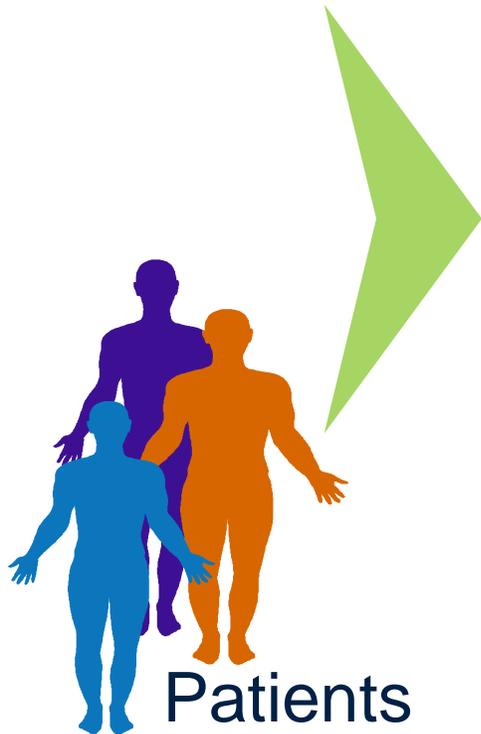


Kidney transplantation and roles of the Organ Procurement and Transplantation Network (OPTN)

*David K. Klassen, M.D.
Chief Medical Officer, UNOS*

Organ Matching

Donor organ

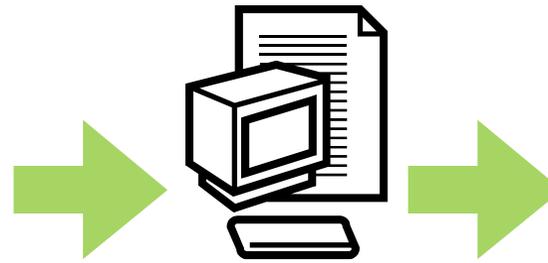


Patients waiting

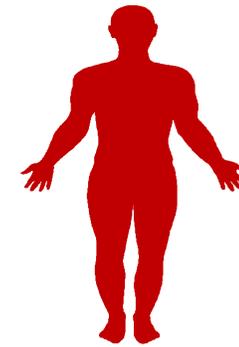
UNOSSM

UNITED NETWORK FOR ORGAN SHARING

National computer matching system



Potential recipient list



Transplant

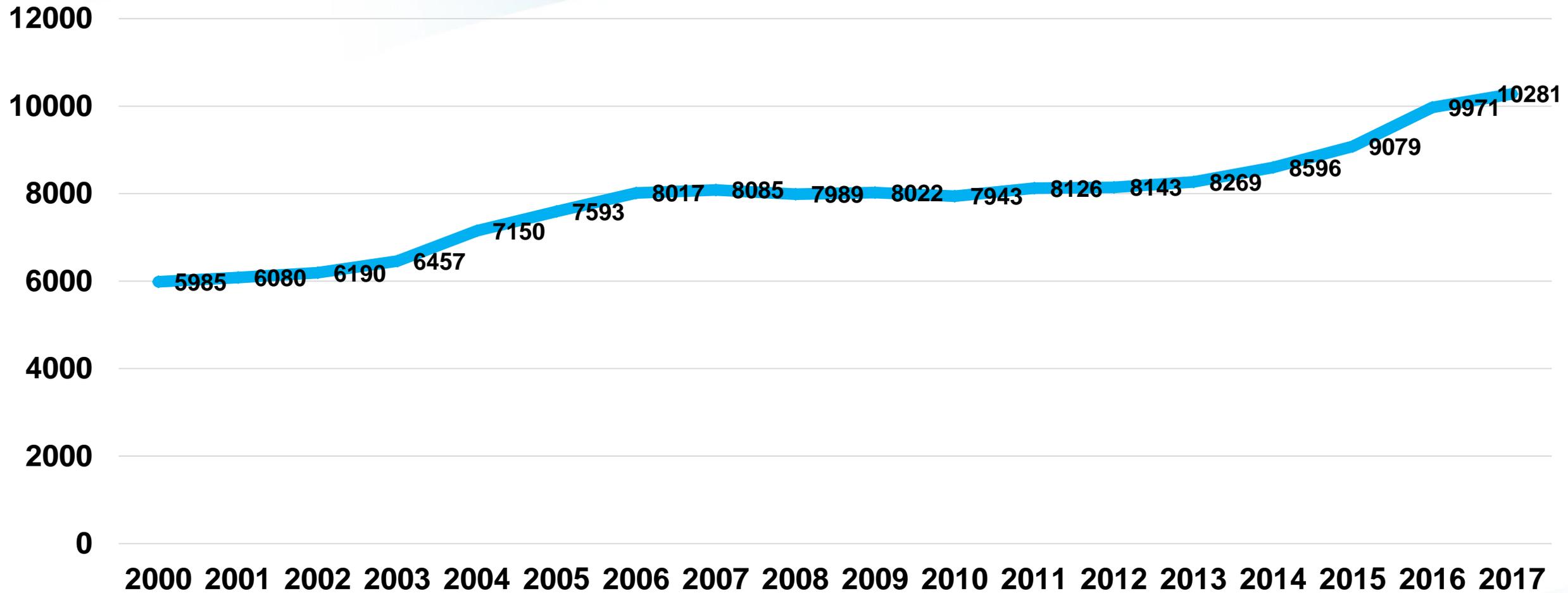
UNOS Organization

- Non-profit and charitable
- Membership organization
- Government contractor (OPTN)
 - *Organ Procurement and Transplantation Network*

What OPTN Does

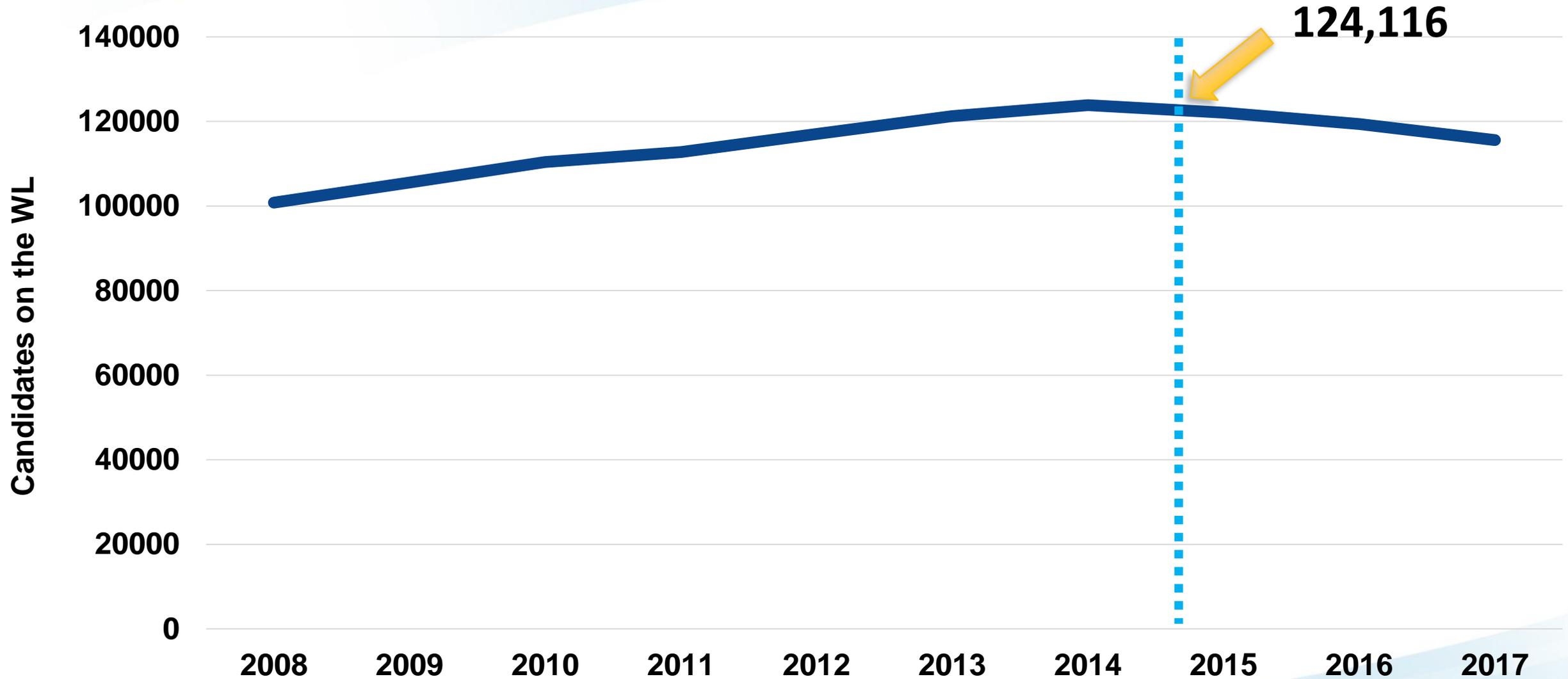
- Maintains national transplant list
- Facilitates organ distribution, transplantation
- Establishes equitable policies and membership standards
- Monitors members for policy compliance
- Collects/validates/reports transplant data
- Promotes most/best use of available organs

Deceased Donors Recovered in the U.S: 2000 - 2017

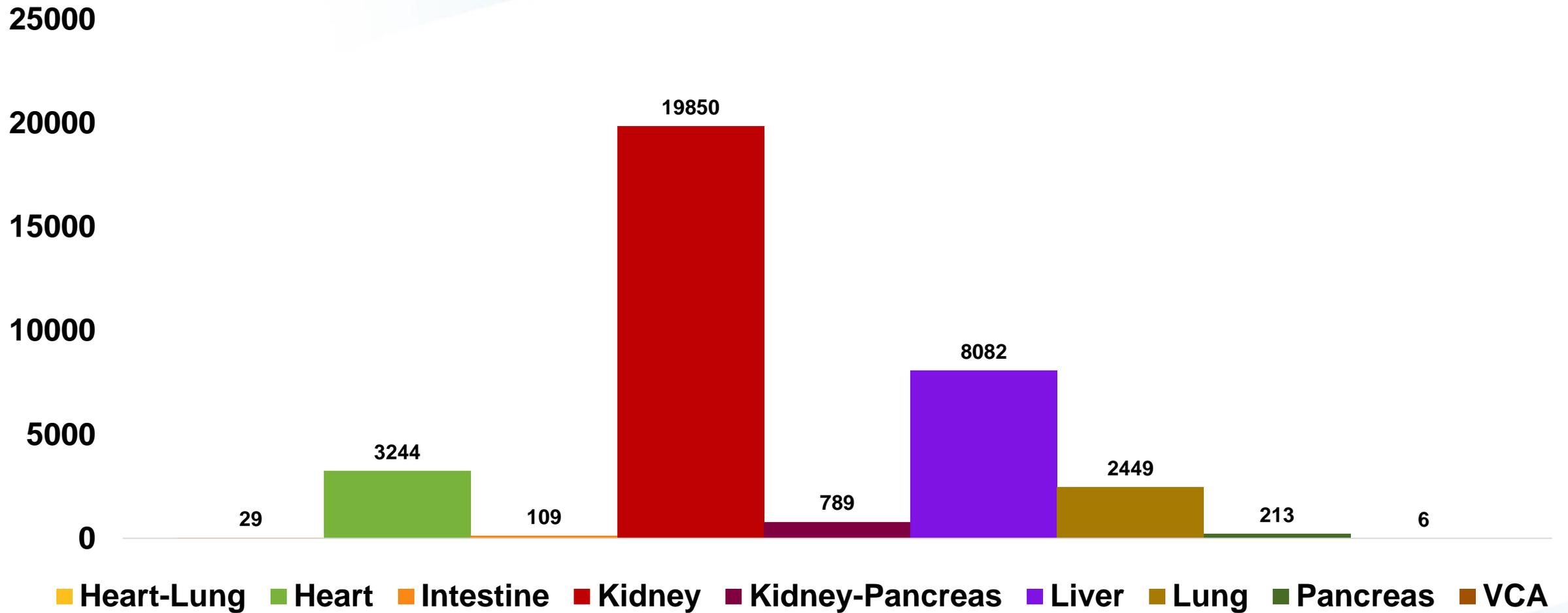


— Deceased Donors

Beginning of the Waitlist Decline: October 31, 2014



U.S. Transplants Performed by Organ, 2017



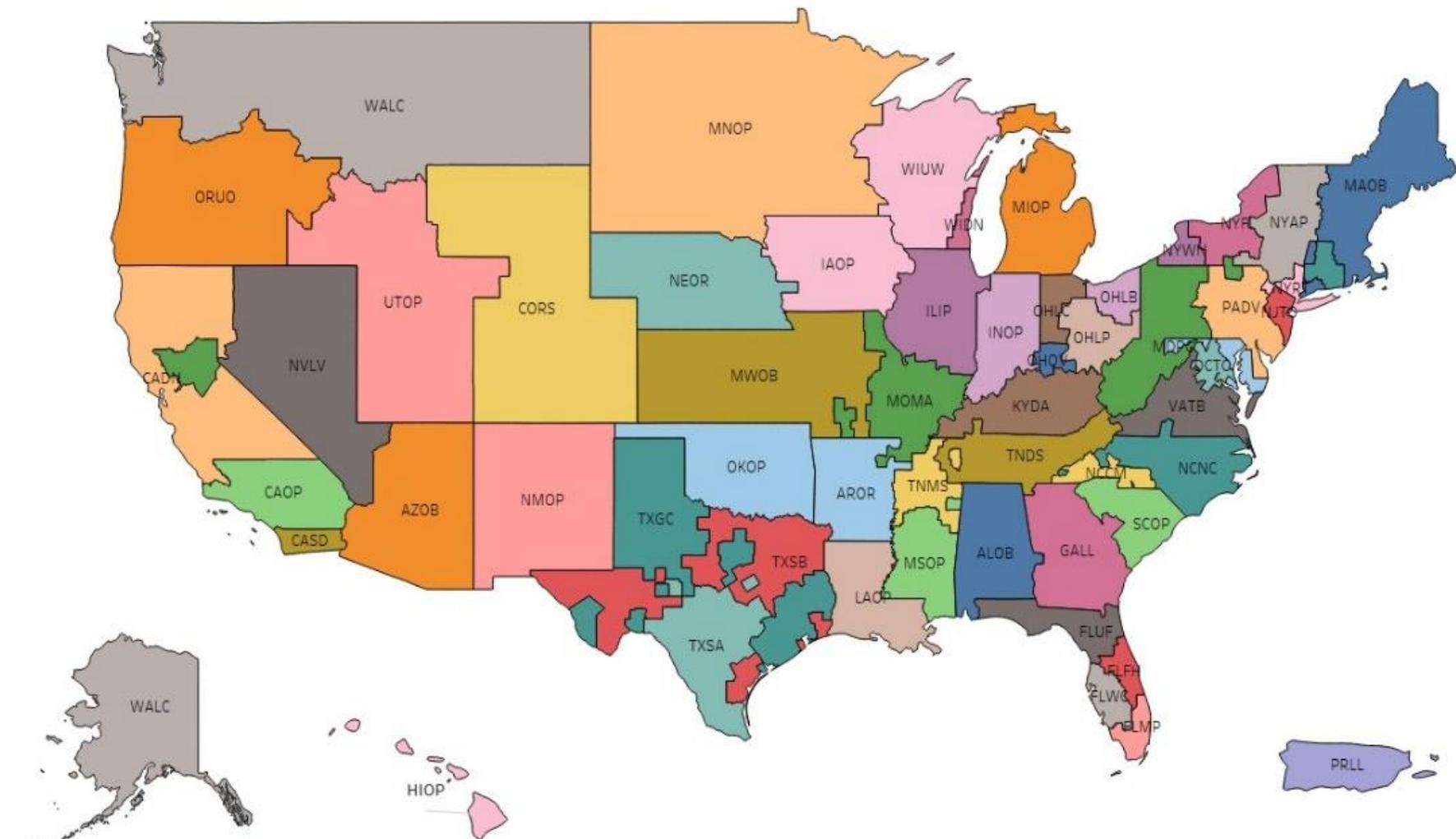
New kidney allocation system (KAS)

- KAS implemented Dec 4, 2014
- Key goals:
 - Make better use of available kidneys
 - Increase transplant opportunities for difficult-to-match patients (increased equity)
 - Increase fairness by awarding waiting time points based on dialysis start date
 - Have limited impact on most candidate demographic groups

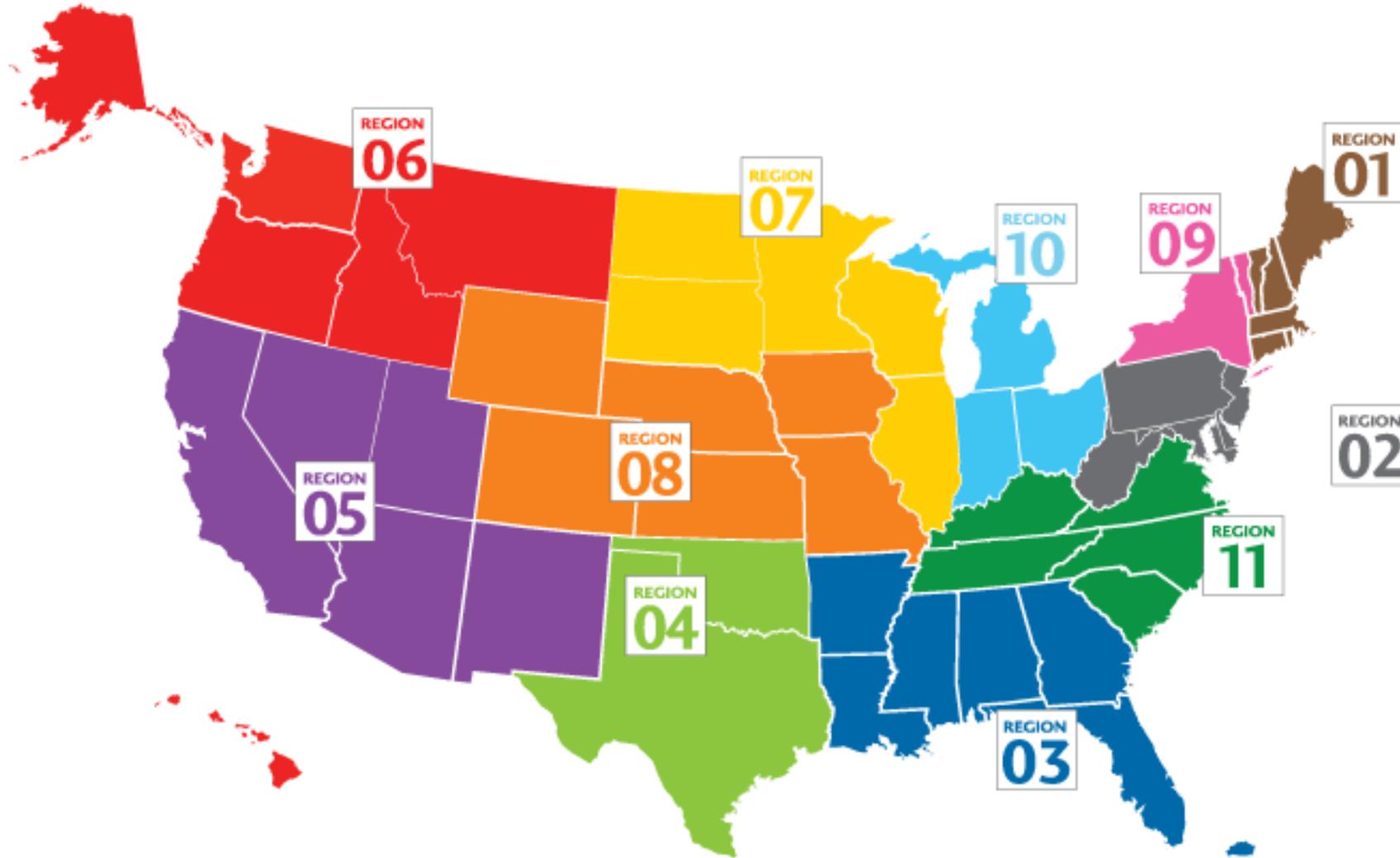
New Kidney Allocation System 2014

- Waiting time changed to dialysis start date or GFR < 20
- Longevity matching using KDPI and EPTS
- Increased priority for highly sensitized recipients
- Increased access for blood group B: A2 and A2B to B transplants
- Eliminates paybacks and regional allocation variances
- No attempt to address geographic disparity

OPTN DSA map



OPTN regional map



Estimated post-transplant survival - EPTS

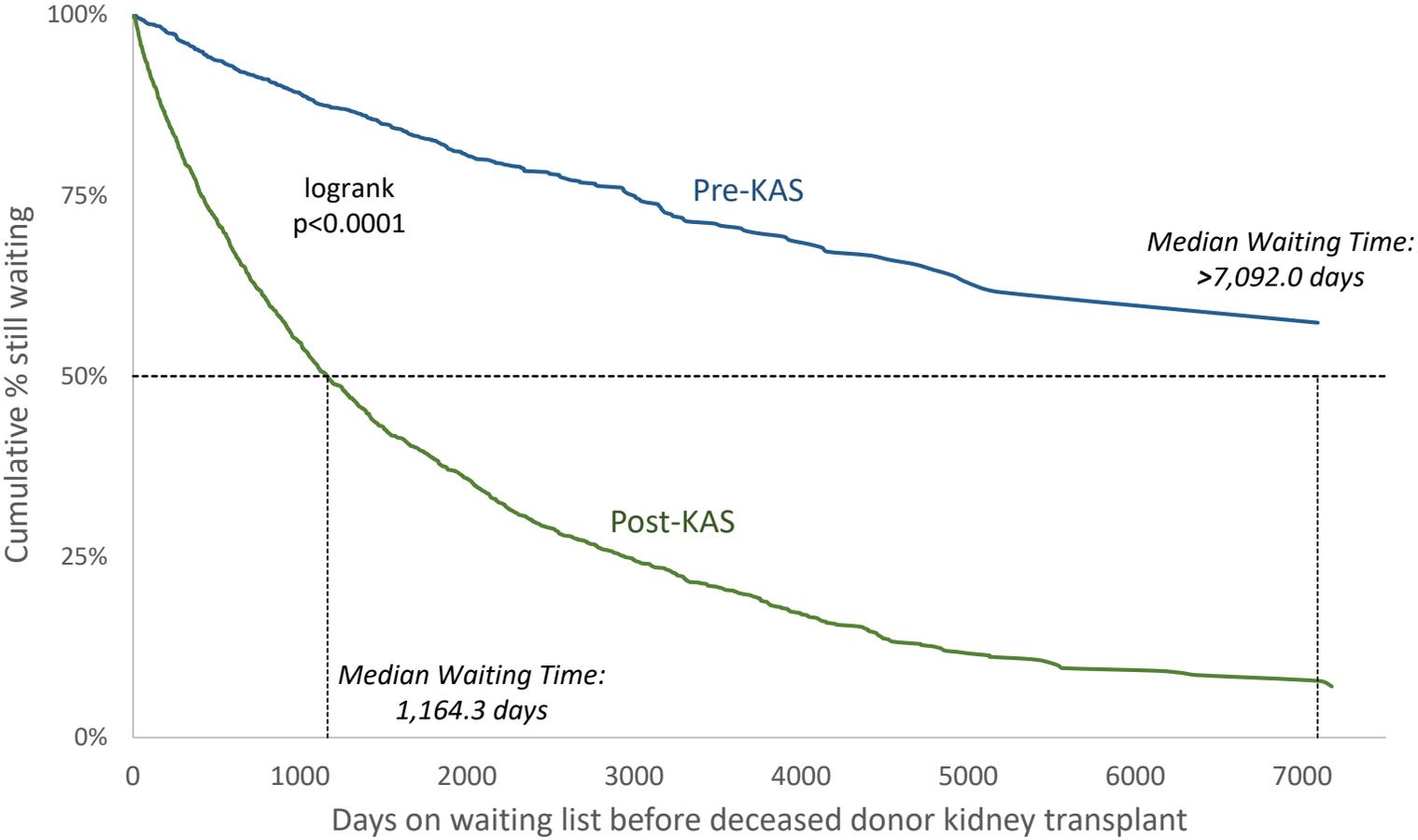
- Age
- Time on dialysis
- Current diabetes
- Prior transplant

Kidney donor profile index - KDPI

- Age
- Height
- Weight
- Ethnicity
- History of hypertension
- History of diabetes
- Cause of death
- Serum creatinine
- Hepatitis C status
- DCD status

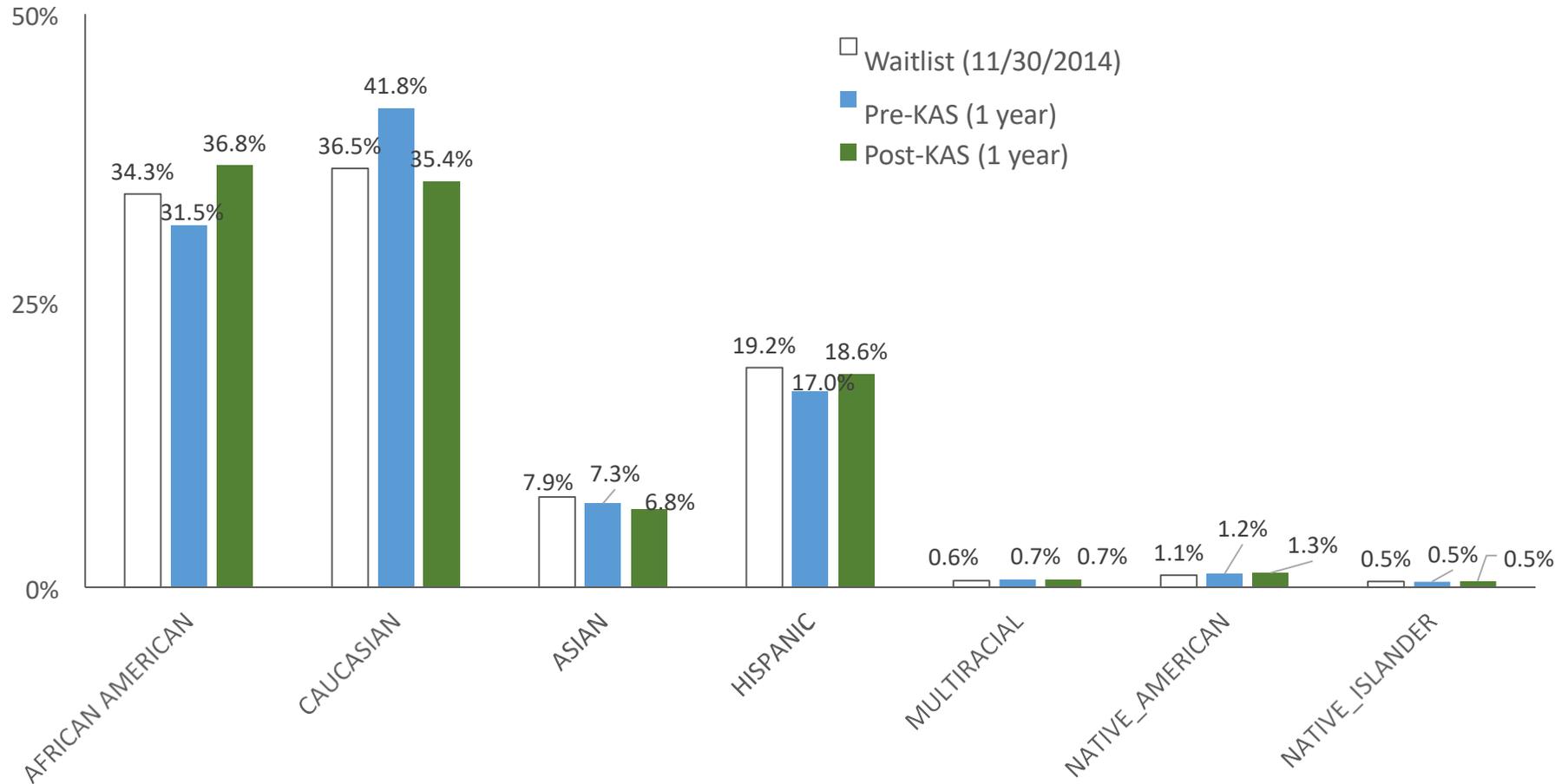
Sequence A KDPI ≤20%	Sequence B KDPI >20% but <35%	Sequence C KDPI ≥35% but ≤85%	Sequence D KDPI >85%
Highly Sensitized 0-ABDRmm (top 20% EPTS) Prior living donor Local pediatrics Local top 20% EPTS 0-ABDRmm (all) Local (all) Regional pediatrics Regional (top 20%) Regional (all) National pediatrics National (top 20%) National (all)	Highly Sensitized 0-ABDRmm Prior living donor Local pediatrics Local adults Regional pediatrics Regional adults National pediatrics National adults	Highly Sensitized 0-ABDRmm Prior living donor Local Regional National	Highly Sensitized 0-ABDRmm Local + Regional National

Estimated Time to Deceased Donor Kidney Transplant for Very Highly Sensitized (CPRA 98-100%) Candidates, Pre vs. Post-KAS



Who's getting transplanted under KAS?

Percentage of Deceased Donor Kidney Transplants by Recipient Race/ethnicity

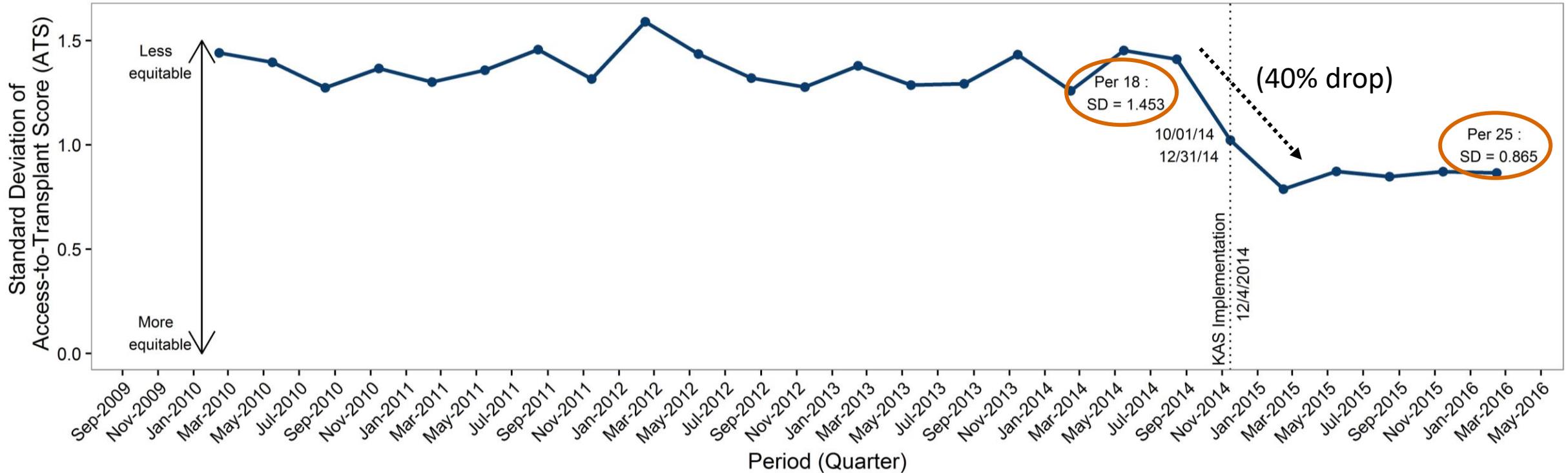


- More African Americans are receiving kidney transplants, although less so during the 2nd six months.

Equity in Access

Key Study Finding: KAS Increased Equity

Figure 3: Tracking Variability in Access-to-Transplant Score (ATS) Among Waitlisted Kidney Candidates by Quarter (January 2010 - March 2016)

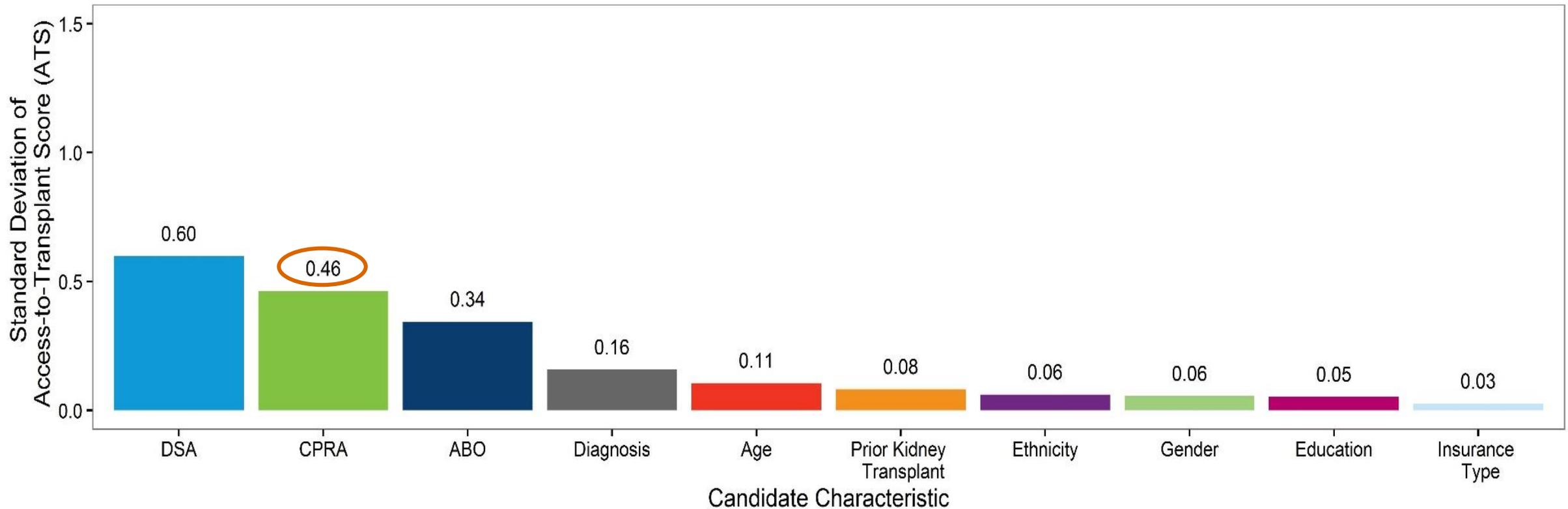


- Disparity in access (SD of ATS scores) decreased by 40% after KAS, suggesting that KAS led to improved equity in access.

Equity in Access

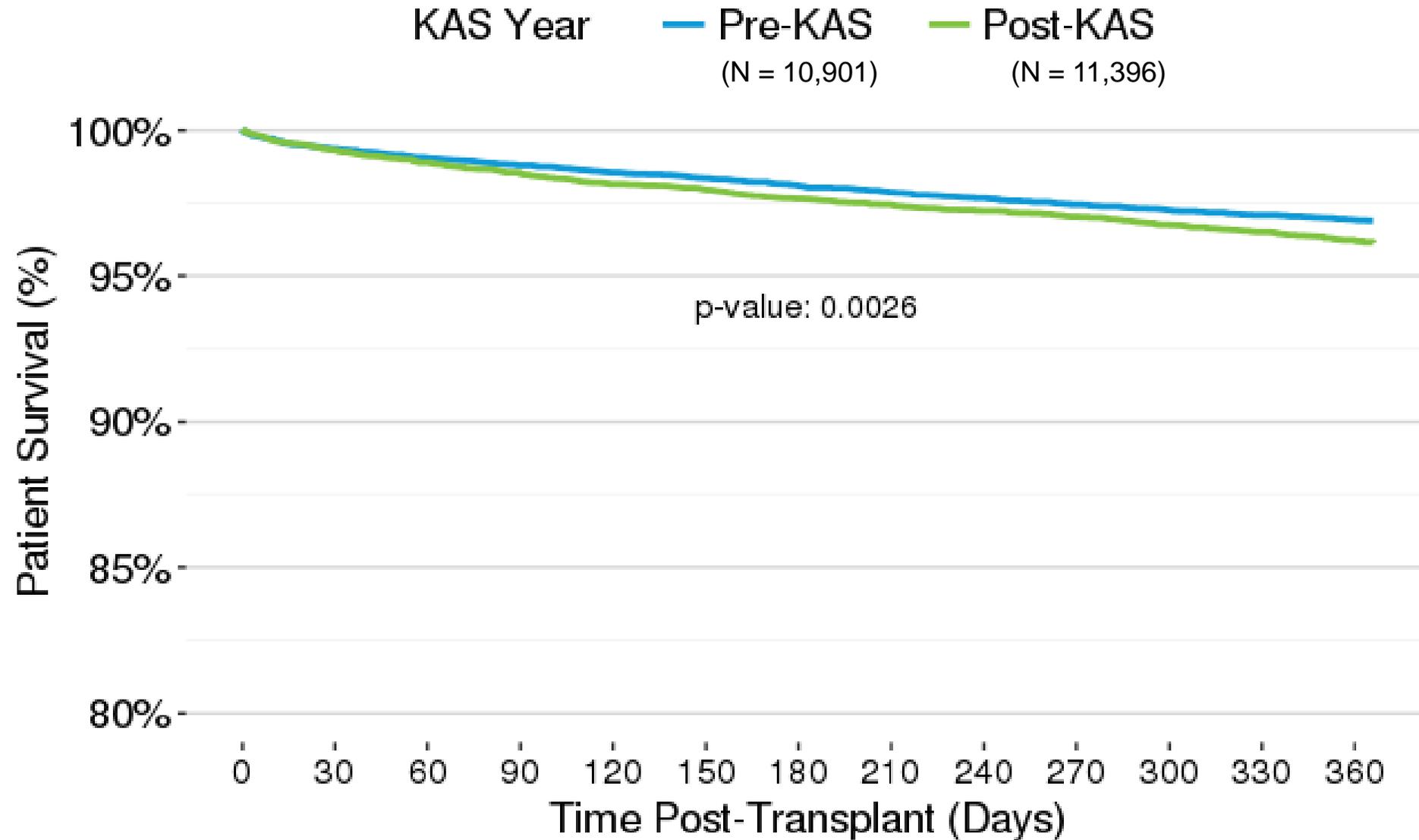
Assessment of Factors Contributing Most to Disparities

Figure 4: Variability in Access-to-Transplant Score (ATS) by Candidate Characteristic, 'All Else Equal', Post-KAS: 2016Q1

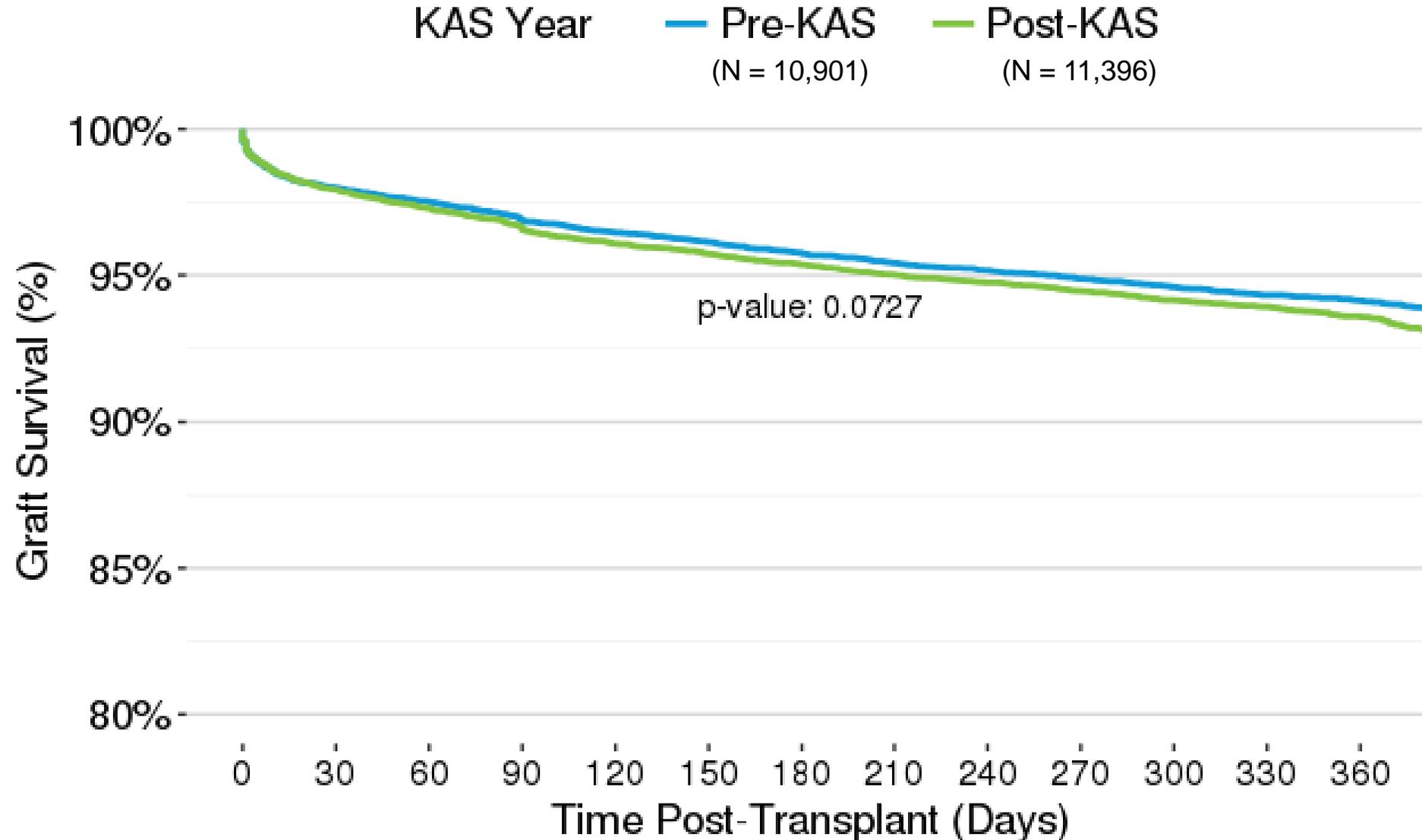


- Results from 1Q2016 suggest remaining disparities in access are predominantly attributable to 3 factors: DSA, CPRA, and ABO.

One-Year Patient Survival: Overall



One-Year Graft Survival: Overall

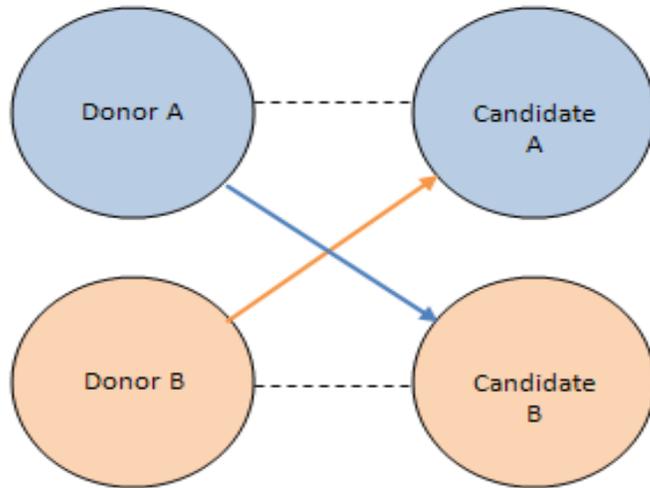


OPTN Roles in Living Donation

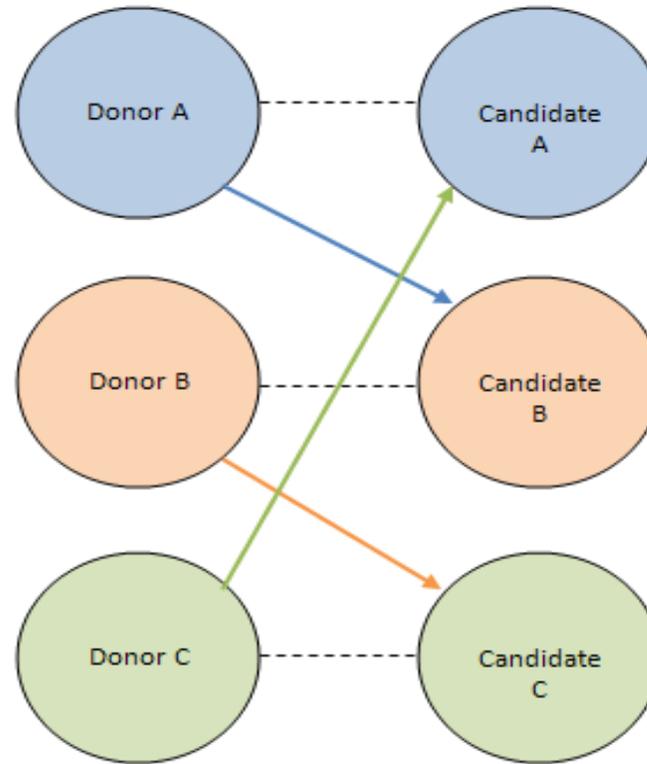
- Maintaining quality standards and requirements
 - Training/experience for key personnel at living donor programs
 - Minimum requirements for donor evaluation, informed consent
- Collecting Data (living donor followup as well as recipient)
- OPTN KPD Pilot Program

Paired Donation

Two-Way Exchange



Three-Way Exchange



Resources available

- Transplant Living (***transplantliving.org***)
 - Issues to consider before and after transplantation
 - Information on living donation
 - Links to additional resources
- UNOS online store (***store.unos.org***)
 - Patient brochures and other materials
 - Downloadable for individual use; ability to order prints in quantity
- OPTN website (***optn.transplant.hrsa.gov***)
 - National transplant data and resources
 - OPTN policies, bylaws, news
 - Policy proposals out for public comment