

Paired Exchange Results Quarterly Report

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Message from the Founder

We are pleased to report that we achieved our 2,000th transplant milestone on January 5th of 2017. This important milestone was crossed on the heels of a record setting 55 transplants completed in the month of December. In 2016 we facilitated 399 transplants which represent 64% of the 628 paired exchange transplants performed in the United States last year as reported by the OPTN. Additionally, active NKR Member Centers made up 16 of the top 20 KPD centers in 2016. NKR facilitated transplants have accounted for all of the growth in KPD transplants in the United States since 2010.

One growth area, allowing us to shorten wait times and find superior matches, is the inclusion of compatible pairs in KPD. In 2016, NKR compatible pairs doubled, driving down our longest wait time for matchable pairs from 36 months to 16 months. Our ability to find superior HLA matches from the largest pool of living donors in the world is evident in our graft survival numbers. The NKR graft failure rate at 5 years is 60% less than the typical U.S. living donor transplant (NKR 94.2% vs US 85.4%). We believe the superior NKR outcomes will attract an increasing number of compatible pairs who seek better HLA matches which are associated with better long term outcomes.

After a significant investment in cutting edge technology and a lot of effort by our Member Centers, 100% of our donors now have CT scans uploaded into our system. This technology is reducing late stage donor declines (due to anatomy) and speeding up the matching process. We have also made major investments in collecting donor blood for cryo storage and plan to make cryo cells a condition of donor activation on February 15th. Utilization of cryo cells for rapid cross matching helps to find matches for highly sensitized patients, reduces swap failures and speeds up the matching process.

We recently completed the world's first trans-Pacific paired exchange kidney swap between Hawaii and the U.S. mainland. These long distance kidney shipments open the door to international swaps which will require similar logistics.

It is the ongoing dedication and effort of our Member Centers that enables us to continue breaking records and achieving new milestones. Thank you for your support and keep up the great work.

Sincerely,

Garet Hil

Founder & CEO

National Kidney Registry

PRESS RELEASE

National Kidney Registry Facilitates 2,000th KPD Transplant The most paired exchange transplants in the world

(BABYLON, N.Y., Jan. 5, 2017) The National Kidney Registry announced the successful completion of their 2,000th paired exchange transplant which took place last night at UCLA Medical Center. This milestone represents the most paired exchange transplants facilitated by a single registry and represents over a billion dollars in dialysis savings to the U.S government and approximately \$300 million in savings to health insurance companies.

Dr. Jeff Veale, the Director of the UCLA Exchange Program, which completed the 2000th transplant, commented, "We have had a tremendous amount of success getting over 210 patients transplanted through the National Kidney Registry; 30% of whom were highly sensitized. The coordination among the 80 Member Centers is a testament to the amazing teamwork of the dedicated transplant professionals across the nation.

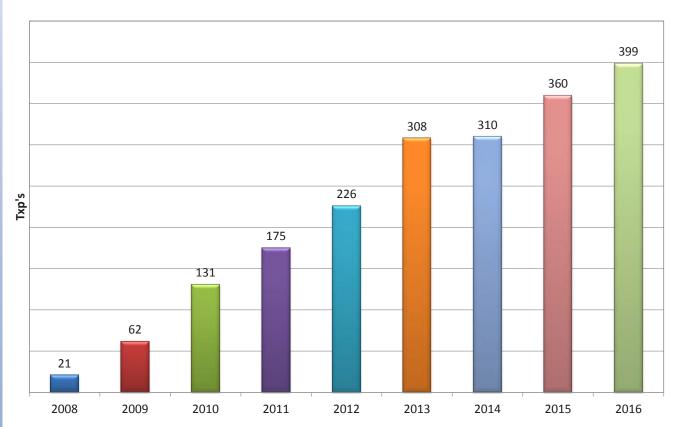
"Eight years ago, on Valentine's Day in 2008, the National Kidney Registry facilitated its first paired exchange transplants at New York Presbyterian Weill Cornell Medical Center, the founding NKR center. Dr. Sandi Kapur, Chief of Transplant Surgery at Cornell said, "Paired exchange has been a blessing to so many of our patients that had willing but incompatible donors. After completing approximately 160 paired exchange transplants with the NKR over the past eight years, we only have two patients that are still waiting for a match. Most of our patients with incompatible donors are getting matched and transplanted in less than three months".

Garet Hil, Founder and CEO of the National Kidney Registry and a living kidney donor himself, added, "Not only were the 2,000 patients directly helped but these same patients were removed from the deceased donor wait list when they were transplanted, allowing thousands of other patients on dialysis to move up on the wait list and receive a transplant sooner".

About National Kidney Registry

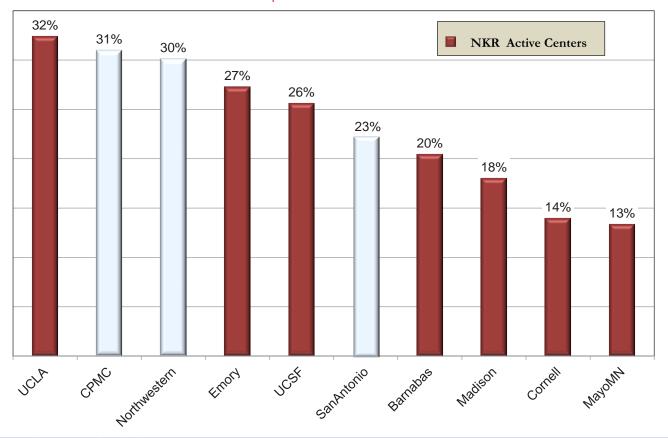
The National Kidney Registry (www.kidneyregistry.org) is a nonprofit organization with the mission to save and improve the lives of people facing kidney failure by increasing the quality, speed, and number of living donor transplants.

Transplants Facilitated



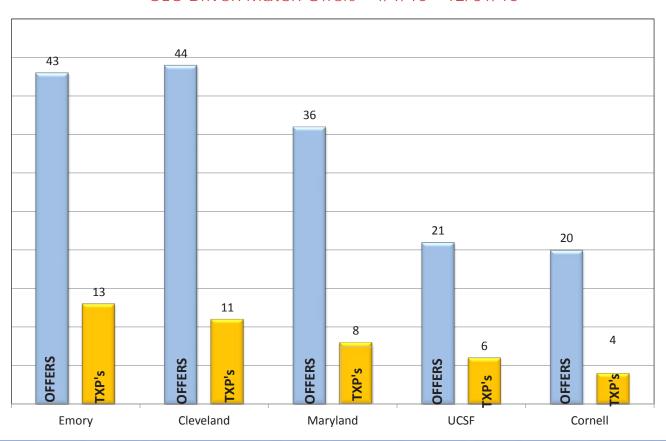
2016 KPD as Percentage of LD TXPs

Top 10 KPD Centers



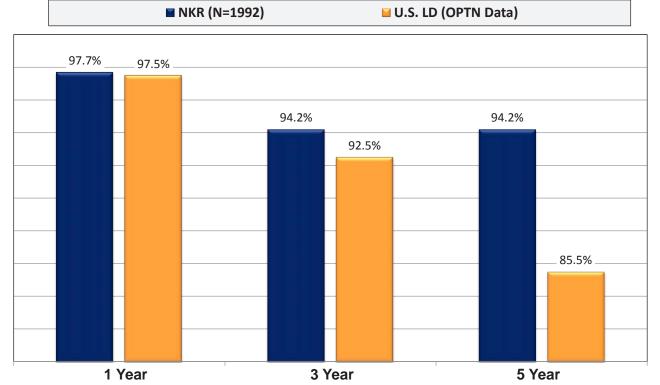
Top 5 CLC Centers

CLC Driven Match Offers - 4/1/15 - 12/31/16



NKR Graft Survival Advantage

NKR Transplants vs. U.S. Living Donor Transplants As of 12/31/2016



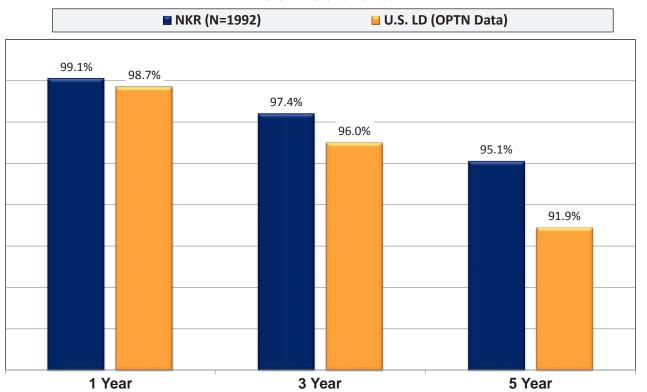
*NKR Kaplan-Meier GS calculations provided courtesy of UCLA Departments of Nephrology and Urology

**U.S LD - Kidney Kaplan-Meier GS Rates For Transplants Performed: 2008 - 2015

https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/ OPTN data as of January 13, 2017

NKR Patient Survival Advantage

NKR Transplants vs. U.S. Living Donor Transplants As of 12/31/2016



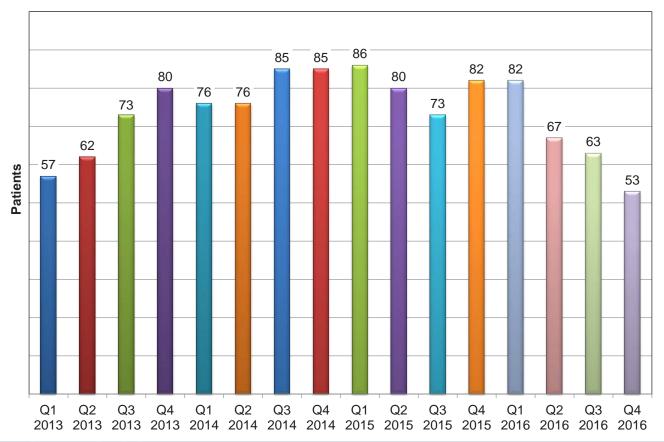
*NKR Kaplan-Meier PS calculations provided courtesy of UCLA Departments of Nephrology and Urology

**U.S.LD - Kidney Kaplan-Meier PS Rates For Transplants Performed: 2008 - 2015

https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/ OPTN data as of January 13, 2017

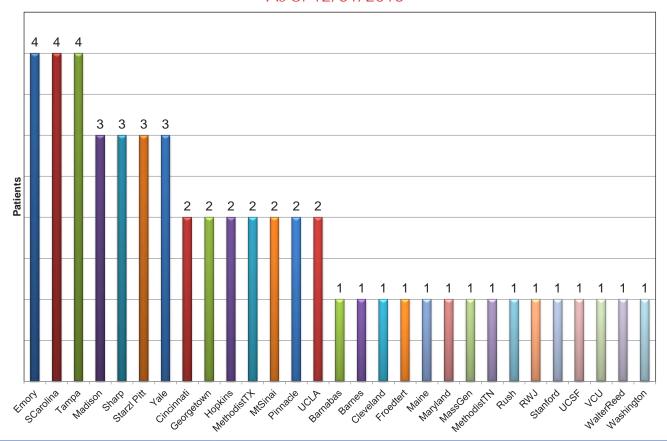
Patients Waiting > 1 Year

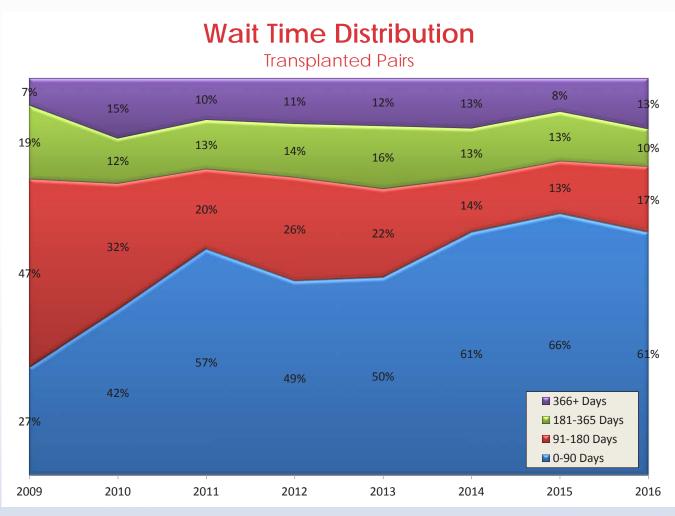
As of 12/31/2016

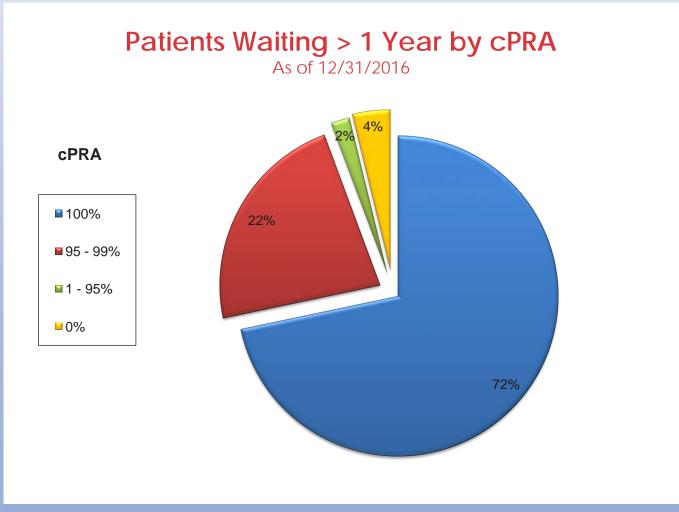


Patients Waiting > 1 Year by Center

As of 12/31/2016

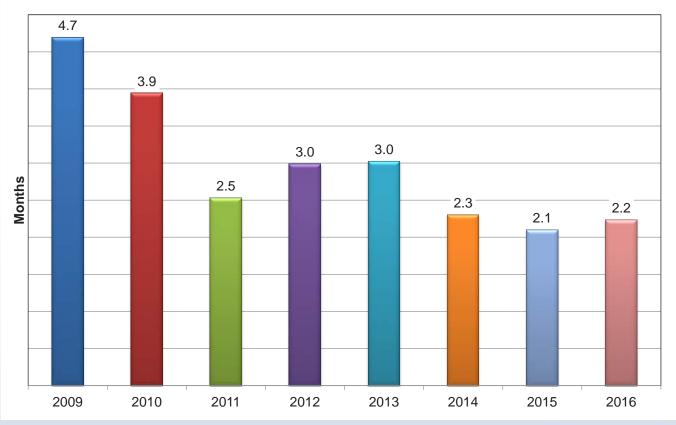






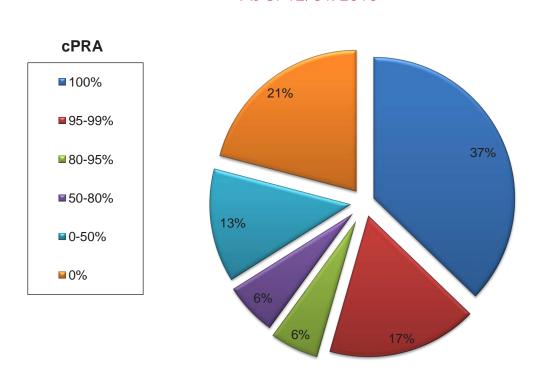
Transplanted Patient Median Wait Time

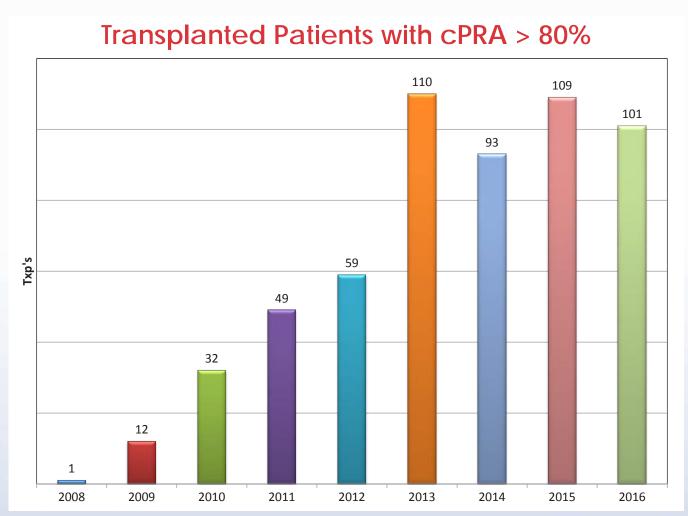
Wait times of patients transplanted during prior 12 months As of 12/31/2016

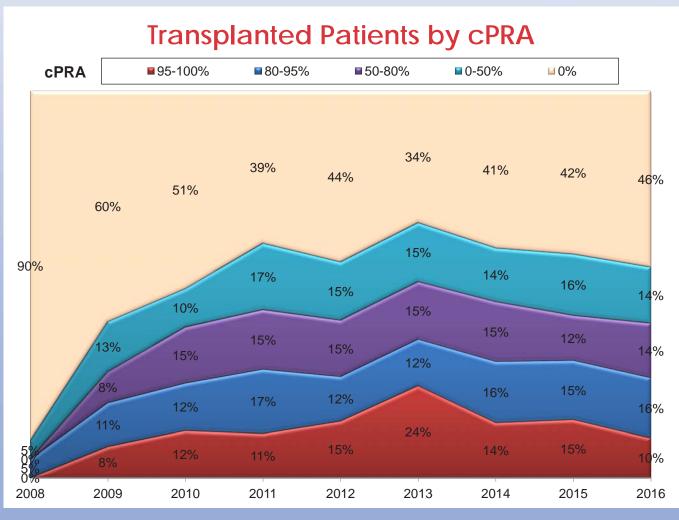




As of 12/31/2016

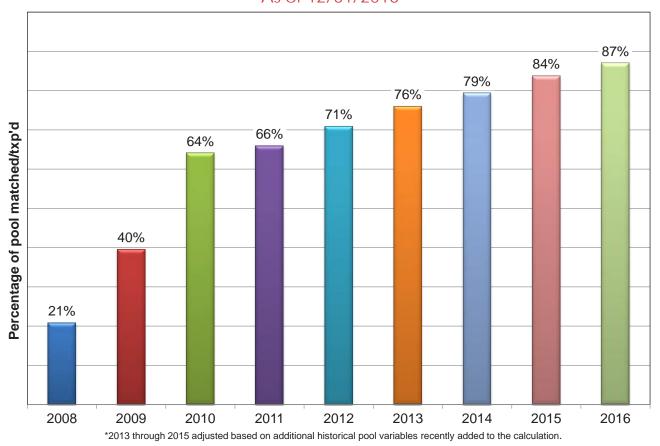


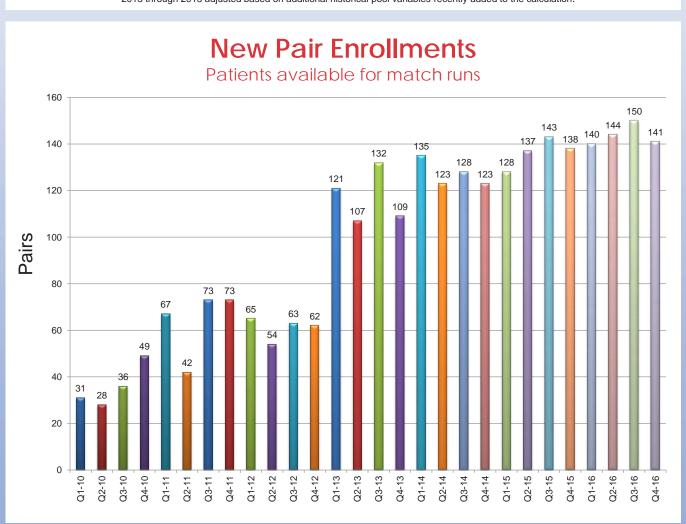


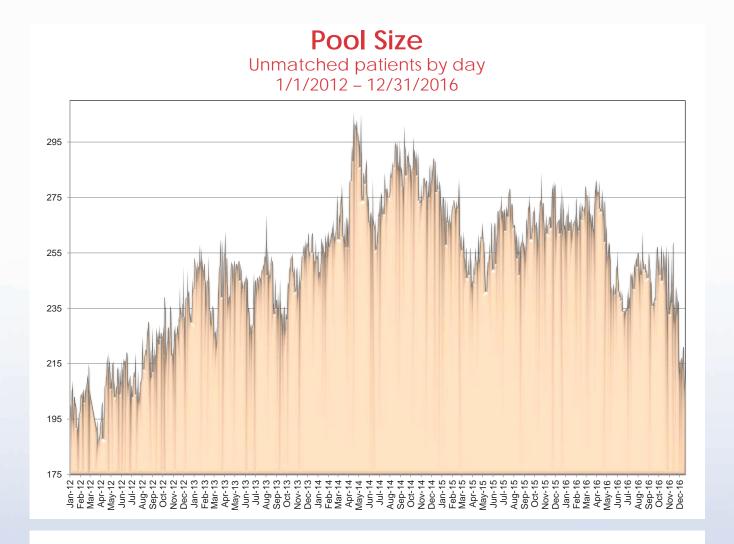


Percent of Pool Matched and/or Transplanted

As of 12/31/2016

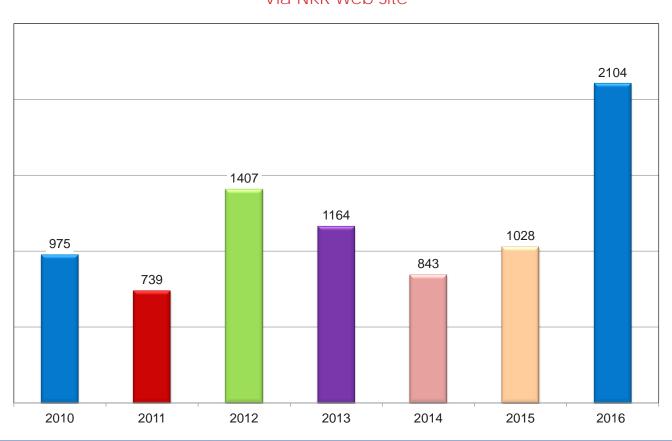






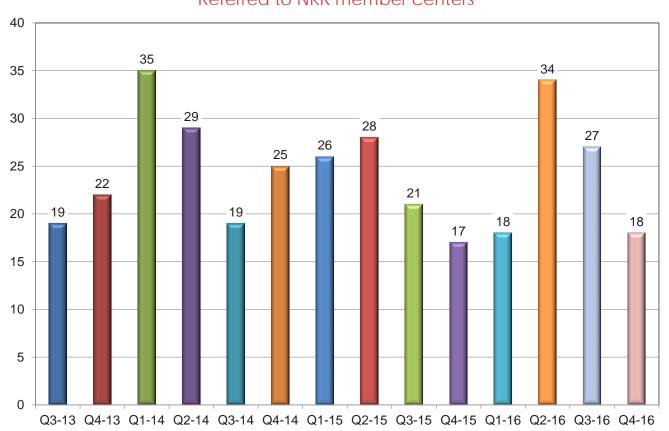
Non-Directed Donor Registrations

Via NKR Web Site

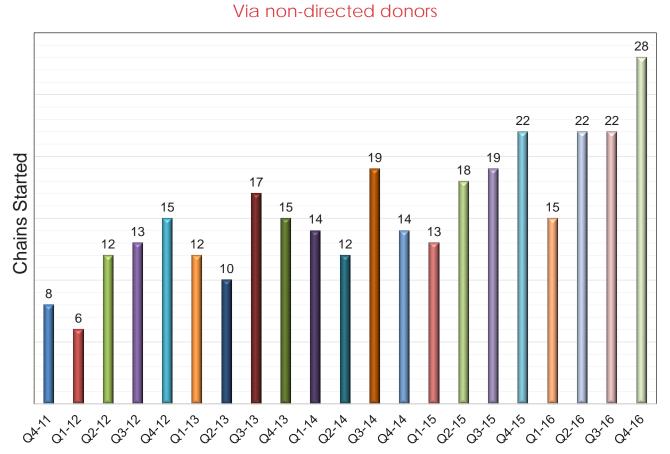


Non-Directed Donor Referrals

Referred to NKR member centers







Chain and Loop Statistics

| Category | Count | Mean Length | Transplants |
|-------------|-------|-------------|-------------|
| Ended | 372 | 4.55 | 1693 |
| Broken | 20 | 4.00 | 80 |
| Active | 5 | 2.00 | 10 |
| Chain Total | 397 | 4.49 | 1783 |
| Loops | 89 | 2.35 | 209 |
| Total | 486 | 4.10 | 1992 |

^{**}Updates as of 1/1/17

Blood Type Distribution Statistics

As of 12/31/16

Transplanted Pairs by ABO Combination

| Recipient ABO | Paired Donor ABO | Qty | % |
|------------------|---------------------|-------|-------|
| 0 | Α | 365 | 22.0% |
| 0 | 0 | 298 | 17.9% |
| Α | Α | 171 | 10.3% |
| В | Α | 150 | 9.1% |
| Α | 0 | 145 | 8.8% |
| 0 | В | 134 | 8.1% |
| Α | В | 122 | 7.4% |
| В | 0 | 79 | 4.8% |
| Α | AB | 51 | 3.1% |
| В | В | 46 | 2.8% |
| В | AB | 34 | 2.1% |
| 0 | AB | 19 | 1.1% |
| AB | Α | 14 | 0.8% |
| AB | 0 | 14 | 0.8% |
| AB | AB | 11 | 0.7% |
| AB | В | 5 | 0.3% |
| Total | ==> | 1,658 | 100% |

Transplanted Paired Recipients

| ABO | Qty | % |
|-------|-------|-------|
| 0 | 812 | 49.0% |
| Α | 499 | 30.1% |
| В | 303 | 18.3% |
| AB | 44 | 2.7% |
| Total | 1,658 | 100% |

Paired Donors Donated

| ABO | Qty | % |
|-------|-------|-------|
| Α | 700 | 42.2% |
| 0 | 535 | 32.3% |
| В | 307 | 18.5% |
| AB | 116 | 7.0% |
| Total | 1,658 | 100% |

^{**}All Chain end recipients, NDD and ADP donors excluded from counts above

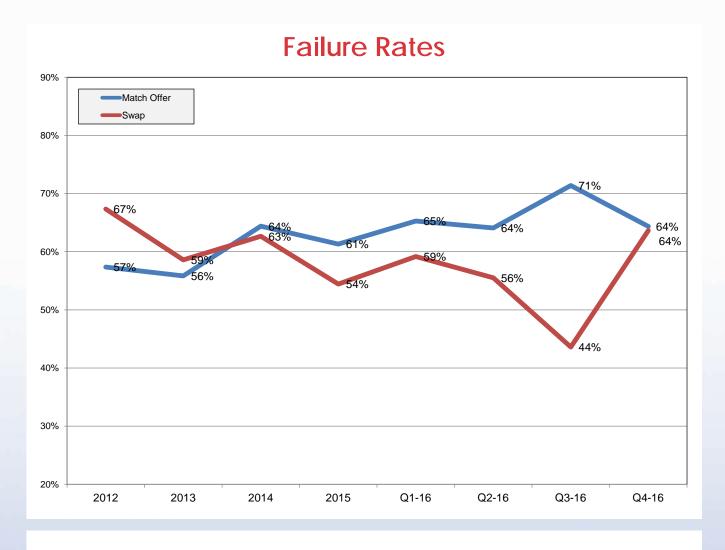
Great HLA Matches

> 80 Match Points

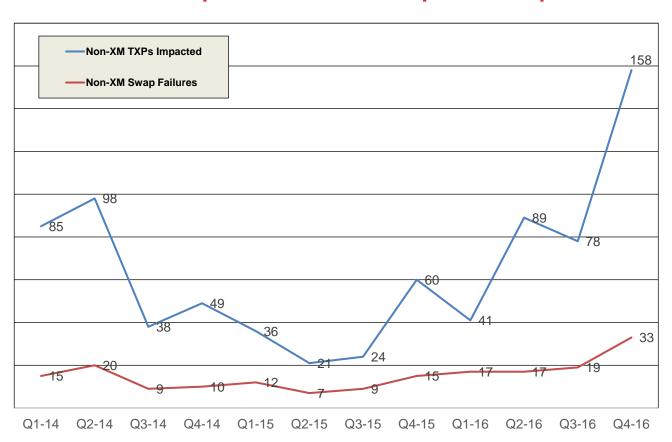
| Count | Recipient Center | Swap # | XP Date | Donor ABO | Recipient ABO | NKR cPRA | Wait Time In Months | Donor Age ATOT | Recipient Age ATOT | HLA Points |
|----------|----------------------|------------|------------------------|-----------|------------------|----------|------------------------|-------------------|-----------------------|------------|
| 1 | ChristHosp | 952 | 1/18/2017 | Α | Α | 99 | 1 | 57 | 34 | 100 |
| 2 | UMinn | 928 | 11/8/2016 | Α | Α | 100 | 4 | 66 | 12 | 100 |
| 3 | Cincinnati | 884 | 8/31/2016 | Α | Α | 73 | 1 | 28 | 40 | 100 |
| 4 | OSU | 509 | 8/30/2016 | Α | Α | 91 | 1 | 38 | 67 | 100 |
| 5 | SCarolina | 459 | 2/11/2016 | Α | Α | 100 | 3 | 64 | 53 | 100 |
| 6 | Madison | 442 | 12/22/2015 | Α | Α | 97 | 6 | 22 | 63 | 100 |
| 7 | UMinn | 440 | 11/19/2015 | 0 | 0 | 100 | 5 | 23 | 20 | 100 |
| 8 | UCLA | 357 | 2/17/2015 | Α | Α | 100 | 34 | 39 | 52 | 100 |
| 9 | Emory | 351 | 12/11/2014 | Α | Α | 100 | 5 | 25 | 33 | 100 |
| 10 | Hopkins | 330 | 11/13/2014 | Α | 0 | 96 | 1 | 41 | 38 | 100 |
| 11 | Loyola | 324 | 8/5/2014 | Α | Α | 100 | 1 | 37 | 55 | 100 |
| 12 | Madison | 674 | 1/9/2014 | 0 | Α | 99 | 5 | 29 | 33 | 100 |
| 13 | Barnabas | 182 | 10/3/2012 | Α | Α | 92 | 4 | 51 | 50 | 100 |
| 14 | Barnes | 105 | 3/31/2011 | Α | Α | 100 | 7 | 60 | 32 | 100 |
| 15 | UCSF | 58 | 6/15/2010 | A | A | 100 | 6 | 47 | 58 | 100 |
| 16 | Maryland | 939 | 12/15/2016 | AB | AB | 58 | 0 | 38 | 53 | 90 |
| 17 | OSU | 497 | 7/12/2016 | A | A | 99 | 5 | 62 | 48 | 90 |
| 18 | Pinnacle | 473 | 4/5/2016 | A | A | 96 | 1 | 30 | 54 | 90 |
| 19 | Cornell | 447 | 12/9/2015 | A | A | 7 | 2 | 31 | 14 | 90 |
| 20 | Emory | 780 | 3/12/2015 | 0 | 0 | 7 | 6 | 46 | 21 | 90 |
| 21 | MethodistTN Barnabas | 266 | 1/29/2014 | A | A | 89 99 | 2 23 | 44 54 | 66 67 | 90 90 |
| 22 23 | Madison | 266 | 1/16/2014 | 0 | 0 | 99 | 17 | | 52 | 90 |
| 24 | Barnabas | 221 187 | 4/30/2013 12/4/2012 | A | A | 99 | 2 | 45 48 | 45 | 90 |
| 25 | VAHD | 161 | 6/12/2012 | 0 | 0 | 100 | 7 | 29 | 62 | 90 |
| 26 | MethodistTX | 124 | 12/7/2011 | A | A | 99 | 14 | 39 | 68 | 90 |
| 27 | UCLA | 124 | 8/31/2011 | 0 | 0 | 100 | 12 | 33 | 22 | 90 |
| 28 | CPMC | 115 | 6/22/2011 | В | В | 33 | 1 | 44 | 62 | 90 |
| 29 | Starzl Pitt | 109 | 4/21/2011 | A | A | 70 | 2 | 59 | 49 | 90 |
| 30 | Pinnacle | 901 | 10/20/2016 | Α | Α | 0 | 0 | 29 | 24 | 85 |
| 31 | UCLA | 521 | 7/20/2016 | А | Α | 89 | 2 | 45 | 63 | 85 |
| 32 | MethodistTX | 442 | 1/20/2016 | 0 | 0 | 94 | 7 | 46 | 49 | 85 |
| 33 | LomaLinda | 406 | 8/18/2015 | Α | Α | 100 | 1 | 53 | 50 | 85 |
| 34 | Barnabas | 393 | 7/16/2015 | Α | Α | 100 | 1 | 37 | 64 | 85 |
| 35 | Madison | 792 | 6/3/2015 | Α | Α | 94 | 3 | 49 | 54 | 85 |
| 36 | Madison | 383 | 5/19/2015 | 0 | 0 | 98 | 6 | 44 | 47 | 85 |
| 37 | MethodistTN | 365 | 3/4/2015 | В | В | 100 | 4 | 53 | 51 | 85 |
| 38 | Barnabas | 330 | 11/13/2014 | 0 | 0 | 96 | 2 | 33 | 49 | 85 |
| 39 | PorterAH | 322 | 9/3/2014 | 0 | 0 | 27 | 5 | 29 | 24 | 85 |
| 40 | Barnabas | 304 | 7/17/2014 | 0 | 0 | 99 | 1 | 53 | 62 | 85 |
| 41 | Cornell | 733 | 7/8/2014 | Α | Α | 0 | 1 | 57 | 67 | 85 |
| 42 | Barnes | 266 | 1/16/2014 | Α | Α | 100 | 13 | 33 | 40 | 85 |
| 43 | SCarolina | 266 | 1/14/2014 | 0 | 0 | 89 | 3 | 55 | 44 | 85 |
| 44 | UCLA | 659 | 10/24/2013 | 0 | 0 | 100 | 25 | 54 | 56 | 85 |
| 45 | Penn | 199 | 12/11/2012 | В | В | 87 | 5 | 47 | 52 | 85 |
| 46 | Madison | 169 | 7/25/2012 | В | В | 97 | 3 | 30 | 62 | 85 |
| 47 | UCLA | 538 | 5/22/2012 | A | 0 | 88 | 7 | 28 | 12 | 85 |
| 48 | Intermtn | 118 | 6/29/2011 | 0 | 0 | 96 | 16 | 27 | 27 | 85 |
| 49 | Allegheny | 62 | 5/6/2010 | A | A | 0 | 5 | 60 | 70 | 85 |
| 50 | Barnabas | 894 | 1/10/2017 | 0 | В | 100 | 5 | 40 | 51 | 80 |
| 51 | Madison | 332 | 11/4/2014 | 0 | 0 | 96 | 20 | 63 | 42 | 80 |
| 52 | UCLA | 258 | 10/3/2013 | A | A | 98 | 1 | 47 | 36 | 80 |
| 53 | СРМС | 19 | 7/31/2009 | Α | Α | 0 | 5 | 51 | 54 | 80 |

Compatible Pairs Transplanted

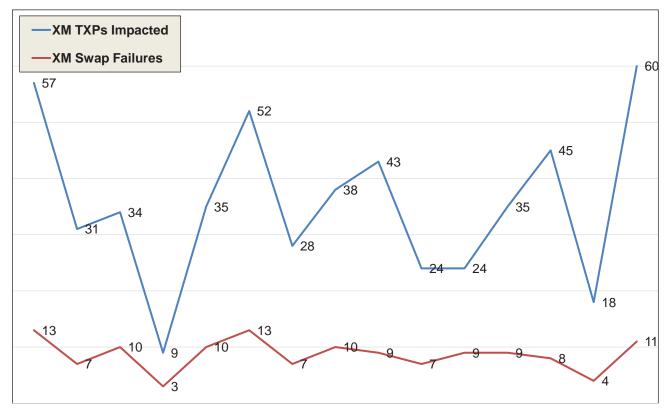
| # | Recipient | Txp Date | Recipient | Paired Donor | Donor | Recipient | Paired Donor | Donor | Age | Donor | Paired Donor | HLA Points | Paired Donor | Additional | Additional Txp's |
|----------|-----------------------|-------------------------|---------------|-----------------|---------|-----------|-----------------|----------|------------------|----------|-----------------|------------|------------------------|------------|---------------------|
| # | Center | Txp Date | ABO | ABO | ABO | Age | Age | Age | Advantage | HLA Pts | HLA Pts | Advantage | Relationship | Txp's | cPRA >80 |
| 1 | Hankina | 10/2/2012 | Δ. | 0 | | 10 | | 20 | 07 | ٥٢ | F0. | 25 | Other | 2 | 0 |
| 2 | Hopkins Cornell | 10/3/2013 11/20/2013 | A O | 0 | A O | 19 34 | 65 37 | 38 59 | -27 -22 | 25 75 | 50 25 | -25 50 | Other Spouse | 3 | 1 |
| 3 | Cleveland | 12/18/2013 | 0 | 0 | 0 | 43 | 41 | 55 | -14 | 25 | 0 | 25 | internet friend | 4 | 2 |
| 4 | Maine | 1/28/2014 | A | 0 | A | 43 | 40 | 53 | -13 | 75 | 10 | 65 | Spouse | 4 | 0 |
| 5 | UCLA | 1/29/2014 | Α | Α | Α | 7 | 34 | 37 | -3 | 60 | 50 | 10 | Mother | 3 | 0 |
| 6 | Dartmouth | 4/9/2014 | 0 | 0 | 0 | 45 | 37 | 43 | -6 | 35 | 50 | -15 | Friend | 2 | 1 |
| 7 | Stanford | 4/23/2014 | 0 | 0 | 0 | 29 | 66 | 24 | 42 | 25 | 50 | -25 | Father | 0 | 0 |
| 9 | Cornell Madison | 4/23/2014 4/28/2014 | 0 | 0 | 0 | 3 62 | 24 57 | 43 39 | -19 18 | 0 45 | 10 | 0 35 | Cousin Friend | 3 6 | 0 2 |
| 10 | Barnabas | 6/11/2014 | В | 0 | В | 69 | 57 | 41 | 16 | 10 | 40 | -30 | Significant Other | 3 | 0 |
| 11 | UCSF | 8/26/2014 | 0 | 0 | 0 | 28 | 57 | 22 | 35 | 10 | 85 | -75 | Father | 5 | 1 |
| 12 | MassGen | 8/28/2014 | А | 0 | Α | 69 | 51 | 33 | 18 | 60 | 0 | 60 | niece through marriage | 1 | 0 |
| 13 | Emory | 9/30/2014 | А | Α | Α | 18 | 52 | 37 | 15 | 50 | 65 | -15 | Father | 2 | 0 |
| 14 | Loyola | 11/11/2014 | Α | 0 | Α | 42 | 43 | 48 | -5 | 25 | 25 | 0 | Spouse | 2 | 1 |
| 15 | Georgetown | 4/28/2015 | 0 | 0 | 0 | 41 | 43 | 30 | 13 | 0 | 0 | 0 | Spouse | 2 | 2 |
| 16 17 | Emory | 5/13/2015 | A | O A | A | 12 61 | 50 61 | 28 25 | 22 36 | 0 25 | 50 25 | -50 0 | Father | 2 | 0 |
| 18 | Stanford Indiana | 5/21/2015 5/28/2015 | A A | A | A | 32 | 57 | 48 | 9 | 25 | 65 | -40 | Spouse Mother | 1 | 0 |
| 19 | Penn | 6/9/2015 | В | 0 | В | 41 | 43 | 44 | -1 | 10 | 0 | 10 | Spouse | 2 | 0 |
| 20 | Penn | 6/25/2015 | А | 0 | Α | 28 | 56 | 19 | 37 | 65 | 50 | 15 | Mother | 2 | 0 |
| 21 | Barnabas | 9/24/2015 | AB | 0 | Α | 58 | 54 | 22 | 32 | 25 | 35 | -10 | Spouse | 2 | 0 |
| 22 | Barnabas | 10/14/2015 | В | 0 | В | 36 | 48 | 40 | 8 | 0 | 0 | 0 | Aunt | 2 | 1 |
| 23 | Maine | 10/21/2015 | Α | A | A | 34 | 21 | 30 | -9 | 10 | 10 | 0 | Met on Facebook | 2 | 0 |
| 24 25 | Maryland GARegents | 11/11/2015 12/1/2015 | A A | 0 | A | 65 51 | 60 | 51 47 | 9 16 | 60 35 | 25 0 | 35 35 | Spouse Friend | 5 | 0 |
| 26 | MassGen | 12/1/2015 | 0 | 0 | 0 | 22 | 50 | 32 | 18 | 0 | 0 | 0 | Friend | 1 | 0 |
| 27 | Cornell | 12/9/2015 | A | A | A | 14 | 55 | 31 | 24 | 90 | 15 | 75 | Father | 2 | 0 |
| 28 | Rush | 4/12/2016 | А | Α | Α | 42 | 46 | 36 | 10 | 35 | 35 | 0 | Spouse | 0 | 0 |
| 29 | Cornell | 4/13/2016 | AB | 0 | Α | 52 | 51 | 30 | 21 | 35 | 0 | 35 | Friend | 1 | 0 |
| 30 | Madison | 4/20/2016 | Α | 0 | Α | 58 | 46 | 45 | 1 | 35 | 25 | 10 | Spouse | 0 | 0 |
| 31 | Emory | 4/20/2016 | В | 0 | В | 23 | 70 | 46 | 24 | 0 | 65 | -65 | Other | 3 | 0 |
| 32 | Colorado Emory | 5/11/2016 6/17/2016 | O A | 0 | O A | 64 30 | 50 62 | 45 47 | 5 15 | 25 25 | 25 75 | -50 | Spouse Mother | 3 | 0 |
| 34 | UVA | 7/7/2016 | A | A | A | 34 | 65 | 39 | 26 | 0 | 50 | -50 | Father | 4 | 0 |
| 35 | Colorado | 7/12/2016 | AB | 0 | A | 51 | 33 | 30 | 3 | 25 | 50 | -25 | Cousin | 0 | 0 |
| 36 | Indiana | 7/14/2016 | А | 0 | Α | 59 | 60 | 57 | 3 | 35 | 10 | 25 | Spouse | 0 | 0 |
| 37 | Maryland | 7/14/2016 | Α | 0 | Α | 49 | 26 | 40 | -14 | 35 | 0 | 35 | Friend | 1 | 0 |
| 38 | Cornell | 7/19/2016 | A | 0 | A | 50 | 39 | 25 | 14 | 40 | 0 | 40 | Friend | 2 | 0 |
| 39 | UCLA | 7/21/2016 | В | 0 | В | 47 | 67 | 36 | 31 | 40 | 50 | -10 | mother | 2 | 0 |
| 40 | Penn Hopkins | 7/21/2016 10/4/2016 | O AB | O A | O AB | 33 32 | 58 65 | 35 25 | 23 40 | 25 45 | 35 50 | -10 -5 | Other Father | 2 | 0 |
| 42 | Indiana | 10/4/2016 | 0 | 0 | Ab | 31 | 66 | 50 | 16 | 0 | 0 | 0 | Father | 1 | 0 |
| 43 | Hopkins | 10/17/2016 | 0 | 0 | 0 | 56 | 66 | 57 | 9 | 0 | 0 | 0 | Spouse | 3 | 1 |
| 44 | Pinnacle | 10/20/2016 | А | Α | Α | 24 | 48 | 29 | 19 | 85 | 0 | 85 | Cousin | 1 | 0 |
| 45 | VAHD | 10/25/2016 | 0 | 0 | 0 | 70 | 59 | 24 | 35 | 50 | 10 | 40 | Other | 3 | 1 |
| 46 | Madison | 11/2/2016 | В | 0 | В | 24 | 60 | 45 | 15 | 35 | 65 | -30 | Child | 1 | 0 |
| 47 48 | Pinnacle Cleveland | 11/2/2016 12/1/2016 | O | 0 | O A | 26 29 | 41 | 32 41 | 9 | 35 40 | 35 0 | 0 40 | Aunt | 0 | 0 |
| 48 | WalterReed | 12/1/2016 | <u>А</u> О | 0 | A 0 | 68 | 26 | 36 | -10 | 0 | 25 | -25 | Spouse Father | 3 | 1 |
| 50 | Georgetown | 12/7/2016 | A | 0 | A | 51 | 52 | 45 | 7 | 0 | 0 | 0 | Spouse | 1 | 0 |
| 51 | UCSF | 12/12/2016 | A | 0 | Α | 33 | 34 | 38 | -4 | 0 | 25 | -25 | Spouse | 1 | 0 |
| 52 | UMinn | 12/13/2016 | 0 | 0 | 0 | 53 | 48 | 54 | -6 | 0 | 0 | 0 | Friend | 3 | 1 |
| 53 | UCLA | 12/13/2016 | Α | 0 | Α | 42 | 46 | 33 | 13 | 35 | 25 | 10 | Spouse | 3 | 0 |
| 54 | Maryland | 12/15/2016 | AB | 0 | AB | 53 | 42 | 38 | 4 | 90 | 35 | 55 | Friend | 0 | 0 |
| 55 56 | VAHD Portor A H | 12/20/2016 | A | 0 | A | 56 35 | 48 34 | 37 | -7 | 25 25 | 10 10 | 15 15 | Friend Sister | 1 | 0 |
| 57 | PorterAH UCSF | 1/10/2017 1/10/2017 | A | 0 | A | 29 | 25 | 41 31 | - <i>1</i> -6 | 50 | 15 | 15 35 | Sister Spouse | 6 | 0 |
| 58 | ASL | 1/12/2017 | A | A | A | 56 | 51 | 63 | -12 | 0 | 65 | -65 | Brother | 2 | 1 |
| | | | | | | | | | | | | | Totals | 121 | 22 |
| | | | | | | | | | | | | | | | |



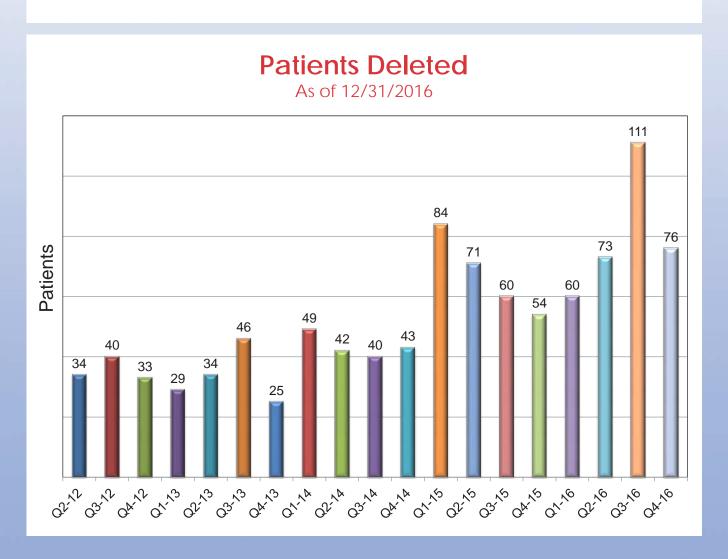
Non XM Swap Failures & Transplants Impacted



XM Swap Failures & Transplants Impacted



Q2-13 Q3-13 Q4-13 Q1-14 Q2-14 Q3-14 Q4-14 Q1-15 Q2-15 Q3-15 Q4-15 Q1-16 Q2-16 Q3-16 Q4-16



NKR Wait Times

| Matching Ease | ABO Combination | PMPc |
|----------------------|------------------------|-----------|
| 1-Very Easy | Any | > 125 |
| 2-Easy | Favorable | 31 to 125 |
| 3-Hard | Favorable | 1 to 30 |
| 4-Very Hard | Unfavorable | 31 to 125 |
| 5-Ext Hard | Unfavorable | 1 to 30 |
| 6-No Match | Anv | 0 |

ABO Combination: Patients with a non-O blood type are favorable. Patients with an O blood type who are paired to at least 1 exportable donor with an O blood type are favorable. All others are unfavorable and CHIP patients are excluded from this population.

Paired Transplants Completed Between 1/1/2016 and 1/1/2017

| Match Ease | Pairs | % | Mean | Median | Std Dev | Range Min | Range Max |
|-------------|-------|-----|------|--------|---------|-----------|-----------|
| 1-Very Easy | 32 | 10 | 42 | 42 | 18 | 8 | 83 |
| 2-Easy | 70 | 23 | 61 | 50 | 44 | 2 | 222 |
| 3-Hard | 112 | 36 | 90 | 52 | 109 | 4 | 763 |
| 4-Very Hard | 49 | 16 | 267 | 168 | 232 | 15 | 925 |
| 5-Ext Hard | 48 | 15 | 295 | 231 | 209 | 41 | 795 |
| 6-No Match | 0 | | | | | | |
| 7-ALL | 311 | 100 | 138 | 67 | 172 | 2 | 925 |

Paired Patients Waiting 6 Months or Greater as of 1/1/2017

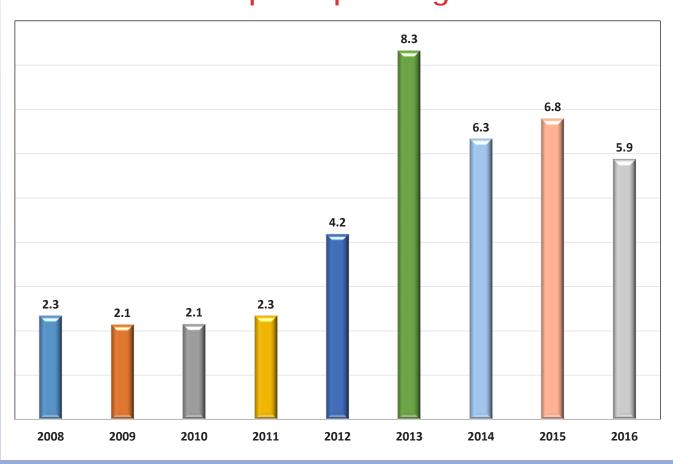
| Match Ease | Pairs | % | Mean | Median | Std Dev | Range Min | Range Max |
|-------------|-------|-----|------|--------|---------|-----------|-----------|
| 1-Very Easy | 0 | | | | | | |
| 2-Easy | 0 | | | | | | |
| 3-Hard | 1 | 1 | 245 | 245 | 0 | 245 | 245 |
| 4-Very Hard | 15 | 15 | 307 | 306 | 55 | 217 | 404 |
| 5-Ext Hard | 10 | 10 | 297 | 285 | 78 | 195 | 485 |
| 6-No Match | 75 | 74 | 636 | 474 | 415 | 190 | 1715 |
| 7-ALL | 101 | 100 | 550 | 378 | 388 | 190 | 1715 |

Bridge Donor Median Wait Times

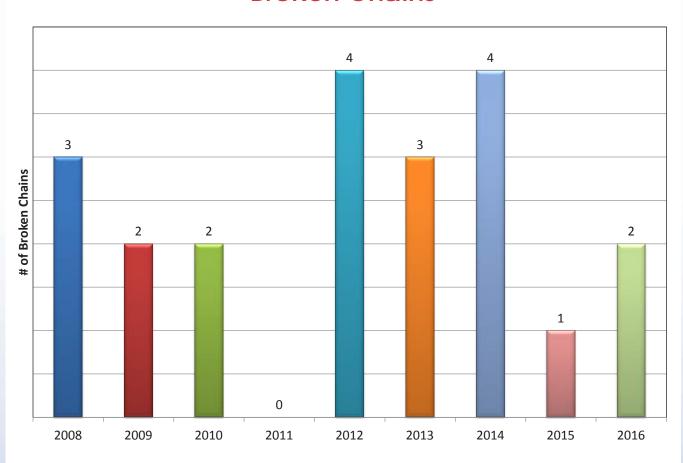
Bridge Donor Wait Times

| Year | Median | Mean | Max | Min |
|------|--------|------|-----|-----|
| 2008 | 59 | 53 | 77 | 16 |
| 2009 | 41 | 59 | 187 | 3 |
| 2010 | 14 | 51 | 385 | 2 |
| 2011 | 19 | 23 | 68 | 4 |
| 2012 | 14 | 29 | 314 | 2 |
| 2013 | 12 | 20 | 92 | 2 |
| 2014 | 6 | 11 | 97 | 2 |
| 2015 | 13 | 26 | 175 | 2 |
| 2016 | 8 | 14 | 71 | 2 |

NKR Transplants per Bridge Donor



Broken Chains



Summary ReportBroken Chains & Real Time Swap Failures

| Year | # Bridge Donors | # Real Time Swap Failures | # Broken Chains | % Broken Per Year |
|---------------------|--------------------|------------------------------|--------------------|----------------------|
| 2008 | 9 | | 3 | 33% |
| 2009 | 29 | 1 | 2 | 7% |
| 2010 | 61 | | 2 | 3% |
| 2011 | 75 | | 0 | 0% |
| 2012 | 54 | | 4 | 7% |
| 2013 | 37 | 3 | 3 | 8% |
| 2014 | 49 | 2 | 4 | 8% |
| 2015 | 53 | 1 | 1 | 2% |
| 2016 | 68 | 1 | 2 | 3% |
| Total Bridge Donors | 435 | 8 | 21 | |

Detail Report

Broken Chains & Real Time Swap Failures

| # | Reason Given | Real Time Swap Failures | Broken Chains | Center | Date |
|----|--|----------------------------|------------------|------------------------|------------|
| 1 | Job Issues/ long wait time/ many failed XMs | | ✓ | Cornell | 5/1/2008 |
| 2 | No Reason | | 1 | Cornell | 8/21/2008 |
| 3 | No Reason | | 1 | СРМС | 11/19/2008 |
| 4 | Donor sick for swap then reneged later | ✓ | 1 | UTMC | 6/9/2009 |
| 5 | Medical | | ✓ | UCSF | 11/10/2009 |
| 6 | Medical | | 1 | UCLA | 3/16/2010 |
| 7 | Second nuclear GFR test < 80 (79 down from 82) | | 1 | AGH | 9/16/2010 |
| 8 | No Reason | | 1 | MethodistTX | 2/3/2012 |
| 9 | No Reason | | 4 | UCSF | 4/4/2012 |
| 10 | Medical | | ✓ | UCLA | 6/28/2012 |
| 11 | Medical/Surgical | | 1 | Washington | 11/5/2012 |
| 12 | Aborted donor surgery | ✓ | 1 | СРМС | 6/27/2013 |
| 13 | Kidney declined by recipient surgeon | ✓ | 1 | RWJ/UPenn | 7/23/2013 |
| 14 | Recipient Medical Issue | ✓ | 4 | Porter | 10/16/13 |
| 15 | Kidney Declined by Recipient Surgeon | ✓ | 1 | Porter/Jefferson | 1/9/14 |
| 16 | Medical | | ✓ | UCLA | 3/4/14 |
| 17 | Recipient Medical Issue | ✓ | Loop | ChristHosp | 3/11/14 |
| 18 | Medical | | 1 | Hopkins | 7/15/14 |
| 19 | Medical | | ✓ | Hopkins | 10/9/14 |
| 20 | Kidney Declined by Recipient Surgeon | ✓ | ✓ | Tampa/Hopkins | 7/7/15 |
| 21 | Kidney Declined by Recipient Surgeon | ✓ | | Porter/Aurora St Lukes | 3/17/16 |
| 22 | Donor reneged | | 1 | Maryland | 8/8/16 |
| | Totals | 8 | 21 | | |

Advanced Donation Program

Summary

| Туре | Cases | Add'l TXPs Facilitated | 80%+ cPRA TXPs Facilitated | 95%+ cPRA TXPs Facilitated | |
|-------------|-----------------|---------------------------|----------------------------------|----------------------------------|--|
| Short-Term* | ort-Term* 20 78 | | 27 | 16 | |
| Voucher** | /oucher** 6 35 | | 9 | 4 | |
| Total | 26 | 113 | 36 | 20 | |

^{*}Short-Term- At time of advanced donation the intended ADP Recipient is in need of transplant

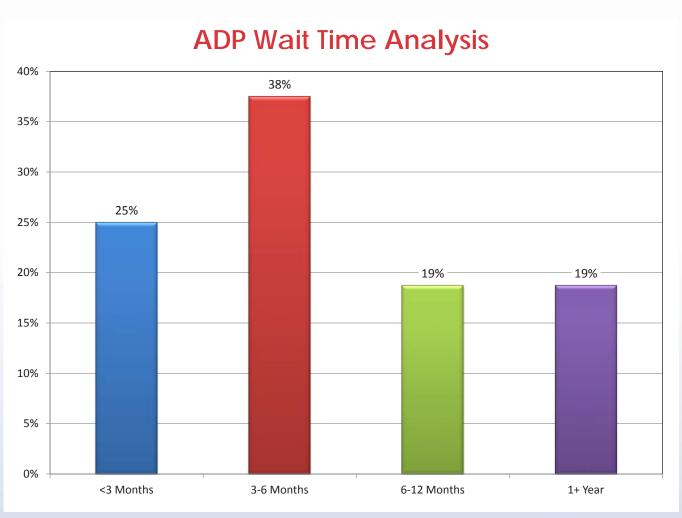
^{**}Voucher - At time of advanced donation the intended ADP Recipient is not in need and may never be in need of transplant.

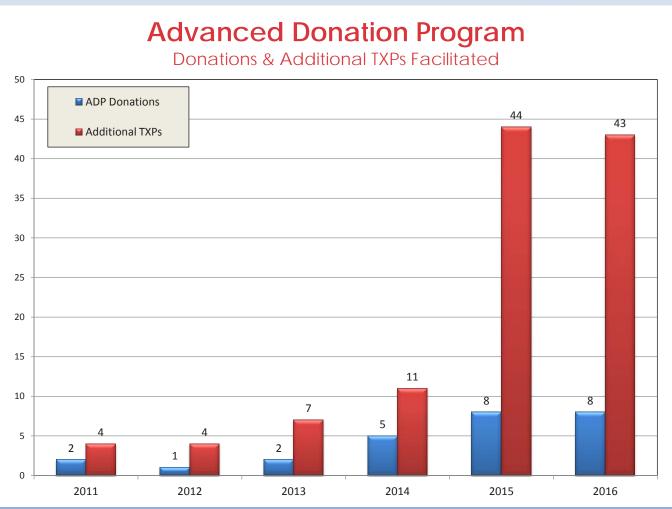
Advanced Donation Program Case Details

| # | ADP Donor Year | Center | Interval Between Surgeries | ADP Type | Donor ABO | Recip ABO | Recip cPRA | Additional Transplants Facilitated | Additional 80%+ cPRA Transplants | Additional 95%+ cPRA Transplants |
|----|-------------------|------------|-------------------------------|------------|-----------|-----------|------------|--|--|--|
| 1 | 2011 | Barnabas | 10 Days | Short-Term | В | Α | 0% | 1 | 0 | 0 |
| 2 | 2011 | OSU | 19 Months | Short-Term | Α | 0 | 95% | 3 | 0 | 0 |
| 3 | 2012 | UCLA | 5 Months | Short-Term | 0 | 0 | 58% | 4 | 1 | 1 |
| 4 | 2013 | Madison | 15 Months | Short-Term | Α | В | 0% | 1 | 1 | 1 |
| 5 | 2013 | Maryland | 9 Weeks | Short-Term | Α | 0 | 0% | 6 | 2 | 2 |
| 6 | 2014 | Christiana | 6 Months | Short-Term | Α | Α | 28% | 2 | 1 | 0 |
| 7 | 2014 | Madison | 8 Months | Short-Term | 0 | 0 | 92% | 2 | 1 | 1 |
| 8 | 2014 | Sharp | unknowable | Short-Term | В | 0 | 0% | 1 | 0 | 0 |
| 9 | 2014 | MassGen | 2 Weeks | Short-Term | В | 0 | 0% | 3 | 1 | 0 |
| 10 | 2014 | UCLA | unknowable | Voucher | 0 | Α | 0% | 3 | 0 | 0 |
| 11 | 2015 | UCLA | 4 Months | Short-Term | 0 | 0 | 96% | 10 | 6 | 2 |
| 12 | 2015 | Maryland | 2 Months | Short-Term | В | 0 | 0% | 3 | 1 | 0 |
| 13 | 2015 | Penn | unknowable | Short-Term | 0 | 0 | 0% | 9 | 4 | 2 |
| 14 | 2015 | Cornell | unknowable | Voucher | Α | Α | 87% | 8 | 1 | 1 |
| 15 | 2015 | UCLA/UCSF | 8 Months | Short-Term | 0 | Α | 94% | 5 | 2 | 1 |
| 16 | 2015 | UMinn | 9 Months | Short-Term | 0 | 0 | 0% | 2 | 0 | 0 |
| 17 | 2015 | UCLA | 1 Month | Short-Term | В | 0 | 86% | 5 | 2 | 1 |
| 18 | 2015 | UCSF | 8 Months | Short-Term | Α | В | 52% | 2 | 0 | 0 |
| 19 | 2016 | ASL | 2 Months | Short-Term | 0 | 0 | 28% | 8 | 2 | 2 |
| 20 | 2016 | Cornell | unknowable | Voucher | 0 | Α | 87% | 14 | 6 | 2 |
| 21 | 2016 | Cornell | unknowable | Voucher | Α | Α | 0% | 3 | 0 | 0 |
| 22 | 2016 | UCSF | unknowable | Short-Term | 0 | 0 | 97% | 4 | 1 | 1 |
| 23 | 2016 | ASL | unknowable | Short-Term | В | 0 | 36% | 3 | 0 | 0 |
| 24 | 2016 | Hopkins | 2 Weeks | Short-Term | Α | Α | 75% | 4 | 2 | 2 |
| 25 | 2016 | Penn | unknowable | Voucher | Α | 0 | 0% | 2 | 0 | 0 |
| 26 | 2016 | UCSF | unknowable | Voucher | Α | 0 | 70% | 5 | 2 | 1 |
| | | | | | | | TOTAL: | 113 | 36 | 20 |

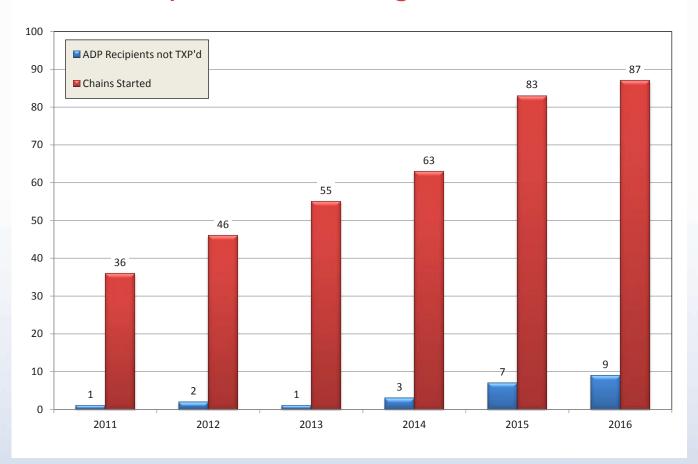
ADP Recipient Wait Time

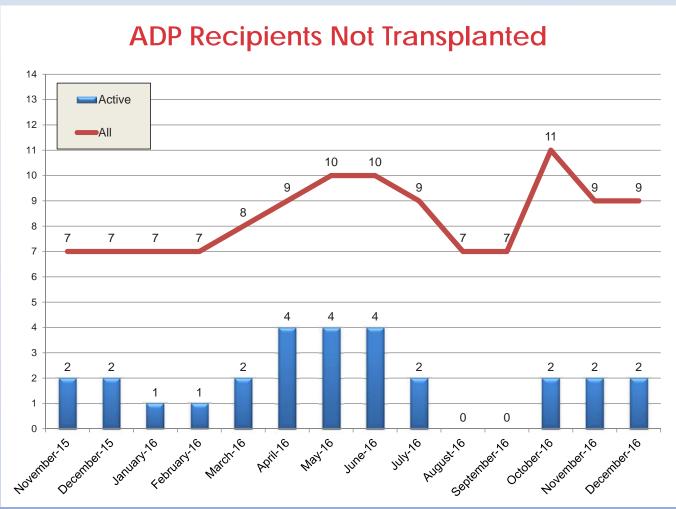
| # | Center | Recipient Alias | Exportable Date | TXP Date | Wait Time in Months | Blood Type | cPRA |
|----|------------|-----------------|-----------------|------------|---------------------|------------|------|
| 1 | OSU | CMAS0290 | 3/15/2012 | 10/10/2013 | 19 | 0 | 95% |
| 2 | UCLA | R334837 | 5/29/2014 | 6/17/2015 | 13 | 0 | 96% |
| 3 | Madison | HANSS | 7/18/2012 | 4/25/2013 | 9 | 0 | 0% |
| 4 | Madison | NEYEMRE | 6/25/2014 | 3/26/2015 | 9 | 0 | 92% |
| 5 | UMinn | ROBBR70 | 11/13/2015 | 6/21/2016 | 7 | 0 | 0% |
| 6 | Christiana | LOPMI | 1/17/2014 | 8/14/2014 | 7 | Α | 28% |
| 7 | Maryland | DMJKR | 11/14/2014 | 5/13/2015 | 6 | 0 | 0% |
| 8 | UCLA | C483244 | 10/24/2012 | 4/6/2013 | 5 | 0 | 58% |
| 9 | UCLA | C3751 | 6/8/2015 | 10/21/2015 | 5 | 0 | 86% |
| 10 | ASL | EP1929 | 12/30/2015 | 5/10/2016 | 4 | 0 | 28% |
| 11 | Maryland | EOSSR | 8/7/2013 | 12/10/2013 | 4 | 0 | 0% |
| 12 | Madison | KRISRRE | 1/30/2016 | 6/2/2016 | 4 | Α | 95% |
| 13 | UCLA/UCSF | RCS54 | 4/13/2016 | 8/3/2016 | 4 | Α | 94% |
| 14 | MassGen | GCAR | 6/14/2014 | 8/28/2014 | 3 | 0 | 0% |
| 15 | UCSF | R136DC | 6/10/2016 | 8/2/2016 | 2 | В | 52% |
| 16 | Barnabas | LAKRAU | 7/13/2011 | 8/25/2011 | 1 | Α | 0% |
| 15 | Hopkins | KATPAT | 11/8/2016 | 11/22/2016 | 0 | Α | 75% |





ADP Recipients Outstanding vs. Chains Started





Program Statistics As of 12/31/2016

| | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|----|--|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | Transplants Facilitated | 21 | 62 | 131 | 175 | 226 | 308 | 310 | 360 | 399 |
| 2 | Paired Transplants Facilitated | 21 | 39 | 91 | 131 | 164 | 252 | 255 | 288 | 315 |
| 3 | Chip Transplants Facilitated | 0 | 23 | 40 | 44 | 62 | 56 | 55 | 72 | 84 |
| 4 | Ending Unmatched Patient Pool | 80 | 127 | 120 | 201 | 241 | 255 | 279 | 280 | 215 |
| 5 | Cumulative Transplants | 21 | 83 | 214 | 389 | 615 | 923 | 1233 | 1593 | 1992 |
| 6 | Cumulative Paired Transplants | 21 | 60 | 150 | 280 | 526 | 777 | 1030 | 1316 | 1630 |
| 7 | Cumulative Chip Transplants | 0 | 23 | 64 | 109 | 89 | 146 | 203 | 277 | 362 |
| 8 | Cumulative Paired Patient Pool | 101 | 210 | 334 | 590 | 805 | 1062 | 1351 | 1615 | 1877 |
| 9 | Percent of Pool Transplanted (Paired Recipients) | 21% | 40% | 64% | 66% | 71% | 76% | 79% | 84% | 89% |
| 10 | Enrolled Patient Mean Wait Time (years) | 3.8 | 2.0 | 0.9 | 1.1 | 1.1 | 1.0 | 0.9 | 0.9 | 0.9 |
| 11 | Transplanted Patient Mean Wait Time (months) | 5.1 | 5.3 | 6.0 | 5.0 | 5.1 | 5.4 | 4.8 | 4.1 | 4.7 |
| 12 | Transplanted Patient Median Wait Time (months) | 5.3 | 5.3 | 3.9 | 2.5 | 3.0 | 3.0 | 2.3 | 2.1 | 2.1 |
| 13 | Mean cPRA of Transplanted Patients | 4.1% | 25.9% | 34.5% | 40.3% | 44.1% | 54.0% | 48.3% | 48.9% | 42.8% |
| 14 | Number of Transplants Completed by cPRA | | | | | | | | | |
| 15 | 100% | 0 | 1 | 4 | 10 | 4 | 5 | 3 | 7 | 3 |
| 16 | 95-100% | 0 | 4 | 12 | 10 | 29 | 68 | 41 | 47 | 39 |
| 17 | 80-95% | 1 | 7 | 16 | 29 | 26 | 37 | 49 | 55 | 59 |
| 18 | 50-80% | 0 | 5 | 19 | 27 | 33 | 46 | 48 | 42 | 53 |
| 19 | 0-50% | 1 | 8 | 13 | 30 | 34 | 47 | 43 | 57 | 61 |
| 20 | 0% | 19 | 37 | 67 | 69 | 100 | 105 | 126 | 152 | 184 |
| 21 | Sub-total | 21 | 62 | 131 | 175 | 226 | 308 | 310 | 360 | 399 |
| 22 | Percent of Transplants Completed by cPRA | | | | | | | | | |
| 23 | 100% | 0% | 2% | 3% | 6% | 2% | 2% | 1% | 2% | 1% |
| 24 | 95-100% | 0% | 6% | 9% | 6% | 13% | 22% | 13% | 13% | 10% |
| 25 | 80-95% | 5% | 11% | 12% | 17% | 12% | 12% | 16% | 15% | 15% |
| 26 | 50-80% | 0% | 8% | 15% | 15% | 15% | 15% | 15% | 12% | 13% |
| 27 | 0-50% | 5% | 13% | 10% | 17% | 15% | 15% | 14% | 16% | 15% |
| 28 | 0% | 90% | 60% | 51% | 39% | 44% | 34% | 41% | 42% | 46% |
| 29 | Sub-total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 30 | Number of Transplanted Patients with cPRA >80% | 1 | 12 | 32 | 49 | 59 | 110 | 93 | 109 | 101 |
| 31 | Percent of Transplanted Patients with cPRA >80% | 5% | 19% | 24% | 28% | 26% | 36% | 30% | 30% | 26% |

Program Statistics As of 12/31/2016

| | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|----|---|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 32 | Number of Unmatched Patients by cPRA (9/30/2016) | | | | | | | | | |
| 33 | 100% | | | | 79 | 73 | 83 | 81 | 80 | 80 |
| 34 | 95-99% | | | | 73 | 73 | 61 | 61 | 53 | 37 |
| 35 | 80-95% | | | | 15 | 15 | 24 | 19 | 22 | 12 |
| 36 | 50-80% | | | | 14 | 11 | 14 | 13 | 25 | 13 |
| 37 | 0-50% | | | | 14 | 10 | 22 | 37 | 35 | 28 |
| 38 | 0% | | | | 50 | 59 | 51 | 68 | 65 | 45 |
| 39 | Sub-total | | | | 245 | 241 | 255 | 279 | 280 | 215 |
| 40 | Percent of Unmatched Patients by cPRA | | | | | | | | | |
| 41 | 100% | | | | 32% | 30% | 33% | 29% | 29% | 37% |
| 42 | 95-99% | | | | 30% | 30% | 24% | 22% | 19% | 17% |
| 43 | 80-95% | | | | 6% | 6% | 9% | 7% | 8% | 6% |
| 44 | 50-80% | | | | 6% | 5% | 5% | 5% | 9% | 6% |
| 45 | 0-50% | | | | 6% | 4% | 9% | 13% | 13% | 13% |
| 46 | 0% | | | | 20% | 24% | 20% | 24% | 23% | 21% |
| 47 | Sub-total | | | | 100% | 100% | 100% | 100% | 100% | 100% |
| 48 | Number of Transplants Completed by Wait Time (9/30/2016) | | | | | | | | | |
| 49 | < 6 months | 21 | 42 | 74 | 106 | 180 | 232 | 243 | 298 | 327 |
| 50 | 6-12 months | 0 | 10 | 14 | 19 | 24 | 44 | 35 | 38 | 30 |
| 51 | 1-2 years | 0 | 4 | 15 | 14 | 20 | 25 | 27 | 22 | 32 |
| 52 | 2+ years | 0 | 0 | 2 | 2 | 2 | 7 | 5 | 2 | 10 |
| 53 | Sub-total | 21 | 56 | 105 | 141 | 226 | 308 | 310 | 360 | 399 |
| 54 | Percent of Transplants Completed by Wait Time (9/30/2016) | | | | | | | | | |
| 55 | < 6 months | 100% | 75.0% | 70.5% | 75.2% | 79.6% | 75.3% | 78.4% | 82.8% | 82.0% |
| 56 | 6-12 months | 0.0% | 17.9% | 13.3% | 13.5% | 10.6% | 14.3% | 11.3% | 10.6% | 7.5% |
| 57 | 1-2 years | 0.0% | 7.1% | 14.3% | 9.9% | 8.8% | 8.1% | 8.7% | 6.1% | 8.0% |
| 58 | 2+ years | 0.0% | 0.0% | 1.9% | 1.4% | 0.9% | 2.3% | 1.6% | 0.6% | 2.5% |
| 59 | Sub-total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 60 | Total Chains Started | 4 | 9 | 28 | 36 | 46 | 55 | 63 | 83 | 99 |
| 61 | Total Loops Completed | 0 | 3 | 2 | 3 | 12 | 24 | 17 | 15 | 7 |
| 62 | Number of broken chains | 3 | 2 | 2 | 0 | 4 | 3 | 4 | 1 | 2 |
| 63 | Bridge Donors Held (2016) | 9 | 29 | 61 | 75 | 54 | 37 | 49 | 53 | 68 |
| 64 | Percent of broken chains | 33% | 7% | 3% | 0% | 7% | 8% | 8% | 2% | 3% |



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