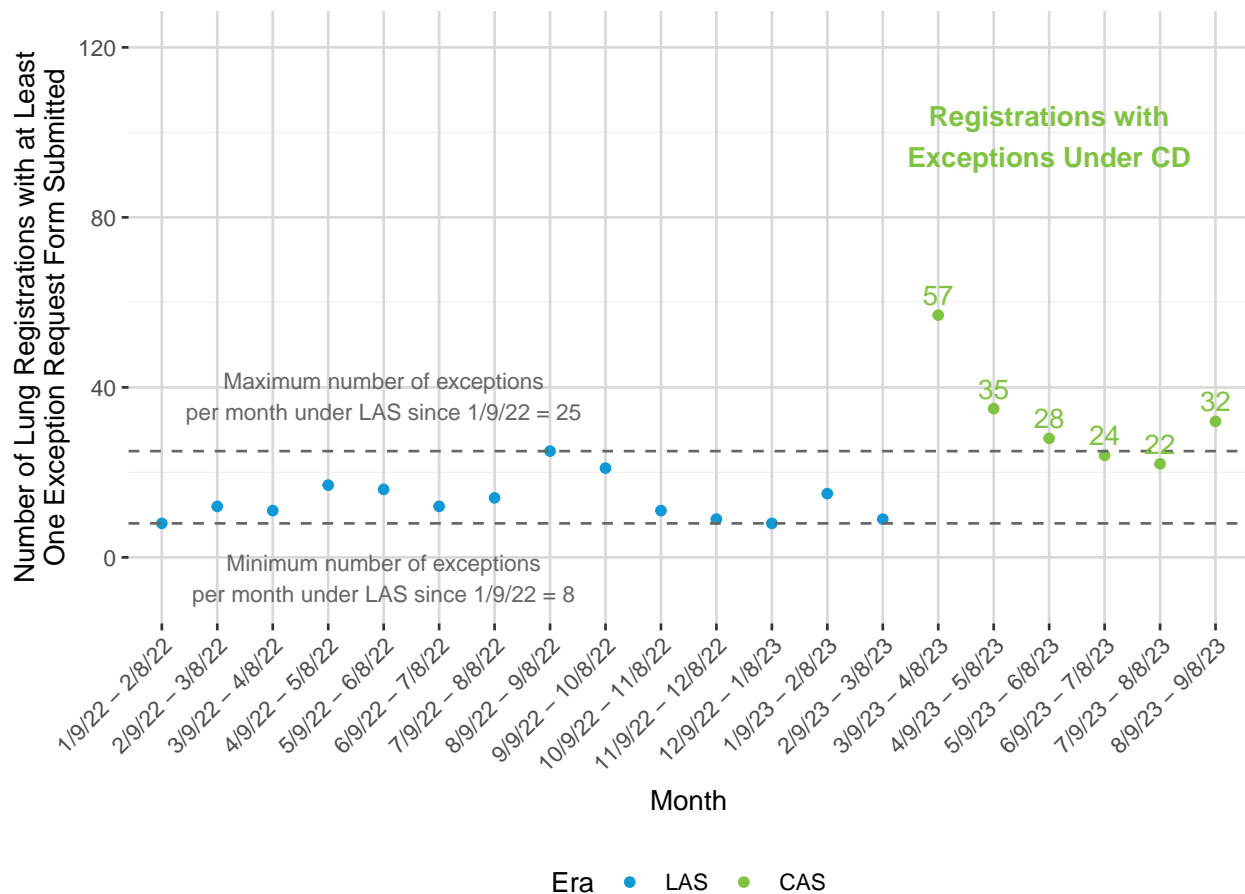
<sup>a</sup> This table does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23.

<sup>b</sup> Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions.

<sup>c</sup> Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

Since January 9th, 2022, the number of LAS exception requests submitted in a month ranged from 8 to 25. In four of the first six months of CD implementation the number of submitted exception requests exceeded this range.

**Figure 81: Number of Lung Registrations with at Least One Exception Request Form Submitted Per Month**



This chart does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23. Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions. Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included. Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.



**Table 81: Number of Lung Registrations with at Least One Exception Request Form Submitted Per Month**

Policy Era	Month	Number of LAS or CAS exceptions requests submitted
LAS	1/9/22 - 2/8/22	8
	2/9/22 - 3/8/22	12
	3/9/22 - 4/8/22	11
	4/9/22 - 5/8/22	17
	5/9/22 - 6/8/22	16
	6/9/22 - 7/8/22	12
	7/9/22 - 8/8/22	14
	8/9/22 - 9/8/22	25
	9/9/22 - 10/8/22	21
	10/9/22 - 11/8/22	11
	11/9/22 - 12/8/22	9
	12/9/22 - 1/8/23	8
CAS	1/9/23 - 2/8/23	15
	2/9/23 - 3/8/23	9
	3/9/23 - 4/8/23	57
	4/9/23 - 5/8/23	35
	5/9/23 - 6/8/23	28
	6/9/23 - 7/8/23	24
	7/9/23 - 8/8/23	22
	8/9/23 - 9/8/23	32

<sup>a</sup> This table does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23.

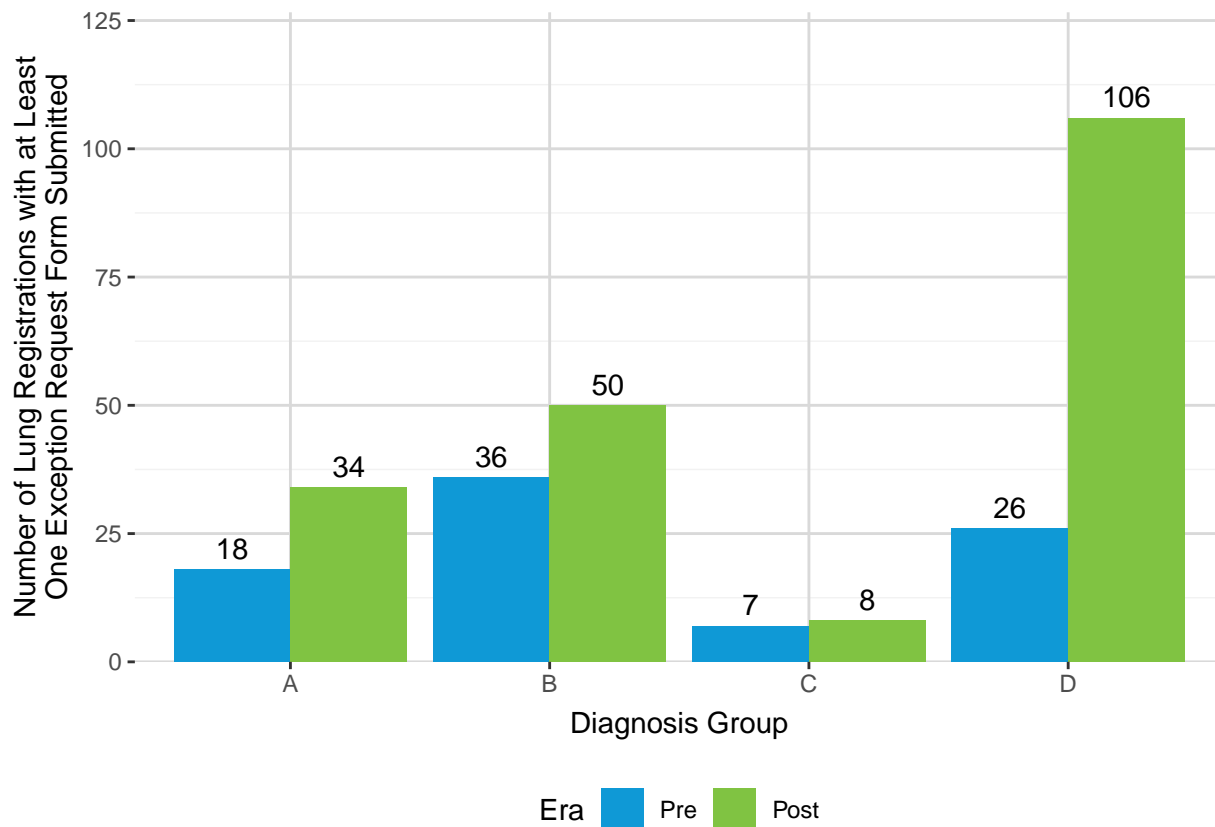
<sup>b</sup> Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions.

<sup>c</sup> Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

<sup>d</sup> Note that all months are defined from the 9th to the 8th; therefore, the last six months under LAS do not perfectly overlap with the defined pre policy era.

The number of lung registrations with at least one exception request form submitted increased in all diagnosis groups.

**Figure 82: Number of Lung Registrations with at Least One Exception Request Form Submitted by Era and Diagnosis Group**



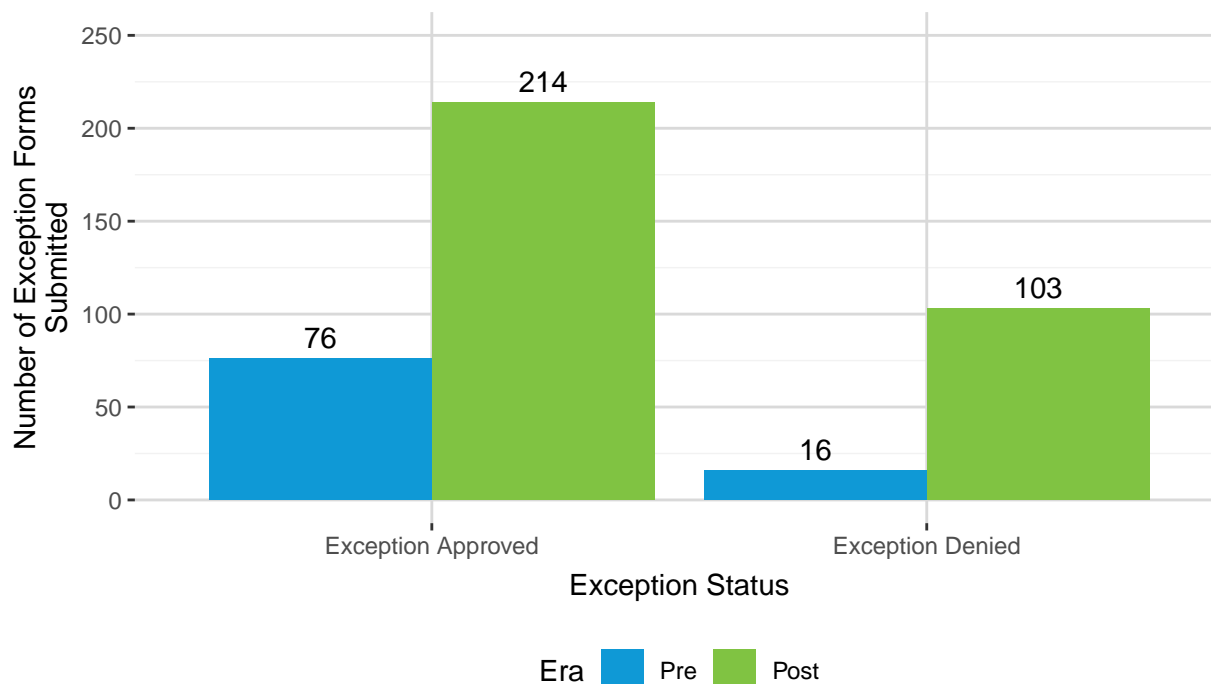
**Table 82: Number of Lung Registrations with at Least One Exception Request Form Submitted by Era and Diagnosis Group**

Diagnosis Group	Pre	Post
A	18 (20.7%)	34 (17.2%)
B	36 (41.4%)	50 (25.3%)
C	7 (8.0%)	8 (4.0%)
D	26 (29.9%)	106 (53.5%)
Total	87 (100.0%)	198 (100.0%)

The following figures and tables examine data at the exception form level.

Although more exception requests were submitted in the post implementation era, a greater proportion of these exception requests were denied.

**Figure 83: Number of Lung Exception Request Forms Submitted by Era and Exception Status**



This chart does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23. Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions. Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

**Table 83: Number of Lung Exception Request Forms Submitted by Era and Exception Status**

Exception Status	Pre	Post
Exception Approved	76 (82.6%)	214 (67.5%)
Exception Denied	16 (17.4%)	103 (32.5%)
Total	92 (100.0%)	317 (100.0%)

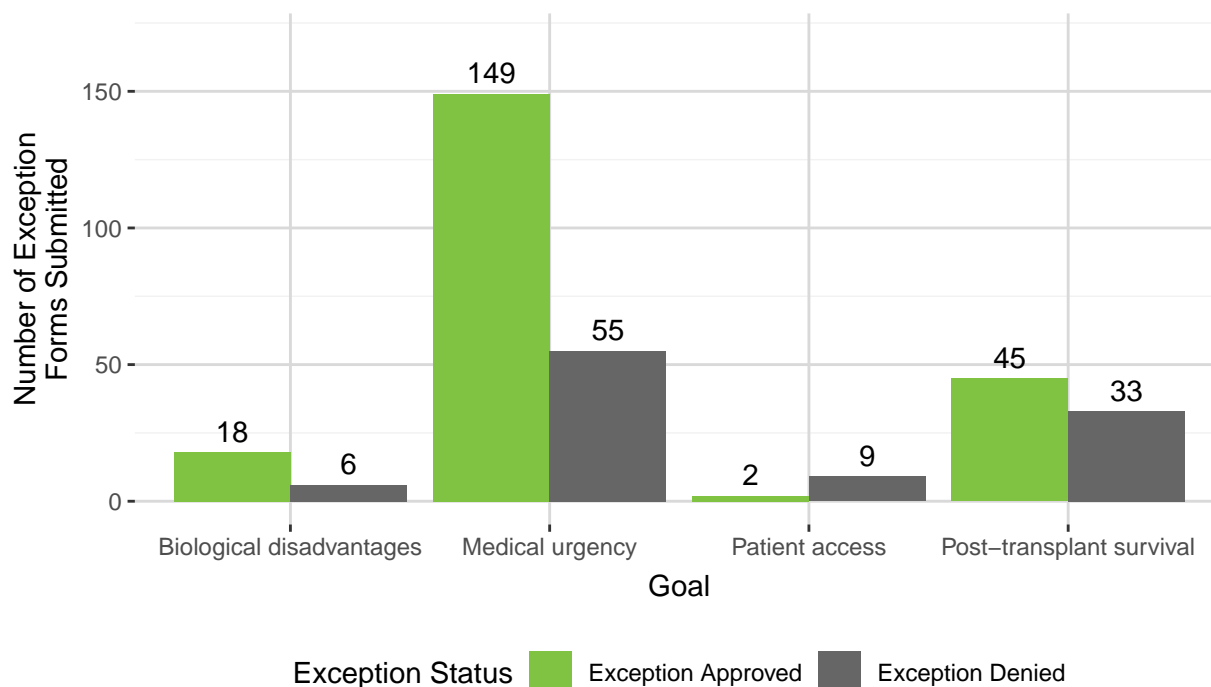
<sup>a</sup> This table does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23.

<sup>b</sup> Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions.

<sup>c</sup> Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

The majority of exception requests were submitted for the medical urgency goal.

**Figure 84: Number of Lung CAS Exception Request Forms Submitted by Exception Status and Goal in the Post Policy Era**



This chart does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23. Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions. Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

**Table 84: Number of Lung CAS Exception Request Forms Submitted by Exception Status and Goal in the Post Policy Era**

Goal	Exception Approved	Exception Denied
Biological disadvantages	18 (8.4%)	6 (5.8%)
Medical urgency	149 (69.6%)	55 (53.4%)
Patient access	2 (0.9%)	9 (8.7%)
Post-transplant survival	45 (21.0%)	33 (32.0%)
Total	214 (100.0%)	103 (100.0%)

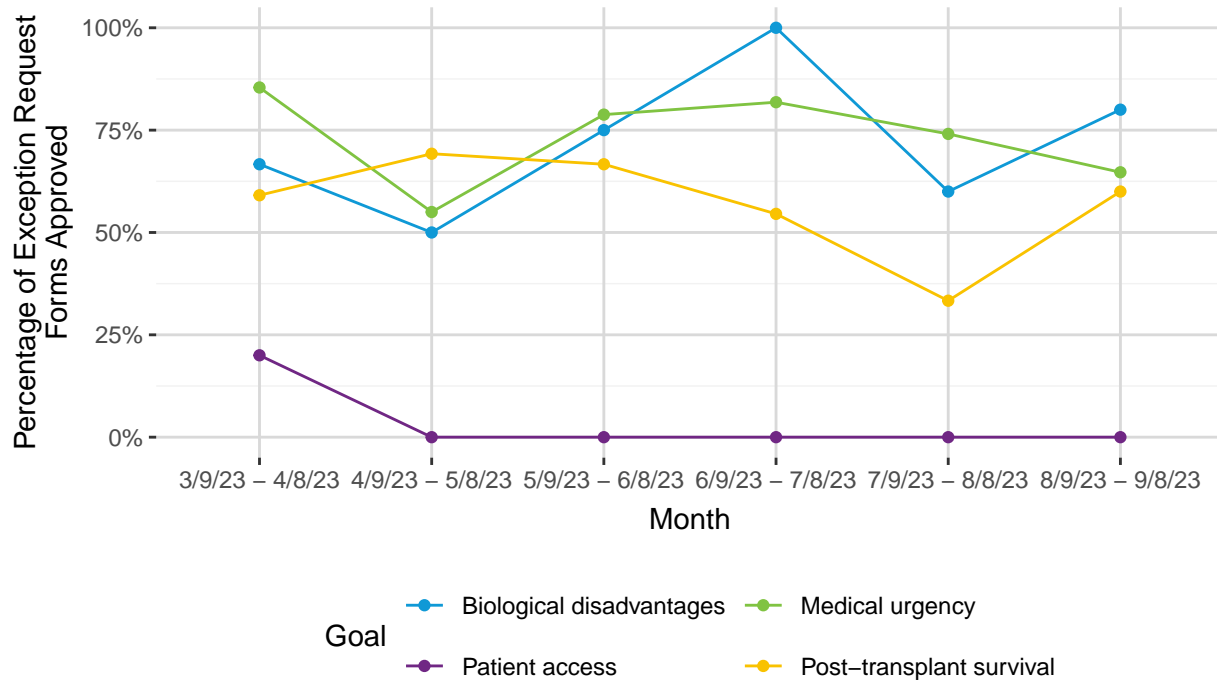
<sup>a</sup> This table does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23.

<sup>b</sup> Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions.

<sup>c</sup> Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

Approval rates for CAS exception forms submitted under the biological disadvantage, medical urgency, and post-transplant survival goals remained relatively stable across months. However, there were no CAS exception forms approved under the patient access goal after the first month of Continuous Distribution.

**Figure 85: Percentage of CAS Exception Request Forms Approved by Month of Submission and Goal**



This chart does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23. Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions. Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

**Table 85: Percentage of CAS Exception Request Forms Approved by Month of Submission and Goal**

Goal	Month	Exception Approved	Exception Denied	Total
Biological disadvantages	3/9/23 - 4/8/23	2 (66.7%)	1 (33.3%)	3 (100.0%)
	4/9/23 - 5/8/23	1 (50.0%)	1 (50.0%)	2 (100.0%)
	5/9/23 - 6/8/23	3 (75.0%)	1 (25.0%)	4 (100.0%)
	6/9/23 - 7/8/23	5 (100.0%)	0 (0.0%)	5 (100.0%)
	7/9/23 - 8/8/23	3 (60.0%)	2 (40.0%)	5 (100.0%)
	8/9/23 - 9/8/23	4 (80.0%)	1 (20.0%)	5 (100.0%)
Medical urgency	3/9/23 - 4/8/23	41 (85.4%)	7 (14.6%)	48 (100.0%)
	4/9/23 - 5/8/23	22 (55.0%)	18 (45.0%)	40 (100.0%)
	5/9/23 - 6/8/23	26 (78.8%)	7 (21.2%)	33 (100.0%)
	6/9/23 - 7/8/23	18 (81.8%)	4 (18.2%)	22 (100.0%)
	7/9/23 - 8/8/23	20 (74.1%)	7 (25.9%)	27 (100.0%)
	8/9/23 - 9/8/23	22 (64.7%)	12 (35.3%)	34 (100.0%)
Patient access	3/9/23 - 4/8/23	2 (20.0%)	8 (80.0%)	10 (100.0%)
	4/9/23 - 5/8/23	0 (0.0%)	1 (100.0%)	1 (100.0%)
	5/9/23 - 6/8/23	0 (-)	0 (-)	0 (100.0%)
	6/9/23 - 7/8/23	0 (-)	0 (-)	0 (100.0%)
	7/9/23 - 8/8/23	0 (-)	0 (-)	0 (100.0%)
	8/9/23 - 9/8/23	0 (-)	0 (-)	0 (100.0%)
Post-transplant survival	3/9/23 - 4/8/23	13 (59.1%)	9 (40.9%)	22 (100.0%)
	4/9/23 - 5/8/23	9 (69.2%)	4 (30.8%)	13 (100.0%)
	5/9/23 - 6/8/23	2 (66.7%)	1 (33.3%)	3 (100.0%)
	6/9/23 - 7/8/23	6 (54.5%)	5 (45.5%)	11 (100.0%)
	7/9/23 - 8/8/23	3 (33.3%)	6 (66.7%)	9 (100.0%)
	8/9/23 - 9/8/23	12 (60.0%)	8 (40.0%)	20 (100.0%)

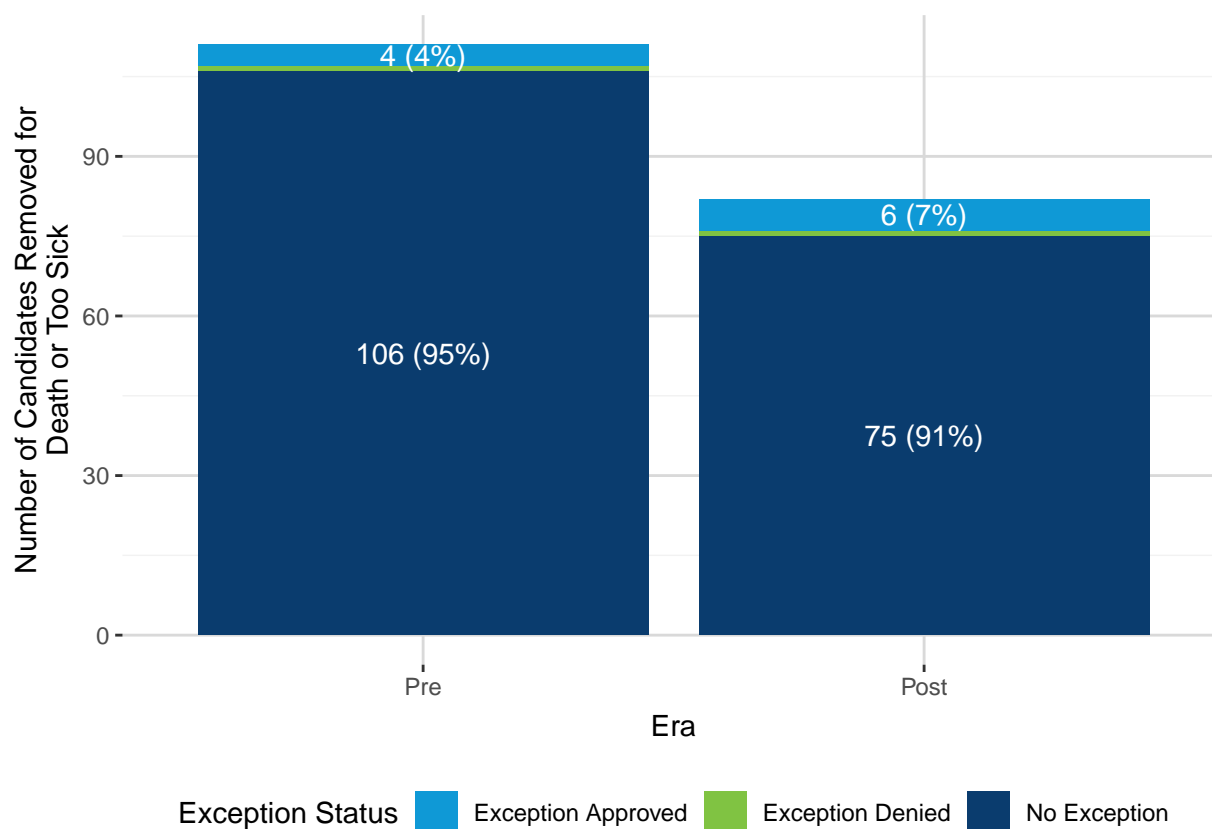
<sup>a</sup> This table does not include the 26 exceptions that were submitted to the National Lung Review Board prior to the implementation of Lung Continuous Distribution on 3/9/23.

<sup>b</sup> Under LAS, a single registration could only have one exception but under CD, a single registration can have multiple exceptions.

<sup>c</sup> Results include exceptions for multiorgan candidates but exclude exceptions on heart/lung (HL) registrations. Exceptions submitted on the lung registration of a HL candidate are included.

A greater proportion of candidates in the post era with approved exception requests were removed from the waiting list for death or too sick to transplant compared to the pre era.

**Figure 86: Number of Waiting List Candidates Removed for Death or Too Sick by Era and Exception Status**

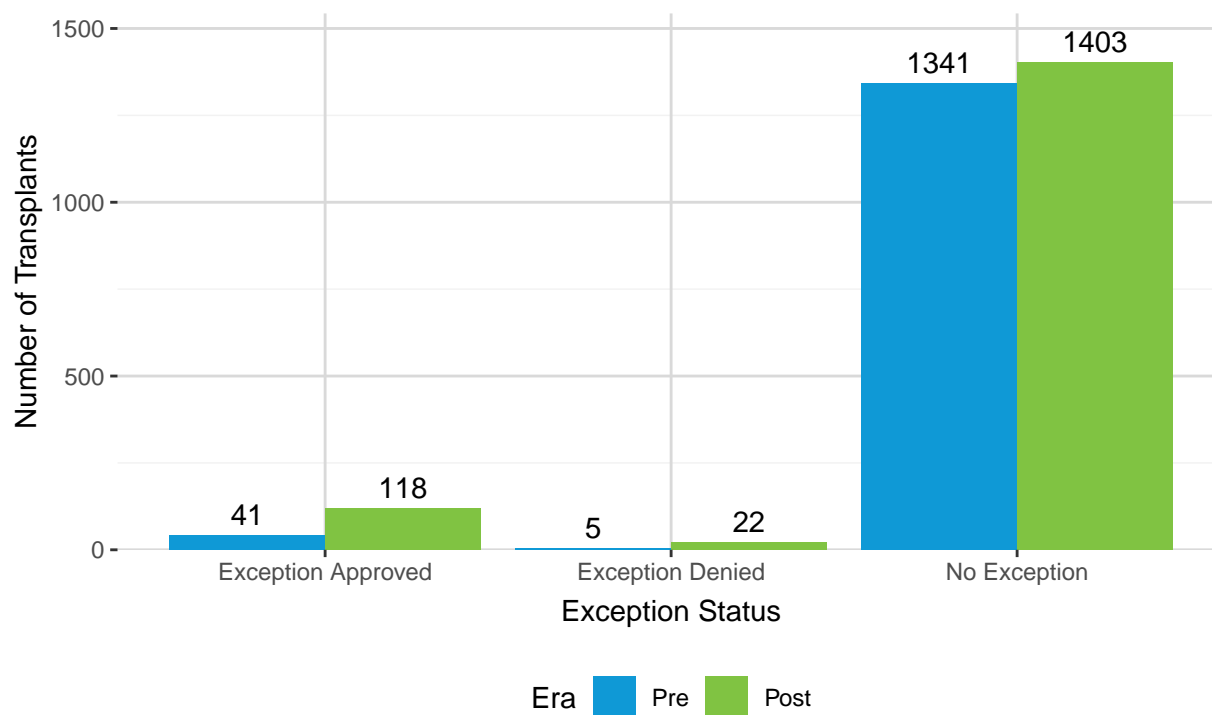


**Table 86: Number of Waiting List Candidates Removed for Death or Too Sick by Era and Exception Status**

Exception Status	Pre	Post
Exception Approved	4 (3.6%)	6 (7.3%)
Exception Denied	1 (0.9%)	1 (1.2%)
No Exception	106 (95.5%)	75 (91.5%)
<b>Total</b>	<b>111 (100.0%)</b>	<b>82 (100.0%)</b>

In the post era, a greater number of individuals who received a transplant had an approved exception request compared to the pre era.

**Figure 87: Number of Lung Transplants by Era and Exception Status**



Recipients may have multiple exceptions with different decisions. If a candidate was transplanted with at least one approved exception, then that transplant appears in the 'Exception Approved' column, even if that candidate had additional exception requests that were denied.

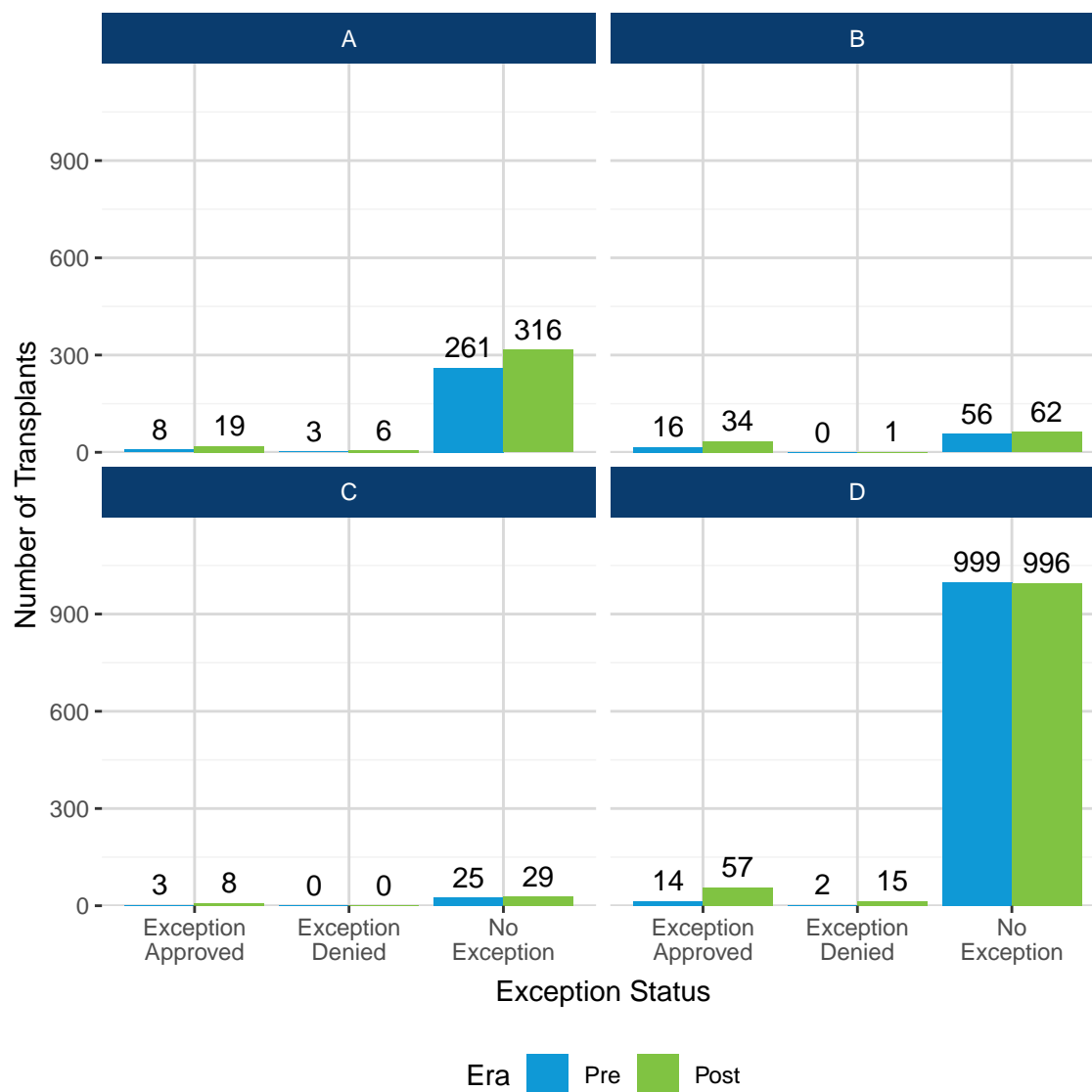
**Table 87: Number of Lung Transplants by Era and Exception Status**

Exception Status	Pre	Post
Exception Approved	41 (3.0%)	118 (7.6%)
Exception Denied	5 (0.4%)	22 (1.4%)
No Exception	1,341 (96.7%)	1,403 (90.9%)
Total	1,387 (100.0%)	1,543 (100.0%)



In the post era, across all diagnosis groups, a greater proportion of individuals who received a transplant had an approved exception request compared to the pre era.

**Figure 88: Number of Lung Transplants by Era, Exception Status, and Diagnosis Group**



**Table 88: Number of Lung Transplants by Era, Exception Status, and Diagnosis Group**

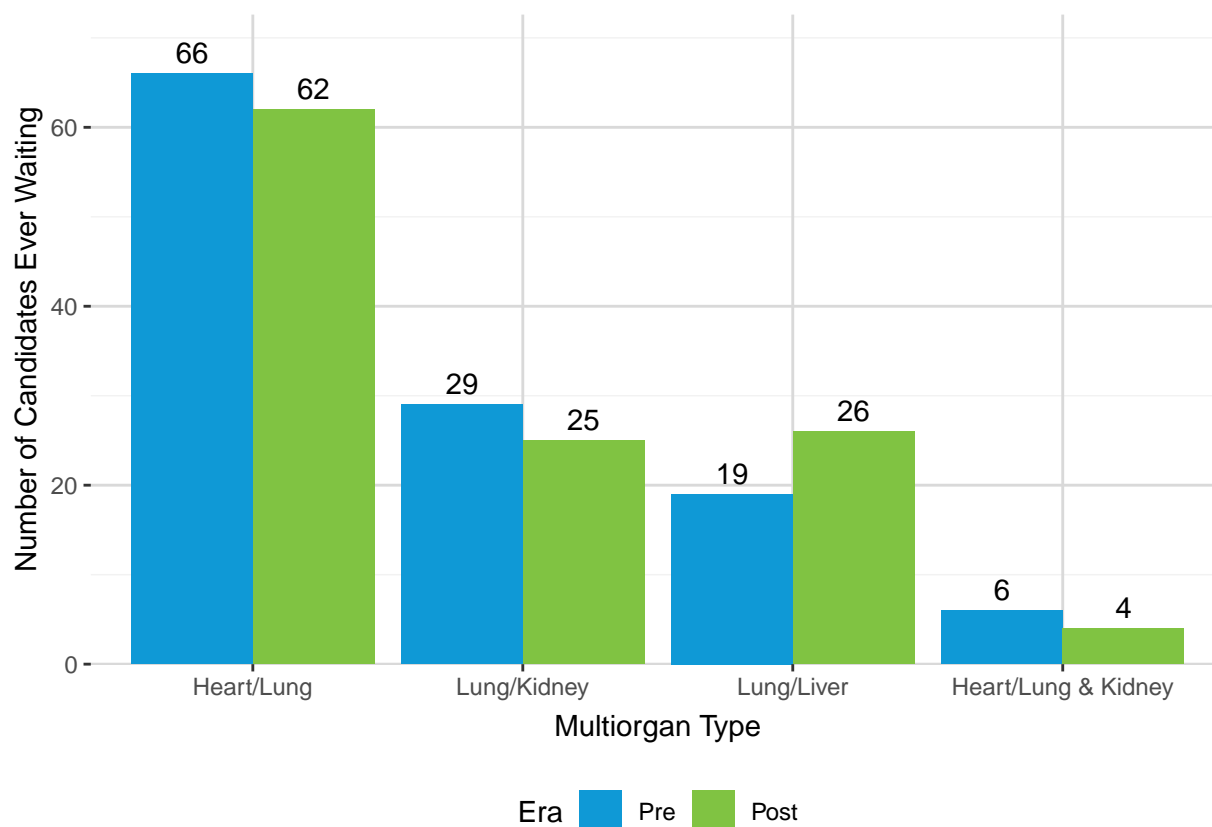
Era	Exception Status	Diagnosis Group			
		A	B	C	D
Pre	Exception Approved	8 (2.9%)	16 (22.2%)	3 (10.7%)	14 (1.4%)
	Exception Denied	3 (1.1%)	0 (0.0%)	0 (0.0%)	2 (0.2%)
	No Exception	261 (96.0%)	56 (77.8%)	25 (89.3%)	999 (98.4%)
	Total	272 (100.0%)	72 (100.0%)	28 (100.0%)	1,015 (100.0%)
Post	Exception Approved	19 (5.6%)	34 (35.1%)	8 (21.6%)	57 (5.3%)
	Exception Denied	6 (1.8%)	1 (1.0%)	0 (0.0%)	15 (1.4%)
	No Exception	316 (92.7%)	62 (63.9%)	29 (78.4%)	996 (93.3%)
	Total	341 (100.0%)	97 (100.0%)	37 (100.0%)	1,068 (100.0%)

## Multiorgan

The sample sizes for lung-multiorgan candidates and recipients are currently too small to definitively determine implications of the policy change; however, below we describe trends we are observing so far.

There were slightly more lung/liver candidates and slightly fewer candidates of all other multiorgan types ever waiting in the post policy era.

**Figure 89: Number of Lung-Multiorgan Candidates Ever Waiting by Era and Multiorgan Type**

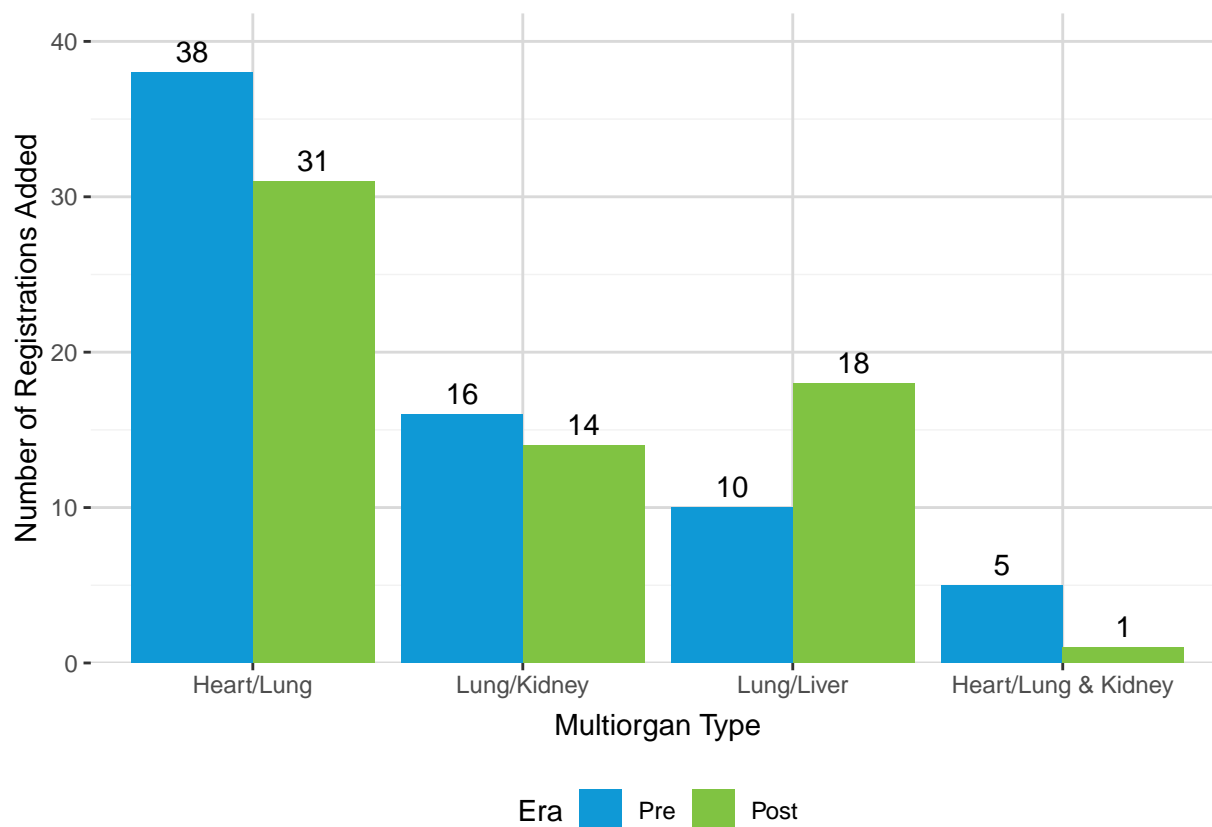


**Table 89: Number of Lung-Multiorgan Candidates Ever Waiting by Era and Multiorgan Type**

Multiorgan Type	Pre	Post
Heart/Lung	66 (55.0%)	62 (53.0%)
Lung/Kidney	29 (24.2%)	25 (21.4%)
Lung/Liver	19 (15.8%)	26 (22.2%)
Heart/Lung & Kidney	6 (5.0%)	4 (3.4%)
Total	120 (100.0%)	117 (100.0%)

There were more lung/liver multorgan candidates added to the waiting list in the post era.

**Figure 90: Number of Lung-Multiorgan Registrations Added to the Waiting List by Era and Multiorgan Type**

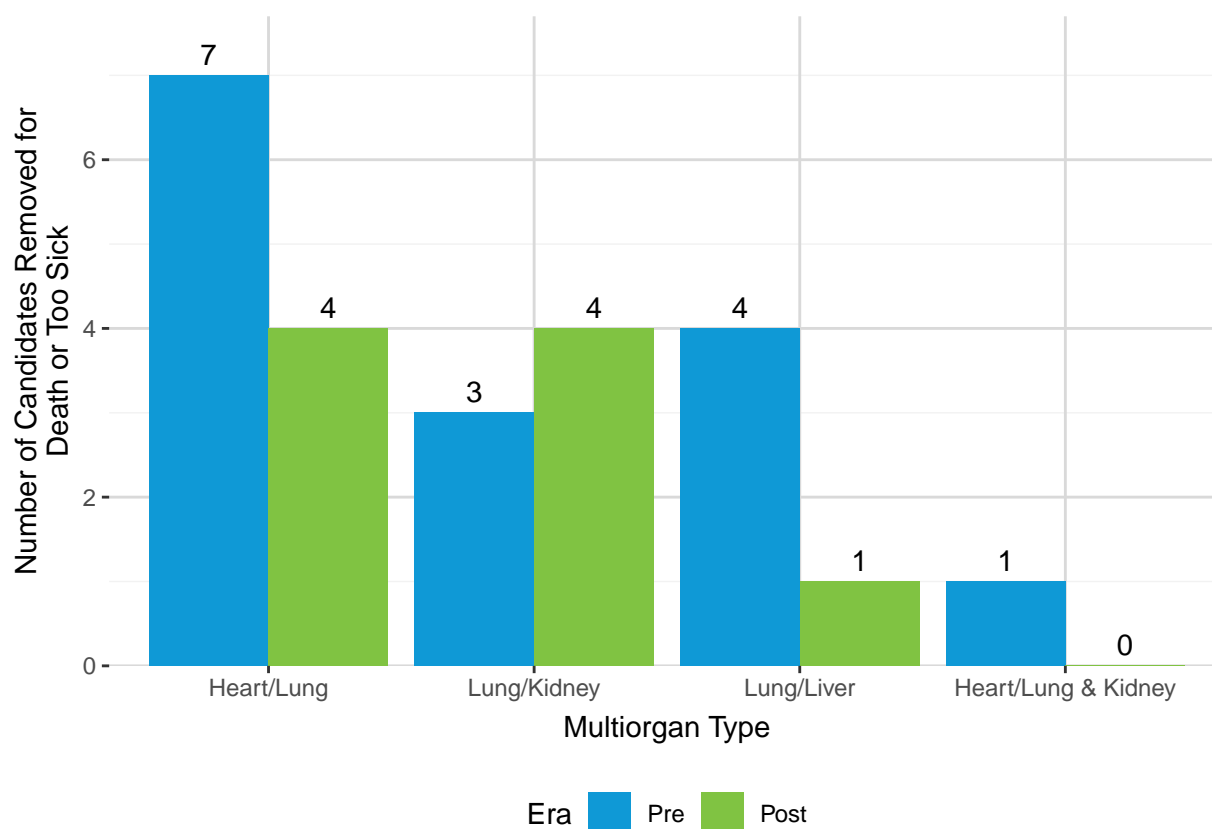


**Table 90: Number of Lung-Multiorgan Registrations Added to the Waiting List by Era and Multiorgan Type**

Multiorgan Type	Pre	Post
Heart/Lung	38 (55.1%)	31 (48.4%)
Lung/Kidney	16 (23.2%)	14 (21.9%)
Lung/Liver	10 (14.5%)	18 (28.1%)
Heart/Lung & Kidney	5 (7.2%)	1 (1.6%)
Total	69 (100.0%)	64 (100.0%)

The number of multiorgan candidates removed from the waiting list for death or too sick was too small to draw definitive conclusions on trends by organ type.

**Figure 91: Number of Lung-Multiorgan Candidates Removed from the Waiting List for Death or Too Sick by Era and Multiorgan Type**

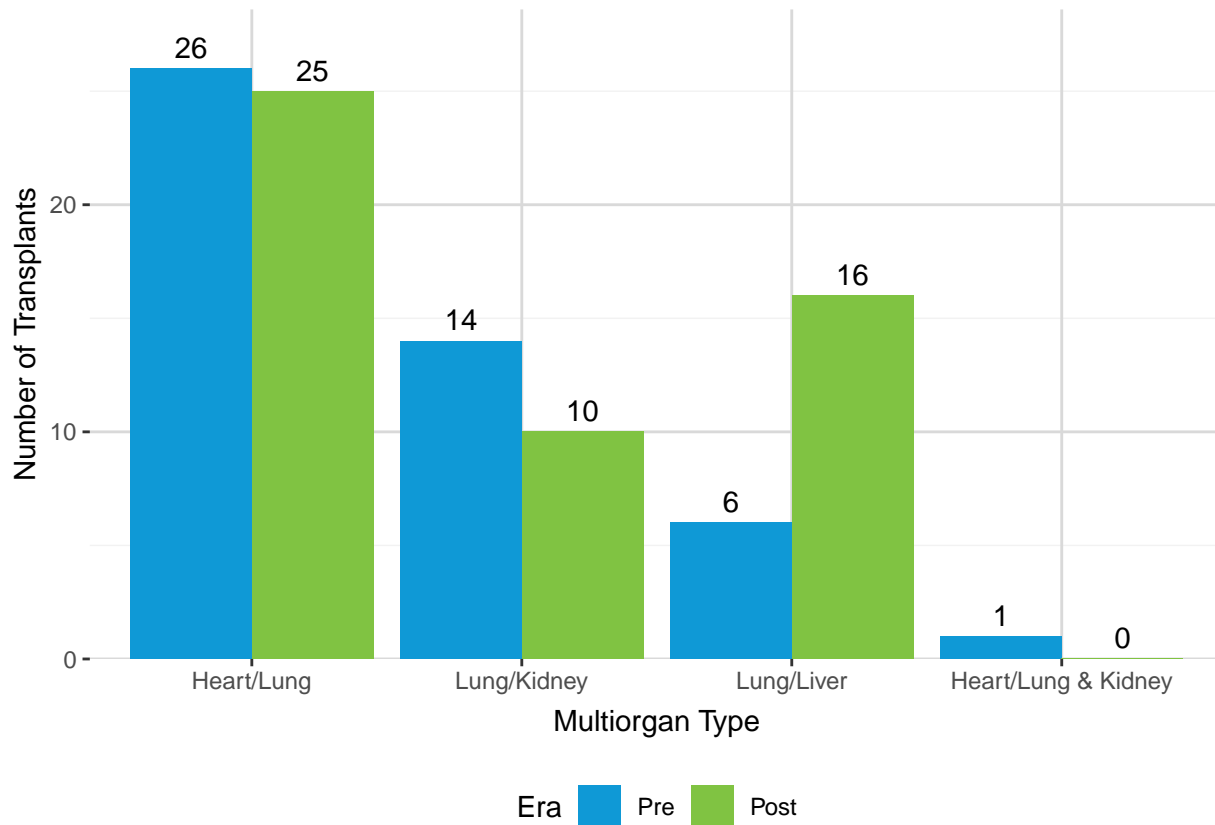


**Table 91: Number of Lung-Multiorgan Candidates Removed from the Waiting List for Death or Too Sick by Era and Multiorgan Type**

Multiorgan Type	Pre	Post
Heart/Lung	7 (46.7%)	4 (44.4%)
Lung/Kidney	3 (20.0%)	4 (44.4%)
Lung/Liver	4 (26.7%)	1 (11.1%)
Heart/Lung & Kidney	1 (6.7%)	0 (0.0%)
Total	15 (100.0%)	9 (100.0%)

In the post-policy era, the number of lung/liver transplants increased (from 6 to 16). The occurrence of other multiorgan transplants decreased slightly in the post era.

**Figure 92: Number of Lung-Multiorgan Transplants by Era and Multiorgan Type**

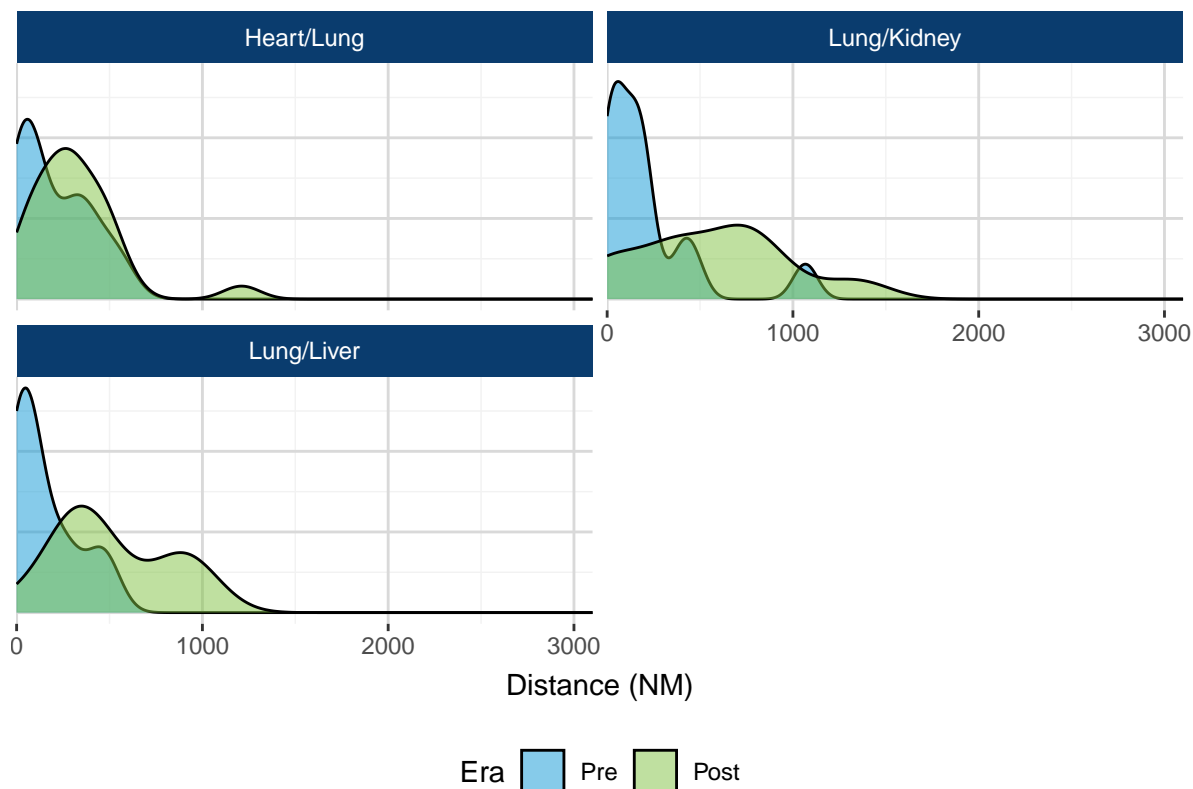


**Table 92: Number of Lung-Multiorgan Transplants by Era and Multiorgan Type**

Multiorgan Type	Pre	Post
Heart/Lung	26 (55.3%)	25 (49.0%)
Lung/Kidney	14 (29.8%)	10 (19.6%)
Lung/Liver	6 (12.8%)	16 (31.4%)
Heart/Lung & Kidney	1 (2.1%)	0 (0.0%)
Total	47 (100.0%)	51 (100.0%)

Compared to the pre era, median distance increased for all multiorgan types in the post era.

**Figure 93: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Multiorgan Type**



Heart/Lung & Kidney transplants were excluded from this analysis due to small sample sizes.

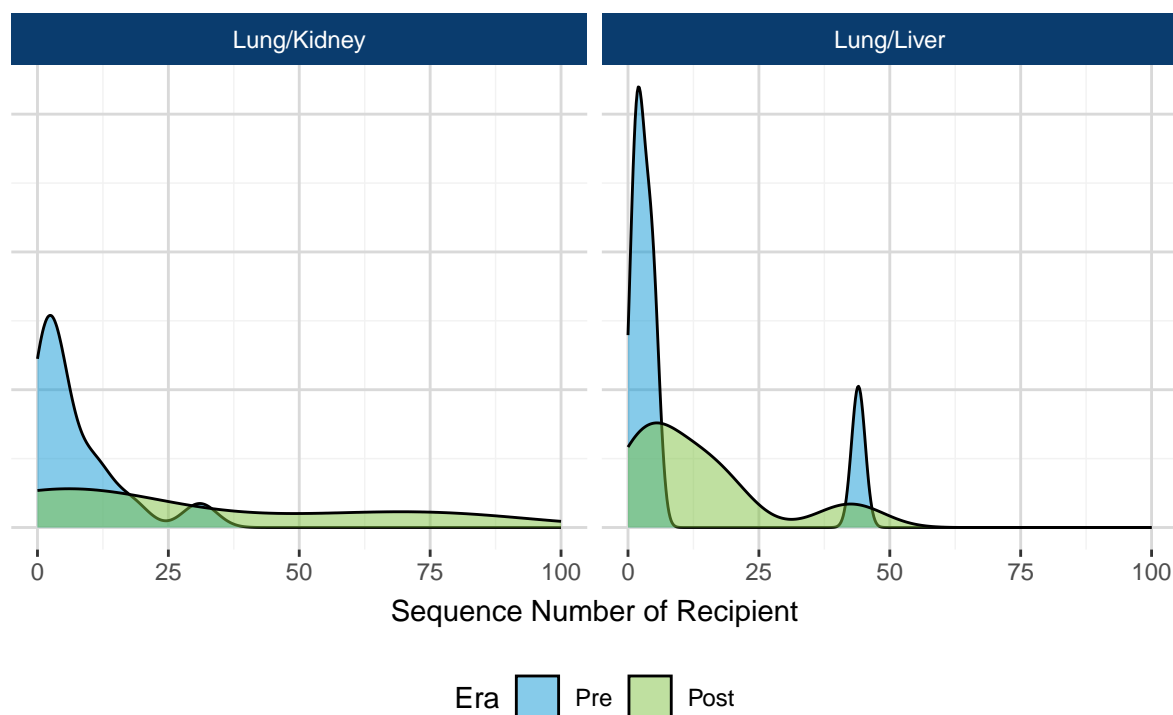
**Table 93: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Multiorgan Type**

Multiorgan Type	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Heart/Lung	Pre	26	0	2	35.75	144.5	204.12	351.00	589
	Post	25	0	10	168.00	280.0	314.96	449.00	1211
Lung/Kidney	Pre	14	0	0	36.75	148.5	213.86	202.25	1067
	Post	10	0	0	322.00	586.5	559.70	738.25	1341
Lung/Liver	Pre	6	0	3	26.25	80.0	149.33	215.50	464
	Post	16	0	6	298.25	405.0	514.25	826.50	1039
Total	Pre	46	0	0	28.25	128.5	199.93	327.75	1067
	Post	51	0	0	225.50	366.0	425.47	543.50	1341

<sup>a</sup> Heart/Lung & Kidney transplants were excluded from this analysis due to small sample sizes.

The median sequence number increased for both lung/kidney and lung/liver recipients. Heart/lungs are pulled by the heart match run and were therefore excluded from this analysis.

**Figure 94: Distribution of the Sequence Number of Multiorgan Recipients on the Lung Match Run by Era**



View is restricted to sequence number 100. There was one instance where the sequence number for a lung/kidney recipient in the post era was greater than 100. In addition, one lung/liver in the post era was pulled by the liver match run and was therefore excluded from this figure.

**Table 94: Distribution of the Sequence Number of Multiorgan Recipients on the Lung Match Run by Era**

Multiorgan Type	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Lung/Kidney	Pre	14	0	1	2	3	7.14	10.25	31
	Post	10	0	1	3	11	78.50	67.00	550
Lung/Liver	Pre	6	0	1	2	3	9.67	4.75	44
	Post	16	1	1	3	9	13.13	17.50	45

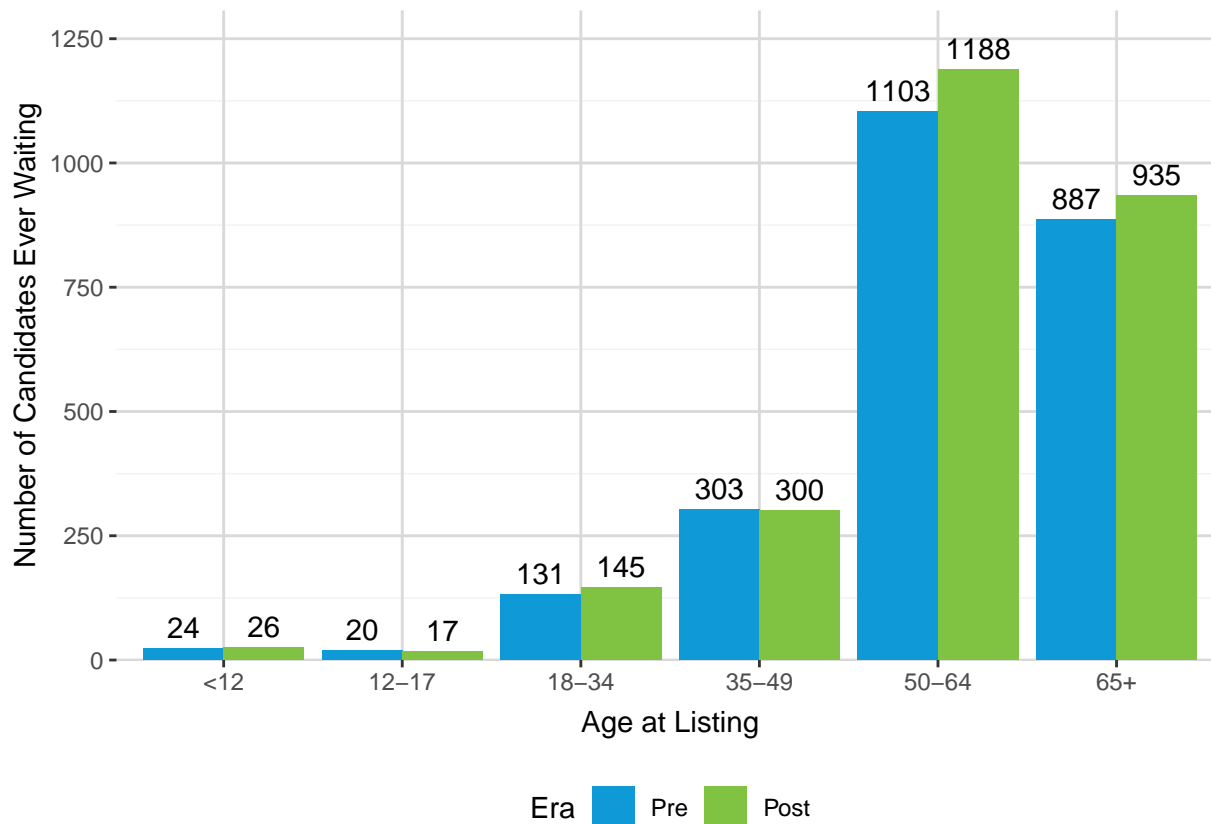
<sup>a</sup> Heart/Lung and Heart/Lung & Kidney transplants are excluded from this analysis because they are pulled by the heart match run. In addition, one lung/liver transplant was excluded because it was pulled by the liver match run.

## Appendix

### Age

The number of candidates ever waiting increased for candidates over 50 years old.

**Figure 95: Number of Candidates Ever Waiting by Era and Age at Listing**



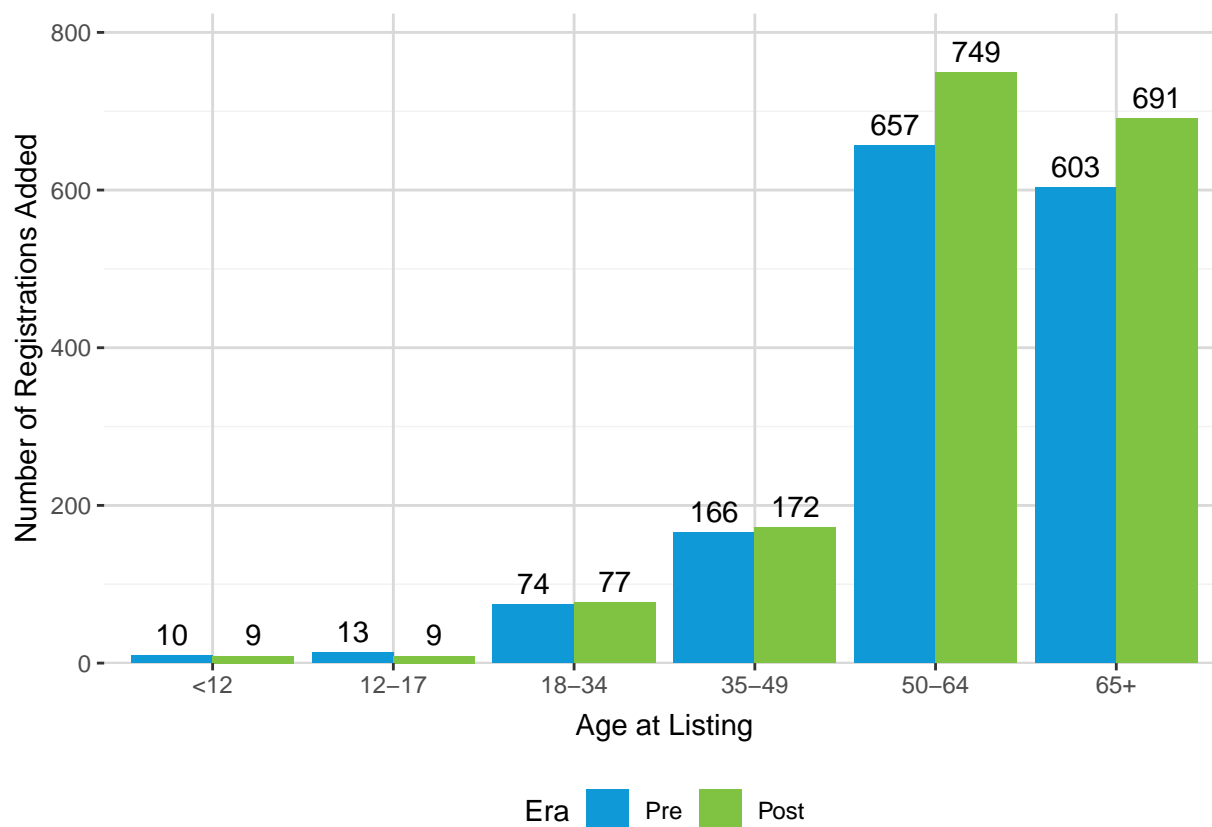
**Table 95: Number of Candidates Ever Waiting by Era and Age at Listing**

Age at Listing	Pre	Post
<12	24 (1.0%)	26 (1.0%)
12-17	20 (0.8%)	17 (0.7%)
18-34	131 (5.3%)	145 (5.6%)
35-49	303 (12.3%)	300 (11.5%)
50-64	1,103 (44.7%)	1,188 (45.5%)
65+	887 (35.9%)	935 (35.8%)
Total	2,468 (100.0%)	2,611 (100.0%)



The number of registrations added to the waiting list increased for all adult age groups in the post policy era.

**Figure 96: Number of Registrations Added to the Waiting List by Era and Age at Listing**

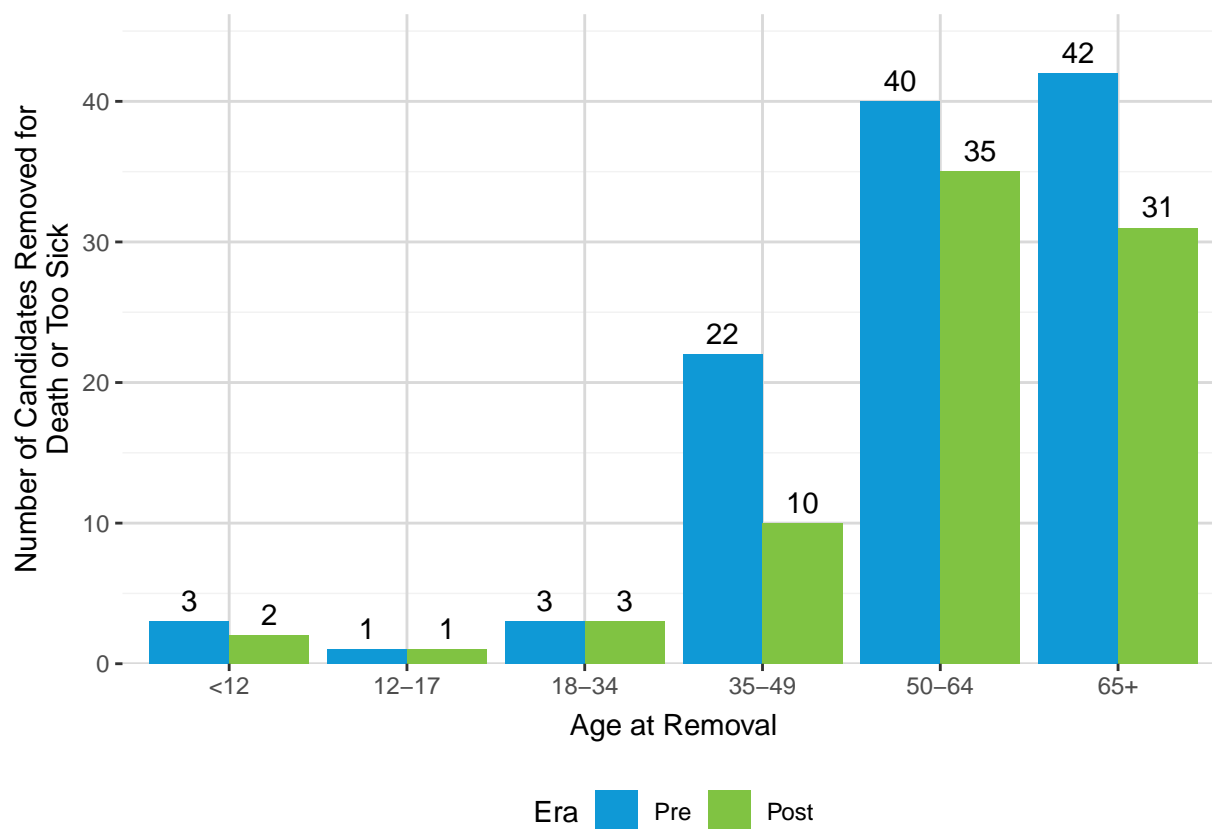


**Table 96: Number of Registrations Added to the Waiting List by Era and Age at Listing**

Age at Listing	Pre	Post
<12	10 (0.7%)	9 (0.5%)
12-17	13 (0.9%)	9 (0.5%)
18-34	74 (4.9%)	77 (4.5%)
35-49	166 (10.9%)	172 (10.1%)
50-64	657 (43.1%)	749 (43.9%)
65+	603 (39.6%)	691 (40.5%)
Total	1,523 (100.0%)	1,707 (100.0%)

The number of candidates removed from the waiting list for death or too sick decreased in the post policy era for all age groups 35 years or older. The number of candidates removed for death or too sick for age groups less than 35 years old was too small to draw definitive conclusions on trends.

**Figure 97: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Age at Removal**

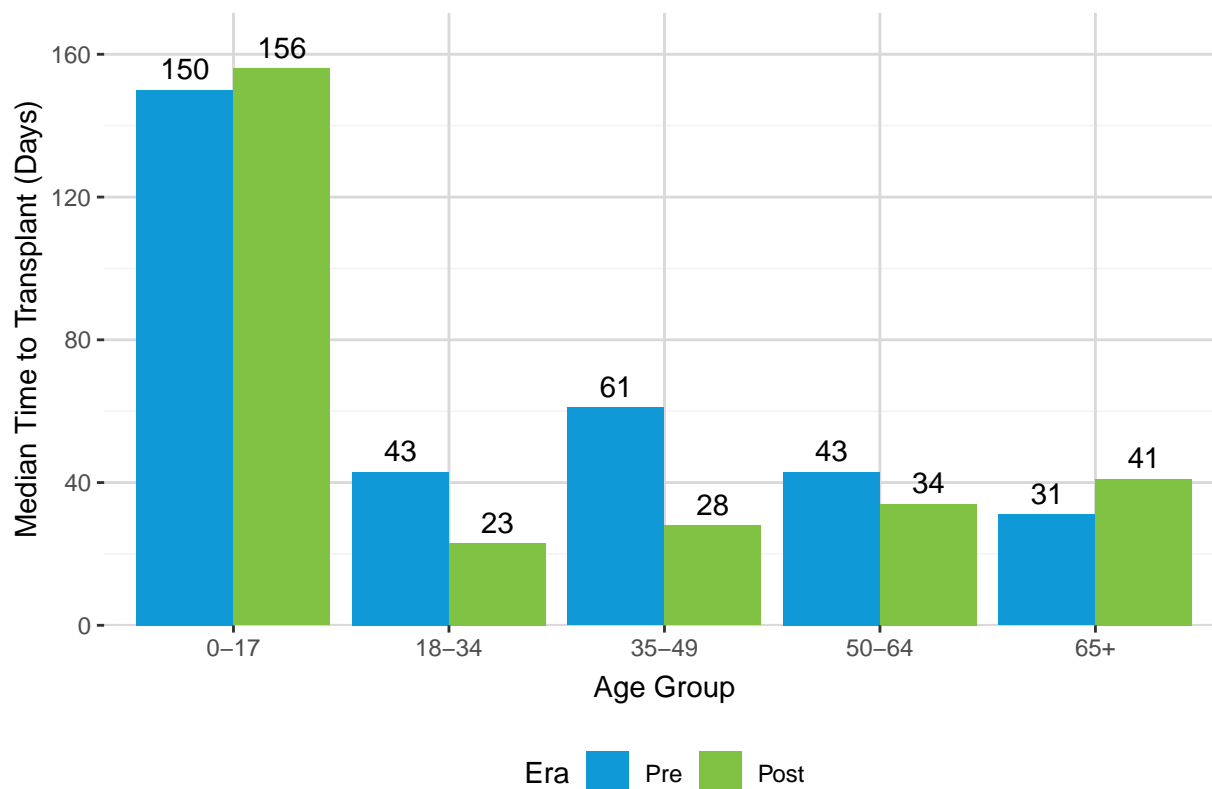


**Table 97: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Age at Removal**

Age at Removal	Pre	Post
<12	3 (2.7%)	2 (2.4%)
12-17	1 (0.9%)	1 (1.2%)
18-34	3 (2.7%)	3 (3.7%)
35-49	22 (19.8%)	10 (12.2%)
50-64	40 (36.0%)	35 (42.7%)
65+	42 (37.8%)	31 (37.8%)
Total	111 (100.0%)	82 (100.0%)

Median time to transplant decreased in the post policy era for all age groups except for pediatric candidates and candidates 65 years and older.

**Figure 98: Median Time to Transplant (Days) by Era and Age at Listing**



For this analysis, all pediatric candidates were grouped together due to the small sample size.

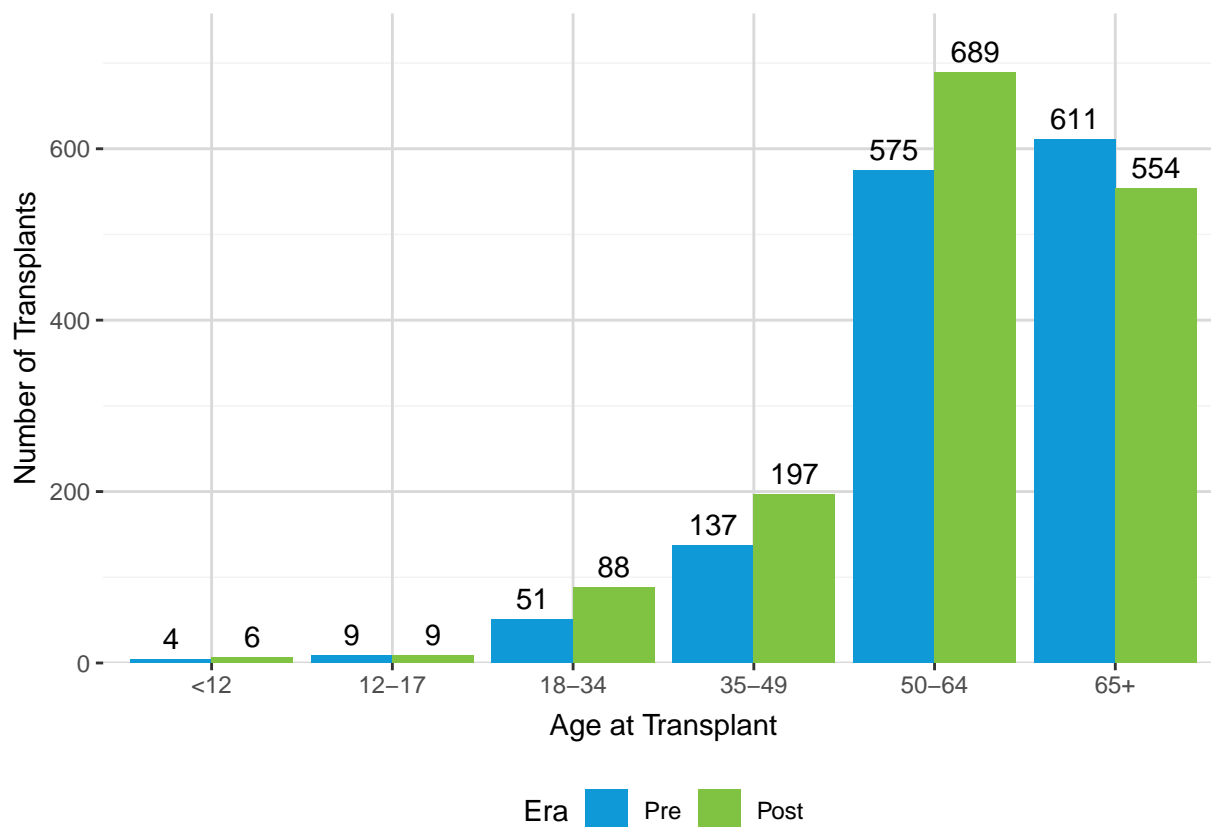
**Table 98: Median Time to Transplant (Days) by Era and Age at Listing**

Age at Listing	Era	N Registrations	Median Time to Transplant (Days)
0-17	Pre	23	150
	Post	18	156
18-34	Pre	74	43
	Post	77	23
35-49	Pre	166	61
	Post	172	28
50-64	Pre	657	43
	Post	749	34
65+	Pre	603	31
	Post	691	41

<sup>a</sup> For this analysis, all pediatric candidates were grouped together due to the small sample size.

The number of transplants increased in the post era for all adult age groups except for recipients 65 years and older. The number of transplants by pediatric age group are too small to draw definitive conclusions on trends.

**Figure 99: Number of Lung Transplants by Era and Age at Transplant**

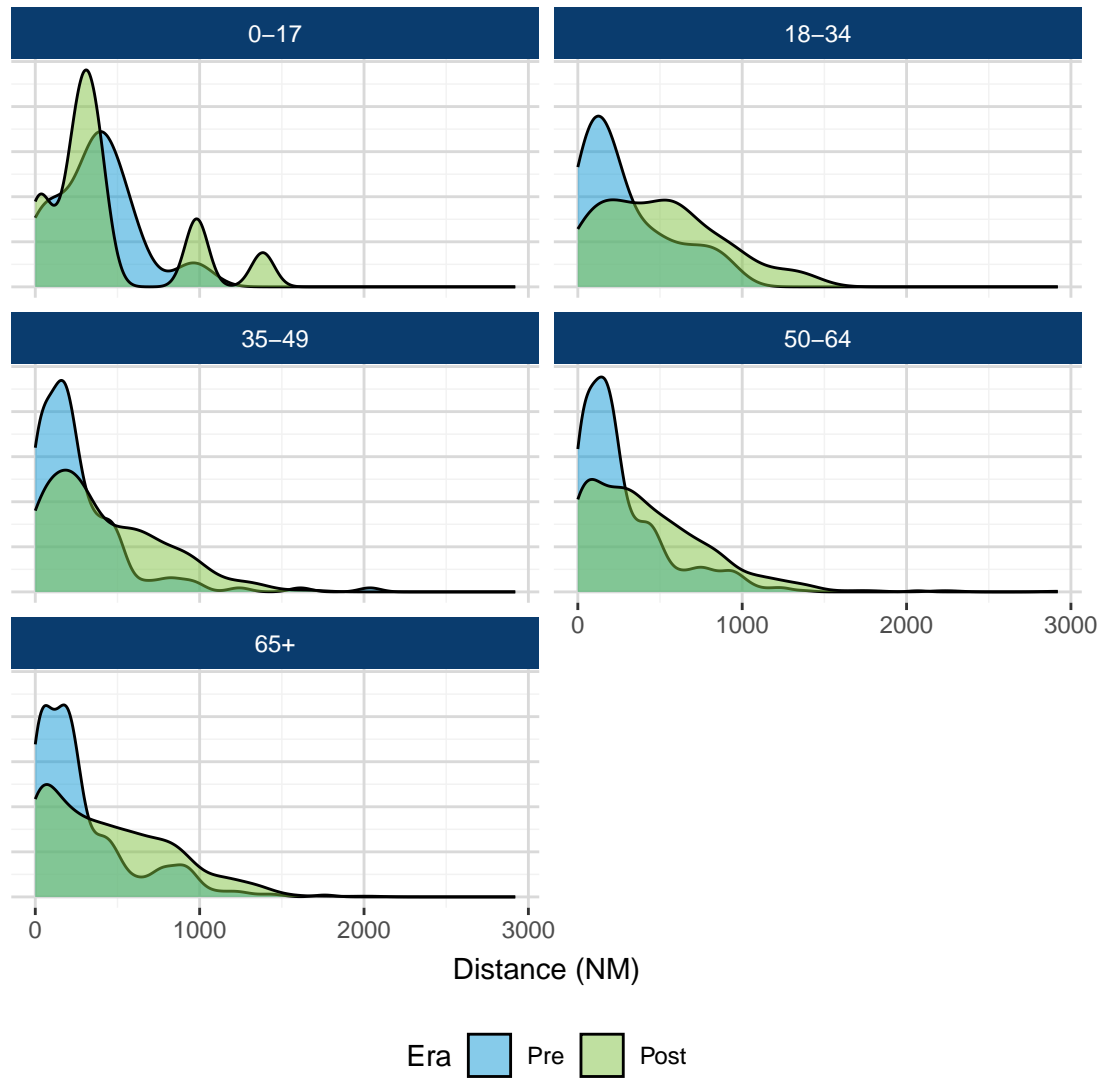


**Table 99: Number of Lung Transplants by Era and Age at Transplant**

Age at Transplant	Pre	Post
<12	4 (0.3%)	6 (0.4%)
12-17	9 (0.6%)	9 (0.6%)
18-34	51 (3.7%)	88 (5.7%)
35-49	137 (9.9%)	197 (12.8%)
50-64	575 (41.5%)	689 (44.7%)
65+	611 (44.1%)	554 (35.9%)
Total	1,387 (100.0%)	1,543 (100.0%)

Distance from the donor hospital to transplant program increased for recipients of all adult age groups and decreased slightly for pediatric recipients, though sample sizes were small.

**Figure 100: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Age at Transplant**



For this analysis, all pediatric candidates were grouped together due to the small sample size.

**Table 100: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Age at Transplant**

Age Group	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
0-17	Pre	13	0	22	197.00	383	367.38	486.00	965
	Post	15	0	3	219.00	297	416.00	398.00	1384
18-34	Pre	51	0	0	91.50	187	289.65	450.00	950
	Post	88	0	0	204.75	486	500.33	714.50	1390
35-49	Pre	137	0	0	75.00	184	259.83	336.00	2036
	Post	197	0	0	157.00	306	418.31	659.00	1652
50-64	Pre	575	0	0	86.00	192	271.19	381.50	2069
	Post	689	0	0	129.00	343	421.08	623.00	2920
65+	Pre	611	0	0	71.00	199	288.67	397.00	1777
	Post	554	0	0	102.75	381	444.36	714.75	2021
Total	Pre	1387	0	0	78.00	195	279.35	391.00	2069
	Post	1543	0	0	129.00	353	433.55	662.50	2920

<sup>a</sup> For this analysis, all pediatric candidates were grouped together due to the small sample size.

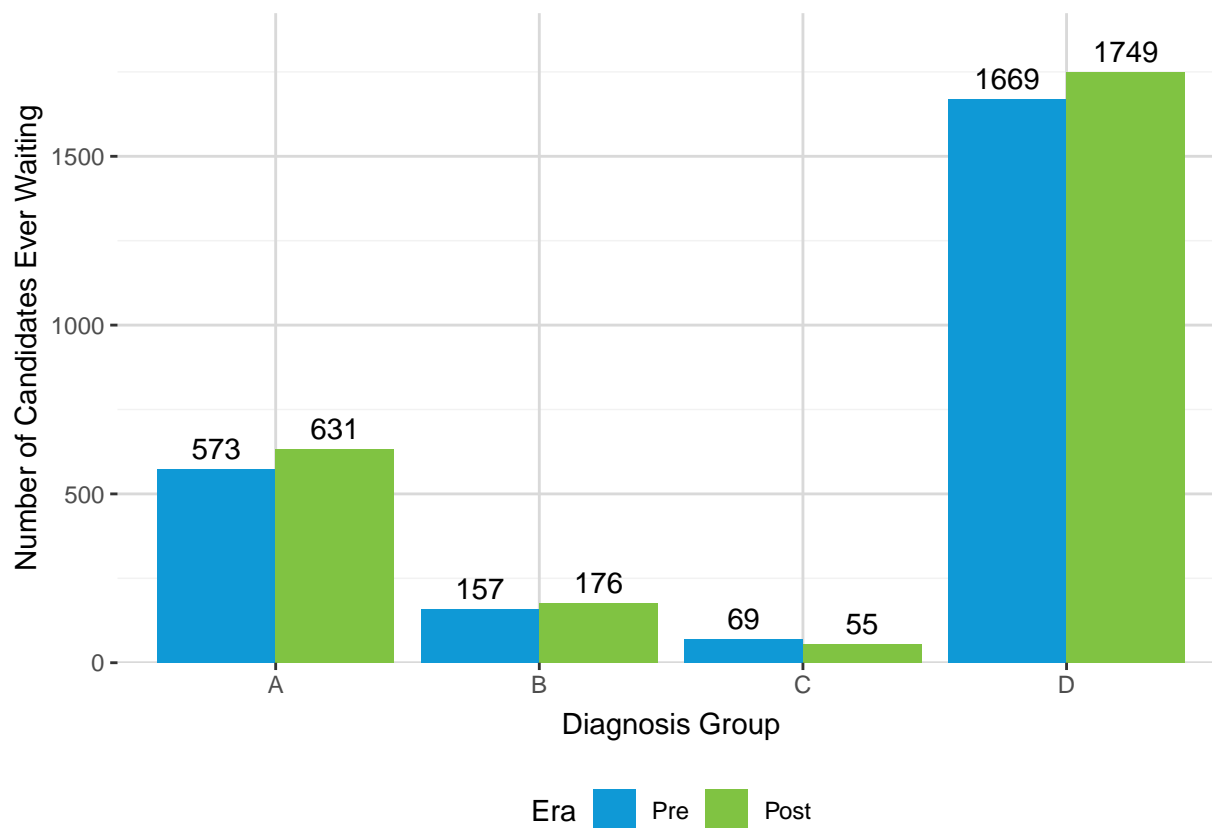
## Diagnosis Group

In the following section, diagnosis groups are defined as follows:

- Group A = Obstructive lung disease (e.g. emphysema)
- Group B = Pulmonary vascular disease (e.g. primary pulmonary hypertension)
- Group C = Cystic fibrosis or immunodeficiency disorder
- Group D = Restrictive lung disease (e.g. idiopathic pulmonary fibrosis)

The number of candidates ever waiting increased in the post era for diagnosis groups A, B, and D but decreased for group C.

**Figure 101: Number of Candidates Ever Waiting by Era and Diagnosis Group**

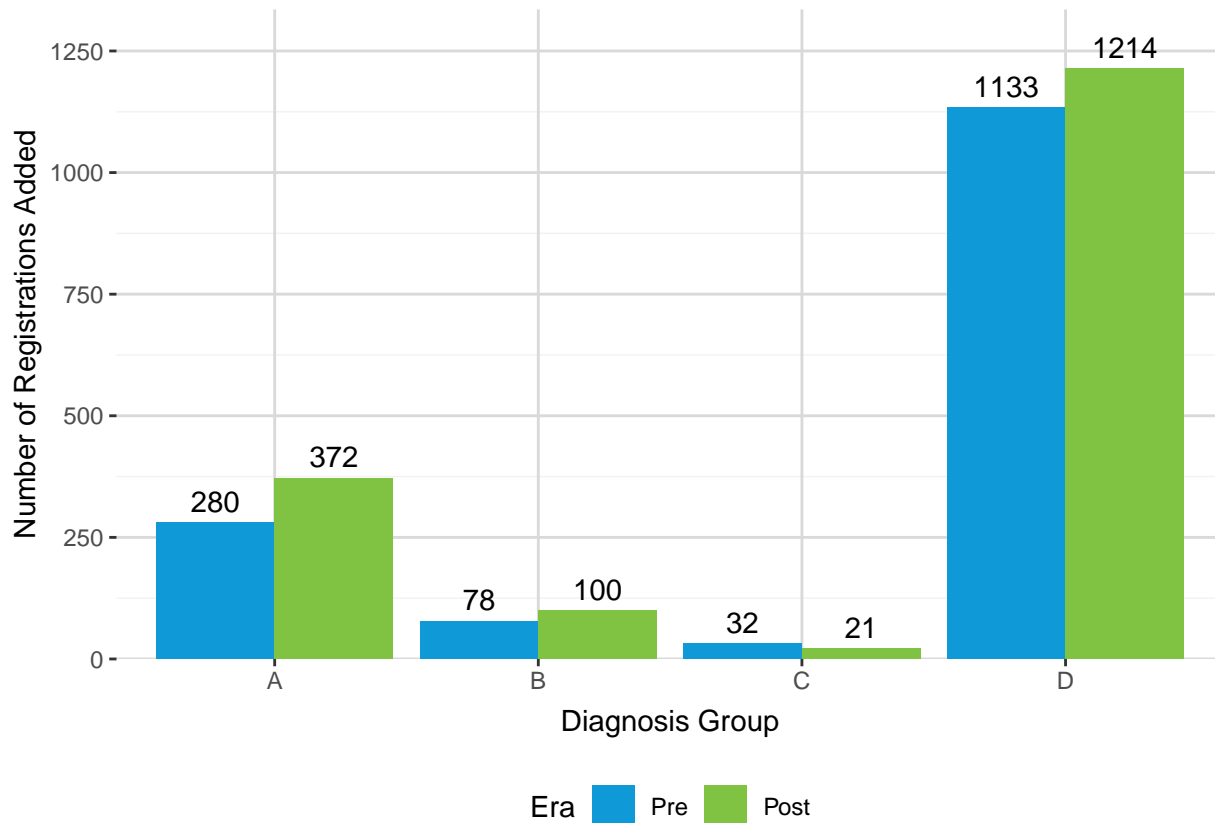


**Table 101: Number of Candidates Ever Waiting by Era and Diagnosis Group**

Diagnosis Group	Pre	Post
A	573 (23.2%)	631 (24.2%)
B	157 (6.4%)	176 (6.7%)
C	69 (2.8%)	55 (2.1%)
D	1,669 (67.6%)	1,749 (67.0%)
Total	2,468 (100.0%)	2,611 (100.0%)

The number of registrations added to the waiting list increased in the post era for diagnosis groups A, B, and D but decreased for diagnosis group C.

**Figure 102: Number of Registrations Added to the Waiting List by Era and Diagnosis Group**



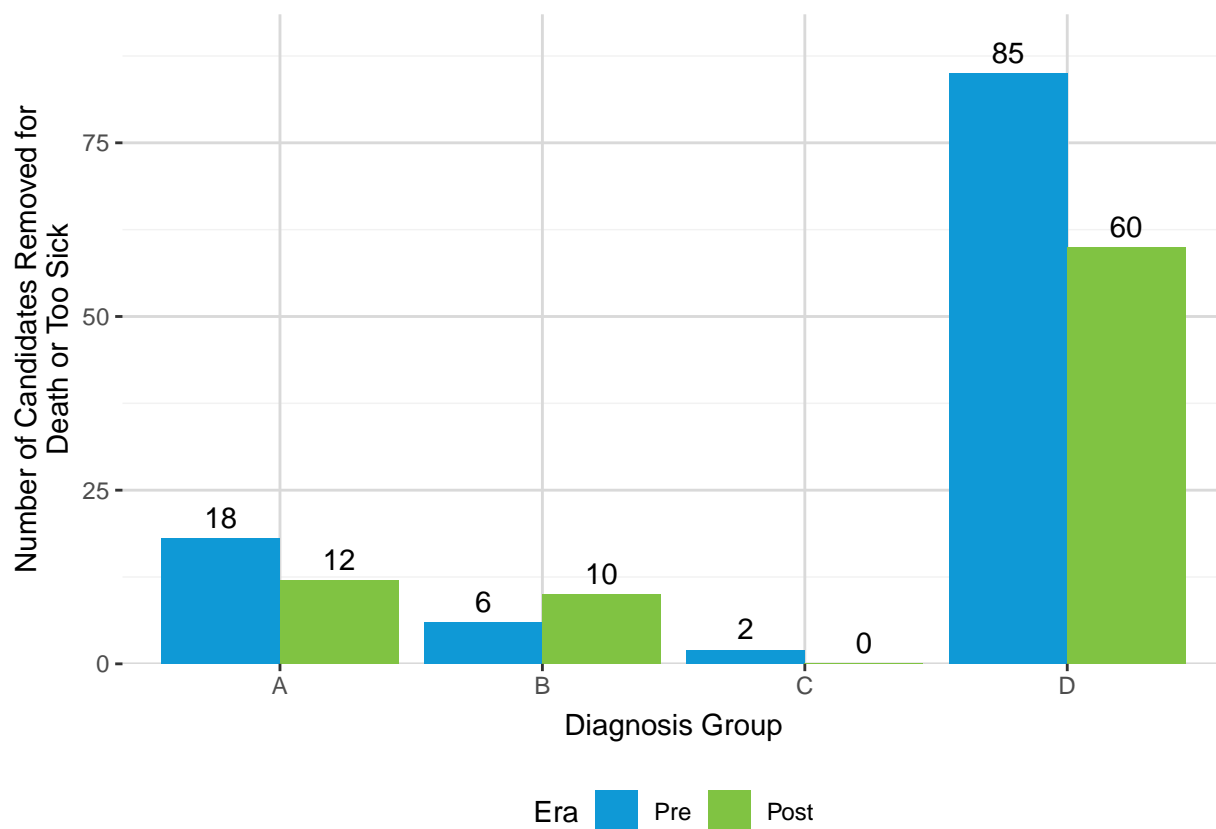
**Table 102: Number of Registrations Added to the Waiting List by Era and Diagnosis Group**

Diagnosis Group	Pre	Post
A	280 (18.4%)	372 (21.8%)
B	78 (5.1%)	100 (5.9%)
C	32 (2.1%)	21 (1.2%)
D	1,133 (74.4%)	1,214 (71.1%)
Total	1,523 (100.0%)	1,707 (100.0%)



The number of candidates removed from the waiting list for death or too sick decreased in the post era for diagnosis groups A, C, and D but increased slightly for diagnosis group B.

**Figure 103: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Diagnosis Group**

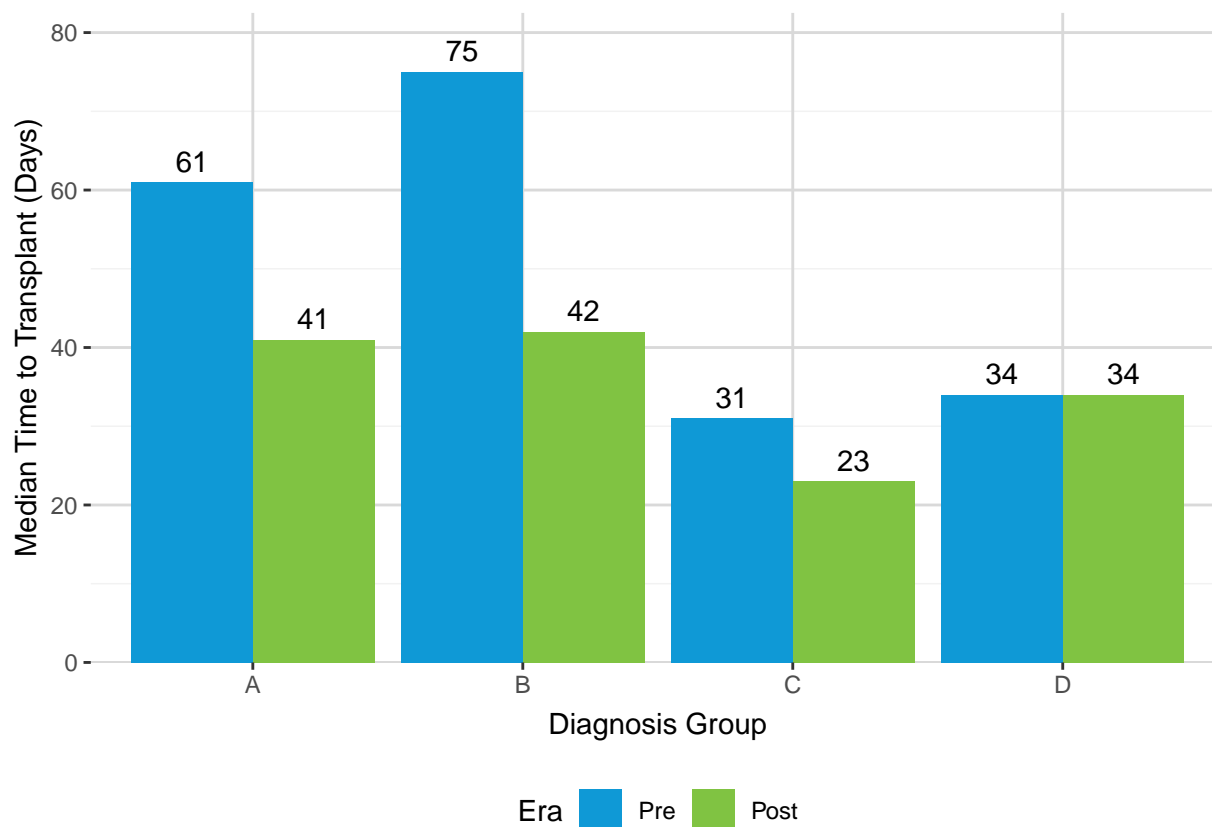


**Table 103: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Diagnosis Group**

Diagnosis Group	Pre	Post
A	18 (16.2%)	12 (14.6%)
B	6 (5.4%)	10 (12.2%)
C	2 (1.8%)	0 (0.0%)
D	85 (76.6%)	60 (73.2%)
Total	111 (100.0%)	82 (100.0%)

Median time to transplant decreased for diagnosis groups A, B, and C but remained the same for diagnosis group D.

**Figure 104: Median Time to Transplant (Days) by Era and Diagnosis Group**

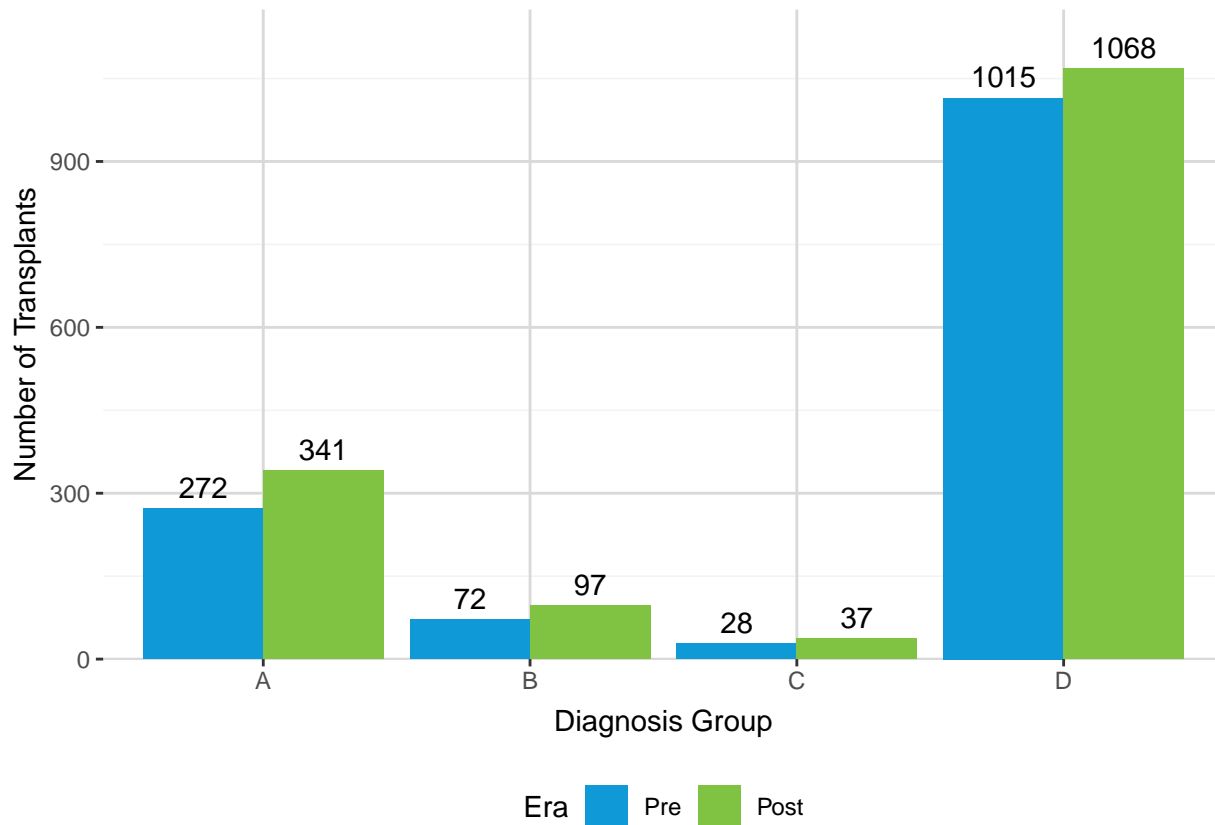


**Table 104: Median Time to Transplant (Days) by Era and Diagnosis Group**

Diagnosis Group	Era	N Registrations	Median Time to Transplant (Days)
A	Pre	280	61
	Post	372	41
B	Pre	78	75
	Post	100	42
C	Pre	32	31
	Post	21	23
D	Pre	1133	34
	Post	1214	34

The number of transplants increased across all diagnosis groups in the post era.

**Figure 105: Number of Lung Transplants by Era and Diagnosis Group**

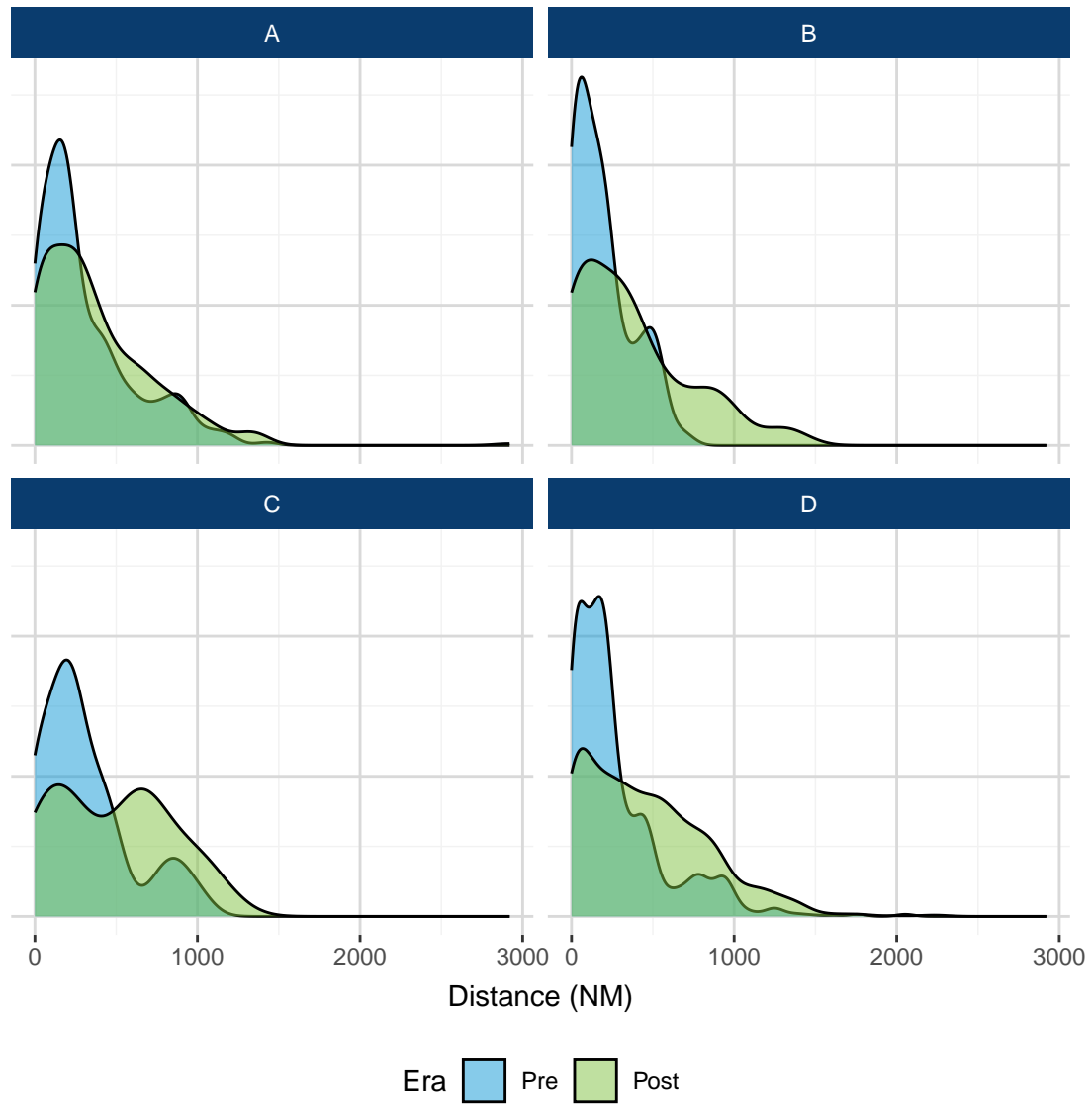


**Table 105: Number of Lung Transplants by Era and Diagnosis Group**

Diagnosis Group	Pre	Post
A	272 (19.6%)	341 (22.1%)
B	72 (5.2%)	97 (6.3%)
C	28 (2.0%)	37 (2.4%)
D	1,015 (73.2%)	1,068 (69.2%)
Total	1,387 (100.0%)	1,543 (100.0%)

Median distance between the donor hospital and transplant program increased across all diagnosis groups.

**Figure 106: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Diagnosis Group**



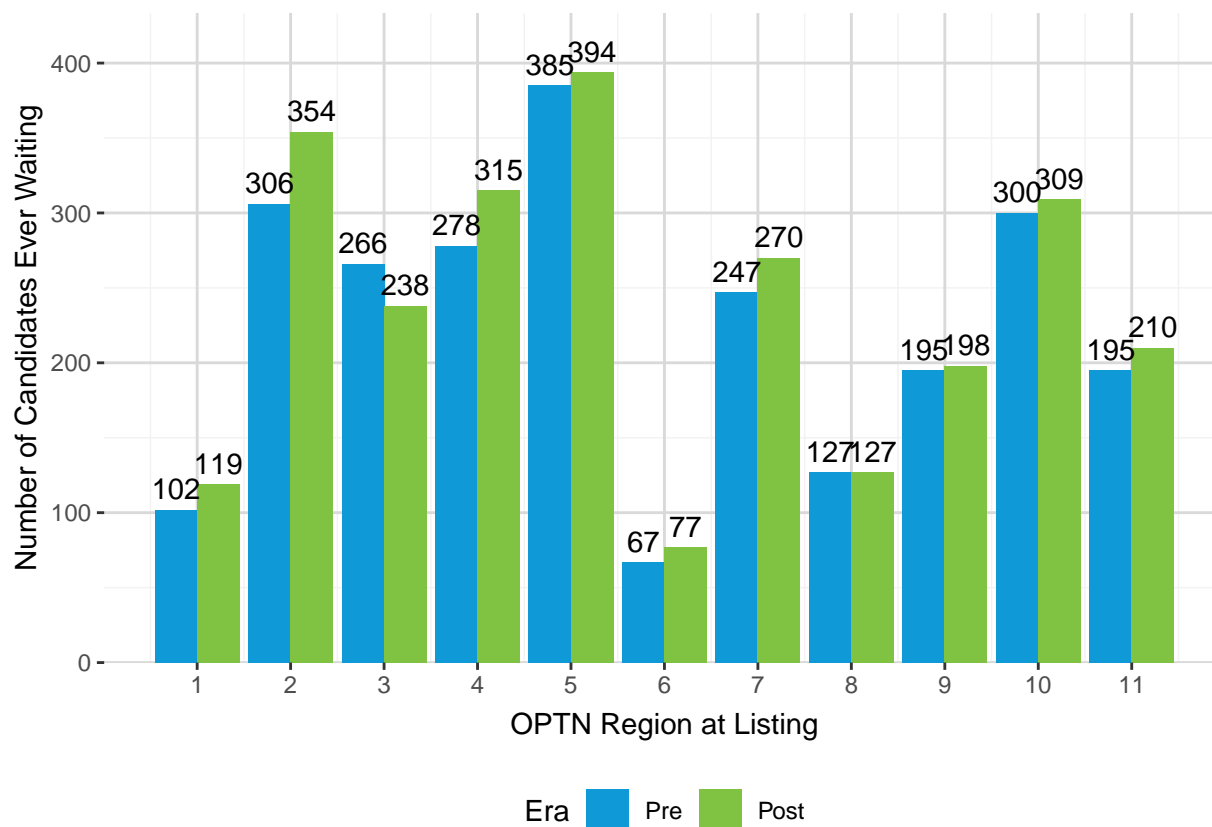
**Table 106: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Diagnosis Group**

Age Group	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
A	Pre	272	0	0	103.50	202.0	306.61	418.00	1427
	Post	341	0	0	110.00	278.0	374.77	560.00	2920
B	Pre	72	0	0	39.50	152.5	189.83	269.25	686
	Post	97	0	0	79.00	297.0	371.18	543.00	1369
C	Pre	28	0	9	129.25	225.5	305.07	410.00	999
	Post	37	0	6	157.00	549.0	480.11	686.00	1175
D	Pre	1015	0	0	75.00	194.0	277.68	381.50	2069
	Post	1068	0	0	141.50	394.5	456.38	700.25	2244
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

## Geography

The number of candidates ever waiting decreased in OPTN region 3 in the post era but increased or remained stable in the remaining 10 OPTN regions.

**Figure 107: Number of Candidates Ever Waiting by Era and OPTN Region at Listing**

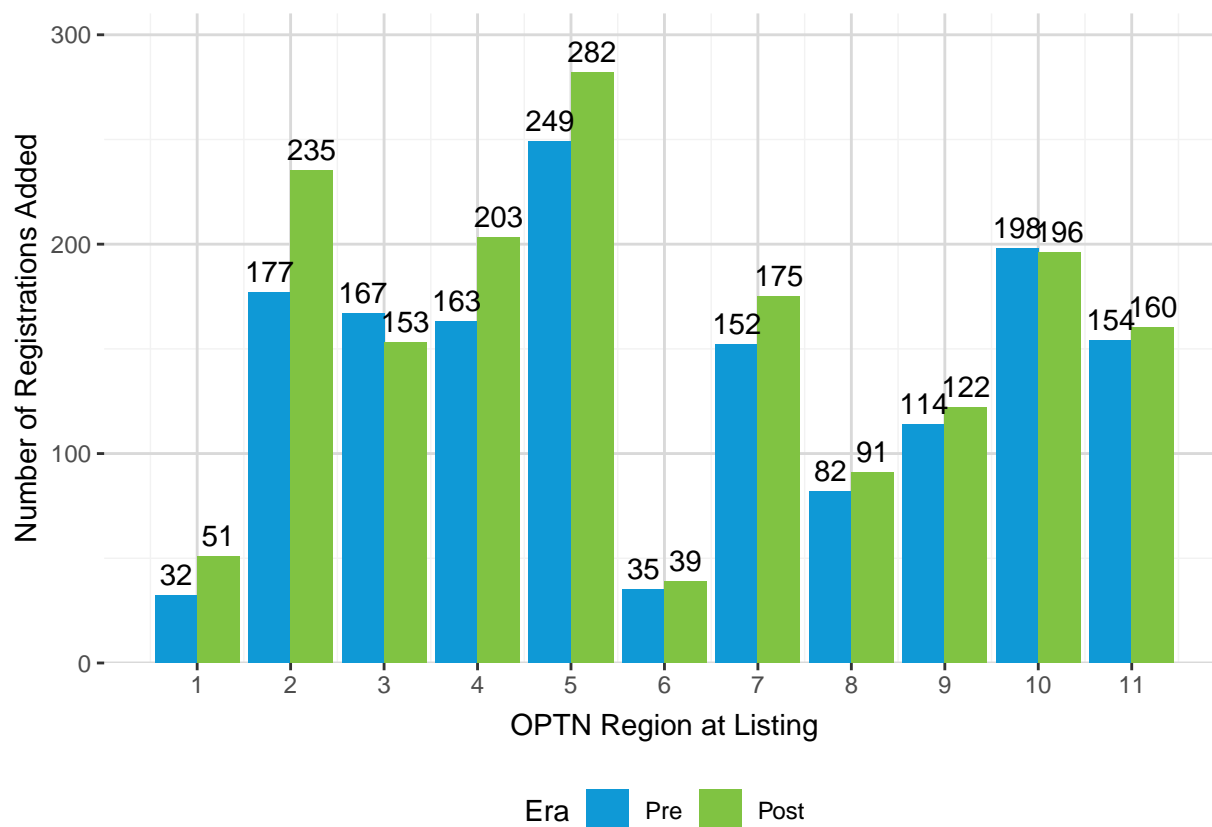


**Table 107: Number of Candidates Ever Waiting by Era and OPTN Region at Listing**

OPTN Region at Listing	Pre	Post
1	102 (4.1%)	119 (4.6%)
2	306 (12.4%)	354 (13.6%)
3	266 (10.8%)	238 (9.1%)
4	278 (11.3%)	315 (12.1%)
5	385 (15.6%)	394 (15.1%)
6	67 (2.7%)	77 (2.9%)
7	247 (10.0%)	270 (10.3%)
8	127 (5.1%)	127 (4.9%)
9	195 (7.9%)	198 (7.6%)
10	300 (12.2%)	309 (11.8%)
11	195 (7.9%)	210 (8.0%)
Total	2,468 (100.0%)	2,611 (100.0%)

The number of registrations added to the waiting list decreased in the post era in OPTN regions 3 and 10 but increased in the remaining 9 OPTN regions.

**Figure 108: Number of Registrations Added to the Waiting List by Era and OPTN Region at Listing**

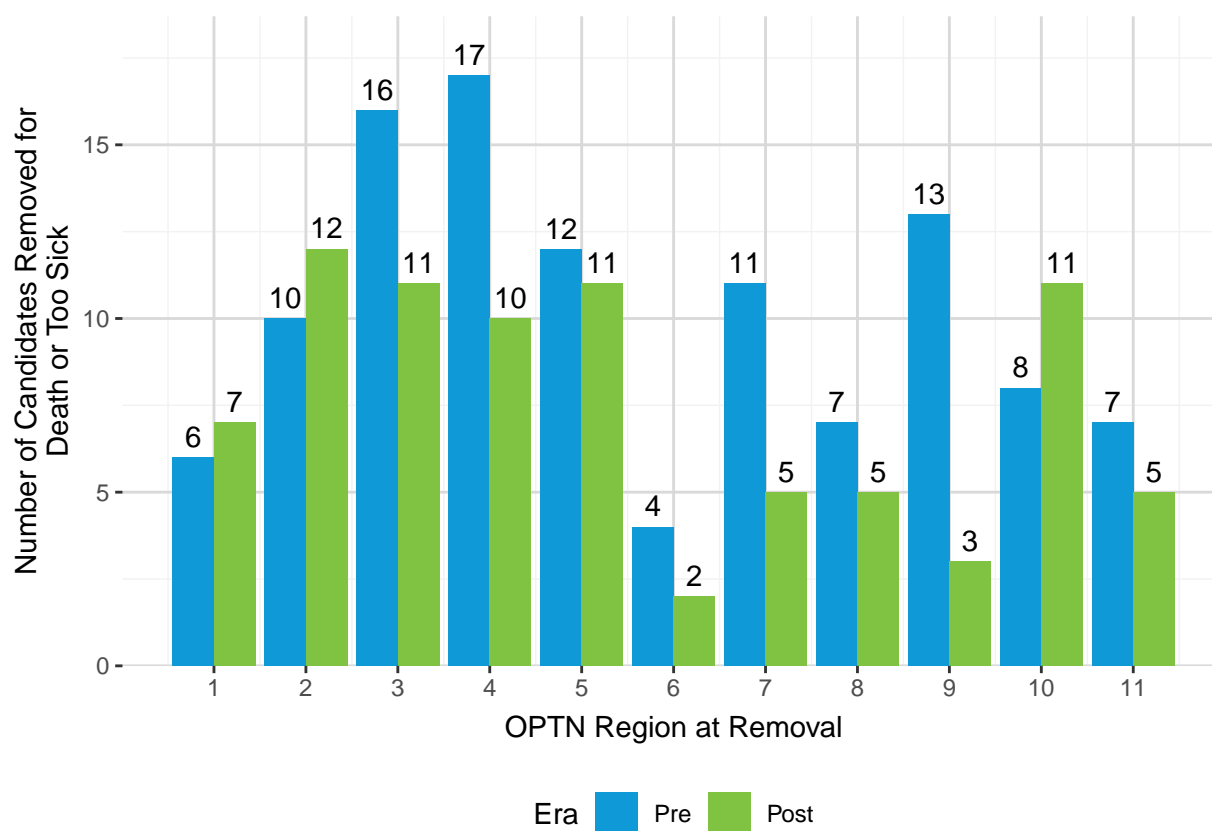


**Table 108: Number of Registrations Added to the Waiting List by Era and OPTN Region at Listing**

OPTN Region at Listing	Pre	Post
1	32 (2.1%)	51 (3.0%)
2	177 (11.6%)	235 (13.8%)
3	167 (11.0%)	153 (9.0%)
4	163 (10.7%)	203 (11.9%)
5	249 (16.3%)	282 (16.5%)
6	35 (2.3%)	39 (2.3%)
7	152 (10.0%)	175 (10.3%)
8	82 (5.4%)	91 (5.3%)
9	114 (7.5%)	122 (7.1%)
10	198 (13.0%)	196 (11.5%)
11	154 (10.1%)	160 (9.4%)
Total	1,523 (100.0%)	1,707 (100.0%)

The number of candidates removed from the waiting list for death or too sick to transplant by OPTN region were too small to determine definitive regional trends.

**Figure 109: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and OPTN Region at Removal**



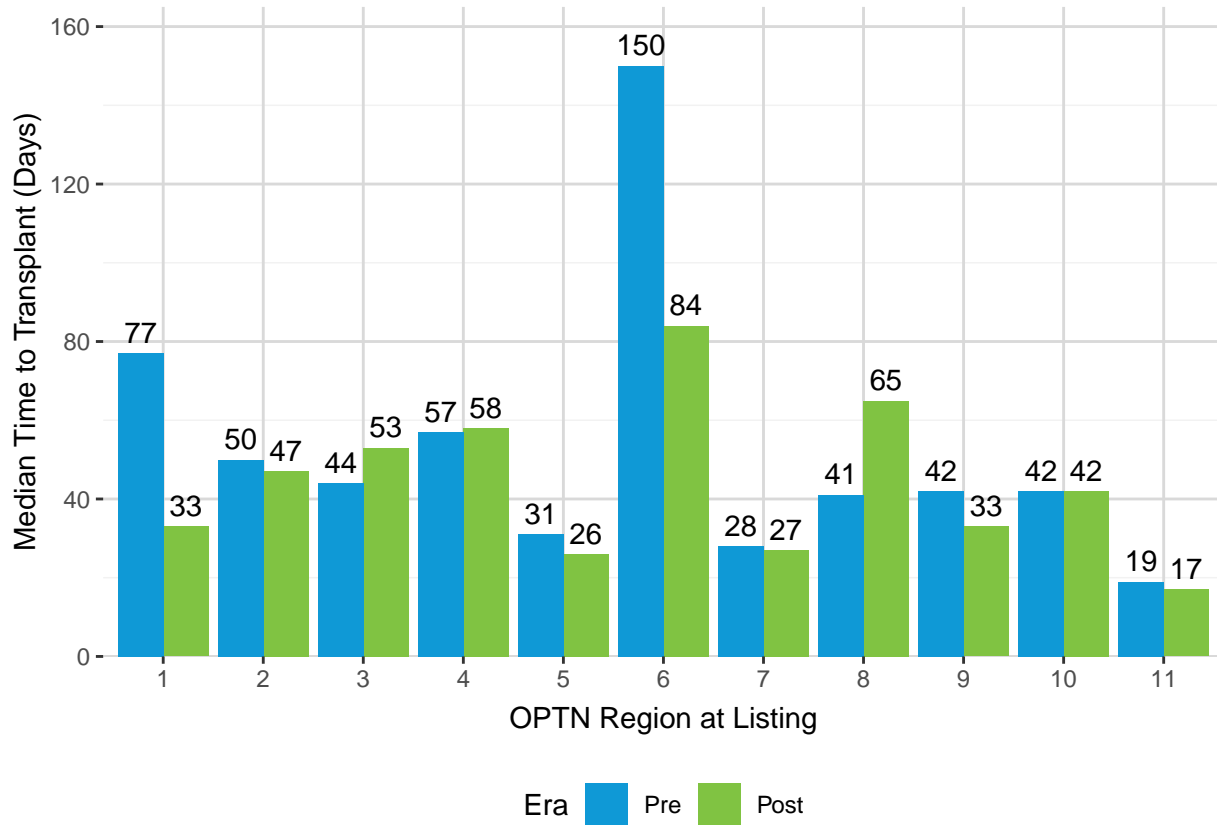
**Table 109: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and OPTN Region at Removal**

OPTN Region at Removal	Pre	Post
1	6 (5.4%)	7 (8.5%)
2	10 (9.0%)	12 (14.6%)
3	16 (14.4%)	11 (13.4%)
4	17 (15.3%)	10 (12.2%)
5	12 (10.8%)	11 (13.4%)
6	4 (3.6%)	2 (2.4%)
7	11 (9.9%)	5 (6.1%)
8	7 (6.3%)	5 (6.1%)
9	13 (11.7%)	3 (3.7%)
10	8 (7.2%)	11 (13.4%)
11	7 (6.3%)	5 (6.1%)
Total	111 (100.0%)	82 (100.0%)



The median waiting time to transplant decreased or remained similar in 8 OPTN regions in the post era and increased in the remaining 3 OPTN regions.

**Figure 110: Median Time to Transplant (Days) by Era and OPTN Region at Listing**

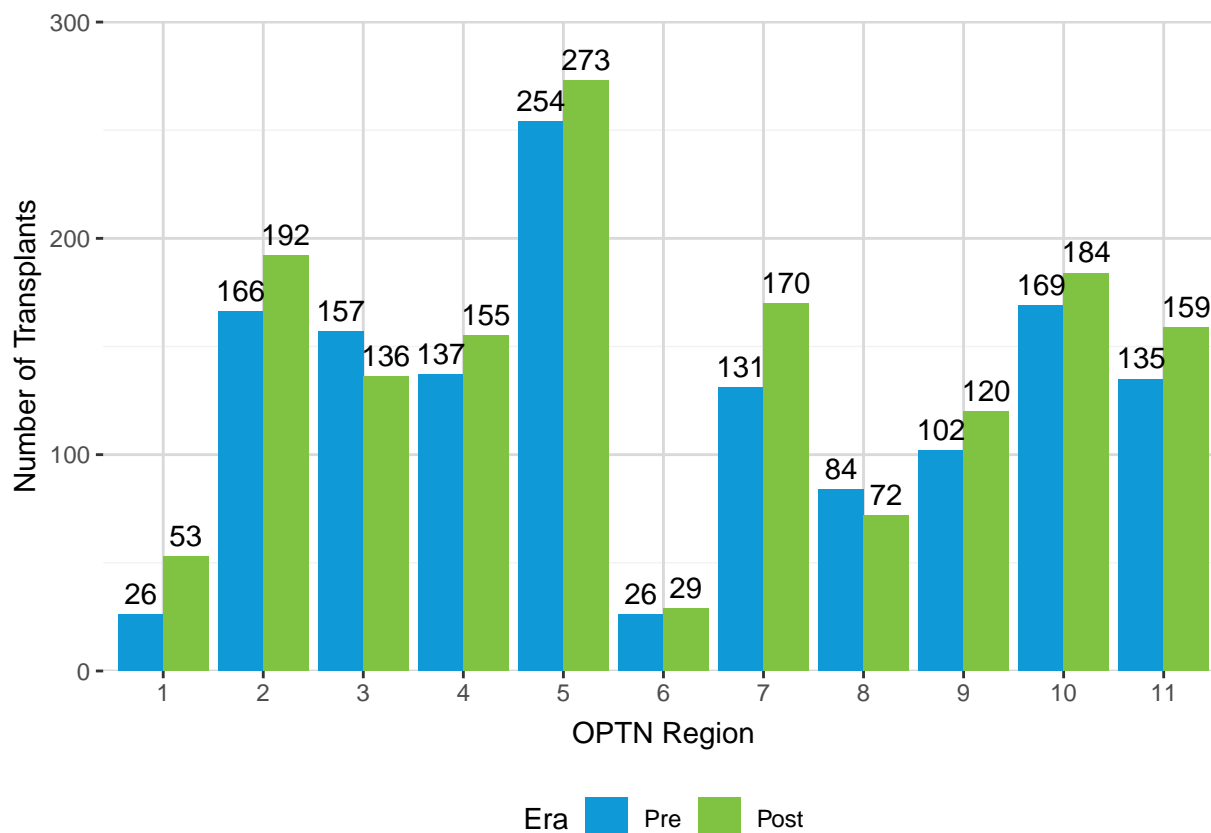


**Table 110: Median Time to Transplant (Days) by Era and OPTN Region at Listing**

OPTN Region at Listing	Era	N Registrations	Median Time to Transplant (Days)
1	Pre	32	77
	Post	51	33
2	Pre	177	50
	Post	235	47
3	Pre	167	44
	Post	153	53
4	Pre	163	57
	Post	203	58
5	Pre	249	31
	Post	282	26
6	Pre	35	150
	Post	39	84
7	Pre	152	28
	Post	175	27
8	Pre	82	41
	Post	91	65
9	Pre	114	42
	Post	122	33
10	Pre	198	42
	Post	196	42
11	Pre	154	19
	Post	160	17

The number of transplants decreased in the post era in OPTN regions 3 and 8 but increased in the remaining 9 OPTN regions.

**Figure 111: Number of Lung Transplants by Era and OPTN Region**

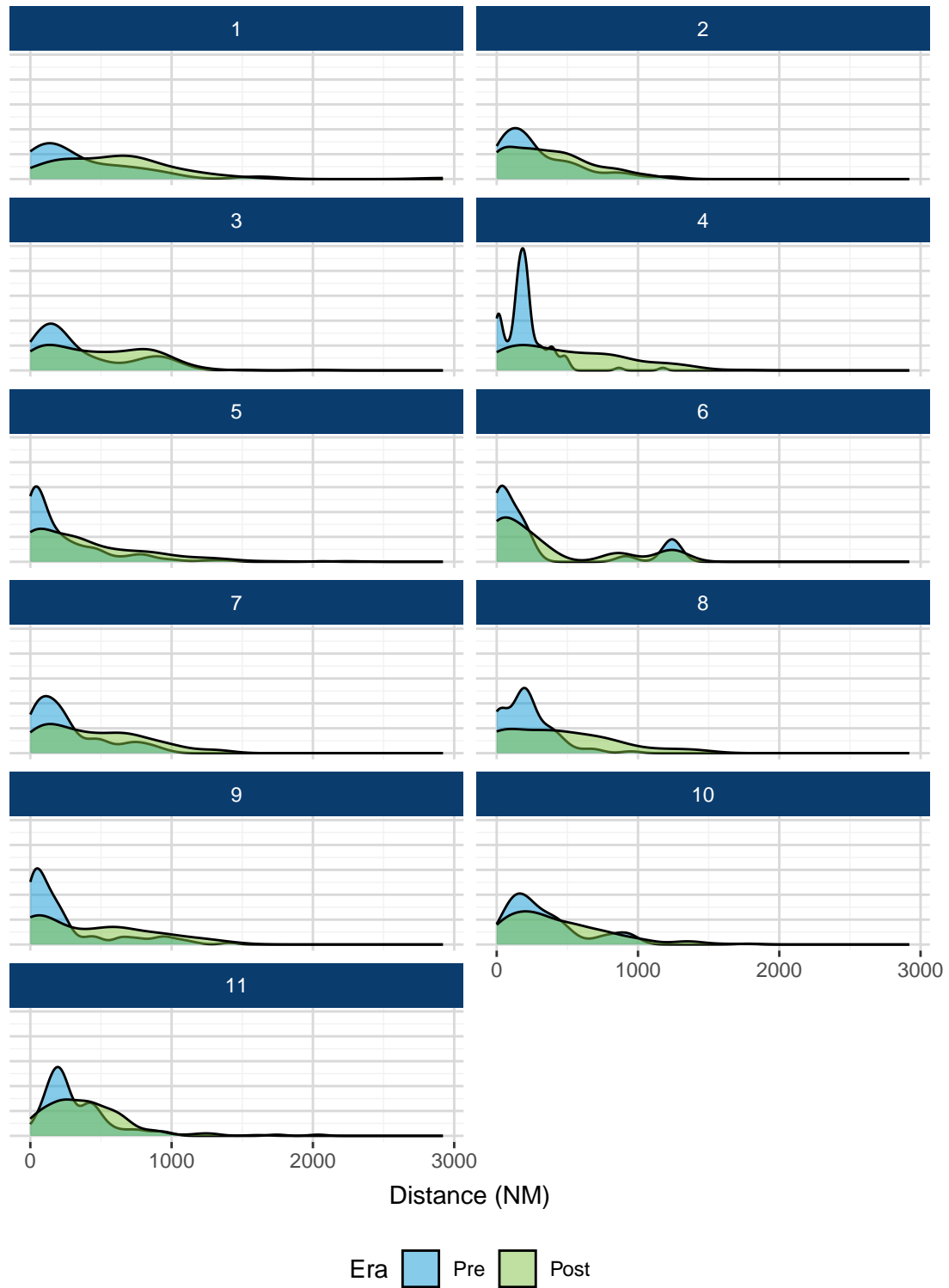


**Table 111: Number of Lung Transplants by Era and OPTN Region**

OPTN Region	Pre	Post
1	26 (1.9%)	53 (3.4%)
2	166 (12.0%)	192 (12.4%)
3	157 (11.3%)	136 (8.8%)
4	137 (9.9%)	155 (10.0%)
5	254 (18.3%)	273 (17.7%)
6	26 (1.9%)	29 (1.9%)
7	131 (9.4%)	170 (11.0%)
8	84 (6.1%)	72 (4.7%)
9	102 (7.4%)	120 (7.8%)
10	169 (12.2%)	184 (11.9%)
11	135 (9.7%)	159 (10.3%)
Total	1,387 (100.0%)	1,543 (100.0%)

Median distance from the donor hospital to transplant program increased across all OPTN regions.

**Figure 112: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and OPTN Region**



**Table 112: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Region**

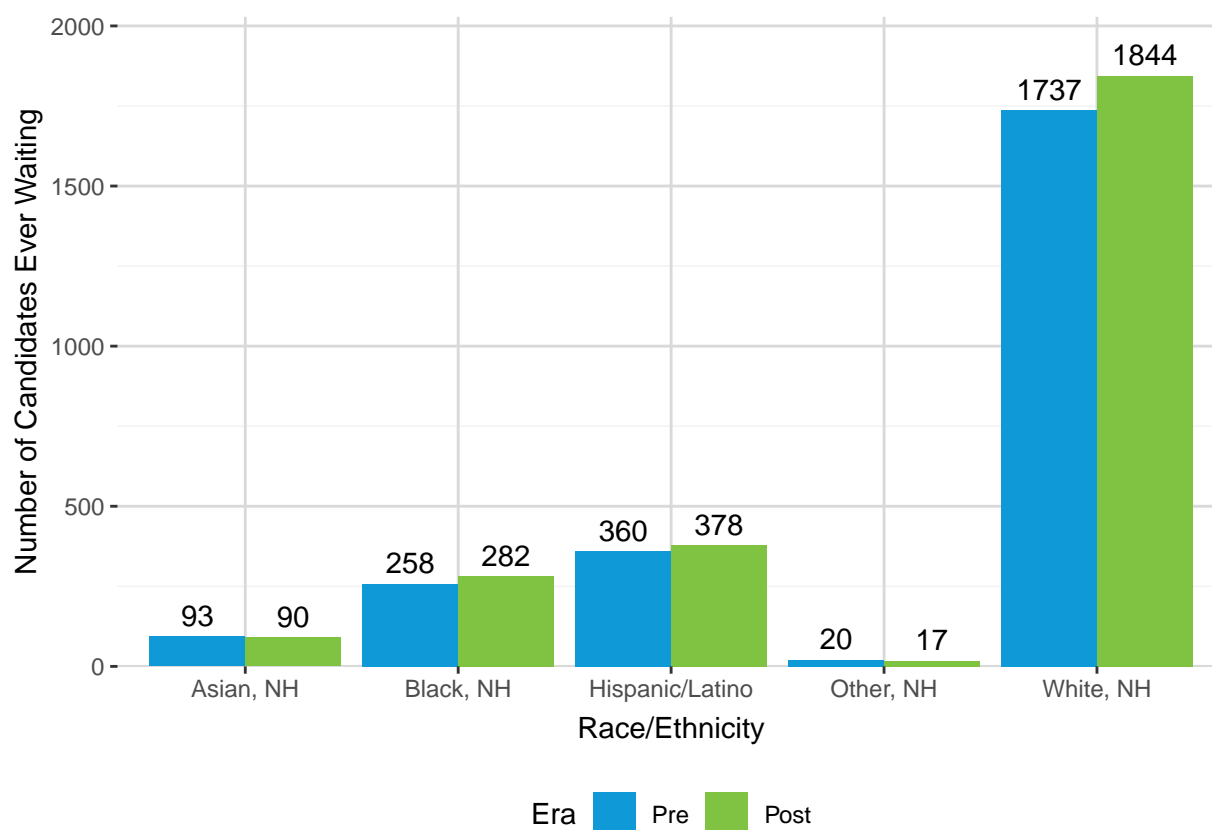
OPTN Region	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
1	Pre	26	0	2	89.00	223.0	361.46	533.25	1613
	Post	53	0	2	234.00	626.0	618.06	804.00	2920
2	Pre	166	0	0	80.75	198.5	296.35	446.25	1267
	Post	192	0	0	111.25	317.0	365.31	545.25	1129
3	Pre	157	0	0	104.00	208.0	356.01	519.00	1491
	Post	136	0	0	172.00	475.0	490.59	789.50	2021
4	Pre	137	0	0	129.00	178.0	200.11	239.00	1176
	Post	155	0	0	192.50	438.0	505.74	791.00	1736
5	Pre	254	0	0	22.00	93.0	232.51	321.50	2069
	Post	273	0	0	46.00	295.0	399.12	610.00	2244
6	Pre	26	0	1	22.00	111.5	291.19	216.00	1241
	Post	29	0	3	12.00	149.0	346.86	350.00	1241
7	Pre	131	0	0	75.00	192.0	260.69	386.50	965
	Post	170	0	0	155.00	406.0	453.15	690.00	1369
8	Pre	84	0	0	41.00	201.0	209.54	295.75	950
	Post	72	0	0	54.00	391.0	440.61	699.00	1399
9	Pre	102	0	0	32.25	118.0	247.52	256.50	1410
	Post	120	0	0	36.75	364.0	433.82	687.00	1415
10	Pre	169	0	1	137.00	245.0	340.22	441.00	1777
	Post	184	0	0	159.75	333.5	429.16	606.50	1769
11	Pre	135	0	0	169.50	238.0	329.10	417.50	2036
	Post	159	0	0	205.50	378.0	390.99	544.00	1614
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

## Race/Ethnicity

In the following charts, NH stands for Non-Hispanic. Due to small sample sizes and to protect patient privacy, American Indian/Alaskan Native, NH; Native Hawaiian/Other Pacific Islander, NH; and Multiracial, NH categories were combined into a single category named “Other, NH”. These race/ethnicity groups may be broken out in future monitoring reports as sample size allows.

The number of Black Non-Hispanic, Hispanic/Latino, and White Non-Hispanic candidates ever waiting increased in the post era.

**Figure 113: Number of Candidates Ever Waiting by Era and Race/Ethnicity**

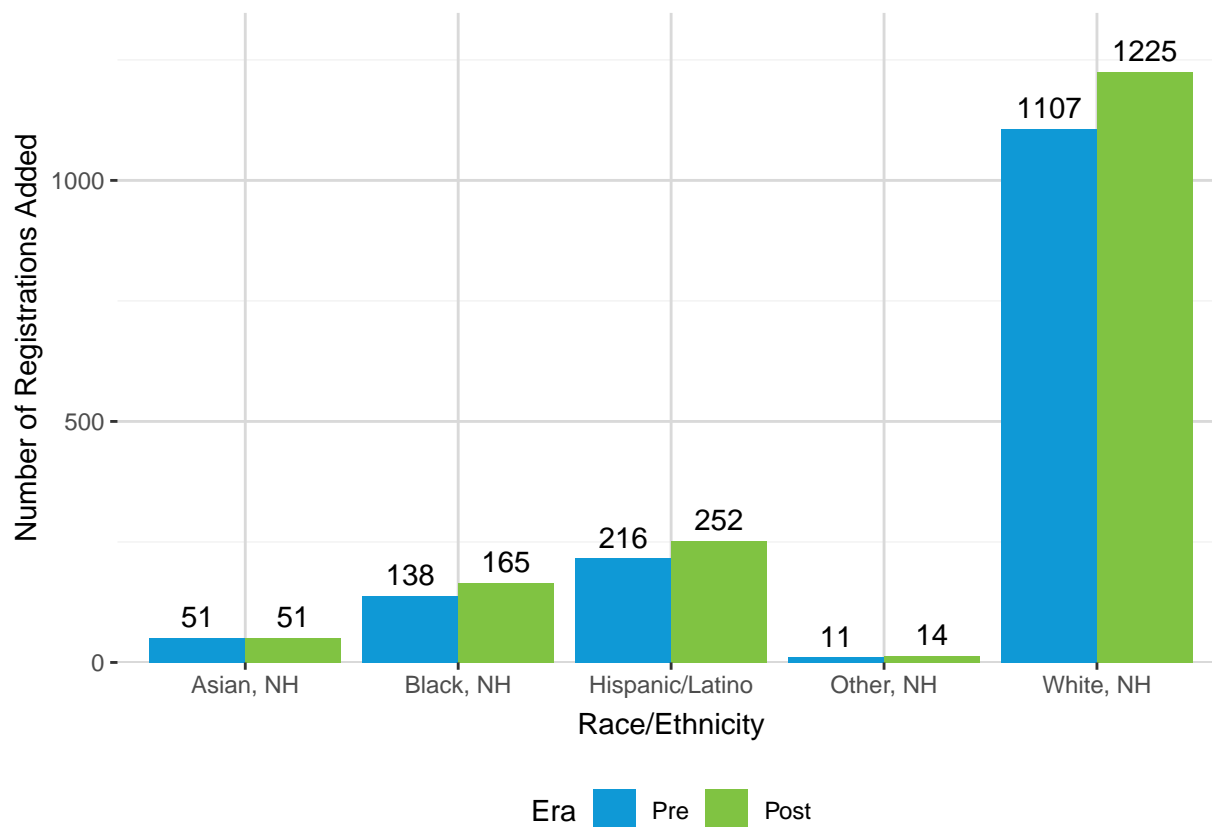


**Table 113: Number of Candidates Ever Waiting by Era and Race/Ethnicity**

Race/Ethnicity	Pre	Post
Asian, NH	93 (3.8%)	90 (3.4%)
Black, NH	258 (10.5%)	282 (10.8%)
Hispanic/Latino	360 (14.6%)	378 (14.5%)
Other, NH	20 (0.8%)	17 (0.7%)
White, NH	1,737 (70.4%)	1,844 (70.6%)
Total	2,468 (100.0%)	2,611 (100.0%)

Compared to the pre era, in the post era the number of registrations added to the waiting list increased or remained the same across all race/ethnicity groups.

**Figure 114: Number of Registrations Added to the Waiting List by Era and Race/Ethnicity**

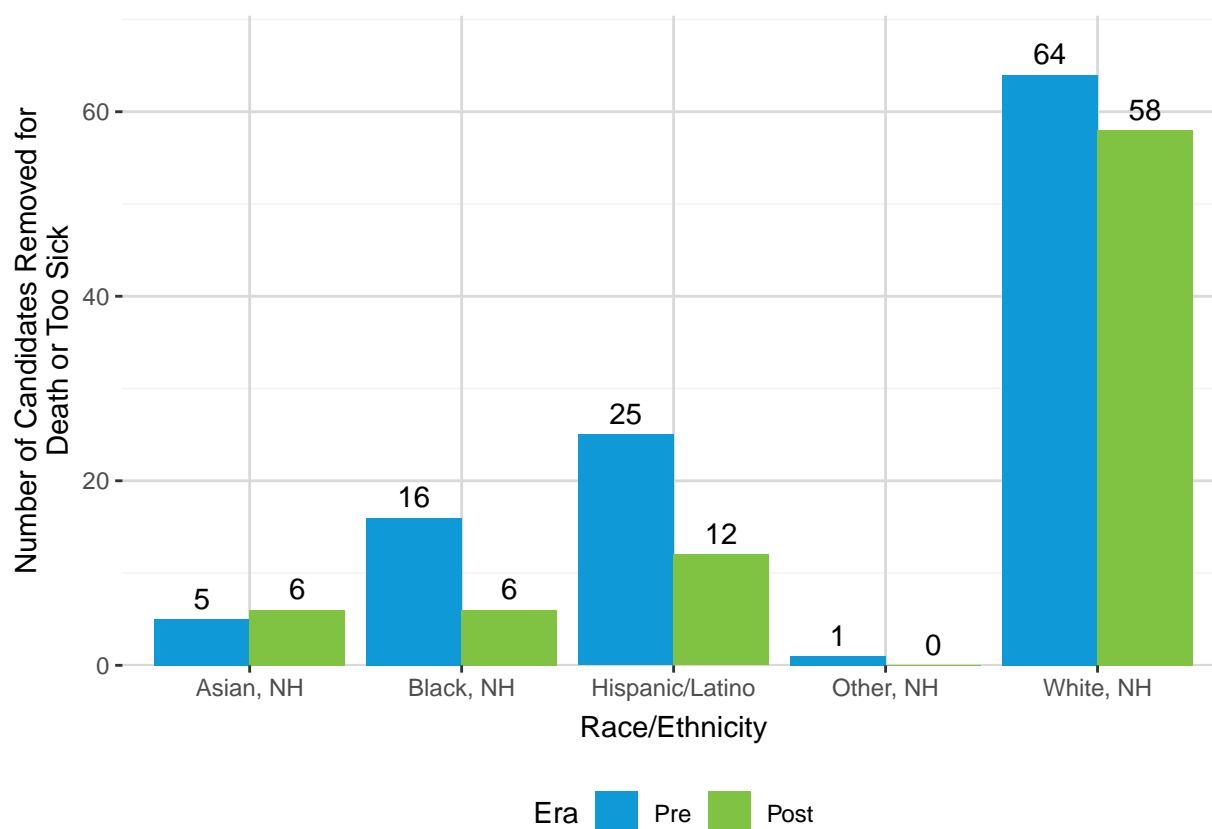


**Table 114: Number of Registrations Added to the Waiting List by Era and Race/Ethnicity**

Race/Ethnicity	Pre	Post
Asian, NH	51 (3.3%)	51 (3.0%)
Black, NH	138 (9.1%)	165 (9.7%)
Hispanic/Latino	216 (14.2%)	252 (14.8%)
Other, NH	11 (0.7%)	14 (0.8%)
White, NH	1,107 (72.7%)	1,225 (71.8%)
Total	1,523 (100.0%)	1,707 (100.0%)

The number of candidates removed from the waiting list for death or too sick remained approximately stable in the post policy era for Asian Non-Hispanic candidates and decreased for the remaining race/ethnicity groups.

**Figure 115: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Race/Ethnicity**



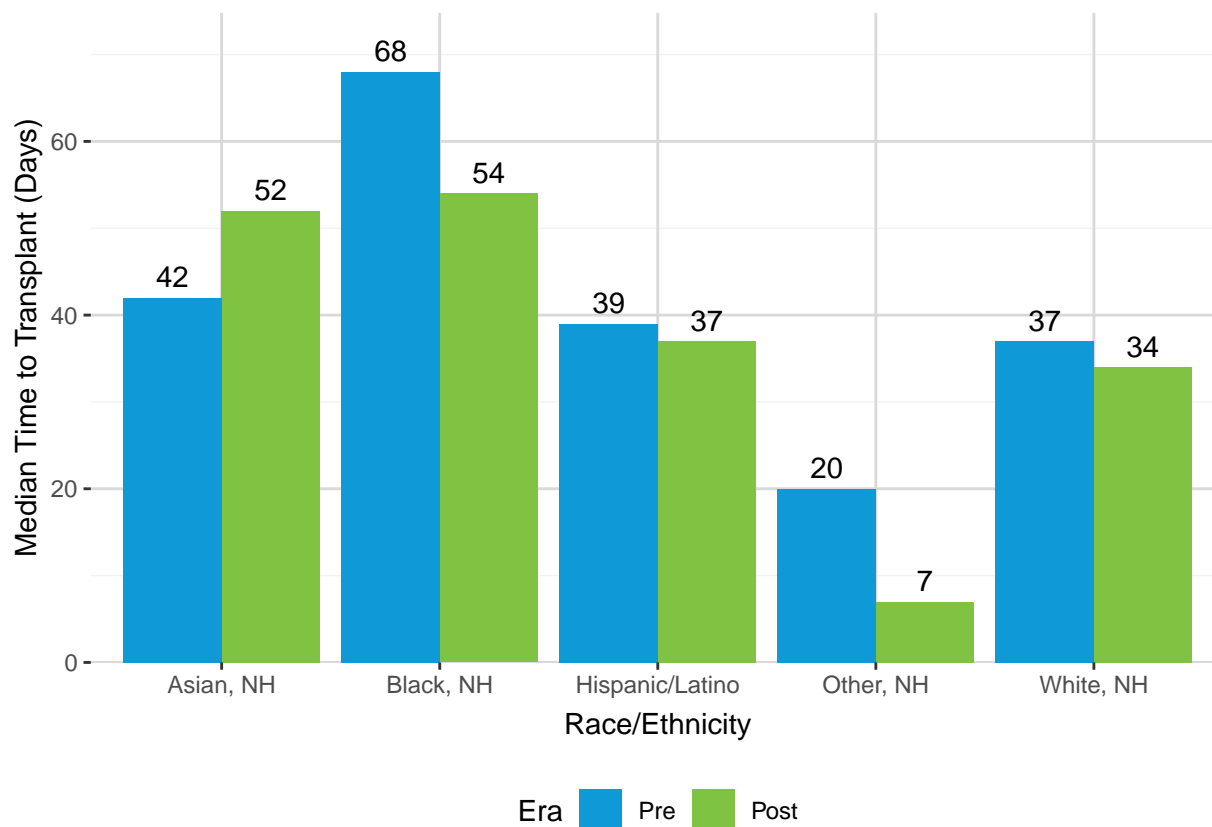
**Table 115: : Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Race/Ethnicity**

Race/Ethnicity	Pre	Post
Asian, NH	5 (4.5%)	6 (7.3%)
Black, NH	16 (14.4%)	6 (7.3%)
Hispanic/Latino	25 (22.5%)	12 (14.6%)
Other, NH	1 (0.9%)	0 (0.0%)
White, NH	64 (57.7%)	58 (70.7%)
Total	111 (100.0%)	82 (100.0%)



The median time to transplant increased in the post era for Asian Non-Hispanic candidates and decreased for all other race/ethnicity groups.

**Figure 116: Median Time to Transplant (Days) by Era and Race/Ethnicity**

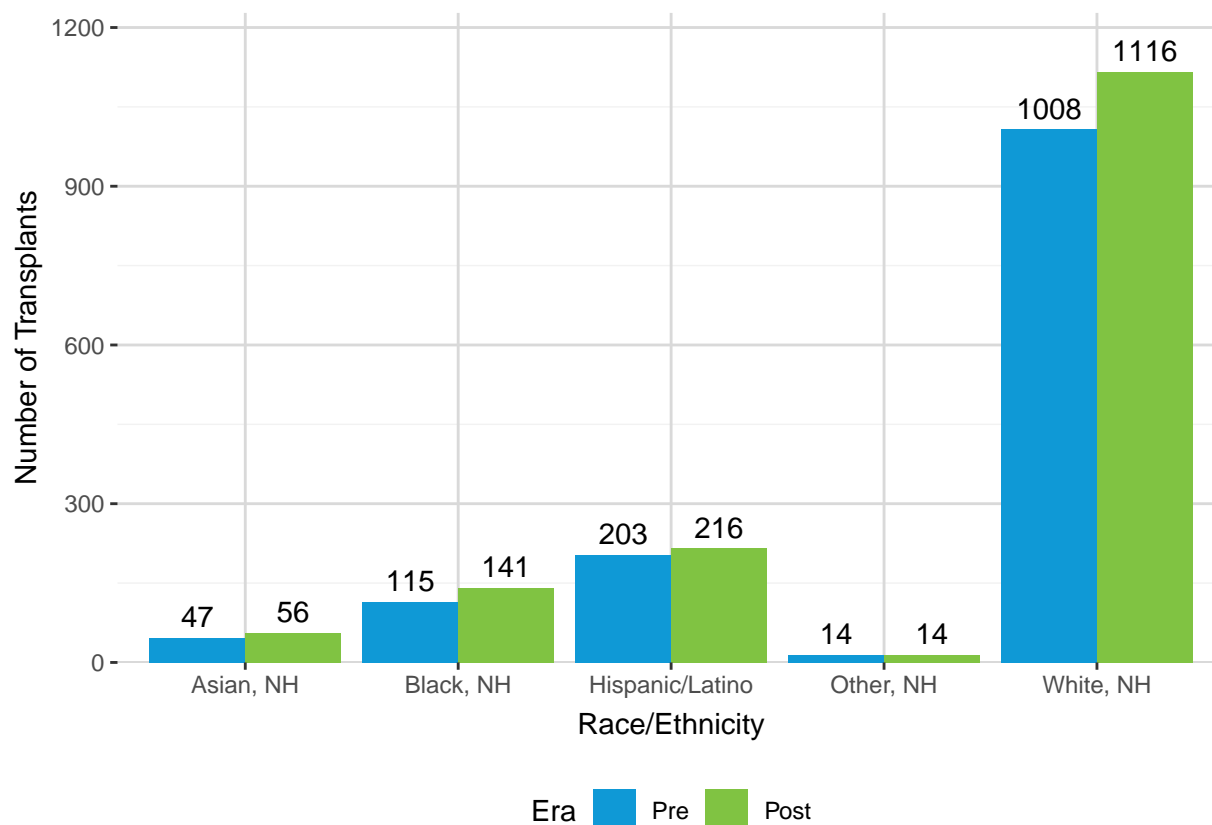


**Table 116: Median Time to Transplant (Days) by Era and Race/Ethnicity**

Race/Ethnicity	Era	N Registrations	Median Time to Transplant (Days)
Asian, NH	Pre	51	42
	Post	51	52
Black, NH	Pre	138	68
	Post	165	54
Hispanic/Latino	Pre	216	39
	Post	252	37
Other, NH	Pre	11	20
	Post	14	7
White, NH	Pre	1107	37
	Post	1225	34

The number of transplants increased in the post policy era for Asian Non-Hispanic, Black Non-Hispanic, Hispanic/Latino, and White Non-Hispanic recipients.

**Figure 117: Number of Lung Transplants by Era and Race/Ethnicity**

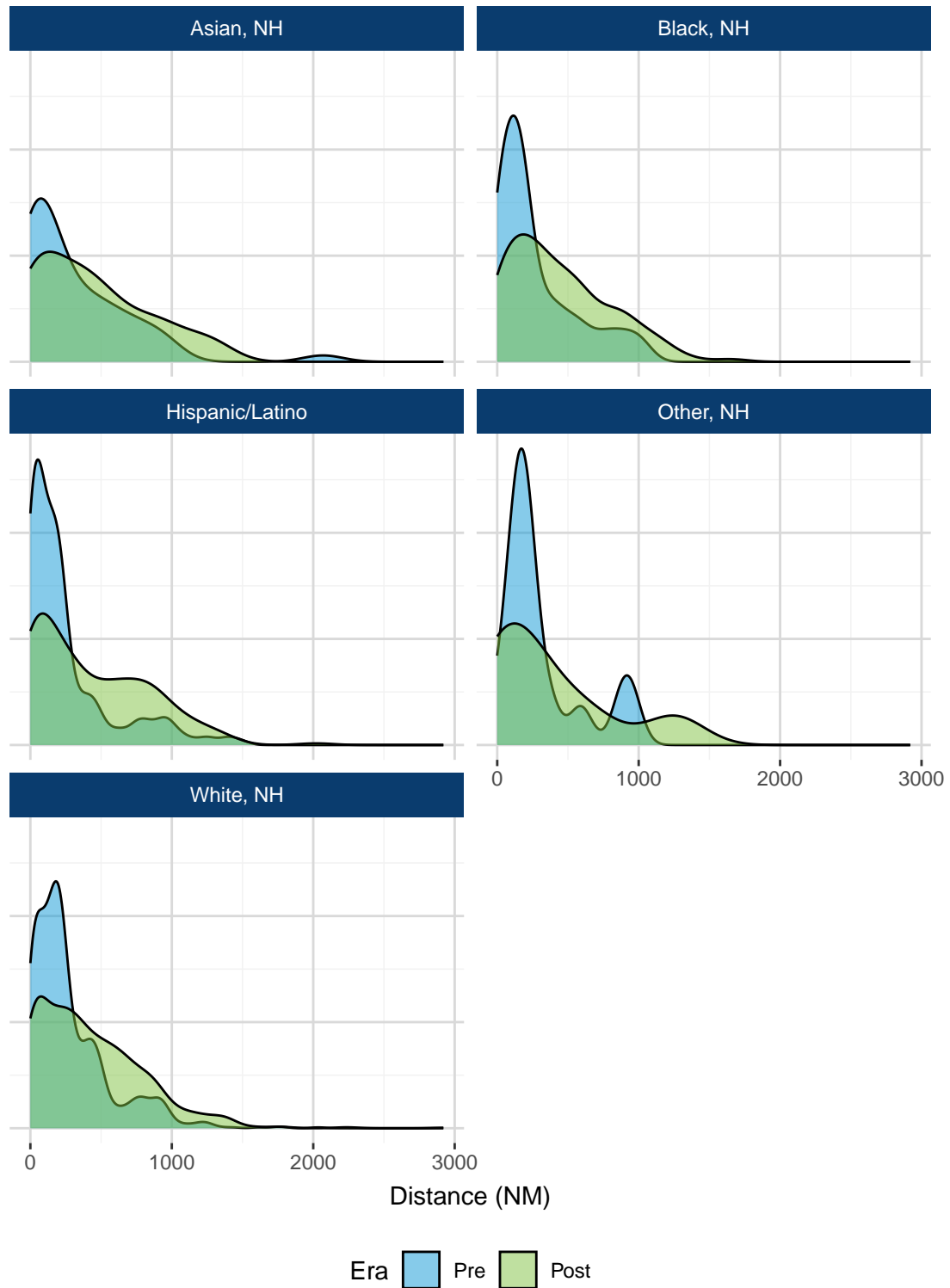


**Table 117: Number of Lung Transplants by Era and Race/Ethnicity**

Race/Ethnicity	Pre	Post
Asian, NH	47 (3.4%)	56 (3.6%)
Black, NH	115 (8.3%)	141 (9.1%)
Hispanic/Latino	203 (14.6%)	216 (14.0%)
Other, NH	14 (1.0%)	14 (0.9%)
White, NH	1,008 (72.7%)	1,116 (72.3%)
Total	1,387 (100.0%)	1,543 (100.0%)

Median distance from the donor hospital to transplant program increased across all race/ethnicity groups.

**Figure 118: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Race/Ethnicity**



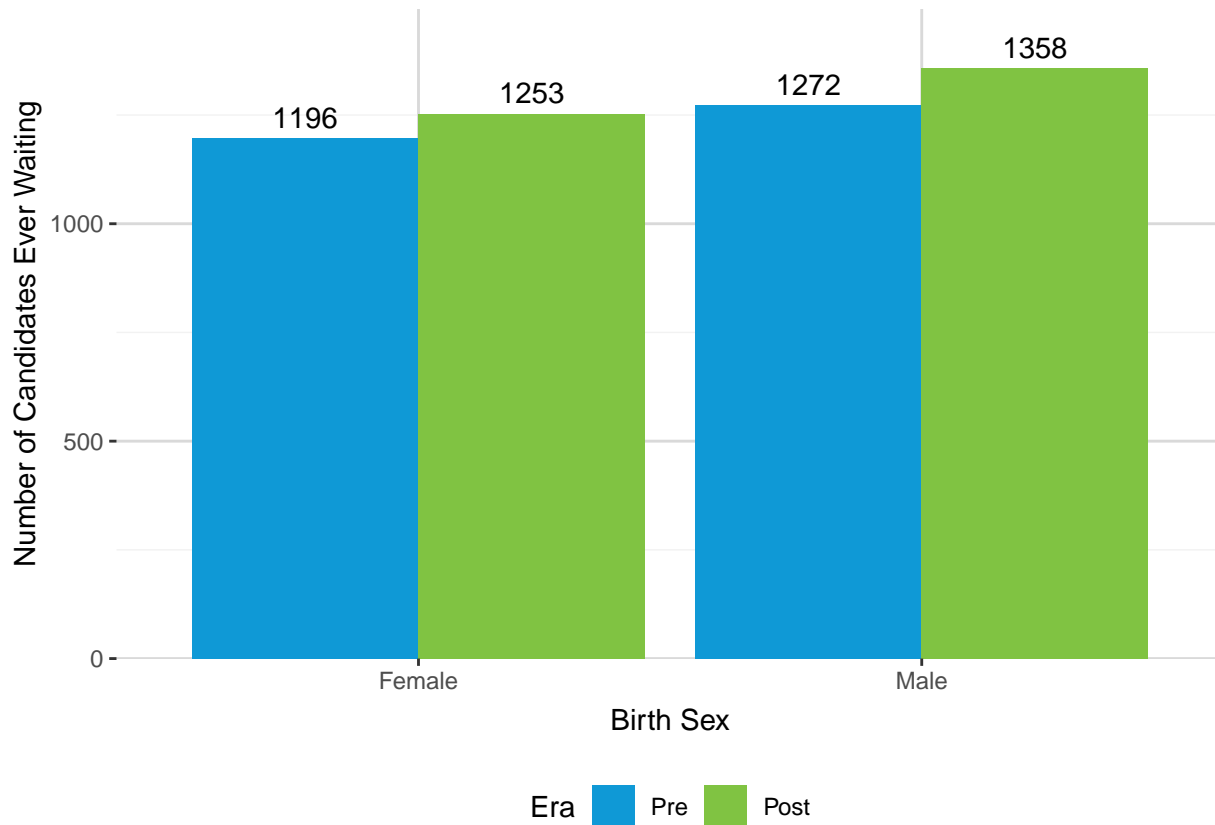
**Table 118: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Race/Ethnicity**

Race/Ethnicity	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Asian, NH	Pre	47	0	3	24.00	160.0	315.26	482.50	2069
	Post	56	0	0	91.25	347.5	441.48	684.00	1355
Black, NH	Pre	115	0	0	67.50	168.0	269.56	385.00	1058
	Post	141	0	0	157.00	362.0	440.13	652.00	1652
Hispanic/Latino	Pre	203	0	0	41.50	158.0	257.13	298.00	1491
	Post	216	0	0	76.50	322.0	436.76	725.25	2021
Other, NH	Pre	14	0	0	137.25	208.0	311.07	337.75	950
	Post	14	0	0	31.75	251.5	371.93	546.00	1300
White, NH	Pre	1008	0	0	91.75	202.0	282.82	395.00	2036
	Post	1116	0	0	139.75	360.5	432.48	648.50	2920
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920

## Birth Sex

In both eras, there were more individuals assigned male at birth ever waiting than individuals assigned female at birth.

**Figure 119: Number of Candidates Ever Waiting by Era and Birth Sex**

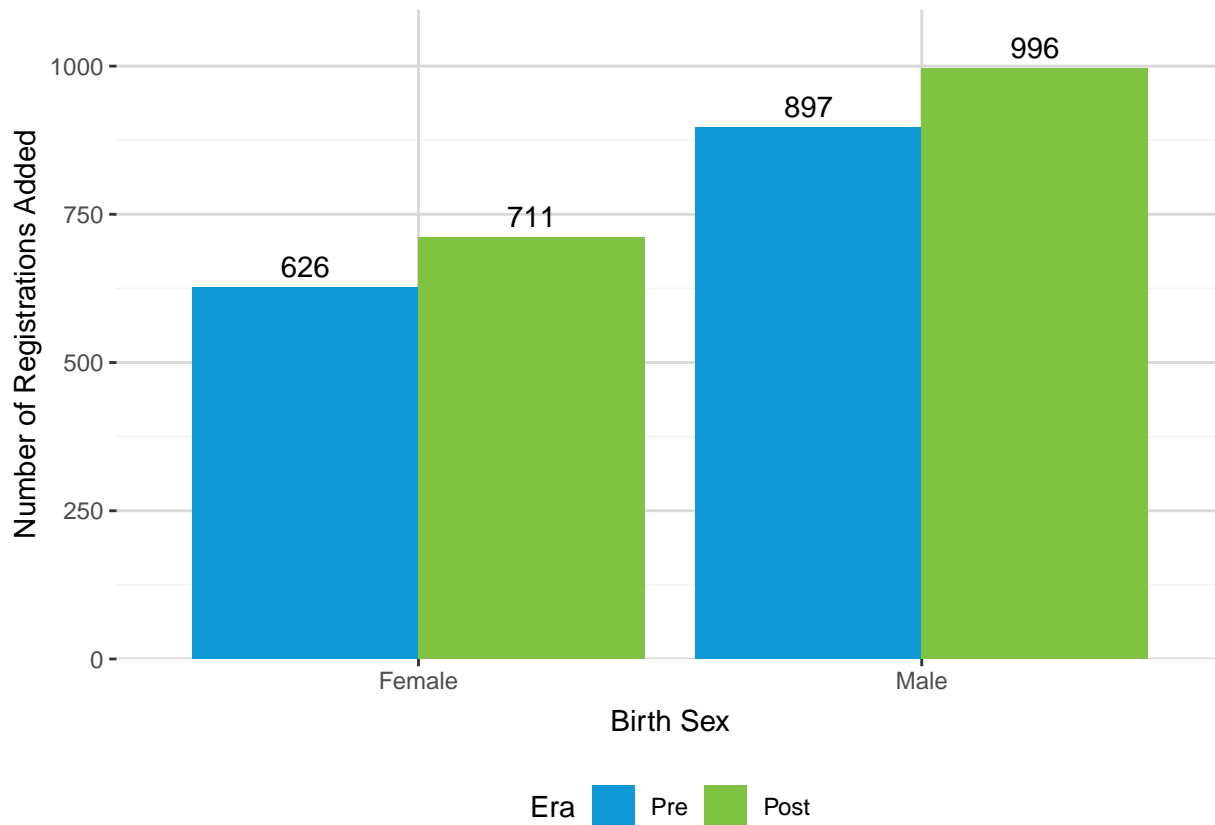


**Table 119: Number of Candidates Ever Waiting by Era and Birth Sex**

Birth Sex	Pre	Post
Female	1,196 (48.5%)	1,253 (48.0%)
Male	1,272 (51.5%)	1,358 (52.0%)
Total	2,468 (100.0%)	2,611 (100.0%)

There were more registrations for candidates assigned male at birth added to the waiting list in both eras than registrations for candidates assigned female at birth.

**Figure 120: Number of Registrations Added to the Waiting List by Era and Birth Sex**

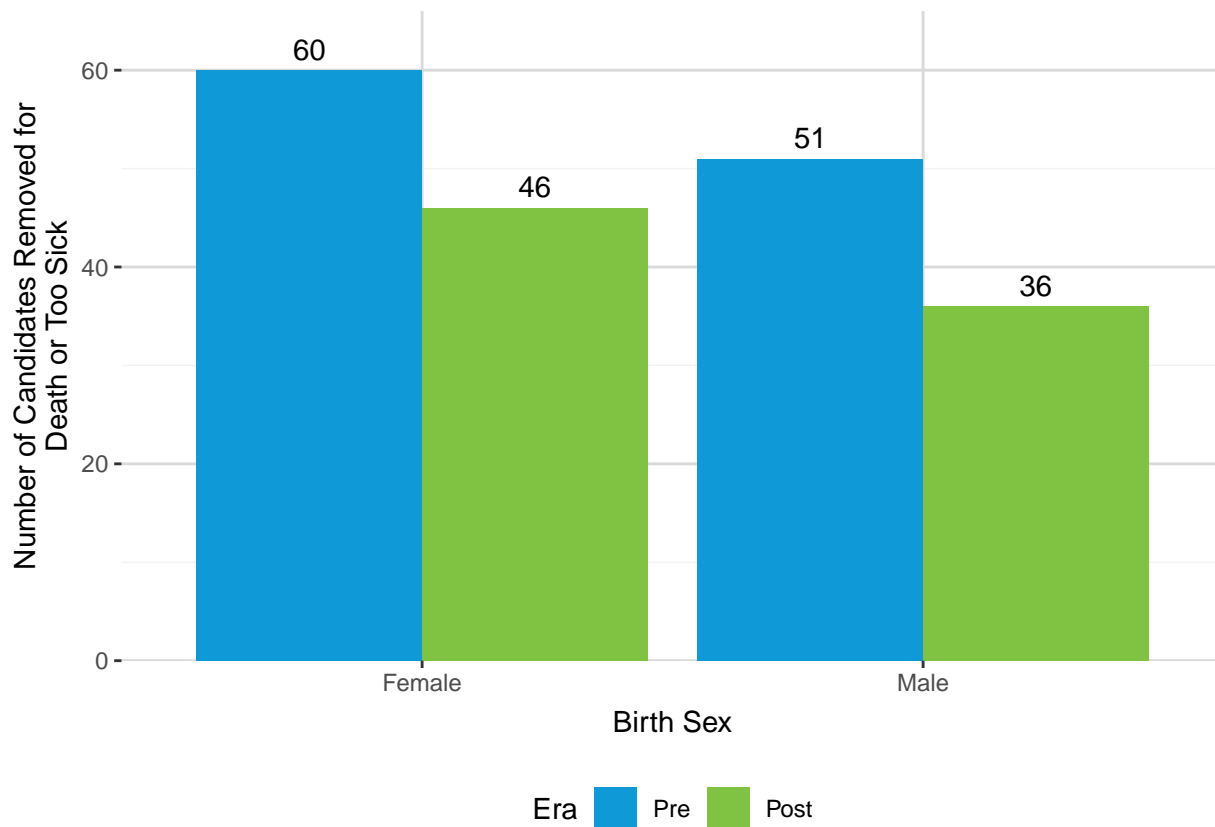


**Table 120: Number of Registrations Added to the Waiting List by Era and Birth Sex**

Birth Sex	Pre	Post
Female	626 (41.1%)	711 (41.7%)
Male	897 (58.9%)	996 (58.3%)
Total	1,523 (100.0%)	1,707 (100.0%)

In both eras, more candidates assigned female at birth were removed from the waiting list for death or too sick than candidates assigned male at birth.

**Figure 121: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Birth Sex**

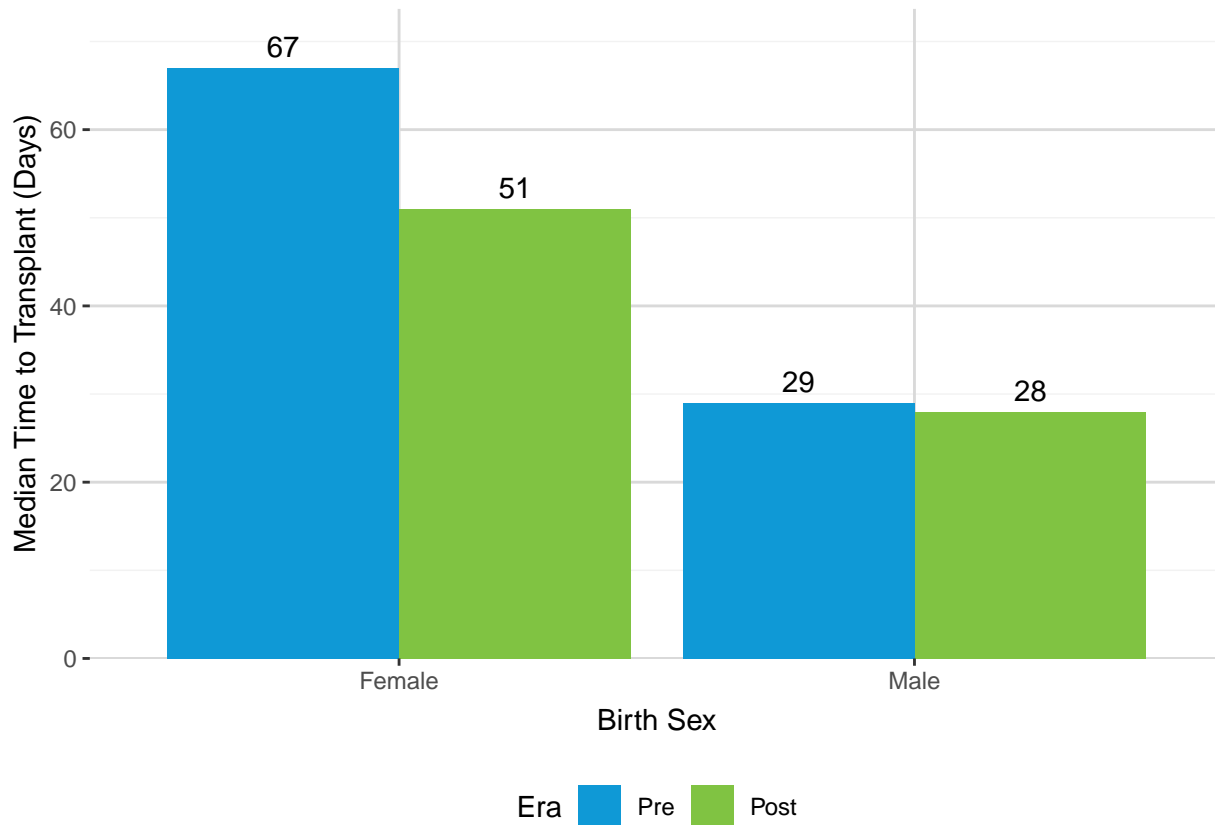


**Table 121: Number of Candidates Removed from the Waiting List for Death or Too Sick by Era and Birth Sex**

Birth Sex	Pre	Post
Female	60 (54.1%)	46 (56.1%)
Male	51 (45.9%)	36 (43.9%)
Total	111 (100.0%)	82 (100.0%)

In the post era, median time to transplant decreased for candidates assigned female at birth and remained stable for candidates assigned male at birth.

**Figure 122: Median Time to Transplant (Days) by Era and Birth Sex**



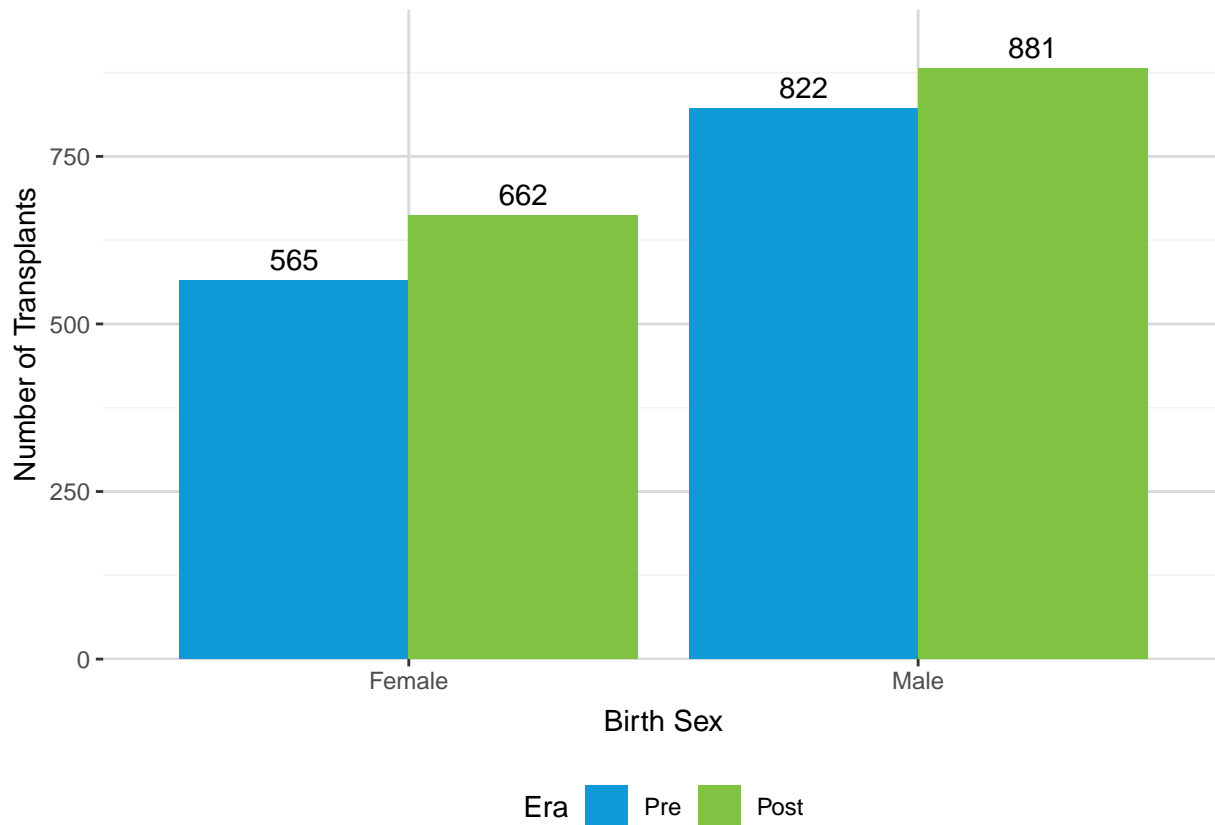
**Table 122: Median Time to Transplant (Days) by Era and Birth Sex**

Birth Sex	Era	N Registrations	Median Time to Transplant (Days)
Female	Pre	626	67
	Post	711	51
Male	Pre	897	29
	Post	996	28



The number of transplants increased in the post era for individuals assigned both male and female at birth.

**Figure 123: Number of Lung Transplants by Era and Birth Sex**

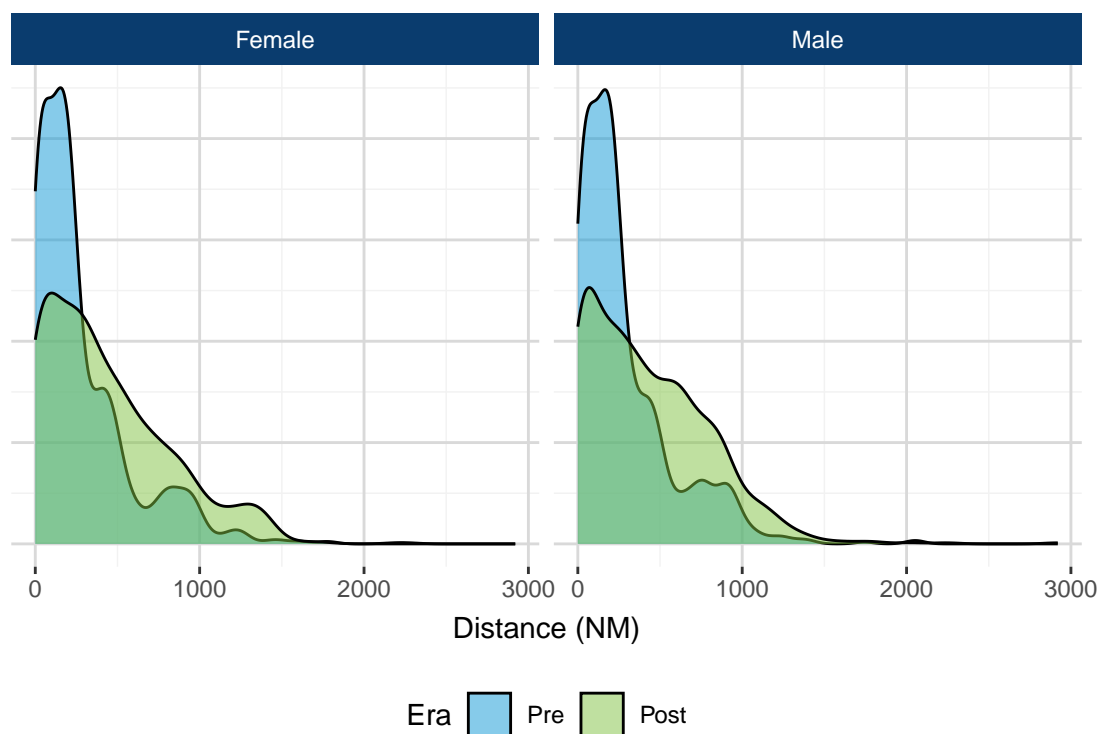


**Table 123: Number of Lung Transplants by Era and Birth Sex**

Birth Sex	Pre	Post
Female	565 (40.7%)	662 (42.9%)
Male	822 (59.3%)	881 (57.1%)
Total	1,387 (100.0%)	1,543 (100.0%)

In the post era, median distance from the donor hospital to transplant program increased for both recipients assigned female at birth and recipients assigned male at birth.

**Figure 124: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Birth Sex**



**Table 124: Distribution of Distance (in Nautical Miles) from Donor Hospital to Transplant Program by Era and Birth Sex**

Birth Sex	Era	N	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
Female	Pre	565	0	0	70.00	184.0	273.24	387.00	1777
	Post	662	0	0	131.75	339.0	435.05	661.75	2227
Male	Pre	822	0	0	81.00	199.5	283.54	397.25	2069
	Post	881	0	0	125.00	368.0	432.43	665.00	2920
Total	Pre	1387	0	0	78.00	195.0	279.35	391.00	2069
	Post	1543	0	0	129.00	353.0	433.55	662.50	2920