Lower Respiratory SARS-CoV-2 Testing for Lung Donors
Six Month Post-Implementation Monitoring Report

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Executive Summary

The OPTN implemented an emergency policy on May 27, 2021 requiring lower respiratory testing by nucleic acid test (NAT) for SARS-CoV-2 (COVID-19) for all potential deceased lung donors, specifying that test results must be available prior to lung transplantation. On December 6, 2021, the OPTN Board of Directors approved this policy as permanent. This report presents data on COVID-19 lower respiratory testing for lung donors through November 2021.

Compliance with the lower respiratory testing requirement has been high with 99.8% (N=1238/1240) of transplanted lung donors receiving lower respiratory testing since policy implementation (Figure 1 and Table 1). Test results were reported in DonorNet on or before the day of transplant for 99.1% of donors; results were entered in DonorNet after the day of transplant for six donors (0.5%) and test results were not found in DonorNet for five donors (0.4%) (Figure 4).

Post-implementation, 76 donors had a positive lower respiratory test (Table 5). One donor with a positive lower respiratory test had lungs transplanted; comments in DonorNet indicate that this was believed to be a false positive based on results of confirmatory tests. A small number of non-lung organs are also being recovered and transplanted from these donors (Table 6). 47.4% (N=36/76) of the donors with a positive lower respiratory test had at least one negative upper respiratory test result (Table 7).

The monthly counts of transplanted lung donors decreased from approximately 220-230 in March-July to approximately 170 in August and September, then increased to 214 in October and 203 in November (Figure 1 and Table 1). Lung utilization decreased from 17.9% in May to 14.8% in September, then increased to 16.6% in November (Figure 6 and Table 8).
Background/Purpose

The OPTN implemented emergency policy on May 27, 2021 requiring lower respiratory testing by nucleic acid test (NAT) for SARS-CoV-2 (COVID-19) for all potential deceased lung donors. Test results must be available prior to lung transplantation. On December 6, 2021, the OPTN Board of Directors established this policy as permanent.

The OPTN Ad Hoc Disease Transmission Advisory Committee (DTAC) developed this policy in response to evidence that testing by upper respiratory specimen alone poses a patient safety risk to lung transplant recipients. There were four cases over a three-month period (December 2020 through February 2021) in which a deceased lung donor tested negative for COVID-19 by upper respiratory specimen, then retrospectively tested positive by lower respiratory specimen. Three of these cases resulted in donor-derived transmission to lung recipients, while the fourth case was a “near miss” resulting in lung discard. One lung recipient died as a result of the donor-derived transmission.

This report presents data on COVID-19 lower respiratory testing for lung donors through November 2021. Data are as of December 10, 2021 and are subject to change based on future submission or correction.

Strategic Plan Goal

Promote living donor and transplant recipient safety.

Committee Request

This policy will be evaluated monthly following implementation for 6 months and then again at 9 months, 1 year, 18 months, and 2 years post-implementation. The following metrics, and any others subsequently requested by the Committee, were evaluated and compared to an appropriate pre-implementation cohort:

- The number (and percent) of lung donors with no lower respiratory specimen testing reported each month post-implementation, overall and for DCD vs brain death donors
- Timing of lower respiratory test result reporting relative to lung transplant
- The number (and percent) of OPOs with recovered lung donors with no lower respiratory testing post-implementation
- Lung utilization rates by month, overall and for DCD vs brain death donors
- Heart utilization rates by month
- Kidney, liver, and pancreas discard rates by month
- Number and percent of donors with a positive SARS-CoV-2 lower respiratory test, overall and by month
- Number and type of organs recovered/transplanted from donors with a positive SARS-CoV-2 lower respiratory test
- Number of donors with discordant lower vs upper respiratory SARS-CoV-2 test results, overall and by month

Data and Methods

Data Sources

Analyses are based on OPTN data as of December 10, 2021. Donor data were submitted in DonorNet. COVID-19 testing information may be reported in the discrete COVID-19 infectious disease fields, free text fields, or attachments in DonorNet. COVID-19 testing information in this report is based on information reported in the discrete data fields and donor attachments. Natural language processing was used to identify donor attachments with terminology related to COVID (e.g., “COVID-19”, “COVID”, “SARS-CoV-2”) and lower respiratory testing (e.g., “BAL”, “tracheal aspirate”) in the attachment filename or description. Candidate information was submitted
through Waitlist and on the Transplant Candidate Registration (TCR). Data are subject to change based on future data submission or correction.

**Cohort**

Deceased donors with organs recovered for the purpose of transplant between January 1, 2021 and November 30, 2021 were included in this analysis.

The post-policy era includes donors recovered between May 27 - November 30, 2021.

**Methods**

In this report, organ utilization is assessed as utilization rate for thoracic organs (lung, heart), and discard rate for abdominal organs (kidney, liver, pancreas, intestine).

- Utilization rate was defined as the number of organs transplanted divided by the total number of available organs from donors with at least one organ recovered for the purpose of transplant.
- Discard rate was defined as the number of organs recovered for the purpose of transplant, but not transplanted, divided by the total number of organs recovered for the purpose of transplant.
Results

Lower Respiratory Testing

A total of 1240 deceased donors had lungs transplanted between the May 27, 2021 policy implementation and November 30, 2021. Of these, 99.8% (N=1238) had an indication in DonorNet that they received lower respiratory testing for COVID-19. Figure 1 and Table 1 show the number of lung donors by month and whether they received lower respiratory testing since January 2021.

Figure 1. Number of transplanted lung donors by month and whether the donor had lower respiratory testing for COVID-19

![Graph showing number of lung donors by month and whether they received lower respiratory testing for COVID-19](image)

Table 1. Number of transplanted lung donors by month and whether the donor had lower respiratory testing for COVID-19

<table>
<thead>
<tr>
<th>Month</th>
<th>Lung Donors</th>
<th>N (%) with LRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>188</td>
<td>70 (37.2%)</td>
</tr>
<tr>
<td>February 2021</td>
<td>185</td>
<td>75 (40.5%)</td>
</tr>
<tr>
<td>March 2021</td>
<td>230</td>
<td>142 (61.7%)</td>
</tr>
<tr>
<td>April 2021</td>
<td>233</td>
<td>167 (71.7%)</td>
</tr>
<tr>
<td>May 2021</td>
<td>225</td>
<td>196 (87.1%)</td>
</tr>
<tr>
<td>June 2021</td>
<td>223</td>
<td>223 (100%)</td>
</tr>
<tr>
<td>July 2021</td>
<td>222</td>
<td>221 (99.5%)</td>
</tr>
<tr>
<td>August 2021</td>
<td>177</td>
<td>177 (100%)</td>
</tr>
<tr>
<td>September 2021</td>
<td>172</td>
<td>172 (100%)</td>
</tr>
<tr>
<td>October 2021</td>
<td>214</td>
<td>213 (99.5%)</td>
</tr>
<tr>
<td>November 2021</td>
<td>203</td>
<td>203 (100%)</td>
</tr>
</tbody>
</table>
Prior to policy implementation, the proportion of transplanted lung donors not receiving lower respiratory testing decreased from 62.8% in January to 12.9% in May. This proportion dropped to 0% in June, the first full month post-implementation, and has remained below 1% in each month since the policy implementation (Figure 2).

Figure 2. Percent of transplanted lung donors not receiving lower respiratory testing for COVID-19 by month.
Figure 3 and Table 2 show the number and proportion of lung donors receiving lower respiratory testing by month and DCD status.

Figure 3. Number of transplanted lung donors by month, DCD status and whether the donor had lower respiratory testing for COVID-19

Table 2. Number and percent of transplanted lung donors by month, DCD status and whether the donor had lower respiratory testing (LRT) for COVID-19

<table>
<thead>
<tr>
<th>Month</th>
<th>Non-DCD Donors</th>
<th>DCD Donors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Donors N (%) with LRT</td>
<td>Donors N (%) with LRT</td>
<td>Donors N (%) with LRT</td>
</tr>
<tr>
<td>January 2021</td>
<td>172 65 (37.8%)</td>
<td>16 5 (31.2%)</td>
<td>188 70 (37.2%)</td>
</tr>
<tr>
<td>February 2021</td>
<td>168 71 (42.3%)</td>
<td>17 4 (23.5%)</td>
<td>185 75 (40.5%)</td>
</tr>
<tr>
<td>March 2021</td>
<td>213 135 (63.4%)</td>
<td>17 7 (41.2%)</td>
<td>230 142 (61.7%)</td>
</tr>
<tr>
<td>April 2021</td>
<td>212 154 (72.6%)</td>
<td>21 13 (61.9%)</td>
<td>233 167 (71.7%)</td>
</tr>
<tr>
<td>May 2021</td>
<td>205 183 (89.3%)</td>
<td>20 13 (65%)</td>
<td>225 196 (87.1%)</td>
</tr>
<tr>
<td>June 2021</td>
<td>209 209 (100%)</td>
<td>14 14 (100%)</td>
<td>223 223 (100%)</td>
</tr>
<tr>
<td>July 2021</td>
<td>207 207 (100%)</td>
<td>15 14 (93.3%)</td>
<td>222 221 (99.5%)</td>
</tr>
<tr>
<td>August 2021</td>
<td>166 166 (100%)</td>
<td>11 11 (100%)</td>
<td>177 177 (100%)</td>
</tr>
<tr>
<td>September 2021</td>
<td>161 161 (100%)</td>
<td>11 11 (100%)</td>
<td>172 172 (100%)</td>
</tr>
<tr>
<td>October 2021</td>
<td>193 193 (100%)</td>
<td>21 20 (95.2%)</td>
<td>214 213 (99.5%)</td>
</tr>
<tr>
<td>November 2021</td>
<td>186 186 (100%)</td>
<td>17 17 (100%)</td>
<td>203 203 (100%)</td>
</tr>
</tbody>
</table>
The policy specifies that COVID-19 lower respiratory test results must be available prior to lung transplant. Since implementation, the majority of lung donors (93.9%, N=1164) had lower respiratory test results reported in DonorNet before the day of transplant. 5.2% (N=65) of donors had results entered in DonorNet on the same day as the transplant; 0.5% (N=6) had results reported after the transplant date; and 0.4% (N=5) did not have lower respiratory test results reported in the COVID-19 infectious disease fields or donor attachments (Figure 4).

Figure 4. Timing of lower respiratory test result reporting relative to lung transplant, May 27 - November 30, 2021
Table 3 shows the test method for lower respiratory tests reported in the COVID-19 infectious disease fields. 98.9% (N=1378) of the lower respiratory tests reported using the discrete data fields were nucleic acid tests. The 11 “Other, specify” free text responses are summarized in Table 4.

Table 3. Method of lower respiratory testing for transplanted lung donors with lower respiratory testing reported in DonorNet COVID-19 infectious disease fields, May 27 - November 30, 2021

<table>
<thead>
<tr>
<th>Test Method</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleic acid detection</td>
<td>1378</td>
<td>98.9%</td>
</tr>
<tr>
<td>Antigen</td>
<td>4</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other, specify</td>
<td>11</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total</td>
<td>1393</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Note: Multiple lower respiratory tests may be reported for the same donor. All test results are included.

Table 4. COVID-19 lower respiratory test method “Other, specify” free text responses

<table>
<thead>
<tr>
<th>&quot;Other, specify&quot; responses</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID BAL</td>
<td>3</td>
</tr>
<tr>
<td>OTHER</td>
<td>2</td>
</tr>
<tr>
<td>SARS CORONAVIRUS 2, PCR RAPID, V</td>
<td>2</td>
</tr>
<tr>
<td>BAL</td>
<td>1</td>
</tr>
<tr>
<td>BAL COVID TESTING</td>
<td>1</td>
</tr>
<tr>
<td>COVID PCR</td>
<td>1</td>
</tr>
<tr>
<td>REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
</tr>
</tbody>
</table>
A total of 56 OPOs have recovered lung donors post-implementation and all 56 have performed lower respiratory testing. Figure 5 shows the number of lung donors recovered by each OPO and whether they received lower respiratory testing.

**Figure 5. Number of lung donors recovered by OPO, May 27 - November 30, 2021**
Since implementation, 76 donors had a positive lower respiratory test. **Table 5** shows the number and percent of donors with a positive LRT by month.

**Table 5. Number and percent of recovered donors with a positive COVID-19 lower respiratory test by month, May 27 - November 30, 2021**

<table>
<thead>
<tr>
<th>Month</th>
<th>Donors Recovered</th>
<th>Donors with Positive LRT</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 27-31, 2021</td>
<td>202</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>June 2021</td>
<td>1233</td>
<td>6</td>
<td>0.49%</td>
</tr>
<tr>
<td>July 2021</td>
<td>1255</td>
<td>6</td>
<td>0.48%</td>
</tr>
<tr>
<td>August 2021</td>
<td>1131</td>
<td>9</td>
<td>0.8%</td>
</tr>
<tr>
<td>September 2021</td>
<td>1105</td>
<td>12</td>
<td>1.09%</td>
</tr>
<tr>
<td>October 2021</td>
<td>1176</td>
<td>24</td>
<td>2.04%</td>
</tr>
<tr>
<td>November 2021</td>
<td>1157</td>
<td>18</td>
<td>1.56%</td>
</tr>
<tr>
<td>Total</td>
<td>7259</td>
<td>76</td>
<td>1.05%</td>
</tr>
</tbody>
</table>

**Table 6** describes organs recovered and transplanted from the 76 donors who had a positive lower respiratory test, compared with all other donors recovered in the same time period. One donor with a positive LRT had lungs transplanted; comments in DonorNet indicate that this was believed to be a false positive based on results of confirmatory tests.

**Table 6. Organ utilization and discard rates for donors recovered May 27 - November 30, 2021 by COVID-19 lower respiratory test result**

<table>
<thead>
<tr>
<th>Organ</th>
<th>Donors with Positive COVID-19 LRT</th>
<th>All Other Donors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Organs Recovered</td>
<td>Organs TXed</td>
</tr>
<tr>
<td>Kidney</td>
<td>148</td>
<td>108</td>
</tr>
<tr>
<td>Liver</td>
<td>49</td>
<td>47</td>
</tr>
<tr>
<td>Heart</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Pancreas</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Lung</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Intestine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Donors</td>
<td>76</td>
<td>66</td>
</tr>
</tbody>
</table>
Of the 76 donors with a positive lower respiratory test, 36 (47.4%) had at least one upper respiratory test that was negative (Table 7). 19 (25%) donors with a positive LRT also had a negative LRT result. There have also been 143 donors with discordant test results where a lower respiratory test was negative but an upper respiratory test was positive.

Table 7. Number of donors with discordant lower vs upper respiratory test results, May 27 - November 30, 2021

<table>
<thead>
<tr>
<th>Month</th>
<th>Positive LRT, Negative URT</th>
<th>Negative LRT, Positive URT</th>
<th>Positive LRT, Negative LRT</th>
<th>Positive URT, Negative URT</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 27-31, 2021</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>June 2021</td>
<td>6</td>
<td>13</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>July 2021</td>
<td>5</td>
<td>21</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>August 2021</td>
<td>4</td>
<td>11</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>September 2021</td>
<td>4</td>
<td>22</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>October 2021</td>
<td>7</td>
<td>43</td>
<td>7</td>
<td>41</td>
</tr>
<tr>
<td>November 2021</td>
<td>9</td>
<td>28</td>
<td>3</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>143</strong></td>
<td><strong>19</strong></td>
<td><strong>183</strong></td>
</tr>
</tbody>
</table>
Utilization and Discard Rates

Figure 6 and Table 8 show the number of donors recovered by month and DCD status. The number of non-DCD donors increased from May to July, decreased from July to September, then increased from September to November. The number of DCD donors was stable from May to August, then increased from August to November.

Figure 6. Deceased donors recovered by month and DCD status

Table 8. Deceased donors recovered by month and DCD status

<table>
<thead>
<tr>
<th>Month</th>
<th>Non-DCD</th>
<th>DCD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>768 (72.1%)</td>
<td>297 (27.9%)</td>
<td>1065 (100.0%)</td>
</tr>
<tr>
<td>February 2021</td>
<td>710 (69.9%)</td>
<td>306 (30.1%)</td>
<td>1016 (100.0%)</td>
</tr>
<tr>
<td>March 2021</td>
<td>853 (71.3%)</td>
<td>343 (28.7%)</td>
<td>1196 (100.0%)</td>
</tr>
<tr>
<td>April 2021</td>
<td>827 (69.7%)</td>
<td>360 (30.3%)</td>
<td>1187 (100.0%)</td>
</tr>
<tr>
<td>May 2021</td>
<td>863 (70.9%)</td>
<td>354 (29.1%)</td>
<td>1217 (100.0%)</td>
</tr>
<tr>
<td>June 2021</td>
<td>884 (71.7%)</td>
<td>349 (28.3%)</td>
<td>1233 (100.0%)</td>
</tr>
<tr>
<td>July 2021</td>
<td>900 (71.7%)</td>
<td>355 (28.3%)</td>
<td>1255 (100.0%)</td>
</tr>
<tr>
<td>August 2021</td>
<td>799 (70.6%)</td>
<td>332 (29.4%)</td>
<td>1131 (100.0%)</td>
</tr>
<tr>
<td>September 2021</td>
<td>734 (66.4%)</td>
<td>371 (33.6%)</td>
<td>1105 (100.0%)</td>
</tr>
<tr>
<td>October 2021</td>
<td>778 (66.2%)</td>
<td>398 (33.8%)</td>
<td>1176 (100.0%)</td>
</tr>
<tr>
<td>November 2021</td>
<td>774 (66.9%)</td>
<td>383 (33.1%)</td>
<td>1157 (100.0%)</td>
</tr>
</tbody>
</table>
Figure 7 and Table 9 show lung utilization rates by month and DCD status. Overall utilization of lungs decreased from 17.9% in May to 14.8% in September, then increased to 16.6% in November.

Figure 7. Lung utilization rates by month and DCD status
Table 9. Lung utilization rates by month and DCD status

<table>
<thead>
<tr>
<th>Month</th>
<th>Donor Type</th>
<th>N Donors</th>
<th>Lungs Recovered</th>
<th>Lungs Transplanted</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>Non-DCD</td>
<td>768</td>
<td>343</td>
<td>330</td>
<td>21.5%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>297</td>
<td>40</td>
<td>31</td>
<td>5.2%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1065</td>
<td>383</td>
<td>361</td>
<td>16.9%</td>
</tr>
<tr>
<td>February 2021</td>
<td>Non-DCD</td>
<td>710</td>
<td>344</td>
<td>320</td>
<td>22.5%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>306</td>
<td>47</td>
<td>33</td>
<td>5.4%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1016</td>
<td>391</td>
<td>353</td>
<td>17.4%</td>
</tr>
<tr>
<td>March 2021</td>
<td>Non-DCD</td>
<td>853</td>
<td>428</td>
<td>405</td>
<td>23.7%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>343</td>
<td>39</td>
<td>31</td>
<td>4.5%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1196</td>
<td>467</td>
<td>436</td>
<td>18.2%</td>
</tr>
<tr>
<td>April 2021</td>
<td>Non-DCD</td>
<td>827</td>
<td>421</td>
<td>403</td>
<td>24.4%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>360</td>
<td>46</td>
<td>39</td>
<td>5.4%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1187</td>
<td>467</td>
<td>442</td>
<td>18.6%</td>
</tr>
<tr>
<td>May 2021</td>
<td>Non-DCD</td>
<td>863</td>
<td>418</td>
<td>398</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>354</td>
<td>51</td>
<td>37</td>
<td>5.2%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1217</td>
<td>469</td>
<td>435</td>
<td>17.9%</td>
</tr>
<tr>
<td>June 2021</td>
<td>Non-DCD</td>
<td>884</td>
<td>407</td>
<td>397</td>
<td>22.5%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>349</td>
<td>45</td>
<td>27</td>
<td>3.9%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1233</td>
<td>452</td>
<td>424</td>
<td>17.2%</td>
</tr>
<tr>
<td>July 2021</td>
<td>Non-DCD</td>
<td>900</td>
<td>430</td>
<td>401</td>
<td>22.3%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>355</td>
<td>38</td>
<td>30</td>
<td>4.2%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1255</td>
<td>468</td>
<td>431</td>
<td>17.2%</td>
</tr>
<tr>
<td>August 2021</td>
<td>Non-DCD</td>
<td>799</td>
<td>339</td>
<td>315</td>
<td>19.7%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>332</td>
<td>28</td>
<td>20</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1131</td>
<td>367</td>
<td>335</td>
<td>14.8%</td>
</tr>
<tr>
<td>September 2021</td>
<td>Non-DCD</td>
<td>734</td>
<td>327</td>
<td>307</td>
<td>20.9%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>371</td>
<td>39</td>
<td>21</td>
<td>2.8%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1105</td>
<td>366</td>
<td>328</td>
<td>14.8%</td>
</tr>
<tr>
<td>October 2021</td>
<td>Non-DCD</td>
<td>778</td>
<td>389</td>
<td>366</td>
<td>23.5%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>398</td>
<td>49</td>
<td>39</td>
<td>4.9%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1176</td>
<td>438</td>
<td>405</td>
<td>17.2%</td>
</tr>
<tr>
<td>November 2021</td>
<td>Non-DCD</td>
<td>773</td>
<td>381</td>
<td>351</td>
<td>22.7%</td>
</tr>
<tr>
<td></td>
<td>DCD</td>
<td>383</td>
<td>41</td>
<td>32</td>
<td>4.2%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1157</td>
<td>422</td>
<td>383</td>
<td>16.6%</td>
</tr>
</tbody>
</table>
Figure 8 and Table 10 show heart utilization rates by month. Heart utilization in November was 27.5%, consistent with prior months.

Figure 8. Heart utilization rates by month

Table 10. Heart utilization rates by month

<table>
<thead>
<tr>
<th>Month</th>
<th>N Donors</th>
<th>Hearts Recovered</th>
<th>Hearts Transplanted</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>1065</td>
<td>311</td>
<td>310</td>
<td>29.1%</td>
</tr>
<tr>
<td>February 2021</td>
<td>1016</td>
<td>290</td>
<td>285</td>
<td>28.1%</td>
</tr>
<tr>
<td>March 2021</td>
<td>1196</td>
<td>347</td>
<td>340</td>
<td>28.4%</td>
</tr>
<tr>
<td>April 2021</td>
<td>1187</td>
<td>332</td>
<td>329</td>
<td>27.7%</td>
</tr>
<tr>
<td>May 2021</td>
<td>1217</td>
<td>349</td>
<td>347</td>
<td>28.5%</td>
</tr>
<tr>
<td>June 2021</td>
<td>1233</td>
<td>342</td>
<td>338</td>
<td>27.4%</td>
</tr>
<tr>
<td>July 2021</td>
<td>1255</td>
<td>356</td>
<td>355</td>
<td>28.3%</td>
</tr>
<tr>
<td>August 2021</td>
<td>1131</td>
<td>322</td>
<td>317</td>
<td>28%</td>
</tr>
<tr>
<td>September 2021</td>
<td>1105</td>
<td>301</td>
<td>299</td>
<td>27.1%</td>
</tr>
<tr>
<td>October 2021</td>
<td>1176</td>
<td>338</td>
<td>333</td>
<td>28.3%</td>
</tr>
<tr>
<td>November 2021</td>
<td>1157</td>
<td>322</td>
<td>318</td>
<td>27.5%</td>
</tr>
</tbody>
</table>
**Figure 9** and **Table 11** show kidney, liver, and pancreas discard rates by month. The kidney discard rate increased from 22.7% in May to 28.3% in November. The liver discard rate in November was 9.5%, similar to prior months. The pancreas discard rate in November was 28.4%.

![Figure 9. Kidney, liver and pancreas discard rates by month](image)

<table>
<thead>
<tr>
<th>Month</th>
<th>Recovered</th>
<th>Discarded</th>
<th>Discard Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>2021</td>
<td>527</td>
<td>26.1%</td>
</tr>
<tr>
<td>February 2021</td>
<td>1930</td>
<td>437</td>
<td>22.6%</td>
</tr>
<tr>
<td>March 2021</td>
<td>2265</td>
<td>495</td>
<td>21.9%</td>
</tr>
<tr>
<td>April 2021</td>
<td>2257</td>
<td>470</td>
<td>20.8%</td>
</tr>
<tr>
<td>May 2021</td>
<td>2342</td>
<td>531</td>
<td>22.7%</td>
</tr>
<tr>
<td>June 2021</td>
<td>2334</td>
<td>548</td>
<td>23.5%</td>
</tr>
<tr>
<td>July 2021</td>
<td>2376</td>
<td>552</td>
<td>23.2%</td>
</tr>
<tr>
<td>August 2021</td>
<td>2127</td>
<td>557</td>
<td>26.2%</td>
</tr>
<tr>
<td>September 2021</td>
<td>2110</td>
<td>572</td>
<td>27.1%</td>
</tr>
<tr>
<td>October 2021</td>
<td>2222</td>
<td>561</td>
<td>25.2%</td>
</tr>
<tr>
<td>November 2021</td>
<td>2195</td>
<td>621</td>
<td>28.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Recovered</th>
<th>Discarded</th>
<th>Discard Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>747</td>
<td>64</td>
<td>8.6%</td>
</tr>
<tr>
<td>February 2021</td>
<td>714</td>
<td>68</td>
<td>9.5%</td>
</tr>
<tr>
<td>March 2021</td>
<td>867</td>
<td>89</td>
<td>10.3%</td>
</tr>
<tr>
<td>April 2021</td>
<td>836</td>
<td>72</td>
<td>8.6%</td>
</tr>
<tr>
<td>May 2021</td>
<td>827</td>
<td>78</td>
<td>9.4%</td>
</tr>
<tr>
<td>June 2021</td>
<td>867</td>
<td>89</td>
<td>10.3%</td>
</tr>
<tr>
<td>July 2021</td>
<td>876</td>
<td>94</td>
<td>10.7%</td>
</tr>
<tr>
<td>August 2021</td>
<td>773</td>
<td>76</td>
<td>9.8%</td>
</tr>
<tr>
<td>September 2021</td>
<td>727</td>
<td>75</td>
<td>10.3%</td>
</tr>
<tr>
<td>October 2021</td>
<td>770</td>
<td>92</td>
<td>11.9%</td>
</tr>
<tr>
<td>November 2021</td>
<td>780</td>
<td>74</td>
<td>9.5%</td>
</tr>
</tbody>
</table>
**Lung Waiting List**

*Figure 10 and Table 12* show the number of lung registrations waiting on the last day of each month. Lung waiting list volume changed very little after policy implementation.

**Figure 10. Lung registrations waiting on the last day of each month, January 2021 - November 2021**

**Table 12. Lung registrations waiting on the last day of each month, January 2021 - November 2021**

<table>
<thead>
<tr>
<th>Month</th>
<th>Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>968</td>
</tr>
<tr>
<td>February 2021</td>
<td>1004</td>
</tr>
<tr>
<td>March 2021</td>
<td>1037</td>
</tr>
<tr>
<td>April 2021</td>
<td>1033</td>
</tr>
<tr>
<td>May 2021</td>
<td>1034</td>
</tr>
<tr>
<td>June 2021</td>
<td>1013</td>
</tr>
<tr>
<td>July 2021</td>
<td>1013</td>
</tr>
<tr>
<td>August 2021</td>
<td>1003</td>
</tr>
<tr>
<td>September 2021</td>
<td>1014</td>
</tr>
<tr>
<td>October 2021</td>
<td>997</td>
</tr>
<tr>
<td>November 2021</td>
<td>1020</td>
</tr>
</tbody>
</table>
Figure 11 and Table 13 show the number of lung registrations waiting on the last day of each month by status. The number of registrations in active status changed very little after policy implementation.

Figure 11. Lung registrations waiting on the last day of each month by status, January 2021 - November 2021

Table 13. Lung registrations waiting on the last day of each month by status, January 2021 - November 2021

<table>
<thead>
<tr>
<th>Month</th>
<th>Active</th>
<th>Inactive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>728 (75.2%)</td>
<td>240 (24.8%)</td>
<td>968 (100.0%)</td>
</tr>
<tr>
<td>February 2021</td>
<td>771 (76.8%)</td>
<td>233 (23.2%)</td>
<td>1004 (100.0%)</td>
</tr>
<tr>
<td>March 2021</td>
<td>827 (79.7%)</td>
<td>210 (20.3%)</td>
<td>1037 (100.0%)</td>
</tr>
<tr>
<td>April 2021</td>
<td>828 (80.2%)</td>
<td>205 (19.8%)</td>
<td>1033 (100.0%)</td>
</tr>
<tr>
<td>May 2021</td>
<td>835 (80.8%)</td>
<td>199 (19.2%)</td>
<td>1034 (100.0%)</td>
</tr>
<tr>
<td>June 2021</td>
<td>818 (80.8%)</td>
<td>195 (19.2%)</td>
<td>1013 (100.0%)</td>
</tr>
<tr>
<td>July 2021</td>
<td>815 (80.5%)</td>
<td>198 (19.5%)</td>
<td>1013 (100.0%)</td>
</tr>
<tr>
<td>August 2021</td>
<td>804 (80.2%)</td>
<td>199 (19.8%)</td>
<td>1003 (100.0%)</td>
</tr>
<tr>
<td>September 2021</td>
<td>822 (81.1%)</td>
<td>192 (18.9%)</td>
<td>1014 (100.0%)</td>
</tr>
<tr>
<td>October 2021</td>
<td>810 (81.2%)</td>
<td>187 (18.8%)</td>
<td>997 (100.0%)</td>
</tr>
<tr>
<td>November 2021</td>
<td>817 (80.1%)</td>
<td>203 (19.9%)</td>
<td>1020 (100.0%)</td>
</tr>
</tbody>
</table>
Figure 12 and Table 14 show the number of lung registrations added to the waiting list by month. The number of new lung registrations decreased from 266 in May to 226 in September, then increased to 268 in November.

**Figure 12. Lung registrations added January 2021 - November 2021 by month**

![Graph showing lung registrations added by month]

**Table 14. Lung registrations added January 2021 - November 2021 by month**

<table>
<thead>
<tr>
<th>Month</th>
<th>Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2021</td>
<td>210</td>
</tr>
<tr>
<td>February 2021</td>
<td>262</td>
</tr>
<tr>
<td>March 2021</td>
<td>323</td>
</tr>
<tr>
<td>April 2021</td>
<td>287</td>
</tr>
<tr>
<td>May 2021</td>
<td>266</td>
</tr>
<tr>
<td>June 2021</td>
<td>254</td>
</tr>
<tr>
<td>July 2021</td>
<td>262</td>
</tr>
<tr>
<td>August 2021</td>
<td>227</td>
</tr>
<tr>
<td>September 2021</td>
<td>226</td>
</tr>
<tr>
<td>October 2021</td>
<td>251</td>
</tr>
<tr>
<td>November 2021</td>
<td>268</td>
</tr>
</tbody>
</table>
Conclusion

Compliance with the lower respiratory testing requirement has been high with 99.8% (N=1238/1240) of transplanted lung donors receiving lower respiratory tests since policy implementation. 99.1% of transplanted lung donors had test results reported in DonorNet on or before the day of transplant; six donors (0.5%) had test results reported after the day of transplant and test results were not found in DonorNet for five donors (0.4%). Since implementation, 76 donors had a positive lower respiratory test. 47.4% (N=36/76) of the donors with a positive LRT had at least one upper respiratory test that was negative. One donor with a positive LRT had lungs transplanted; comments in DonorNet indicate that this was believed to be a false positive based on results of confirmatory tests. The OPTN Ad Hoc DTAC will continue to monitor this policy at the frequency noted in the data monitoring plan.