# Heart Allocation Policy

- **Modified on July 12, 2006**

## Allocation for adult donors:
- Local Status 1A
- Local Status 1B
- Zone A Status 1A
- Zone A Status 1B
- Local Status 2
- Zone B Status 1A
- Zone B Status 1B
- Zone A Status 2
- Etc.

## Allocation for pediatric donors*:
- Local + Zone A Status 1A ped. cand.
- Local Status 1A adult cand.
- Local + Zone A Status 1B ped. cand.
- Local Status 1B adult cand.
- Zone A Status 1A adult cand.
- Zone A Status 1B adult cand.
- Local Status 2 ped. cand.
- Local Status 2 adult cand.
- Zone B Status 1A ped. cand.
- Zone B Status 1A adult cand.
- Zone B Status 1B ped. cand.
- Zone B Status 1B adult cand.
- Zone A Status 2 ped. cand.
- Zone A Status 2 adult cand.
- Etc.

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* Modifications to Policy 3.7 for pediatric donors were implemented on May 6, 2009.

OPTN
HEART CANDIDATE STATUS DISTRIBUTION

- On 7/12/06 there were 2896 candidates (1307 active)
- On 7/14/10 there were 3146 candidates (2099 active)
**DEATHS PER 100 PATIENT-YEARS ON THE WAITING LIST:**

*Stratified by Age Group*

*Combining Active Statuses with Corresponding Status 7 Groups*

<table>
<thead>
<tr>
<th>Candidate Age Group</th>
<th>Status</th>
<th>Waiting era: 7/12/03-7/11/06</th>
<th></th>
<th></th>
<th>Waiting era: 7/12/06-1/11/10</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># patients ever waiting</td>
<td># of deaths *</td>
<td>Patient years (PY) at risk</td>
<td>Deaths/100 PY</td>
<td># patients ever waiting</td>
<td># of deaths*</td>
</tr>
<tr>
<td><strong>Adult</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A</td>
<td>3307</td>
<td>355</td>
<td>294.1</td>
<td><strong>120.7</strong></td>
<td>5011</td>
<td>375</td>
</tr>
<tr>
<td>1B</td>
<td>4574</td>
<td>440</td>
<td>1231.6</td>
<td><strong>35.7</strong></td>
<td>6707</td>
<td>429</td>
</tr>
<tr>
<td>2</td>
<td>6430</td>
<td>475</td>
<td>7044.5</td>
<td><strong>6.7</strong></td>
<td>6146</td>
<td>386</td>
</tr>
<tr>
<td><strong>ALL COMBINED</strong></td>
<td>10201</td>
<td>1306</td>
<td>8713.7</td>
<td><strong>15.0</strong></td>
<td>11780</td>
<td>1235</td>
</tr>
<tr>
<td><strong>Pediatric</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A</td>
<td>1088</td>
<td>209</td>
<td>171.1</td>
<td><strong>122.2</strong></td>
<td>1521</td>
<td>213</td>
</tr>
<tr>
<td>1B</td>
<td>397</td>
<td>17</td>
<td>118.5</td>
<td><strong>14.3</strong></td>
<td>506</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>553</td>
<td>31</td>
<td>459.7</td>
<td><strong>6.7</strong></td>
<td>521</td>
<td>14</td>
</tr>
<tr>
<td><strong>ALL COMBINED</strong></td>
<td>1603</td>
<td>258</td>
<td>811.1</td>
<td><strong>31.8</strong></td>
<td>2001</td>
<td>244</td>
</tr>
</tbody>
</table>

**NOTE:** Caution should be used in drawing conclusions based on death rates due to differences in patient populations.

* Deaths include those reported to the OPTN or to SSDMF while on waiting list or within 7 days of non-transplant removal.
TRANSPLANTS BY ERA AND STATUS:
BY AGE GROUP

<table>
<thead>
<tr>
<th>Transplant date</th>
<th>Adults</th>
<th>Pediatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/12/05-7/11/06</td>
<td>1,901</td>
<td>323</td>
</tr>
<tr>
<td>7/12/06-7/11/07</td>
<td>1,885</td>
<td>321</td>
</tr>
<tr>
<td>7/12/07-7/11/08</td>
<td>1,817</td>
<td>331</td>
</tr>
<tr>
<td>7/12/08-7/11/09</td>
<td>1,793</td>
<td>371</td>
</tr>
<tr>
<td>7/12/09-7/11/10</td>
<td>1,931</td>
<td>368</td>
</tr>
</tbody>
</table>

OPTN
TRANSPLANTS BY ERA AND STATUS:
ALL AGES COMBINED

Percent of heart transplants

Status 1A  Status 1B  Status 2

Percent

7/12/05-7/11/06  25  35  40
7/12/06-7/11/07  15  38  47
7/12/07-7/11/08  11  36  53
7/12/08-7/11/09  8   36  56
7/12/09-5/11/10 (Partial Year)  8  33  59

Transplant date

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent of heart transplants

Status 1A  Status 1B  Status 2
TRANSPLANTS BY ERA AND STATUS:
ADULTS ONLY

<table>
<thead>
<tr>
<th>Status 1A</th>
<th>Status 1B</th>
<th>Status 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>16</td>
<td>41</td>
</tr>
<tr>
<td>41</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>41</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent of heart transplants distributed by status and era:
- Status 1A: 26, 41, 41, 41, 8
- Status 1B: 16, 41, 41, 41, 38
- Status 2: 41, 41, 9, 8, 38

Transplant date:
- 7/12/05-7/11/06: 26
- 7/12/06-7/11/07: 16
- 7/12/07-7/11/08: 12
- 7/12/08-7/11/09: 9
- 7/12/09-5/11/10: 8

(0% to 100% distribution across eras and statuses)

UNOS OPTN
TRANSPLANTS BY ERA AND STATUS: PEDIATRICS ONLY

Percent of heart transplants

<table>
<thead>
<tr>
<th>Period</th>
<th>Status 1A</th>
<th>Status 1B</th>
<th>Status 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/12/05-7/11/06</td>
<td>71</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>7/12/06-7/11/07</td>
<td>75</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>7/12/07-7/11/08</td>
<td>82</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>7/12/08-7/11/09</td>
<td>84</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>7/12/09-5/11/10</td>
<td>85</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Transplant date

OPTN

UNOS DONATE LIFE
HEART TRANSPLANTS PERFORMED BY REGION
Between 7/12/03-5/11/06 and 7/12/06-5/11/10

OPTN

Region

Number of heart transplants

Era 1
Era 2
PERCENTAGE OF STATUS 2 HEART TRANSPLANTS PERFORMED AT EACH CENTER

Higher % of Status 2 transplants in current era than in prior era

Lower % of Status 2 transplants in current era than in prior era

$r^2 = 0.19$
SURVIVAL WITHIN 2 YEARS:
Adult recipients: All statuses combined

Pre-Policy: 7/12/04-5/11/06 (N=3272)  
Post-Policy: 7/12/06-5/11/08 (N=3375)  

Survival (%)  
Time (days)  

p = 0.90  

NOTE: Scale of survival axis has been expanded.
SURVIVAL WITHIN 2 YEARS:
Pediatric recipients: All statuses combined

Pre-Policy: 7/12/04-5/11/06 (N=559)
Post-Policy: 7/12/06-5/11/08 (N=583)

p = 0.17

NOTE: Scale of survival axis has been expanded.
SUMMARY – WAITING LIST

- There has been an increase in the number of active waiting list registrations and urgent waiting list registrations.
- Waiting list mortality in Status 1A and Status 1B appears to have decreased.
The number of transplants has remained essentially flat over the past 3 years.

The distribution of status at transplant has changed: ↑ Status 1A and ↓ Status 2.

There is no significant change in post-transplant survival within 2 years for adults or pediatrics, overall or by status at transplant.
LUNG ALLOCATION SCORE SYSTEM
DATA UPDATE

Fall 2010 Regional Meetings

Based on OPTN data as of July 23, 2010
LUNG ALLOCATION SCORE STATUS
For All Registrations

NOTE: As of November 2, 2005, candidates with a zero LAS have been screened from match runs.
ACTIVE LUNG AND HEART-LUNG REGISTRATIONS (12+)
WITH NON-ZERO SCORE
On July 23, 2010, by Region and Age Group (1)

Number of Lung and Heart-Lung Registrations

OPTN

Region

1 (N=40) 2 (N=146) 3 (N=213) 4 (N=142) 5 (N=187) 6 (N=47) 7 (N=122) 8 (N=61) 9 (N=34) 10 (N=211) 11 (N=80)

12-17 Years 18-34 Years 35+ Years
ACTIVE LUNG AND HEART-LUNG REGISTRATIONS (12+)
WITH NON-ZERO SCORE
On July 23, 2010, by Region and Age Group (2)
CALCULATED LAS AT TIME OF LISTING FOR LUNG AND HEART-LUNG REGISTRATIONS (12+)
Excluding 0 LAS

<table>
<thead>
<tr>
<th>Listing Date</th>
<th>20-&lt;30</th>
<th>30-&lt;35</th>
<th>35-&lt;40</th>
<th>40-&lt;50</th>
<th>50-&lt;60</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/4/05-5/3/06</td>
<td>5</td>
<td>3</td>
<td>14</td>
<td>16</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>5/4/06-5/3/07</td>
<td>7</td>
<td>5</td>
<td>16</td>
<td>20</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>5/4/07-5/3/08</td>
<td>8</td>
<td>5</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>5/4/09-5/3/10</td>
<td>11</td>
<td>6</td>
<td>19</td>
<td>19</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

Optn
## DEATHS PER 100 PATIENT YEARS:
### LU candidates ever waiting (12+ years at time of listing)

<table>
<thead>
<tr>
<th>Diagnosis grouping</th>
<th>Patients ever waiting during era</th>
<th>Deaths in period</th>
<th>Patient-years in status (PY)</th>
<th>Death/100 PY</th>
<th>Patients ever waiting during era</th>
<th>Deaths in period</th>
<th>Patient-years in status (PY)</th>
<th>Death/100 PY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>5099</td>
<td>701</td>
<td>7408.5</td>
<td>9.5</td>
<td>4219</td>
<td>309</td>
<td>4760.8</td>
<td>6.5</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>1108</td>
<td>251</td>
<td>2353.0</td>
<td>10.7</td>
<td>881</td>
<td>142</td>
<td>1465.1</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>1626</td>
<td>368</td>
<td>2351.6</td>
<td>15.6</td>
<td>1481</td>
<td>205</td>
<td>1569.9</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>3360</td>
<td>894</td>
<td>3946.5</td>
<td>22.7</td>
<td>4858</td>
<td>697</td>
<td>3159.3</td>
<td>22.1</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td>11123</td>
<td>2239</td>
<td>16118</td>
<td>13.9</td>
<td>11307</td>
<td>1353</td>
<td>10956</td>
<td>12.3</td>
</tr>
</tbody>
</table>

**NOTE:** Caution should be used in drawing conclusions based on death rates due to differences in patient populations and the small number of deaths in some groups.

*Deaths include those reported to the OPTN or to SSDMF while on waiting list or ≤ 7 days of non-transplant removal.*
TRANSPLANTS

OPTN
DECEASED DONOR LUNG AND HEART-LUNG TRANSPLANTS: 5/4/04-5/3/10

By Diagnosis Grouping

<table>
<thead>
<tr>
<th>Year</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>N</th>
</tr>
</thead>
</table>

OPTN
At 730 days the survival rate for the pre-LAS era was 73.8% and for the three post-LAS eras was 74.7%, 72.2% and 72.8%.
The total number of WL candidates is substantially lower than prior to the implementation of LAS. 

The number of active candidates 12+ years has increased during the most recent two years. 

The distribution of LAS at listing has shifted towards higher scores in the years since implementation. 

The waiting list mortality is lower overall in the post-policy era compared to the pre-policy era. This same pattern was seen within all diagnosis groups.
SUMMARY – TRANSPLANT

- The percentage of lungs transplanted has increased from pre- to post-LAS.
- There was a huge increase in the number of transplants from pre-LAS to post-LAS. There was also a large increase in transplants during the most recent complete year.
- There has been a substantial shift in the distribution of diagnosis from pre-LAS (>50% group A) to post-LAS (>50% group D).
- Post-transplant survival is comparable pre- and post-LAS, overall and by diagnosis grouping.

OPTN