



Montefiore Montefiore Einstein
Center for Transplantation

Organ Allocation during the COVID-19 Pandemic To Transplant or to Continue on the Waitlist?

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Disclosures

- No financial disclosures

Immediate Effects of Pandemic in Organ Donation and Transplantation

Nationally

Rapid decline in Kidney Donor Recoveries

Near Cessation of Living Kidney Donation (90% decrease during March)

50% decrease in Deceased Donors recoveries

Challenged organ allocation and placement

Transplant Programs with multiple logistical limitations

Limited availability of Commercial Airlines to transport organs

Non-utilization rate of kidneys recovered reached 30%

Sharp decrease to 50% of kidney transplantation activity

Regionally

Northeast and Northwest affected first with the worse effects

Gradual geographic spread allowed other regions to prepare and make procedural changes

Donor and Recipients Covid-19 Testing protocols

Re-priorization of transplant candidates

Immunosuppression protocols

Relatively rapid resumption on near normal clinical transplant activity

Mixed Changes In Transplant Activity

2020 | Most lives ever saved by deceased donors

6%
increase
in deceased donors
over 2019*

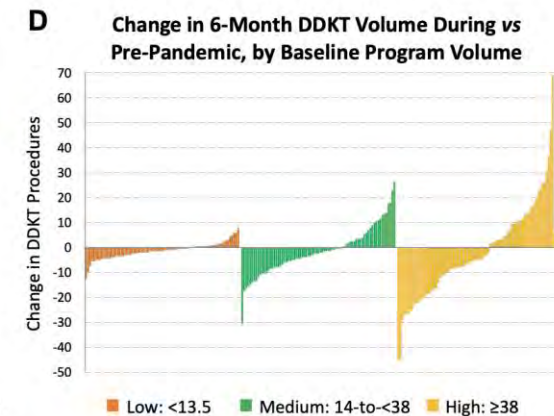
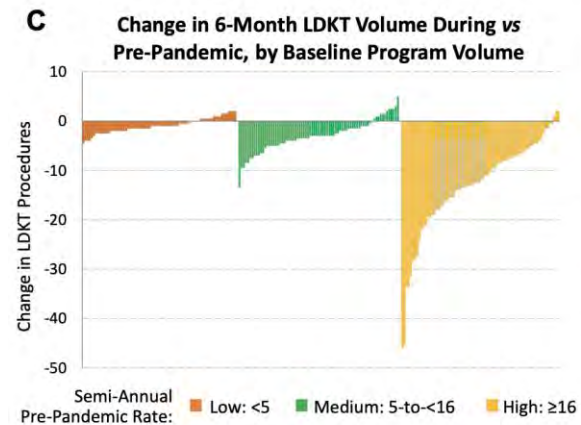
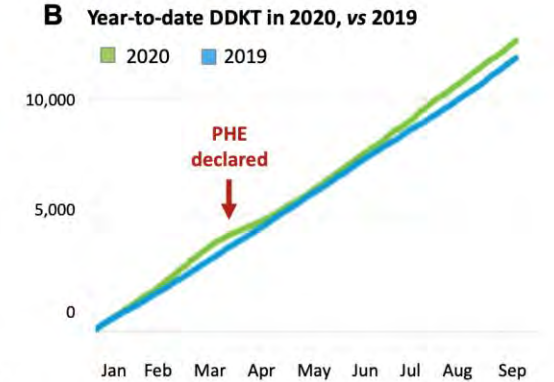
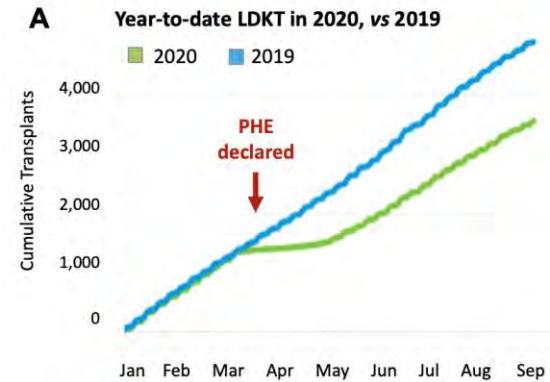
More than
33,000
life-saving transplants
from deceased donors*

10th
record year
in a row for deceased
donation*

*Graphic updated 1/21/2021. Based on OPTN data as of 1/11/21. Data subject to change based on future data submission or correction.



| | | | | |
|--|-----------------|--------|--------------|--------------|
| | Kidney | ↓ 2.5% | 2020: 22,817 | 2019: 23,401 |
| | Liver | ↑ 0.1% | 2020: 8,906 | 2019: 8,896 |
| | Heart | ↑ 3% | 2020: 3,658 | 2019: 3,552 |
| | Lung | ↓ 6.4% | 2020: 2,539 | 2019: 2,714 |
| | Pancreas | ↓ 5.6% | 2020: 135 | 2019: 143 |
| | Kidney-pancreas | ↓ 5.2% | 2020: 827 | 2019: 872 |



Lentine et al Am J Kidney Dis. XX(XX):1- 9. Published online doi: 10.1053/j.ajkd.2020.12.003



SCIENTIFIC
REGISTRY OF
TRANSPLANT
RECIPIENTS

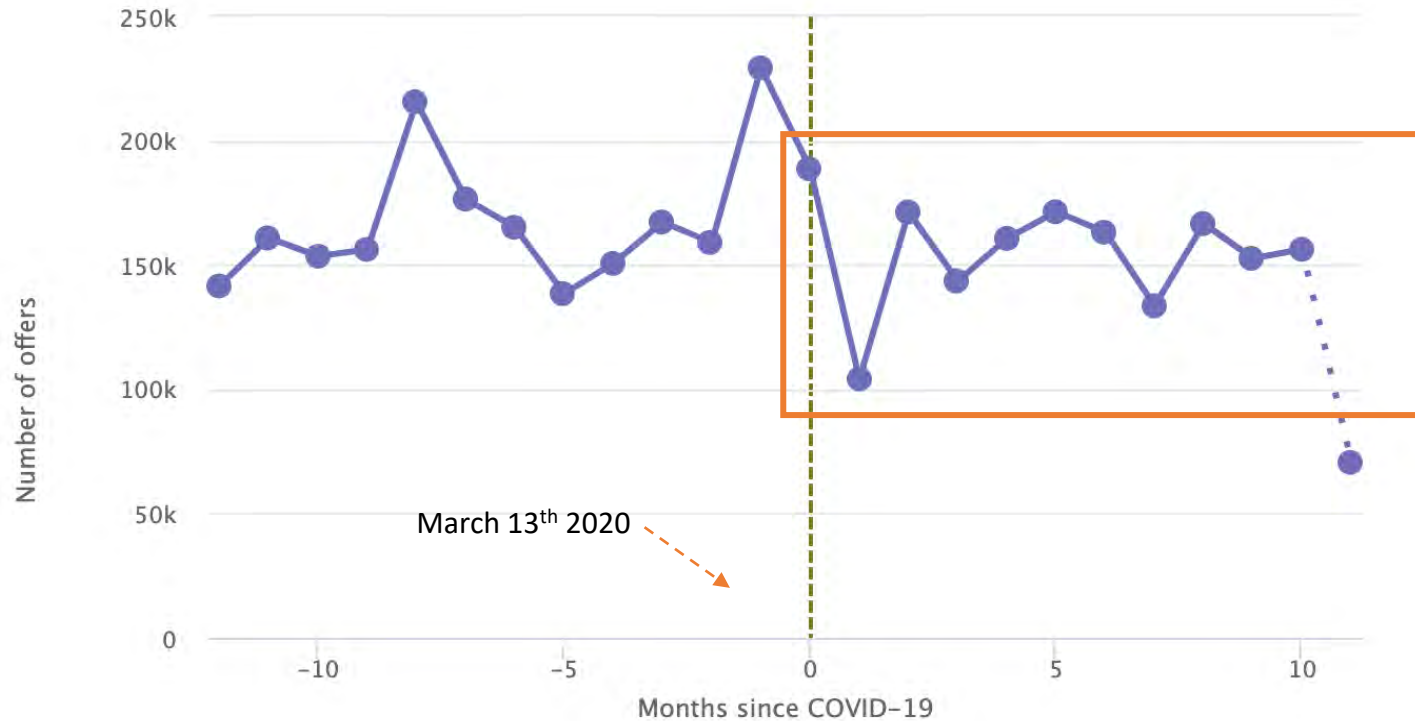
Effect of COVID-19 on the Transplant System

<https://www.srtr.org/tools/covid-19-evaluation/>

This application investigates the impact of COVID-19 on four distinct components of the transplant system:

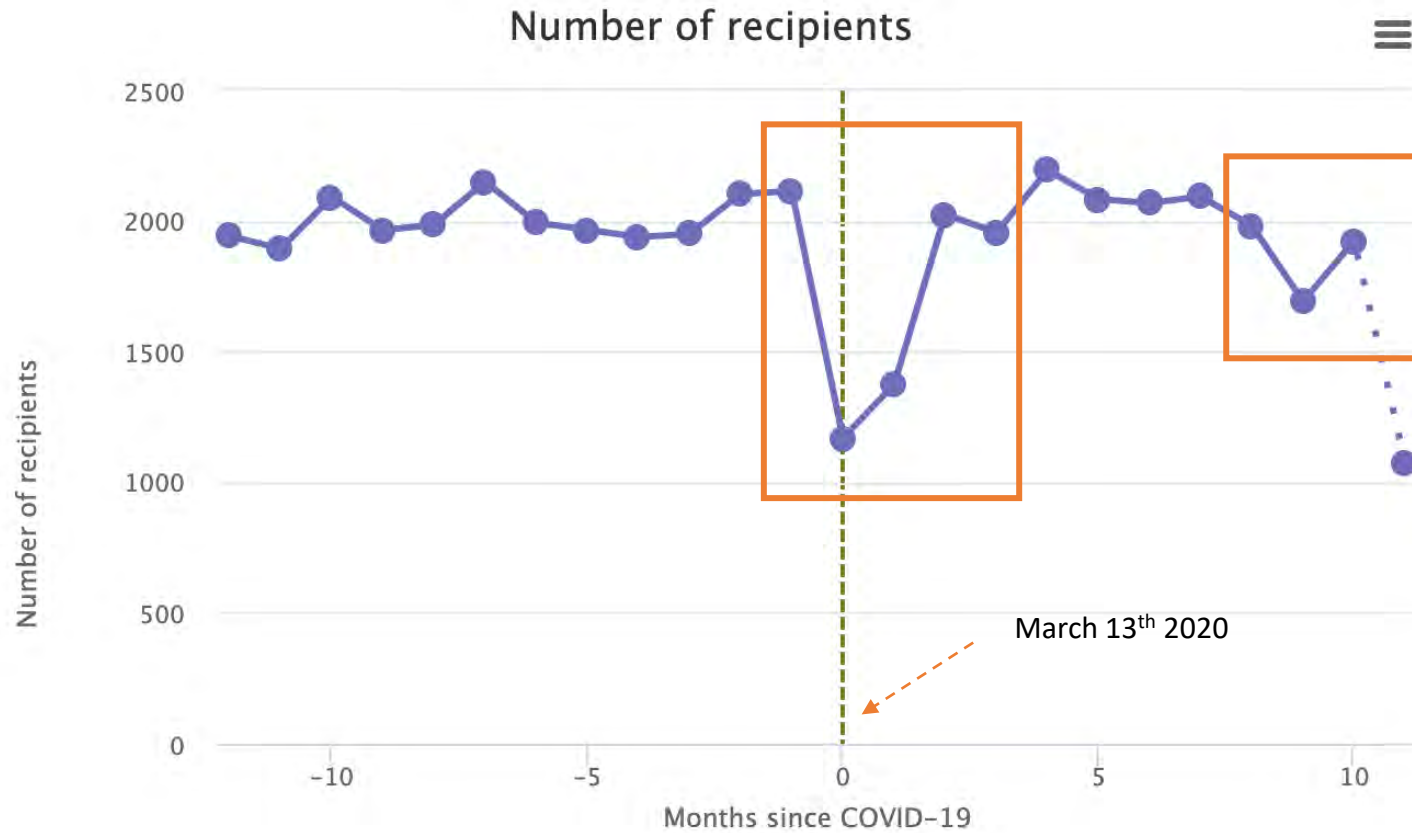
- Donor utilization
- Offer acceptance
- Posttransplant outcomes
- Waitlist outcomes

Kidney Organ Offers From Deceased Donor



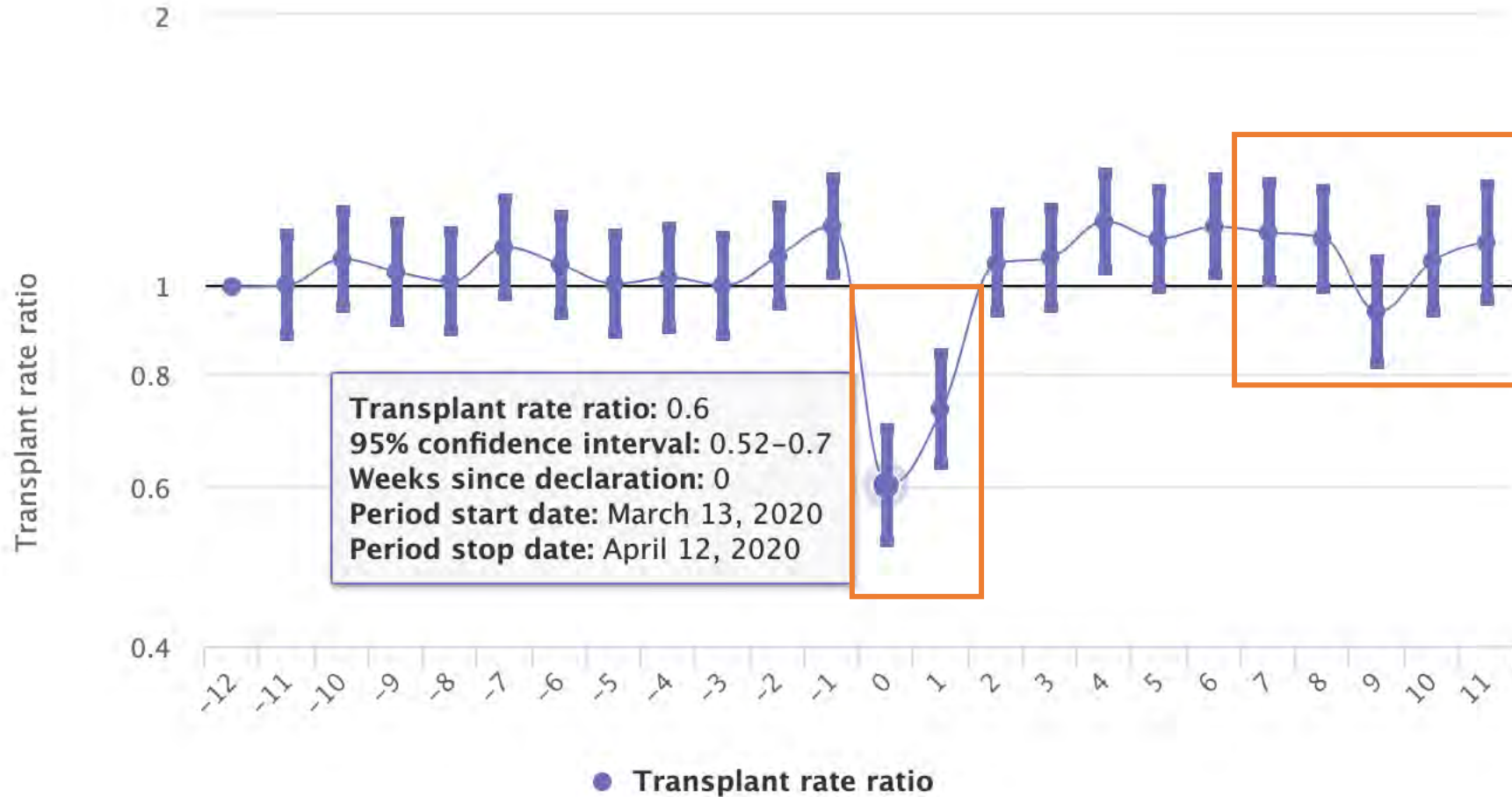
Overall number of Kidney offers decreased after National Emergency declaration

Kidney Transplant Recipients Per Month



Transplant activity decreased significantly during the first wave and again with the second wave

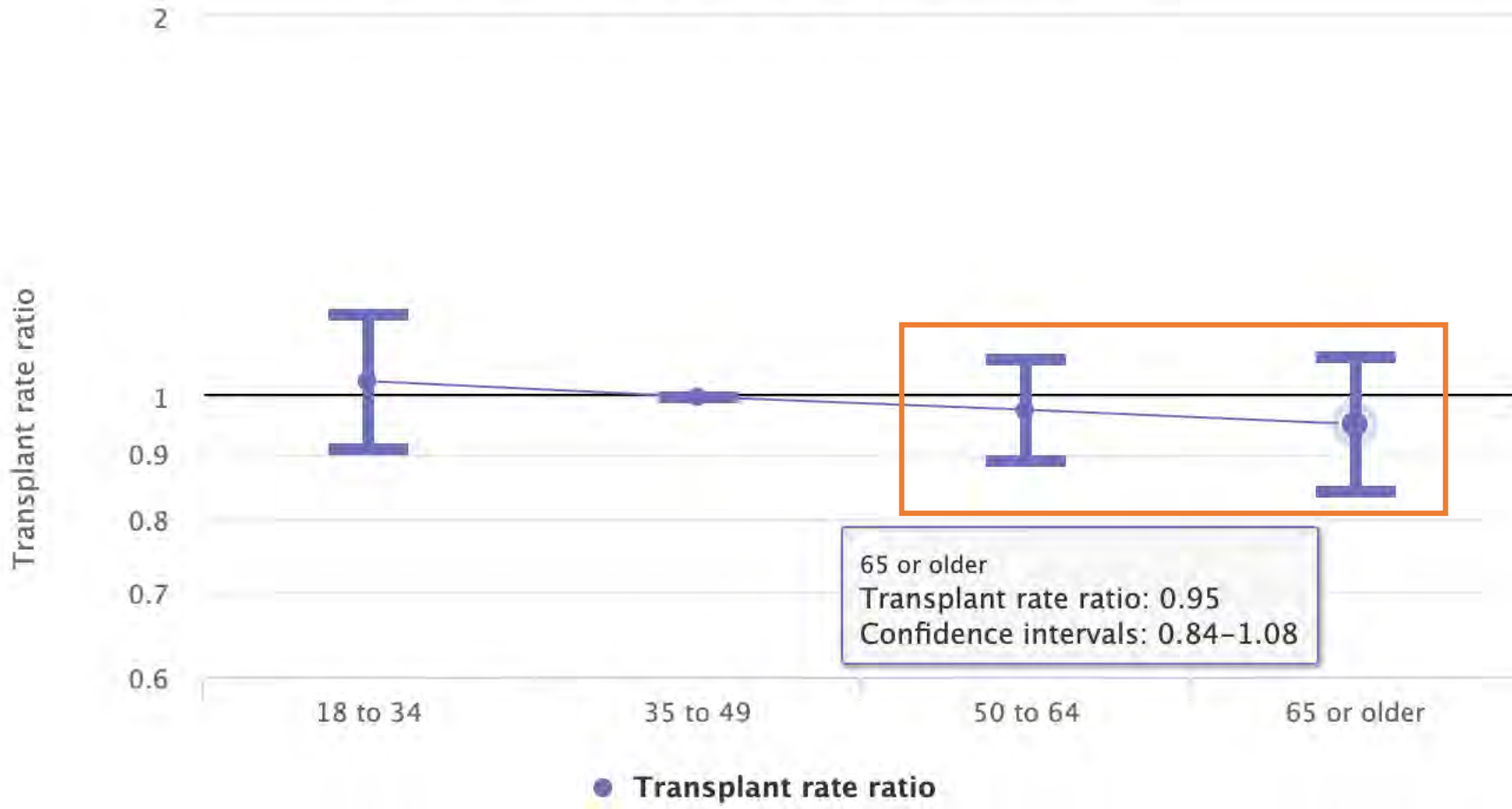
Weekly Trend for Kidney Transplant Rates



Initial drop in transplant rates to 60% of baseline. Then recovery above baseline.

Kidney Transplant Rates per Age Groups

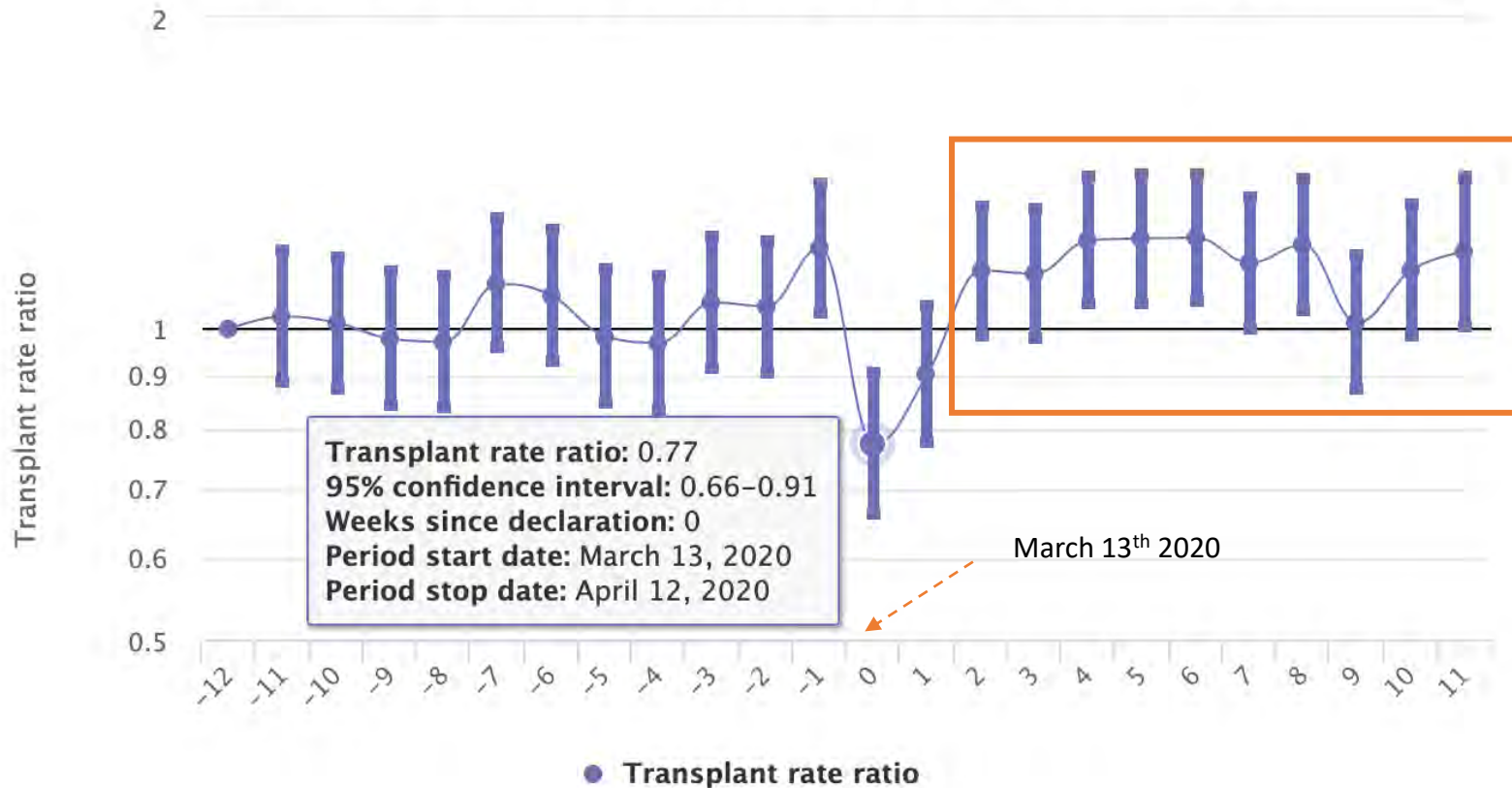
Differences before and after COVID-19



Transplant Rates lowered for older age groups.

Transplant Rates for Deceased Donor Kidney

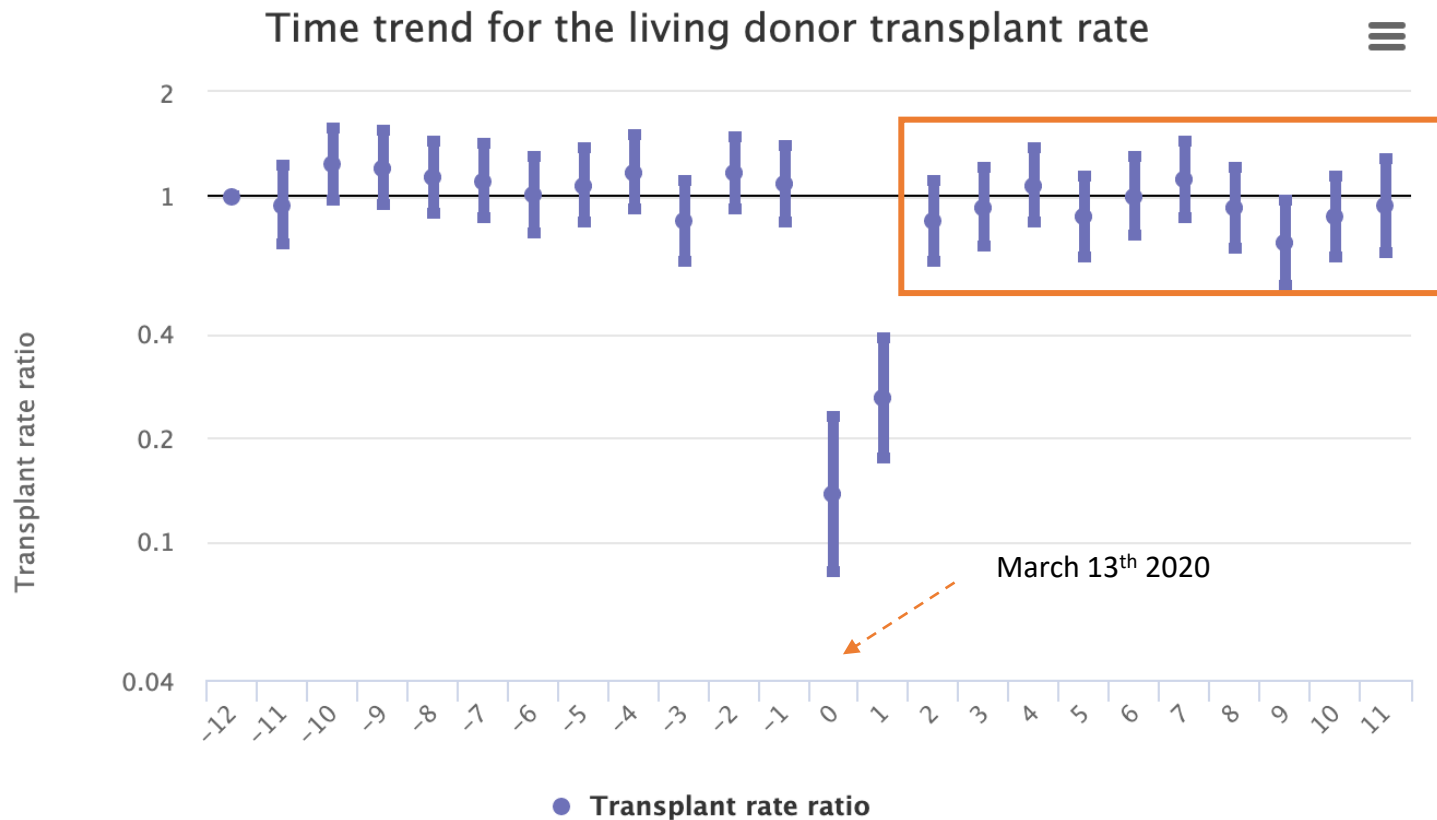
Time trend for the deceased donor transplant rate



After a sharp drop in rates initially, it recovered in few weeks

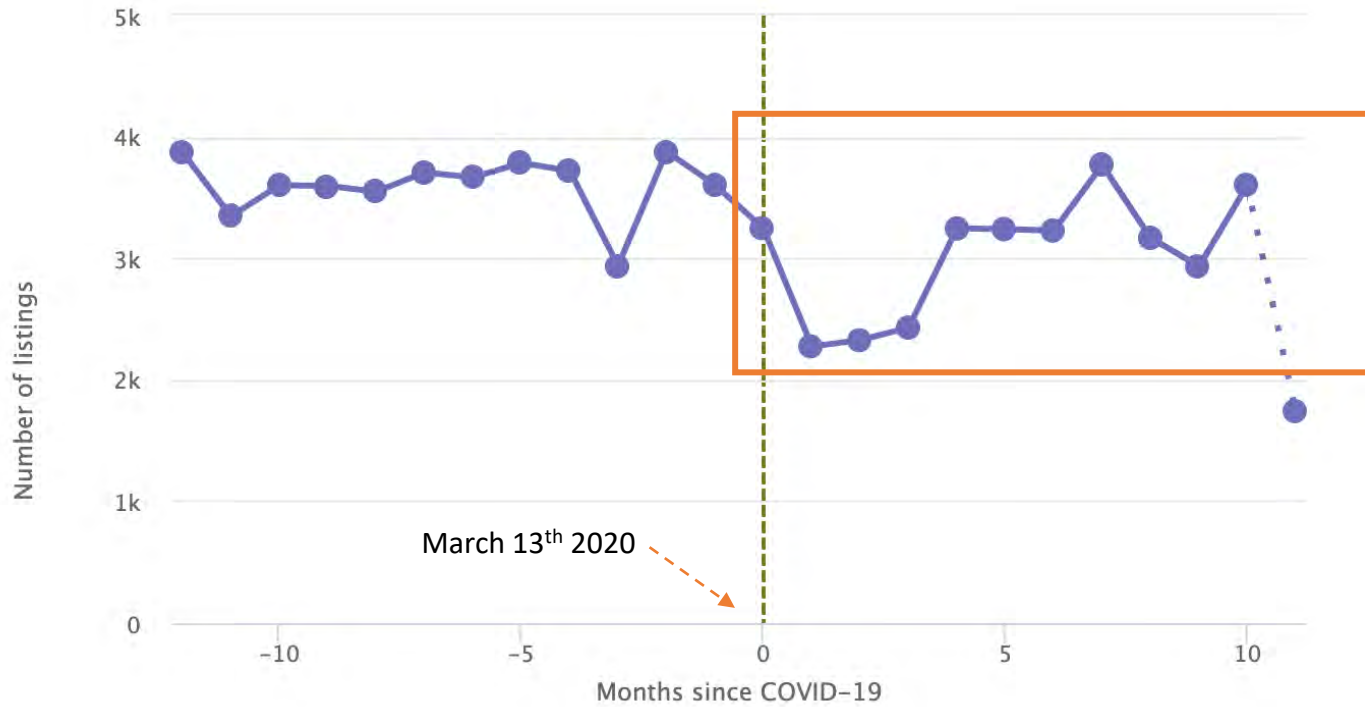
Becoming even significantly higher to respective months in 2019

Transplant Rate for Living Donor Kidney



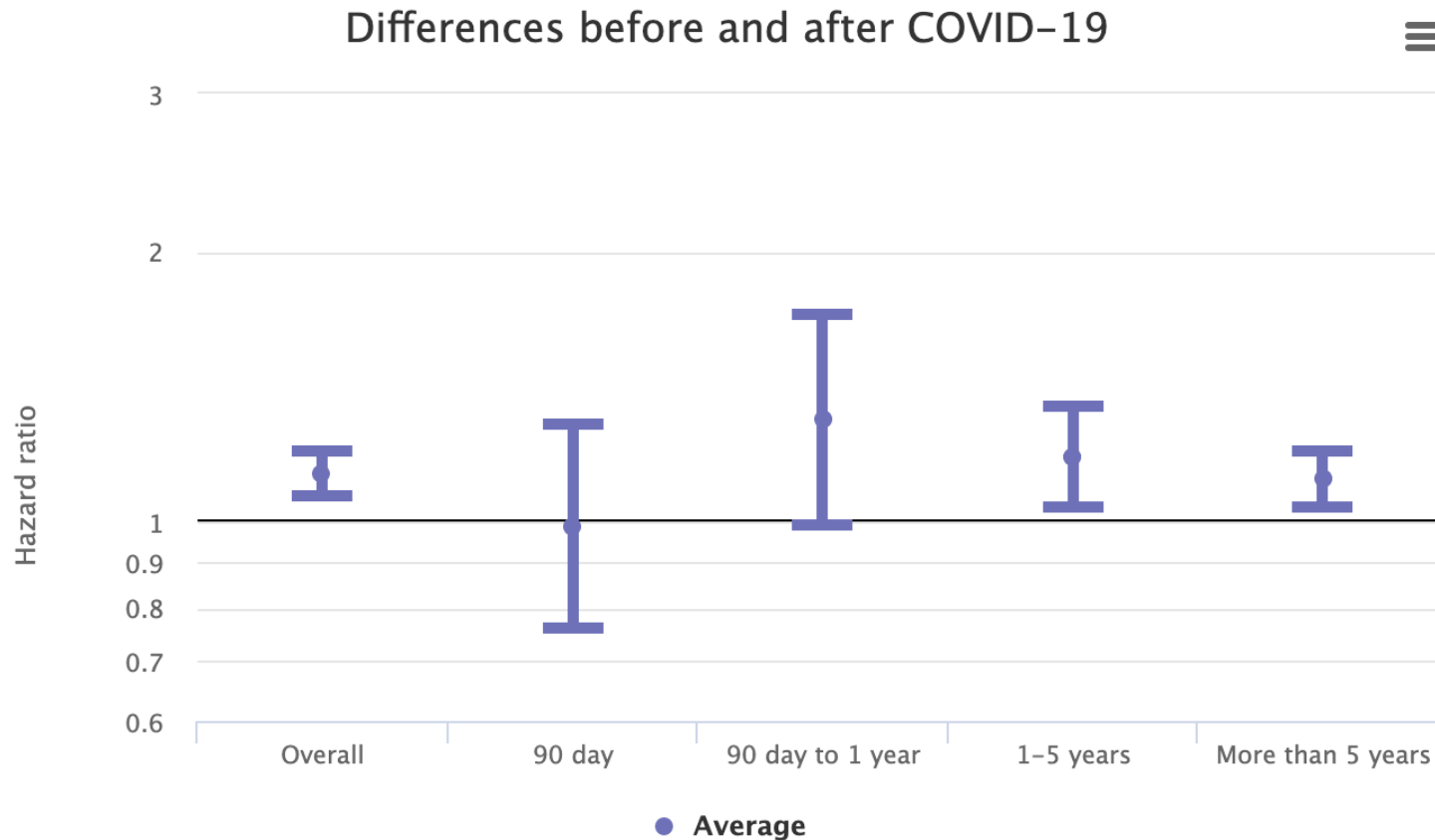
After a sharp drop in rates initially, it recovered in few weeks
 Recovery for Living Donors could not reach the historical levels
 (compared to respective months in 2019)

New Kidney Candidate Listings



Overall number of listings decreased after National Emergency declaration

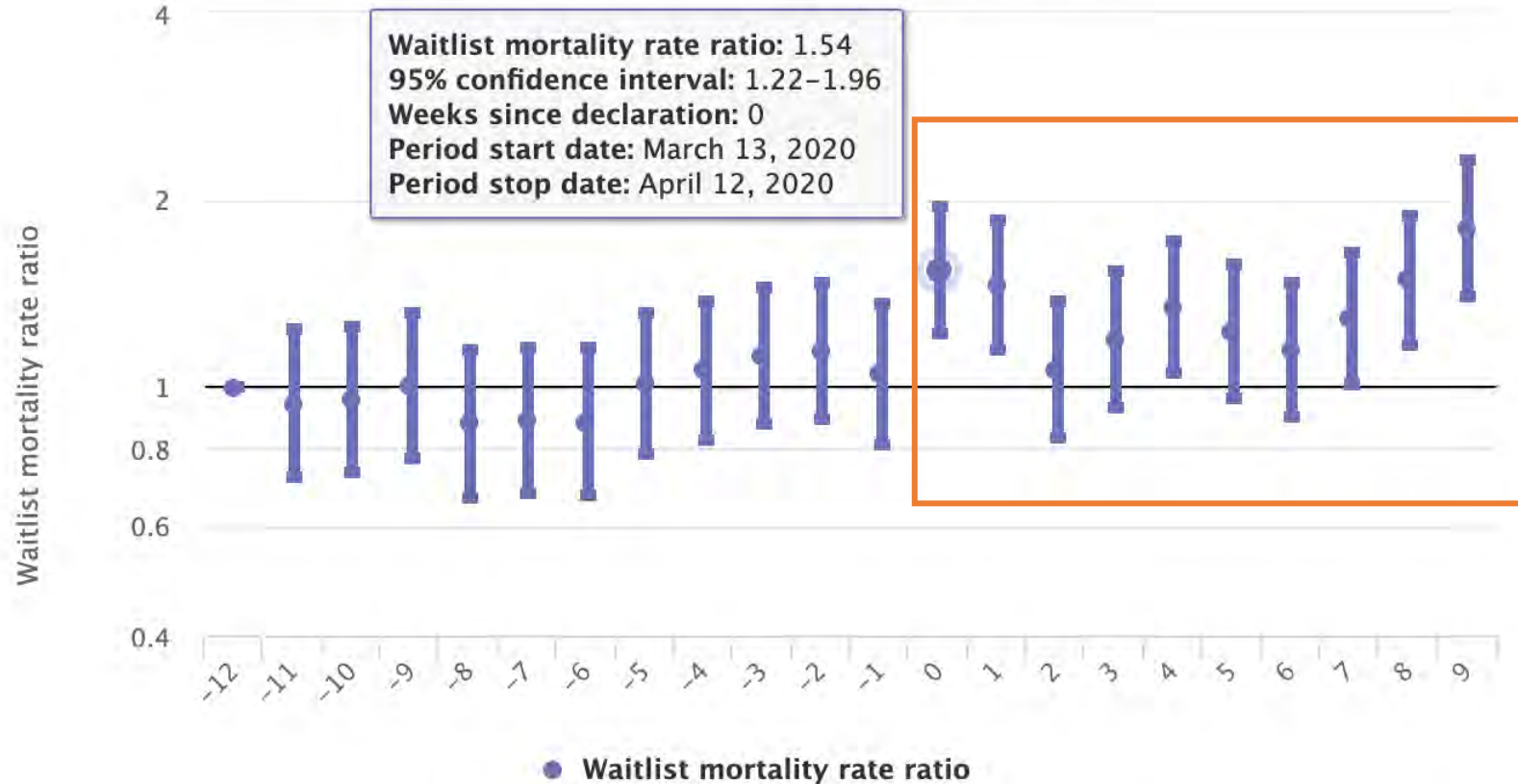
Kidney Transplant Failure Rates



90-day period likely involves additional risk of exposure during hospitalization. It did not change compared to pre-pandemic

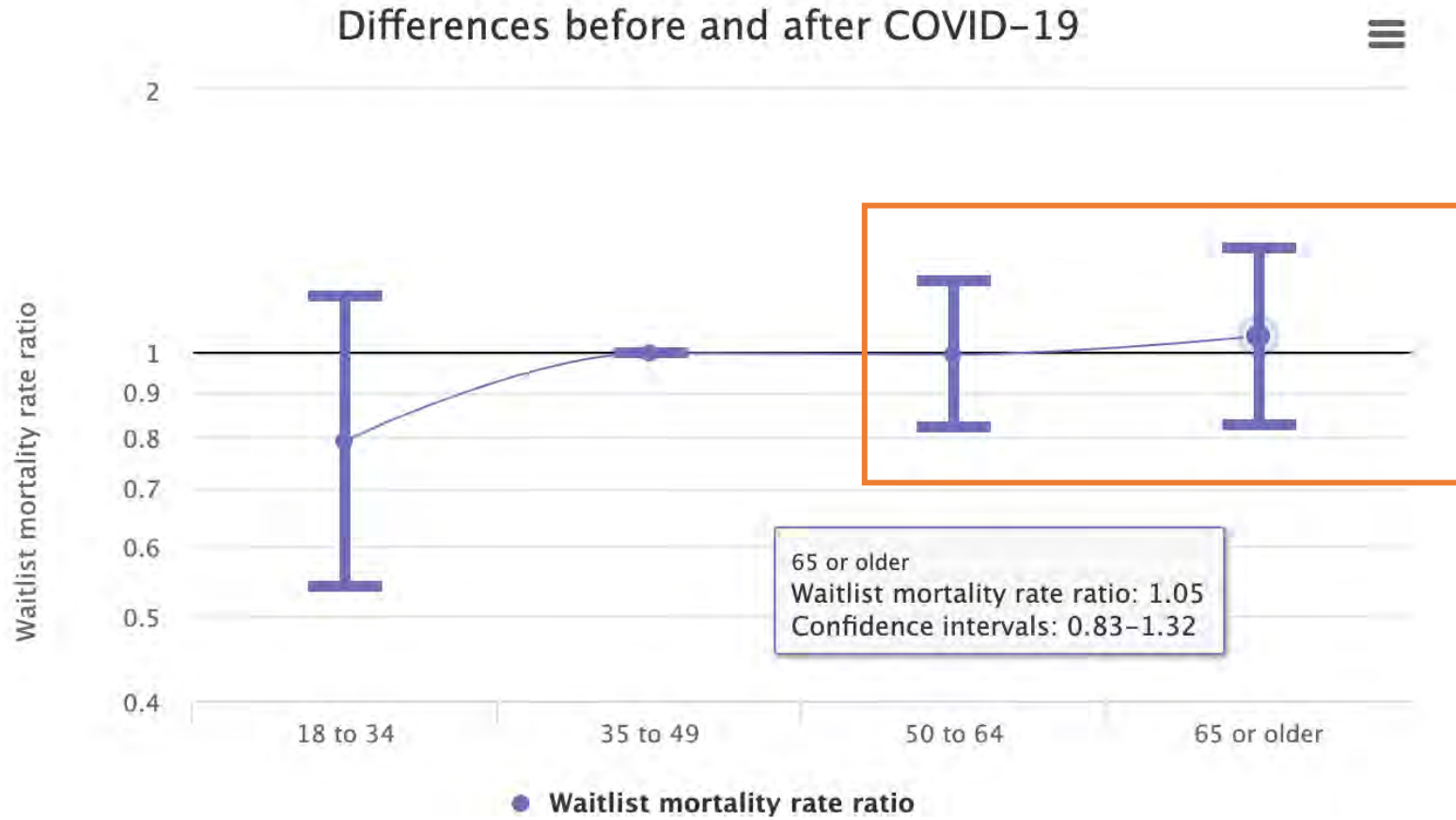
Kidney Waitlist Mortality Rate

Time trend for the waitlist mortality rate



Waitlist Mortality increased through the pandemic

Kidney Waitlist Mortality Rate Per Groups

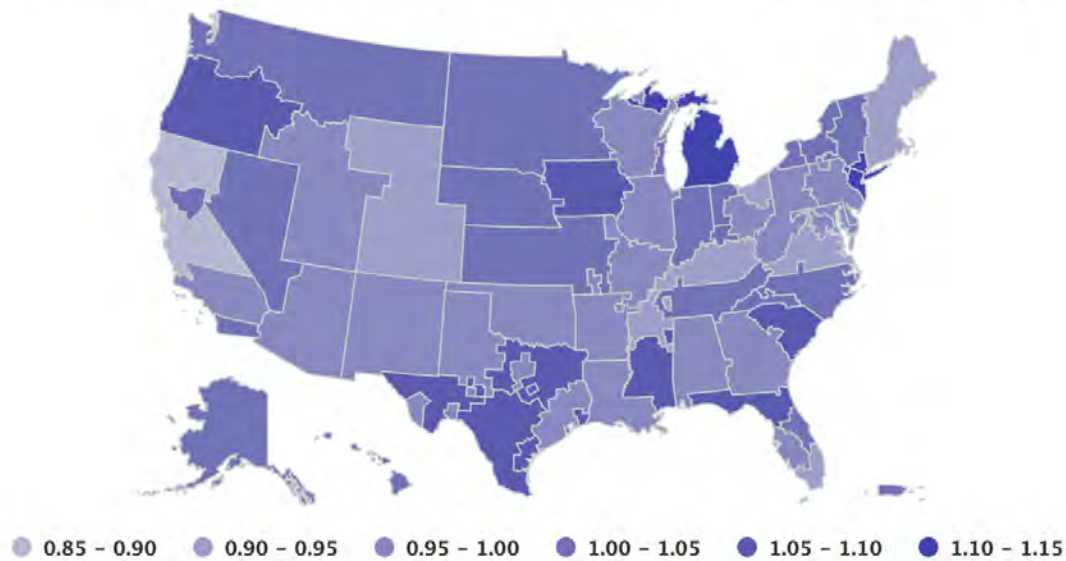


Waitlist Mortality increased for 65+ group

Risk of Waitlist Mortality vs Risk of Kidney Transplant Failure

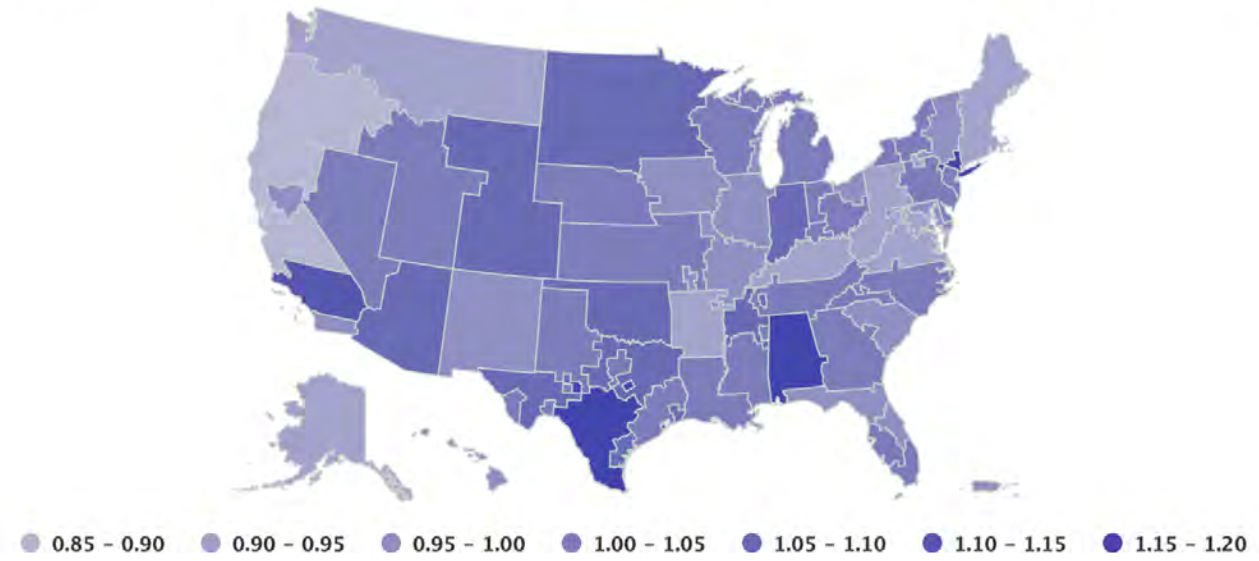
Risk for Kidney Waitlist Mortality

Waitlist mortality rate ratios before and after emergence of COVID-19



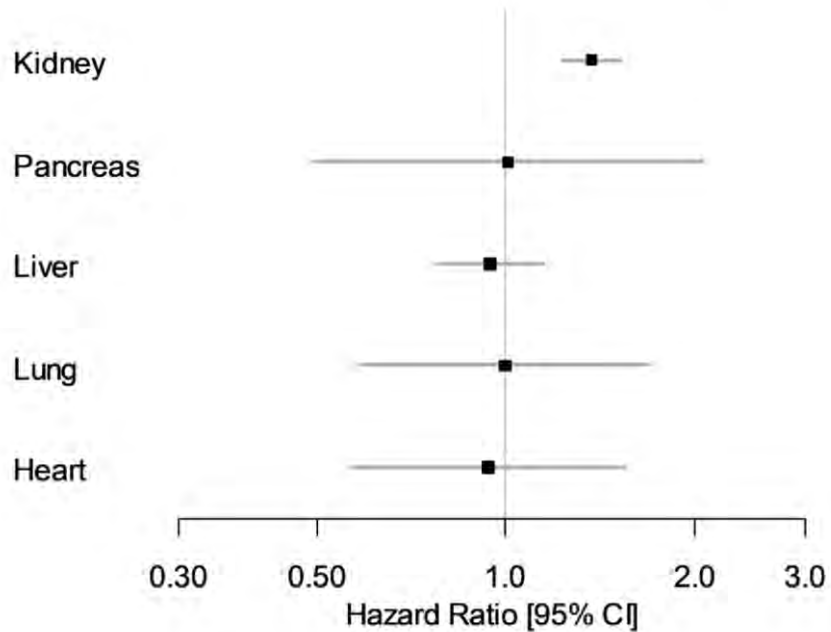
Risk for Kidney Transplant Failure

Hazard ratios for the change in graft failure before and after emergence of COVID-19



Kidney Waitlist Mortality

Impact of COVID-19 on Mortality Hazard among Organ Waitlist Candidates



Waitlist mortality

Hazard ratio: Change from pre to post COVID

Kidney candidates: Race

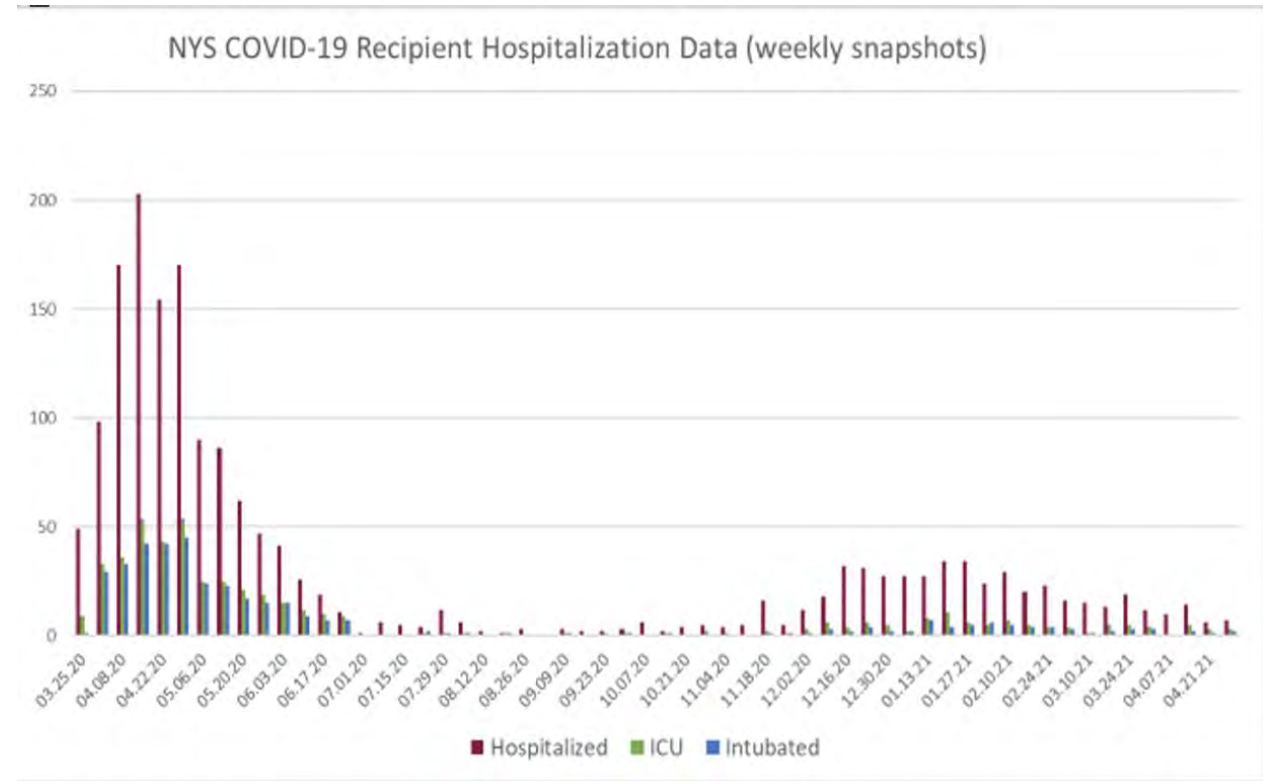
| | |
|-------------|---------------------|
| White (REF) | 1 (1 to 1) |
| Black | 1.41 (1.07 to 1.86) |
| Asian | 1.09 (0.70 to 1.69) |
| Other | 1.58 (0.72 to 3.49) |

NYS Covid-19 Transplant Data Reporting

NYS COVID-19 Transplant Recipient Data

| | TOTAL | KI | LI | HT | LU | dual |
|-------------------------|-------|------|-----|-----|----|------|
| COVID pos | 2167 | 1502 | 281 | 256 | 77 | 51 |
| Hospitalizations | 1220 | 859 | 134 | 135 | 55 | 37 |
| ICU Admissions | 329 | 244 | 33 | 34 | 9 | 9 |
| Intubations | 238 | 182 | 25 | 19 | 7 | 5 |
| Discharged | 649 | 473 | 79 | 65 | 10 | 22 |
| Deaths | 323 | 252 | 28 | 22 | 12 | 9 |

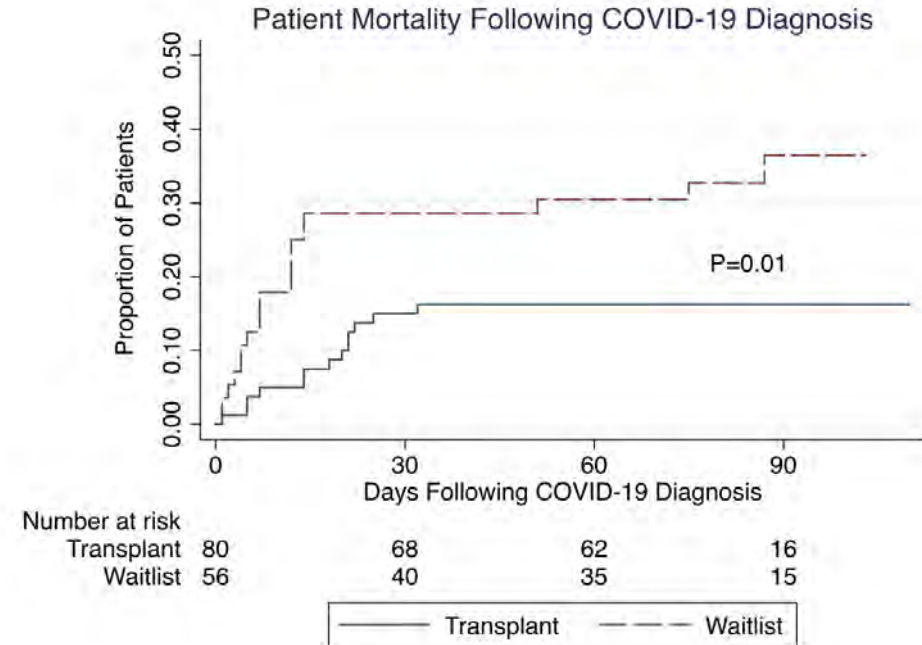
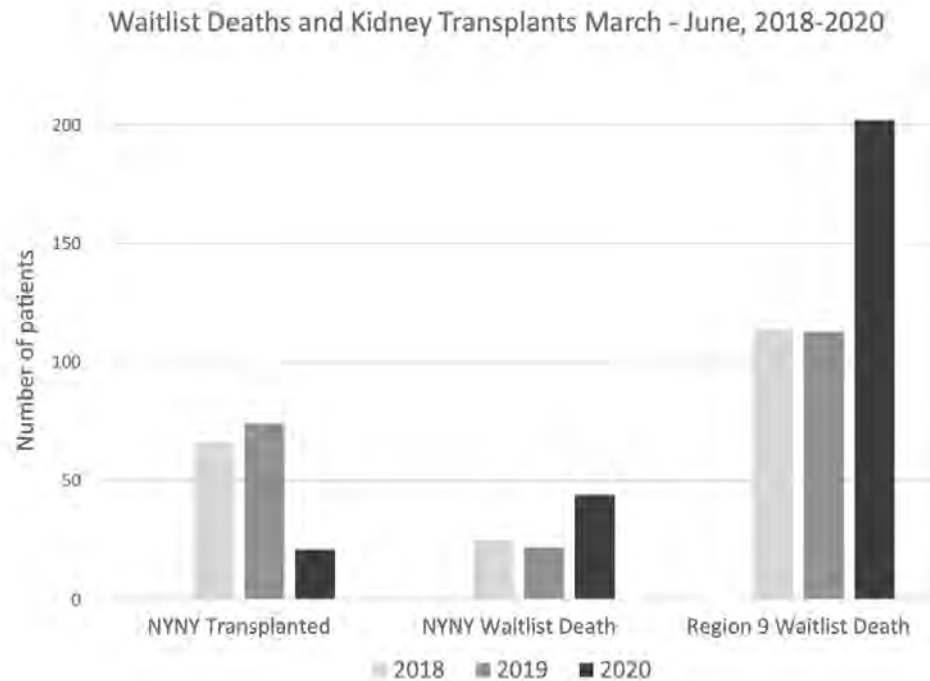
Source: 13/14 NYS Transplant Hospitals reporting
Data is cumulative through Apr 28, 2021



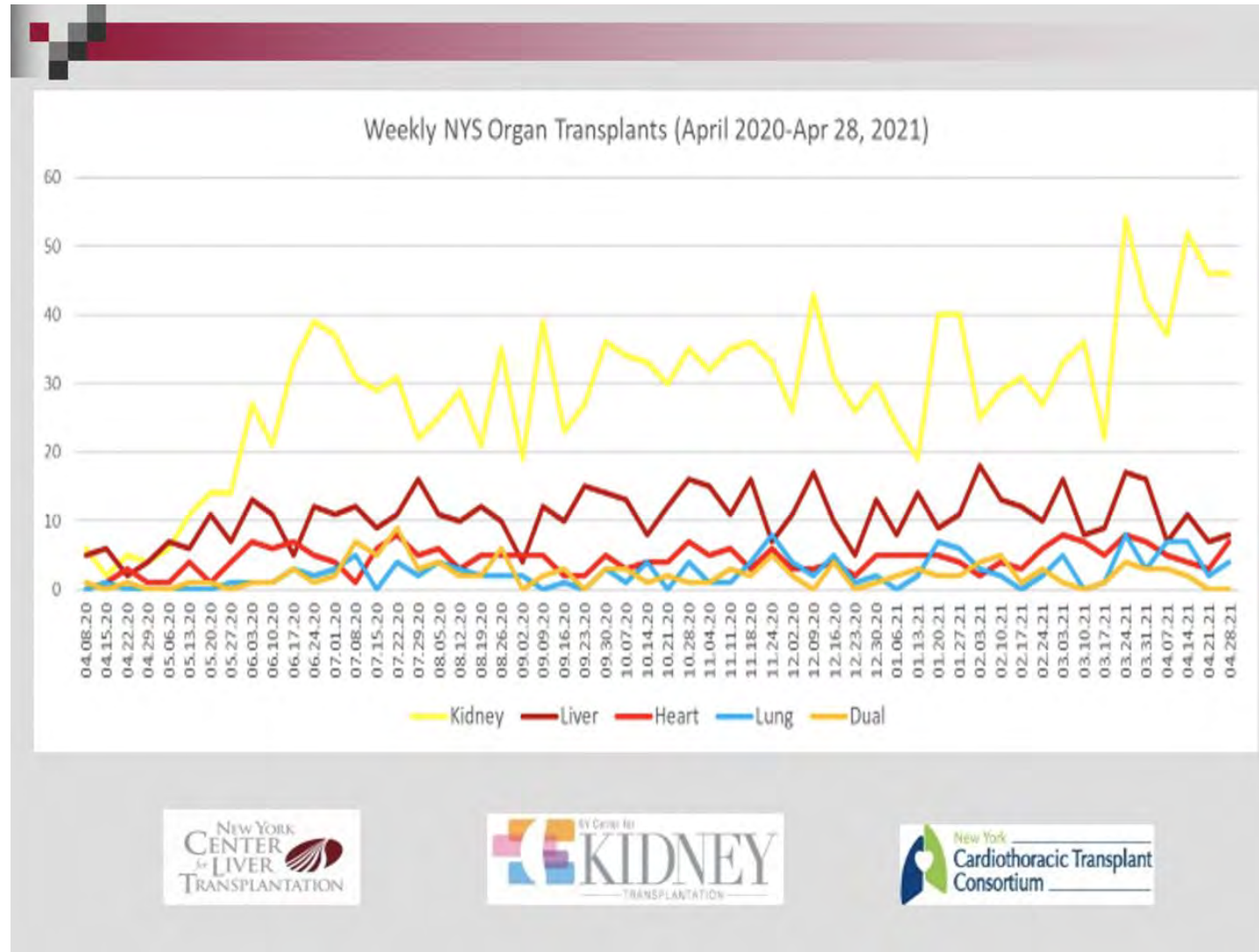
1,502 Kidney Recipients Covid +

- Hospitalization 57 %
- Death 16 %

Risk of Death from Covid-19, Waitlist Vs. Kidney Transplant



Return of the Transplant Activity in the NY region



Considerations to Move Forward With Transplantation

Balancing Waitlist Mortality and Post-Transplant Outcomes

- ✓ **Specific populations at risk for poor outcomes from Covid-19**
 - Age, Race, Social Determinants
- ✓ **Evidence points to a higher Mortality on the waitlist than after transplant (at least in the short term)**

Improvements for a Safe Return of Transplant Practice

- ✓ **Systematic Covid testing to all organ donors**
 - Risk of donor transmission only sporadically reported (early days)
- ✓ **Perioperative Covid Infections**
 - Hospital protocols now able to keep Covid free areas, low risk for in-house transmissions
 - Important for both Transplant Patients and Living Donors
- ✓ **Transplant Protocols Covid-Specific**
 - Tailored immunosuppression for populations at risk
 - Recipient education for care at home and as outpatient
- ✓ **Widespread Vaccination of all Population, Pre-transplant and Post-transplant Patients**



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Questions?

Thank you