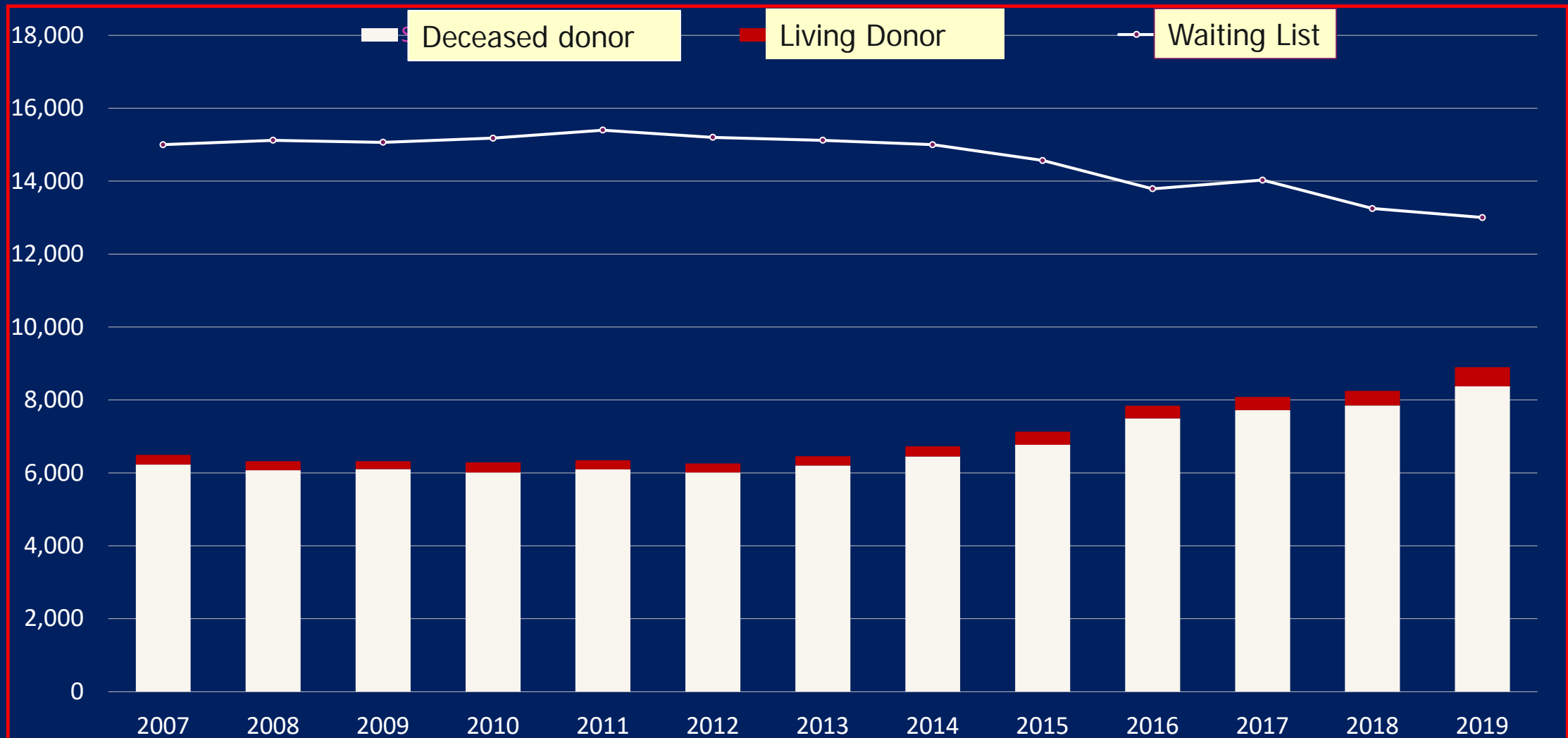


Living Donor Liver Transplant- UPMC Experience

University of Pittsburgh Medical Center
Center of Excellence
Dr. Swaytha Ganesh

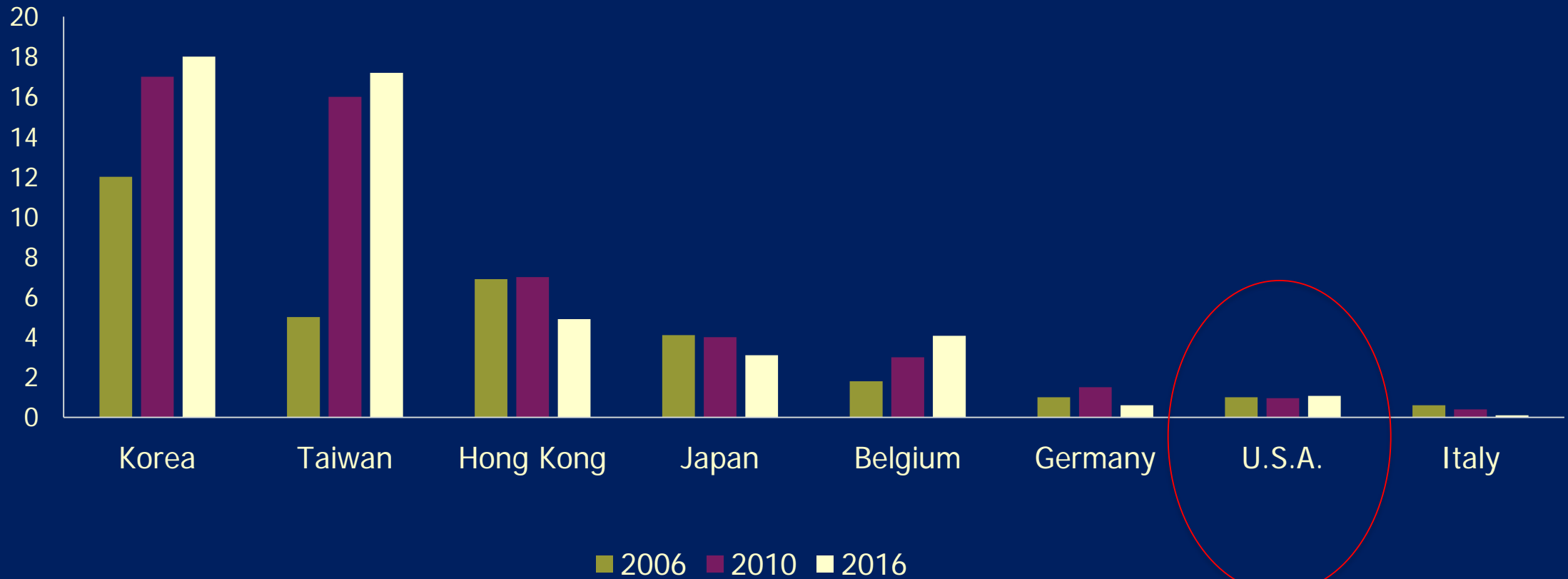


Current Status of Living Donor Liver Transplant in US

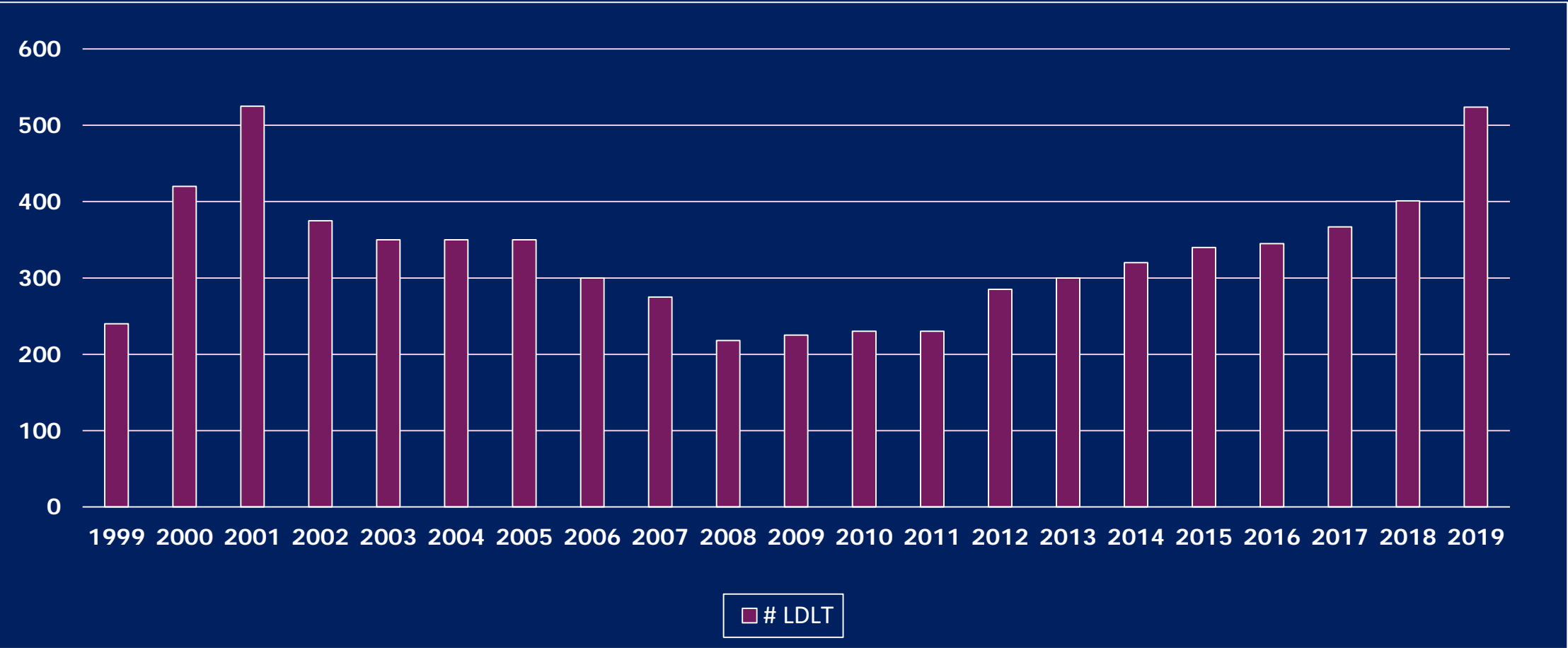


Living Donor Transplant Around the World

Living-Donor Liver Transplants per Million People

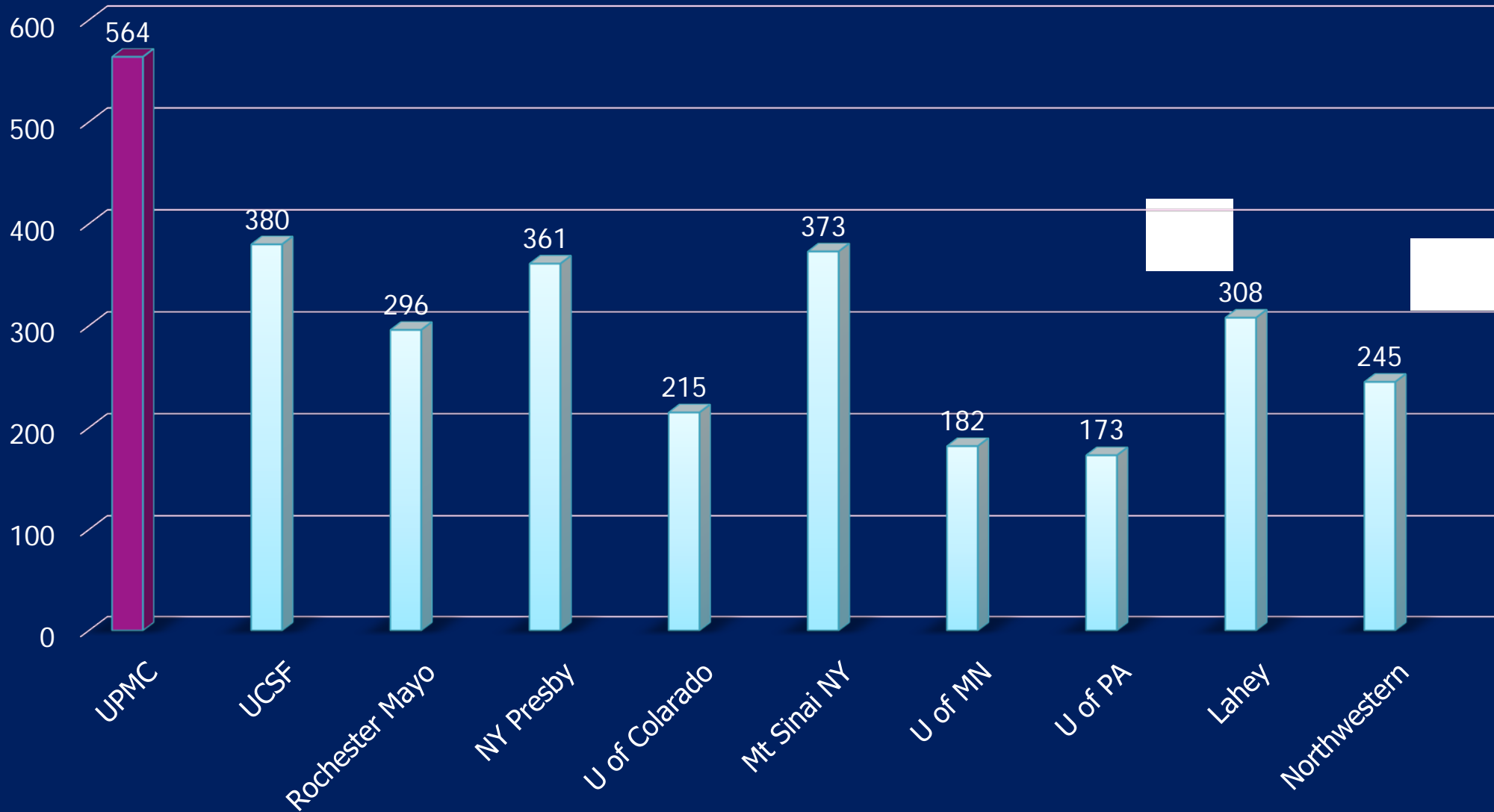


LDLT Underutilized in US



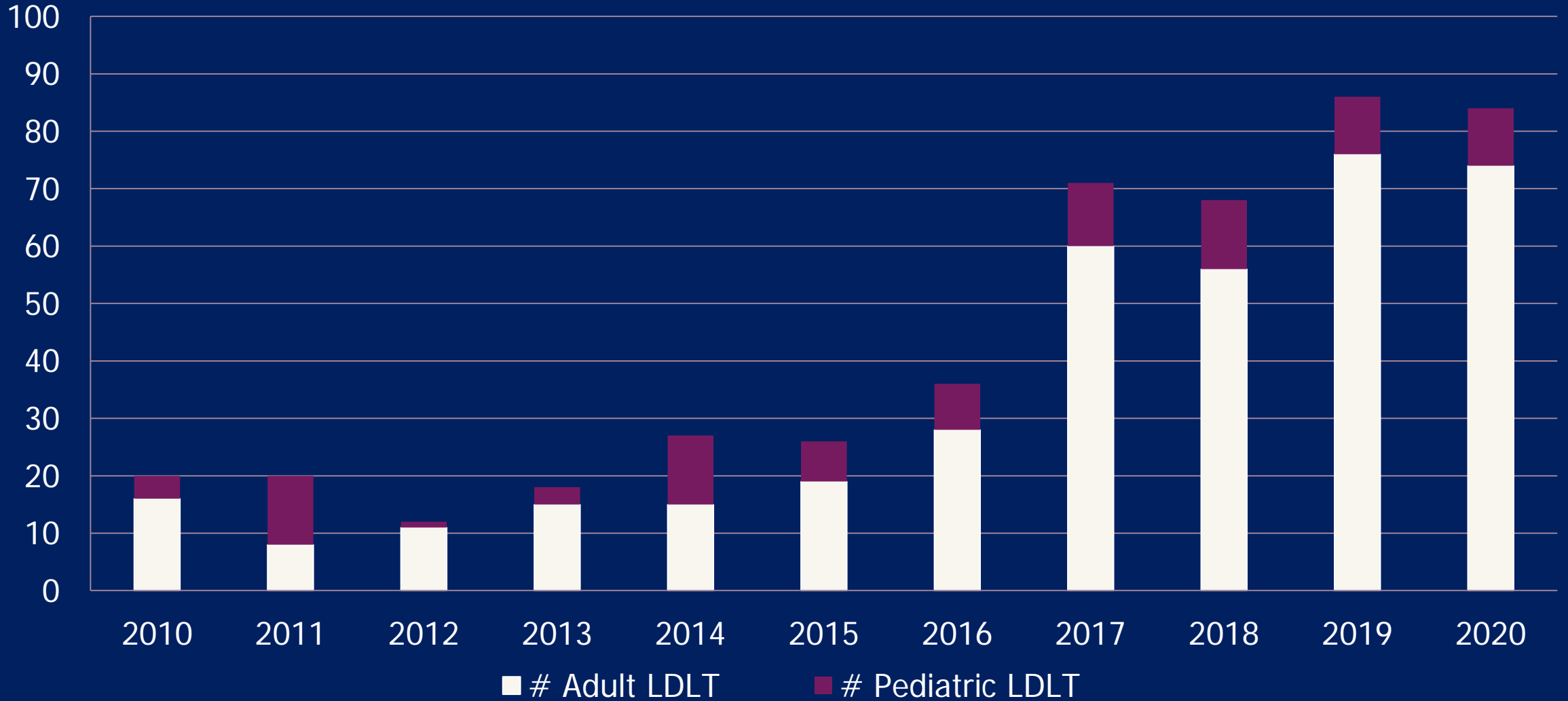
**UNDERUTILIZED: ONLY 524 LDLT PERFORMED IN THE ENTIRE U.S. IN 2019
THIS ACCOUNTED FOR 5.9% OF THE TOTAL NUMBER OF TRANSPLANTS.**

ONLY 15 US CENTERS HAVE DONE >100 ALDLT Total



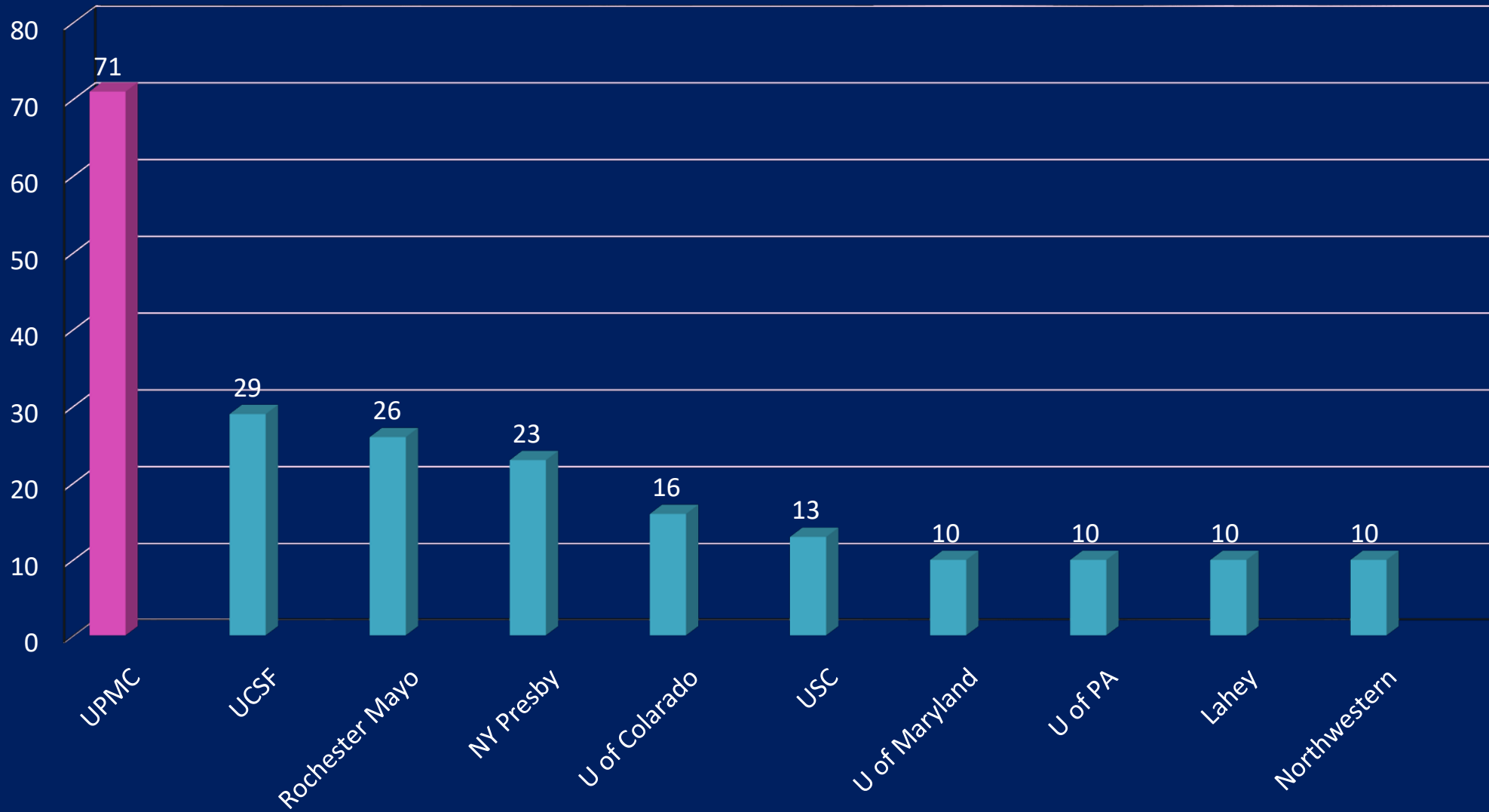
Number of LDLT (2018)	Number of Centers
≥10	12
5-9	15
1-4	20

LDLT at UPMC



- In 2019, 60% of our transplants were with a living donor (national average 5.4%)

LDLT at UPMC



Outcomes: Donors and Recipients

Donor Risk

National Data

7459 LDLT
(April 30, 2020)

6 donor
deaths
(0.08%)

3 donors
received
LTX

- Overall complication 30%
- Major complication 10%

UPMC Data

- No donor deaths
- No cases of liver failure
- Overall complication rate 19.5%
- Major complication rate of 8.8%
- Mean length of stay- 5.8 days

Donor Outcomes

- Reoperation rate of 6.2%
 - Early (<3 months)- 2.7% (bowel perforation, bleeding, SBO, negative lap)
 - Late (>3 months)- 3.5% (hernias)
- Biliary leak/biloma: 6 (1.2%)- all managed with percutaneous drainage +/- ERCP
- Medical complications: UTI, pneumonia, c diff, DVT/PE, wound infection, fever, abdominal pain, nerve injury.

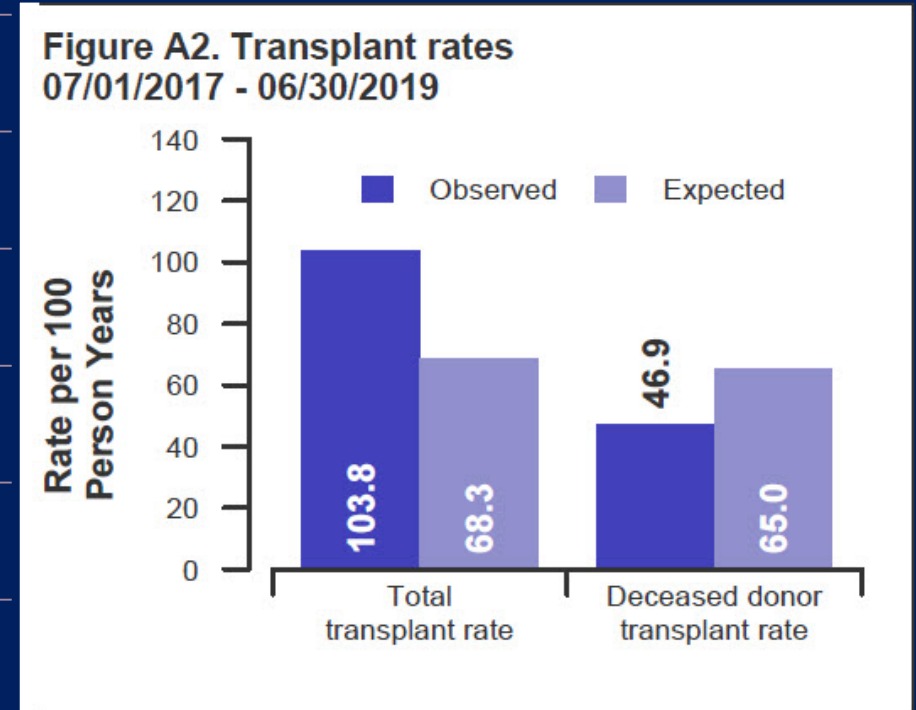
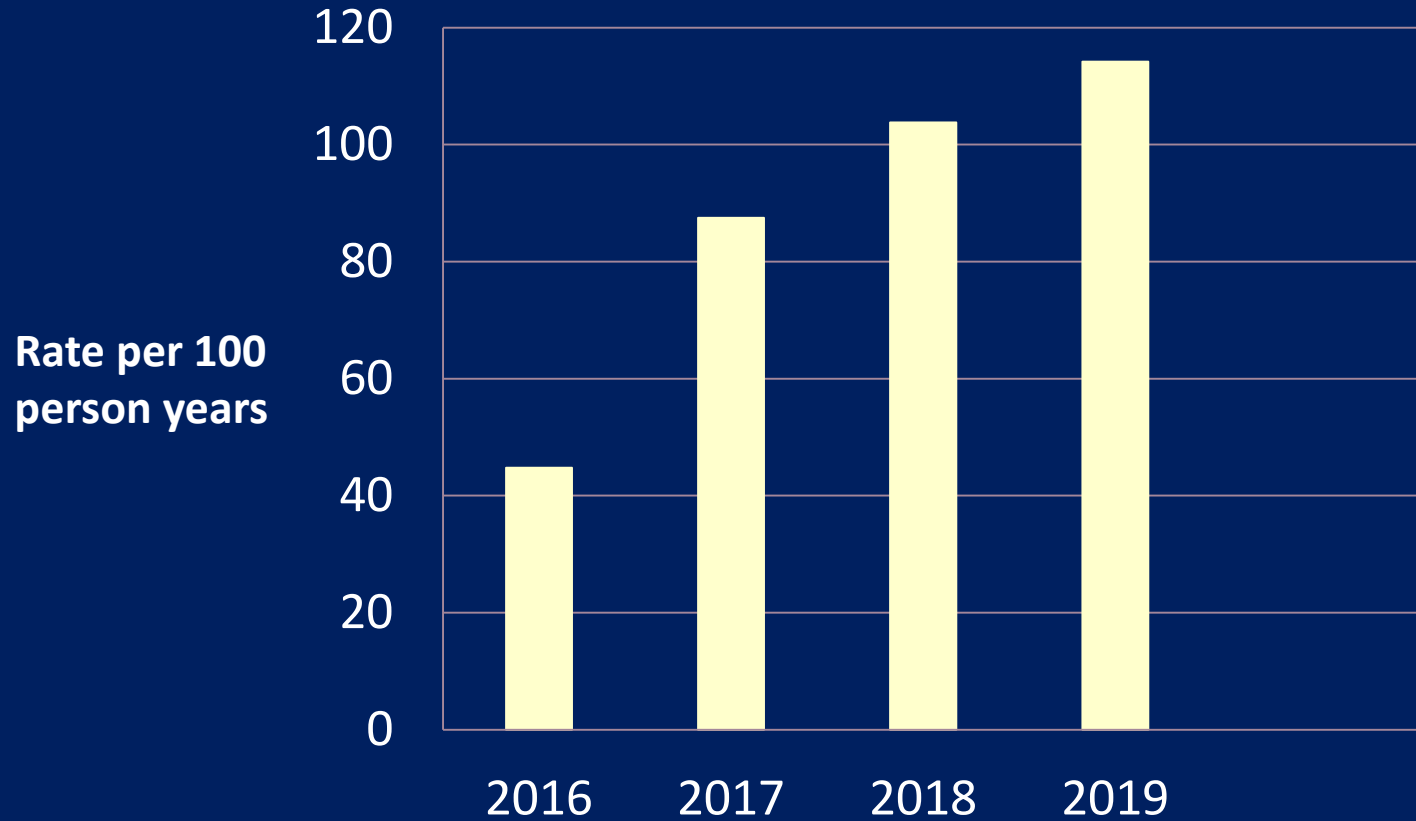
Donor Safety

- Recovery:
 - 5-7 days in hospital
 - 4-6 weeks desk job
 - 10-12 weeks physical job
 - 80-90% by 3 months post donation

What's new at UPMC with Living donors

- ABOi LPE
- LDLT for Extended criteria (Dr. Hughes)
- Altruistic/ Anonymous donation
- Champion Program

Transplant Rate has Increased Significantly



- Transplant rate has tripled in last 5 years

Waiting List Mortality has decreased Significantly

Rate per 100
person years

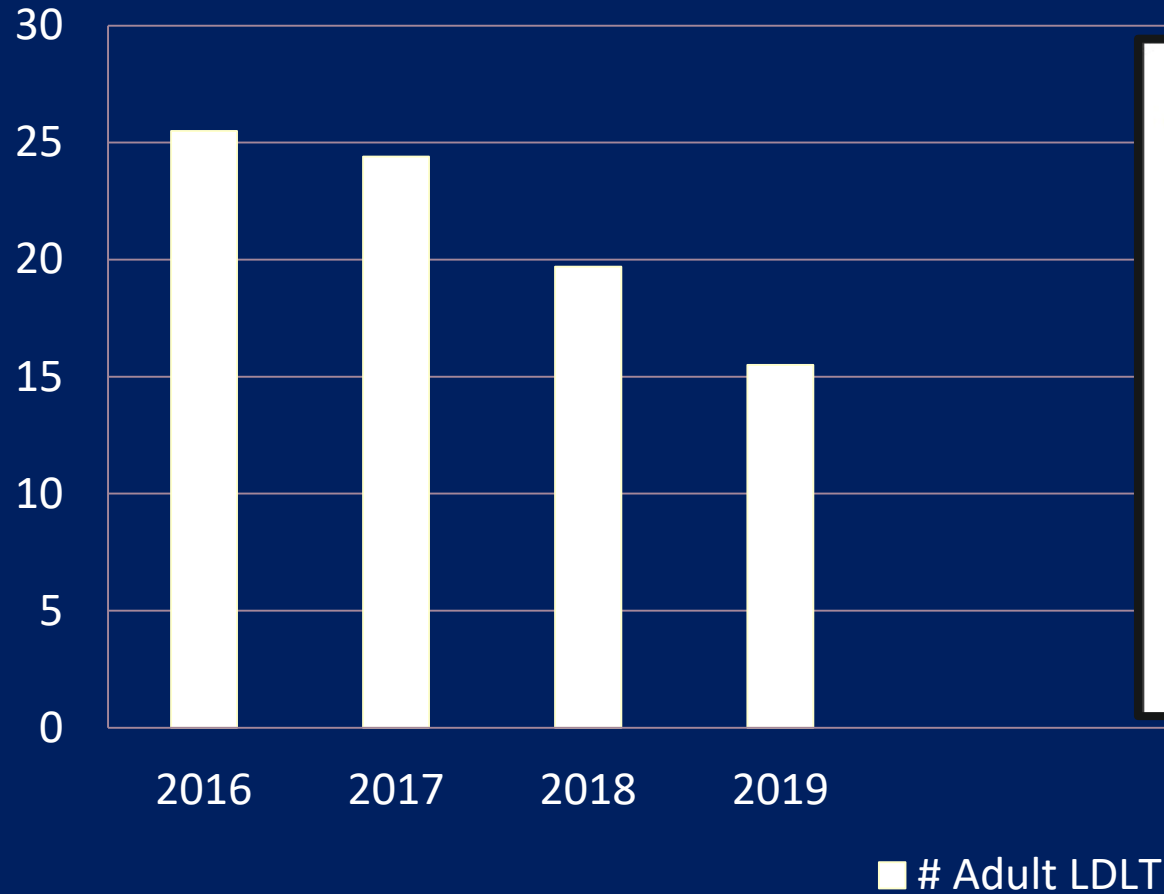
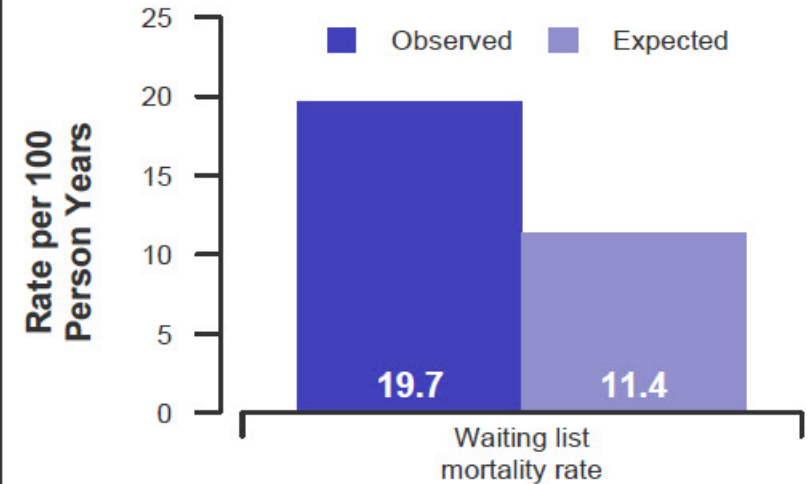
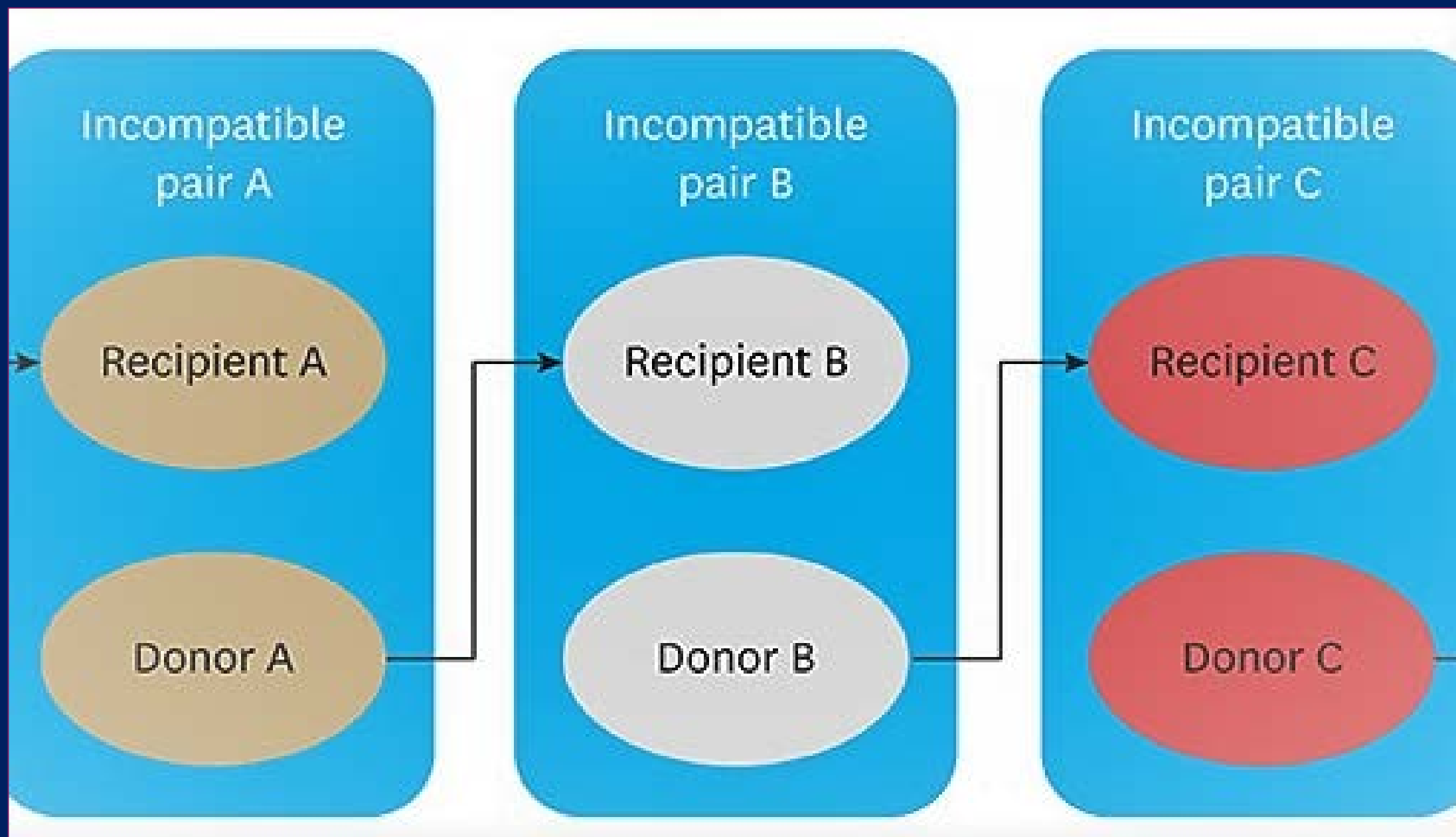


Figure A3. Waiting list mortality rates
07/01/2017 - 06/30/2019



Liver Paired Exchanges

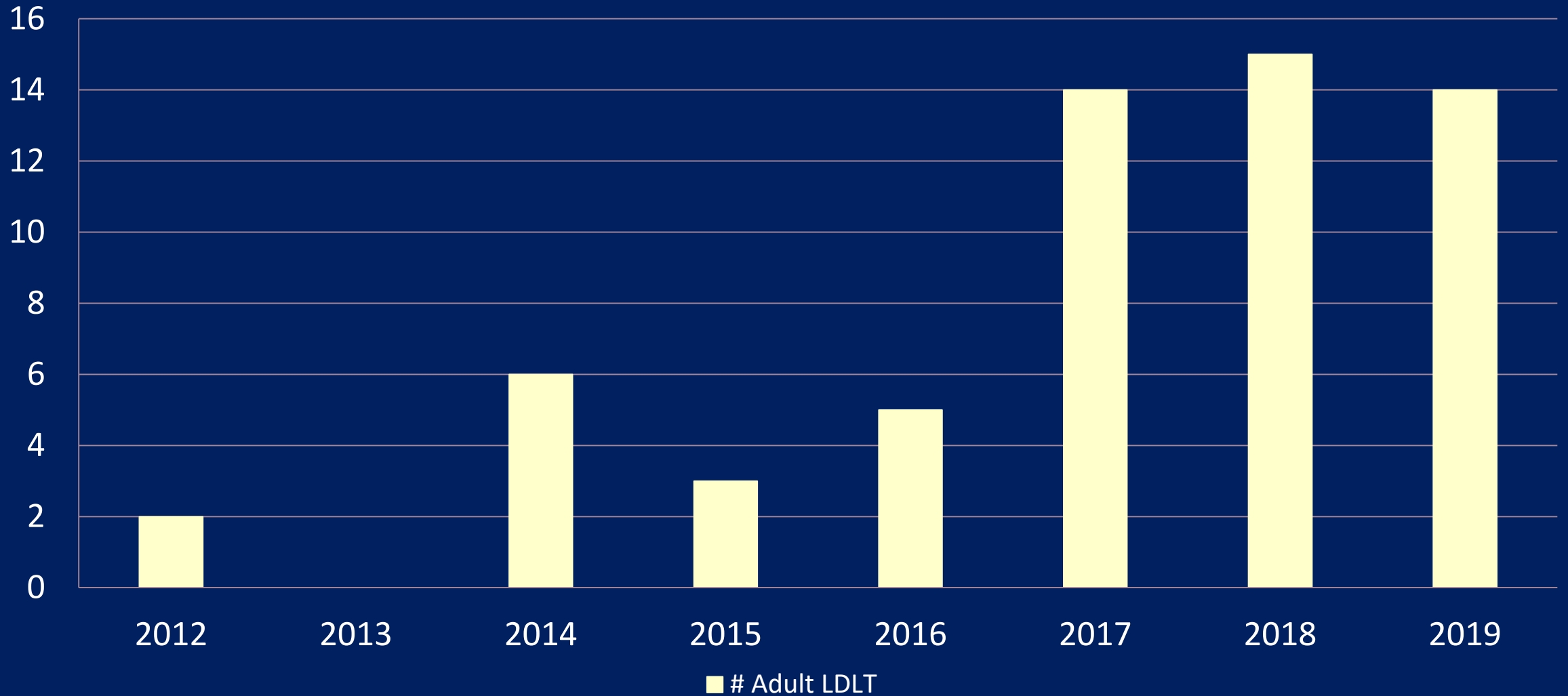
- 8 pairs thus far and a total of sixteen transplants from the Year 2019 October through present.
- The swaps or LPE happened in different combinations
- Out of the total cases, the exchange is initiated by an Altruistic donor, in five of them.
- All of them were involving an ABOi donor/ recipient pair with matched donors for each recipient.
- The non-directed donor altruistic donor was blood type O, in all the five cases.
- The 2nd recipient in these cases was chosen from the wait list.
- They were matched based on weight, BMI, MELD, graft size and anatomy. Both the pairs underwent transplants within a week of each other.



Impact of a Community-Targeted Educational Campaign on Anonymous Donors

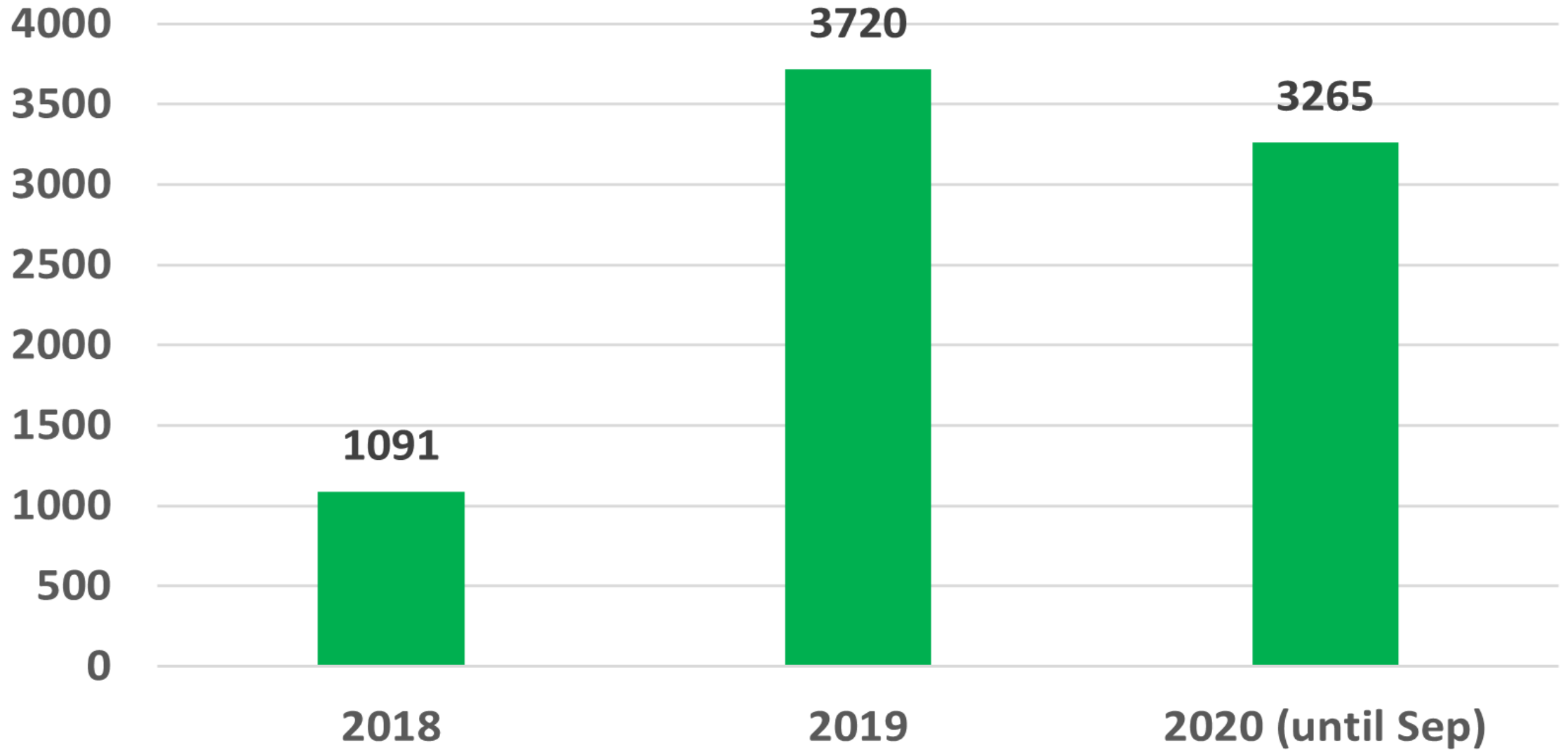
- Structured educational awareness campaign and a support program, designed to overcome barriers to identifying potential live liver donors for waitlisted recipients
- Educational campaign to general public which was launched in October of 2018
- E Blasts, and Webinars through Advocacy groups including UNOS, Donate Life America, social media
- To create awareness and educate the general public on living donation, social media including Face book.

Number of Anonymous LDLT AT UPMC BY YEAR



- In 2019, 20% of our LDLT transplants were with an anonymous donor

Number of Liver Donor Registrations



Living Donor Champion Program- Impact on Directed Donors

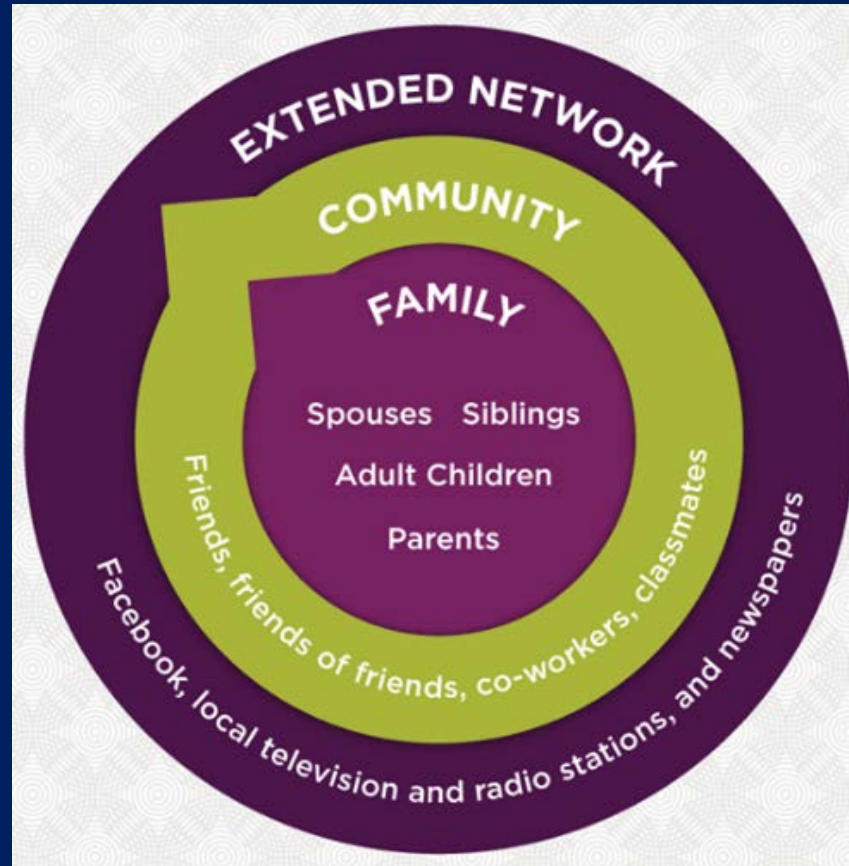
The program consists of a series of structured Exercises:

- Champion Toolkit (Online and Printed Materials)
- Champion Workshops (Virtual Video conference or in person)
- Online champion website
- Living Donor Information Sessions
- Champion Support Group on Facebook
- Champion Ambassador
- Living donor education and informational session through webinar and outreach: Both Group and Individual session
- Other: Public Education efforts
- Printed Education Materials through brochures
- Champion website

Living Donor Champion Program: Conceptual Framework

Share the story

Social settings:
Recreational sports leagues
Church groups
Other community-based gatherings
Book clubs



Social media

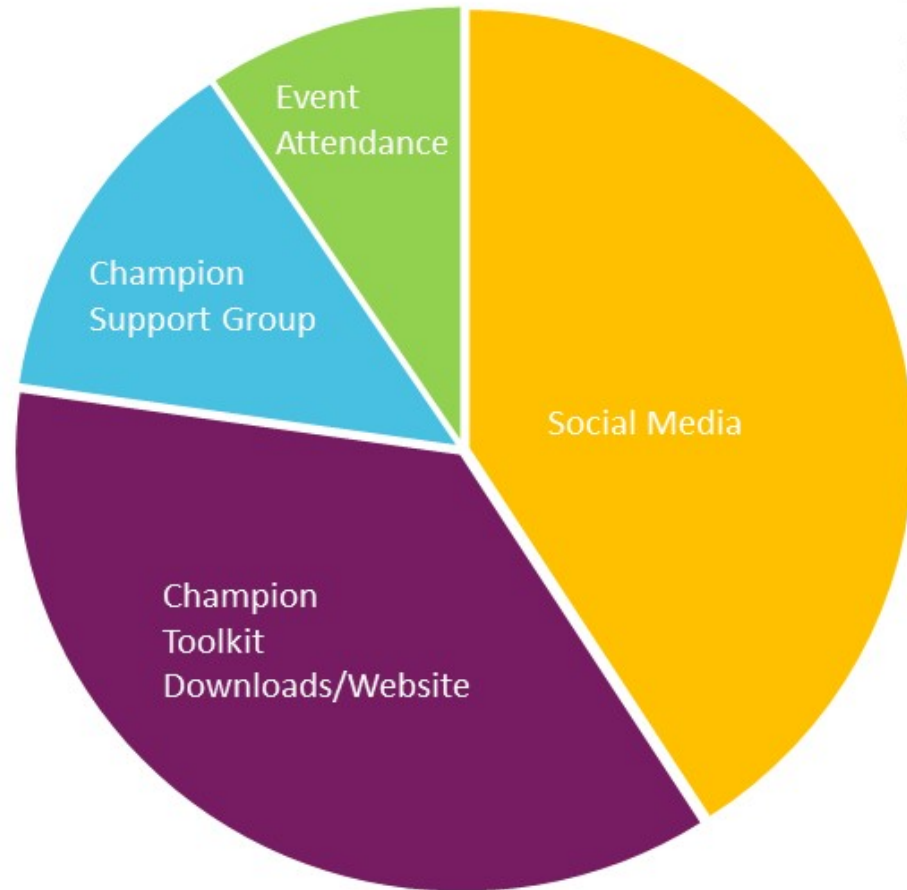
Facebook
Twitter
Instagram
Other social networks

Word of mouth

Identify and appoint a Champion
someone to provide emotional
support and advocacy to the Recipient

Living Donor Champion

June 2017 – November 2020



■ Social Media ■ Champion Website ■ Champion Support ■ Event Attendance

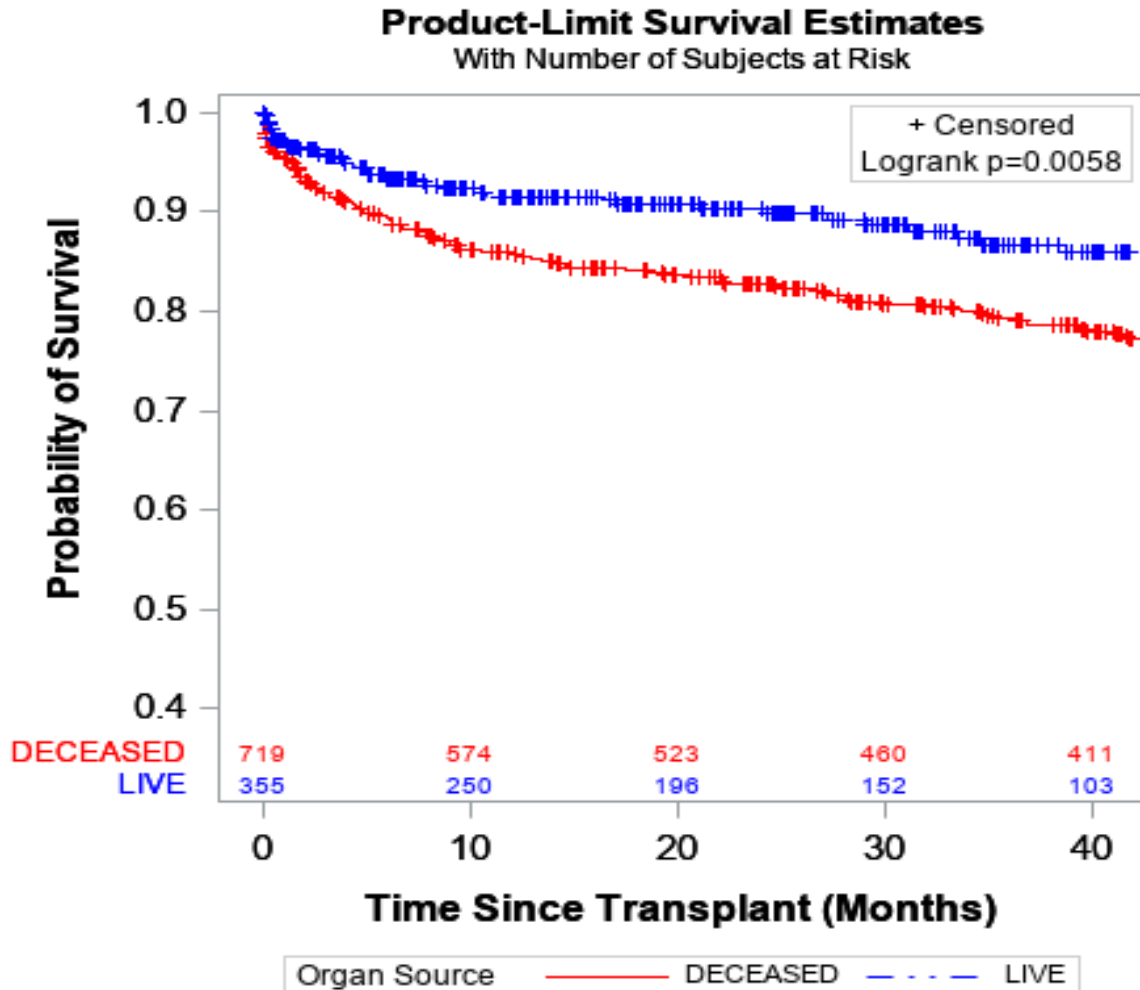
The UPMC Living Donor Champion Program includes a Champion website, personalized workshops and town hall events, a Champion support group on Facebook, and one-on-one support from a UPMC Living Donor Champion Ambassador.

- **Champion Events** – UPMC has hosted thirteen Champion events (ten workshops and three town halls). 207 patients, Champions, potential donors, and caregivers have attended a Champion event at UPMC.
- **Social Media** – Posts on the UPMC and Donate Life America Living Donor Facebook page.
 - Total engagement: 35,644
 - Total reach: 1,077,404
 - Total impressions: 1,956,100
- **Champion Support** – The UPMC Living Donor Champion support group on Facebook has 293 members. The UPMC Living Donor Champion Ambassadors are currently providing support to more than 100 Champions who are looking for a living donor for their loved one.
- **Champion Website** – The Living Donor Champion website has been visited by 24,262 people.

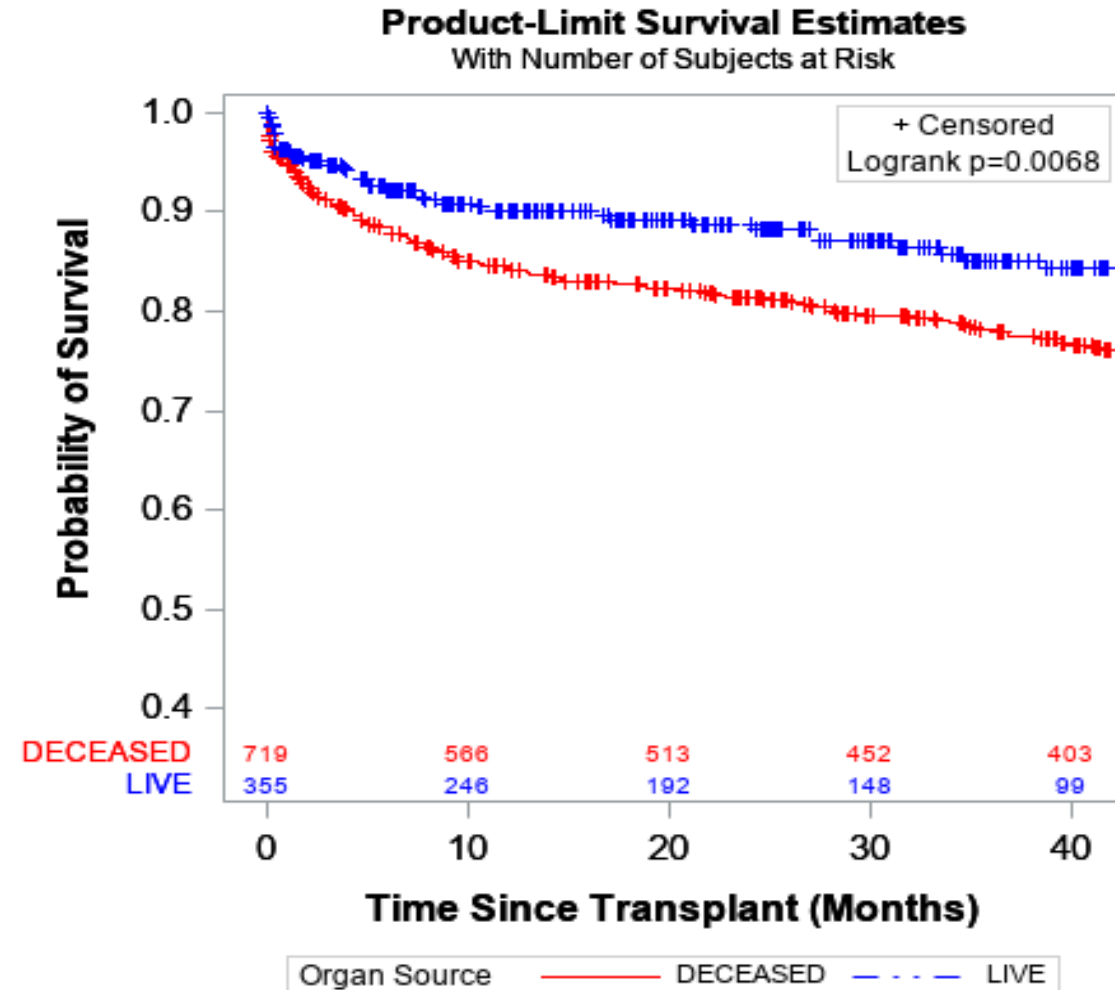
Outcomes: Recipients

Recipient Survival Outcomes: LDLT vs DDLT

Patient Survival



Graft Survival



Cost and Resource Utilization data : LDLT vs DDLT

Variable	LDLT N=60	DDLT N=52
Pretransplant average number of radiology scans	2.6	3.4
Posttransplant average number of radiology scans	8.6	12.0
Posttransplant average number of emergency room visits	0.5	0.7
Posttransplant average number of GI or other invasive procedures (outpatient)	0.2	0.7
Total Number of outpatient labs	25% lower	--
Total pretransplant costs (6 months)	23.5% lower	--
Total inpatient perioperative costs	31.7% lower	--
Total post transplant costs (1 year)	26.0% lower	--
Total inpatient and outpatient pre and posttransplant costs	29.5% lower	--

LDLT vs DDLT at UPMC: 2009-2019

Characteristics	LDLT N=357	DDLT N=721	P value
Mean recipient age	56	56	0.77
Mean recipient BMI	28.4	29.7	0.003
% with hepatocellular cancer (HCC)	22%	32%	<0.001
% Retransplants	3.1%	7.1%	0.03
Calculated MELD	15	24	<0.001
Mean donor age	37	44	<0.001
Mean Donor BMI	26.8	28.1	0.03

LDLT Program at UPMC

- LDLT comprised 53.6% of UPMC's transplants (National average 4.8%)
- The transplant rate increased from 44.8 (rate per 100-person years) in 2015 to 103.8 in 2019
- Criteria for LDLT should be based on ability to provide a **survival advantage**.
- LDLT is not the last resort but rather the **first and better resort**