



Living Kidney Donation: Expanding Access and Transformation

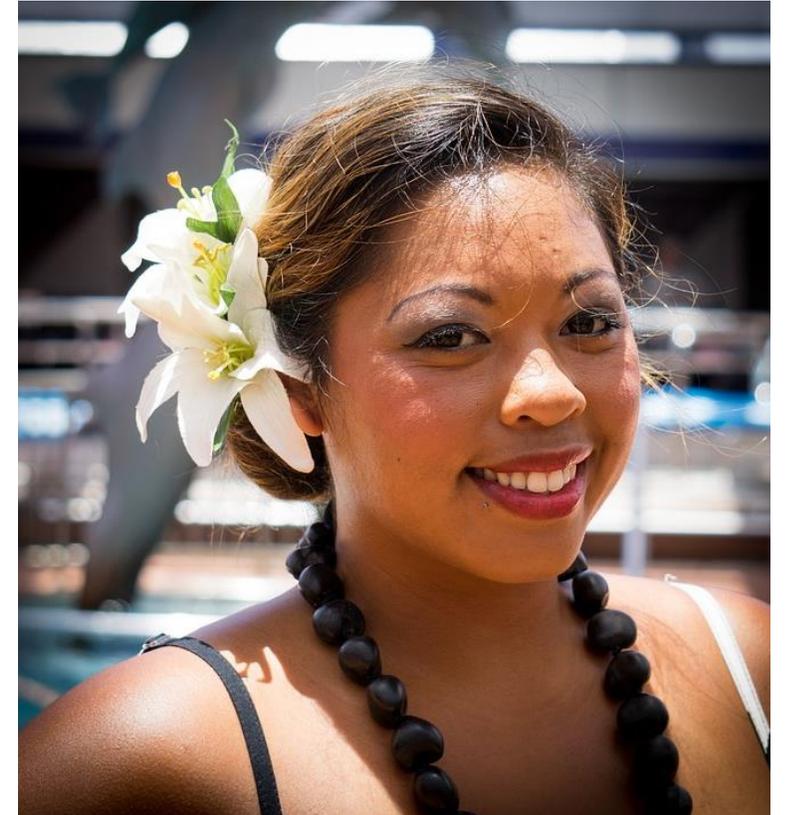
Angie Nishio Lucar, MD
Associate Professor of Medicine

Outline

- Objectives
 - Review the living kidney donation evaluation process
 - Discuss living kidney donation benefits and risks
 - Review selected ways to increase the chance of a living kidney donor transplant
- 2 cases to frame the discussion
- 15-20 minutes at the end for Q&A.

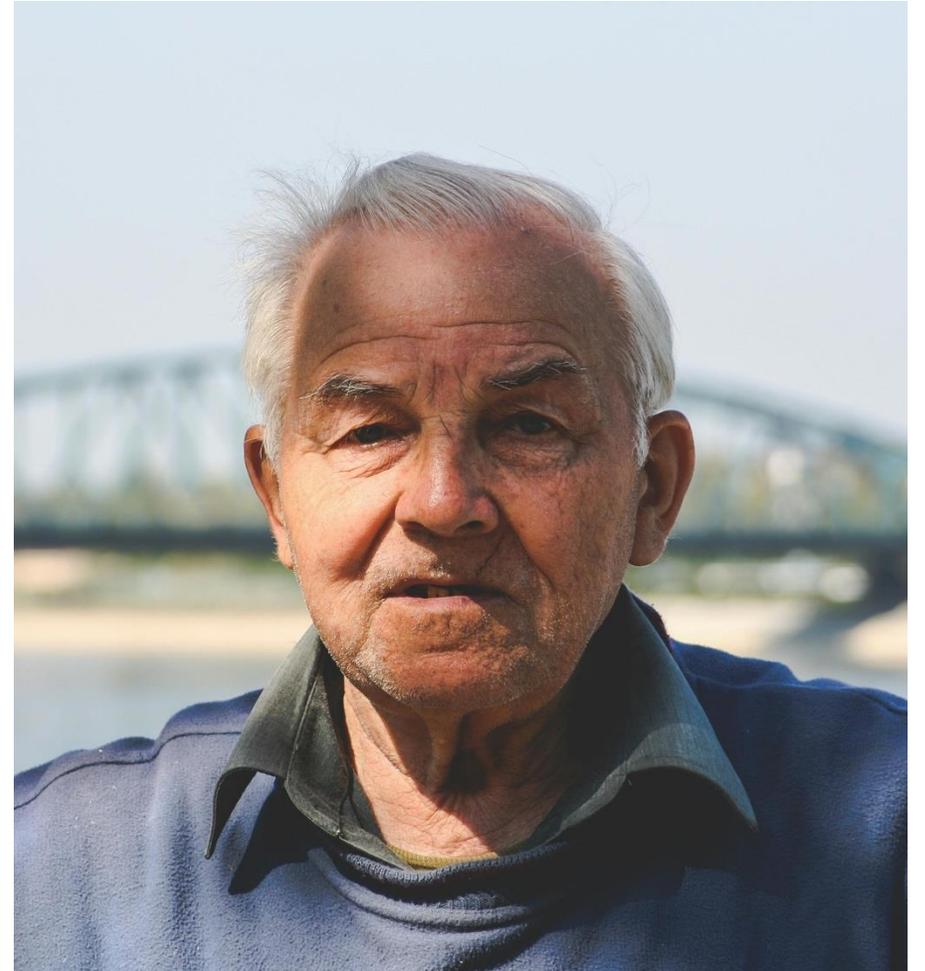
Mayra

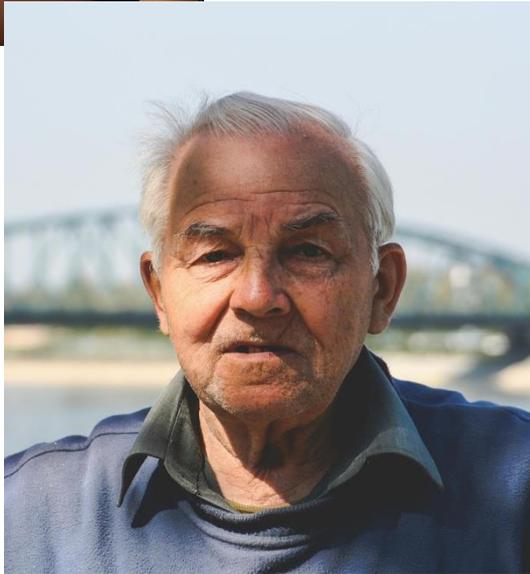
- 35 y.o. woman who was diagnosed with IgA nephropathy when she was 20 y.o.
- she found to have blood and protein loss in her urine during a college wellness evaluation.
- Despite treatment, she has progressed to chronic kidney disease (CKD) stage 4 with a current eGFR of 19 ml/min/m².
- Up to this point, transplant or dialysis had seemed a distant possibility. She feels well.

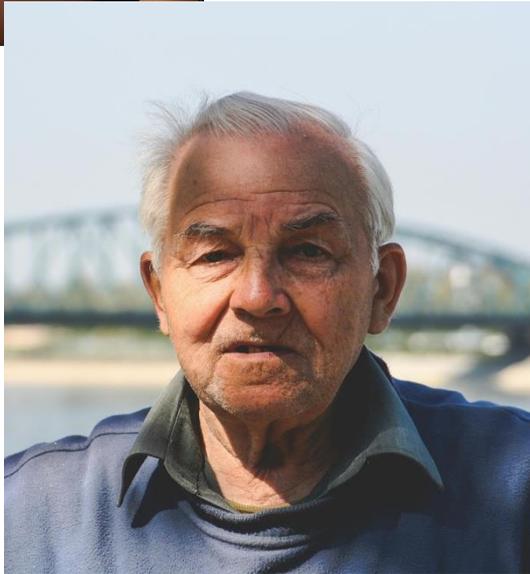
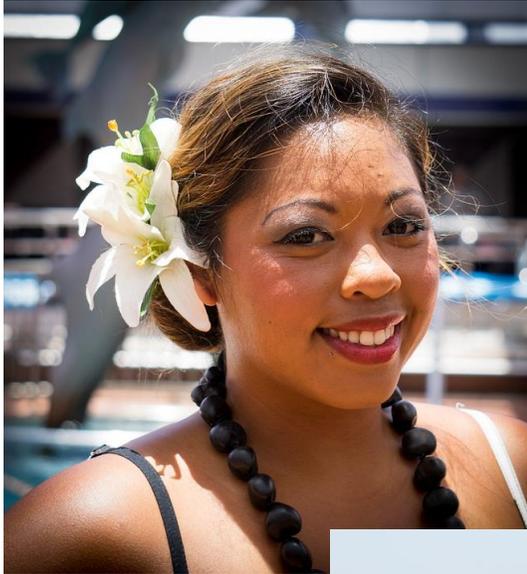


Leo

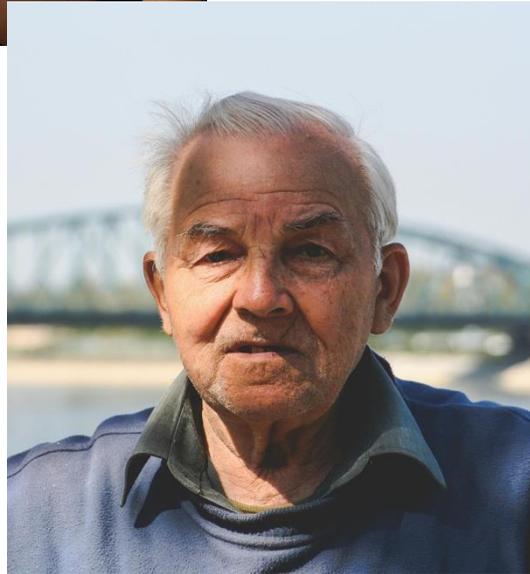
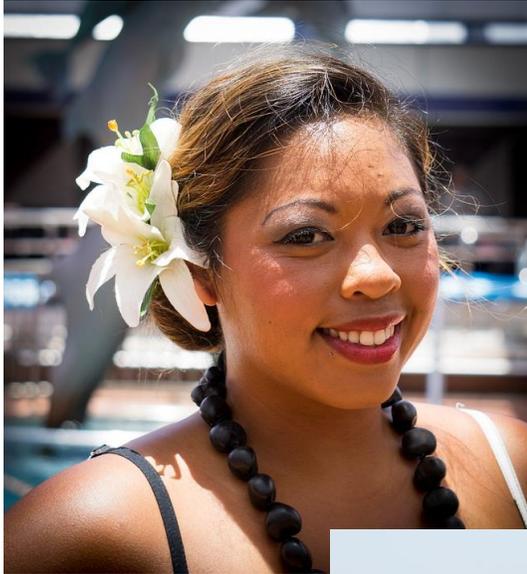
- 64 years old man with long standing type 2 diabetes, hypertension, coronary artery disease and a former smoker.
- He had a rapid change of his kidney function after having a complicated myocardial infarction that needed ICU admission.
- His GFR went from 50 ml/min on admission to the hospital to dialysis dependence at discharge.







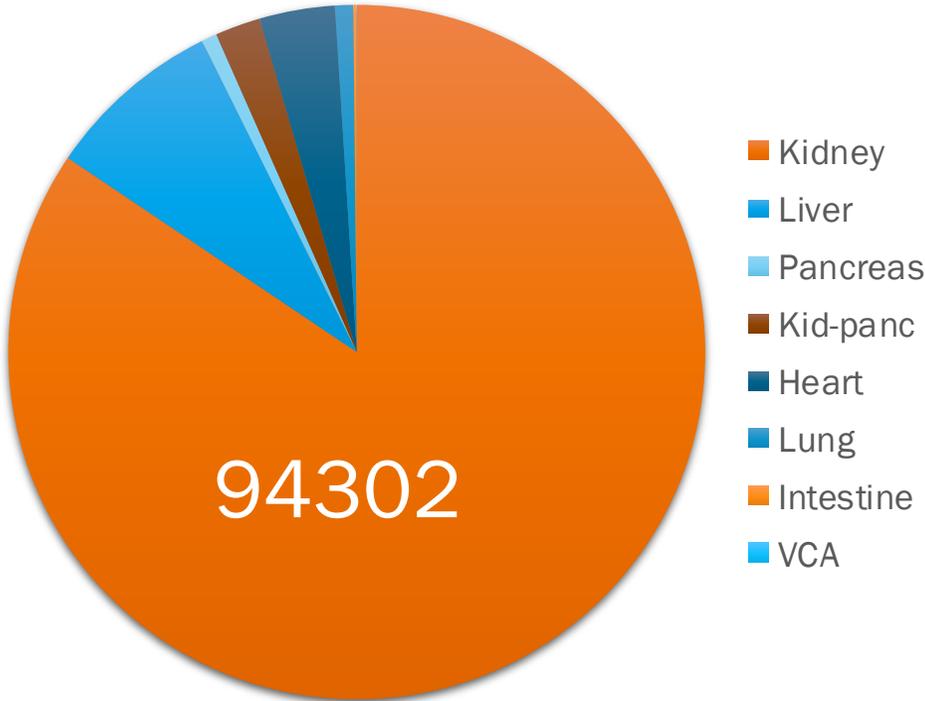
Who do you think
would benefit from
transplant?



Who do you think would benefit from transplant?

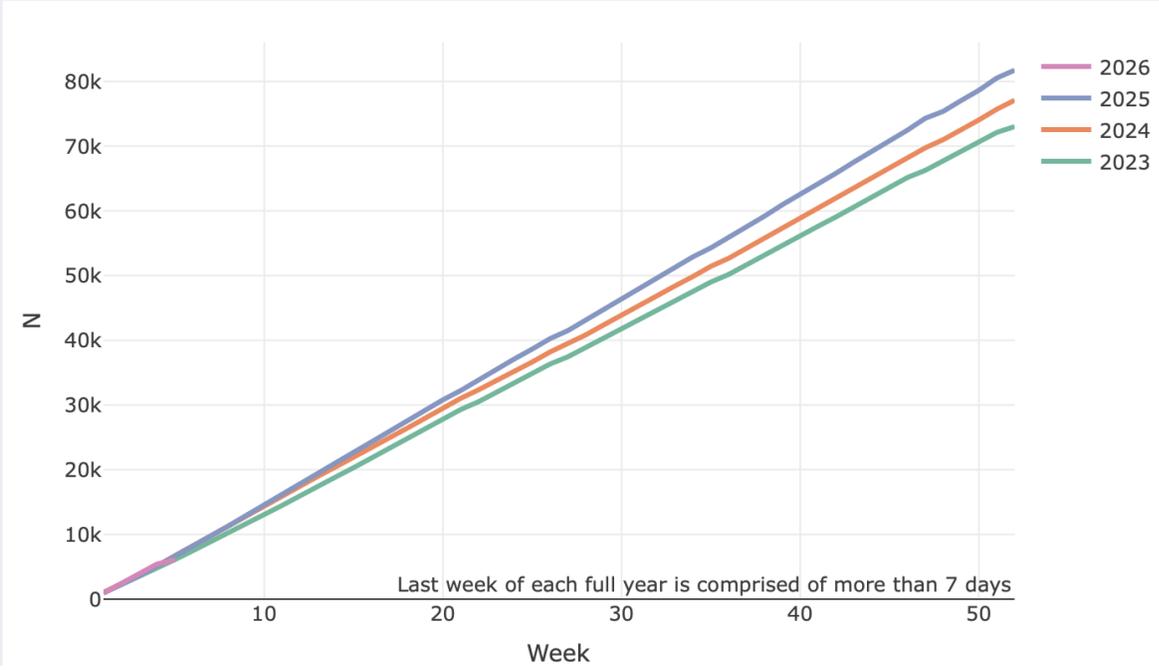
What would be the best way to transplant them?

The Waitlist



Total wait listed #108,566

National Cumulative Waitlist Additions by Week and Year



Based on OPTN data as of Feb 2026

Figure 7.13 Percentage of incident ESKD patients waitlisted before initiation of dialysis, 2014-2024

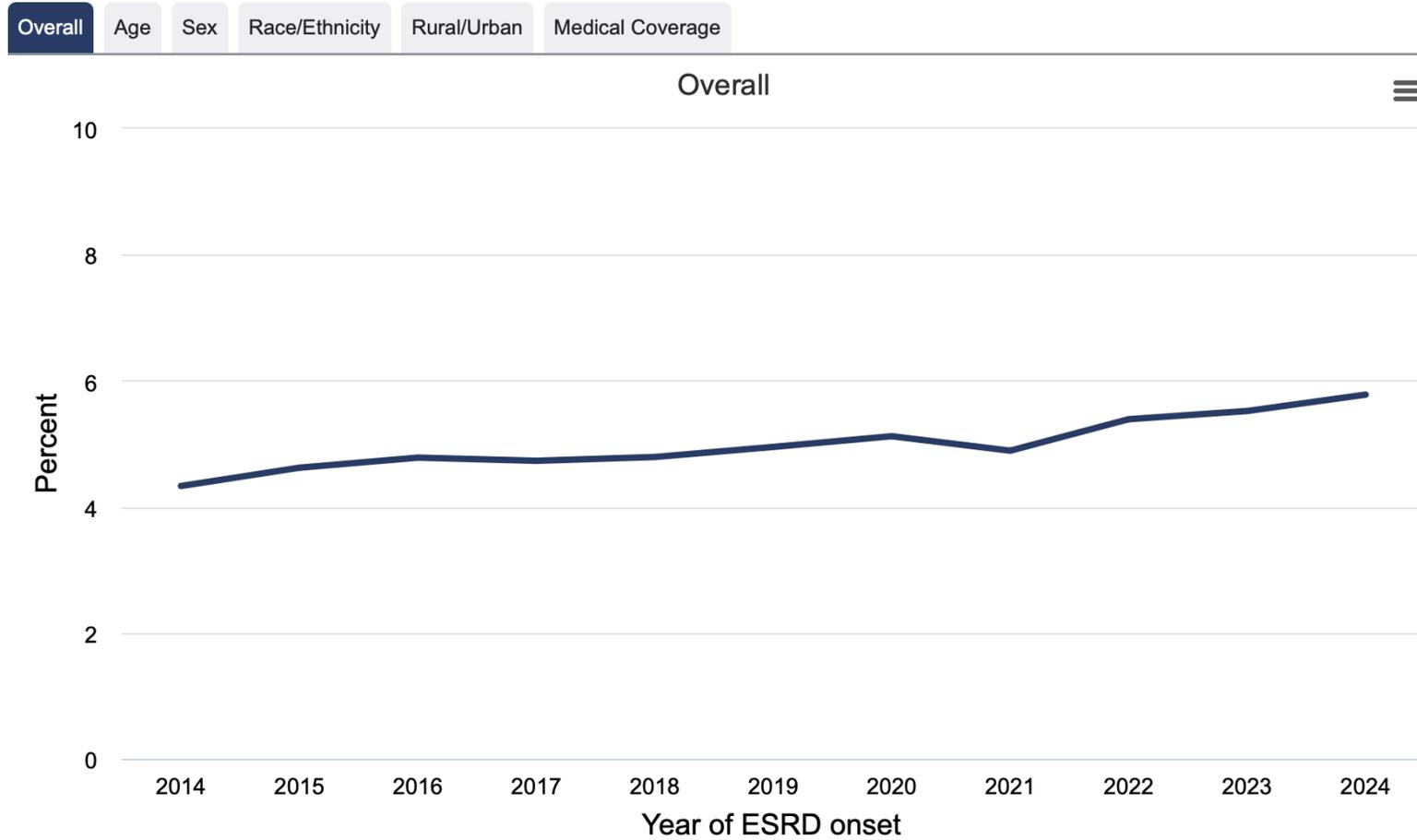


Figure 7.13 Percentage of incident ESKD patients waitlisted before initiation of dialysis, 2014-2024

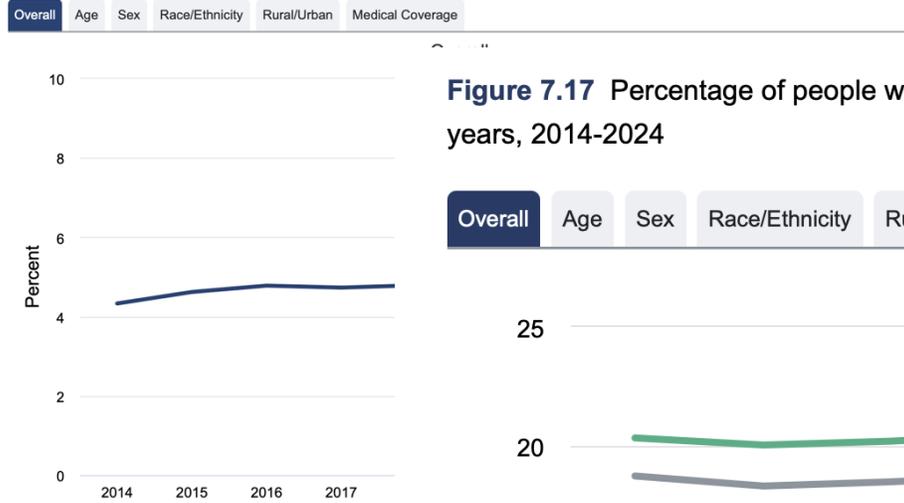
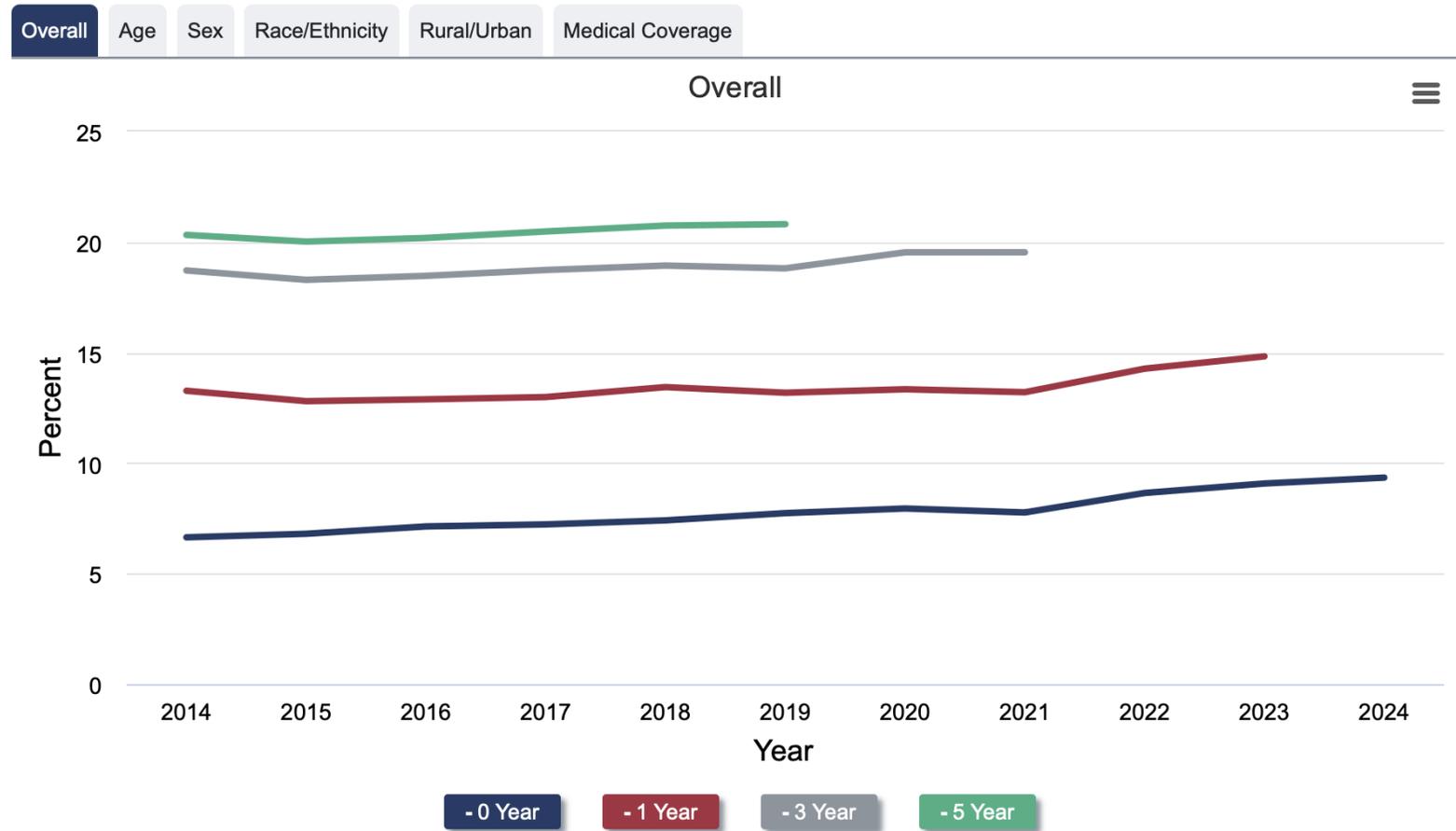


Figure 7.17 Percentage of people with new ESRD who were waitlisted or received a kidney transplant within 0, 1, 3, or 5 years, 2014-2024



Why Living Kidney Donor Transplantation?

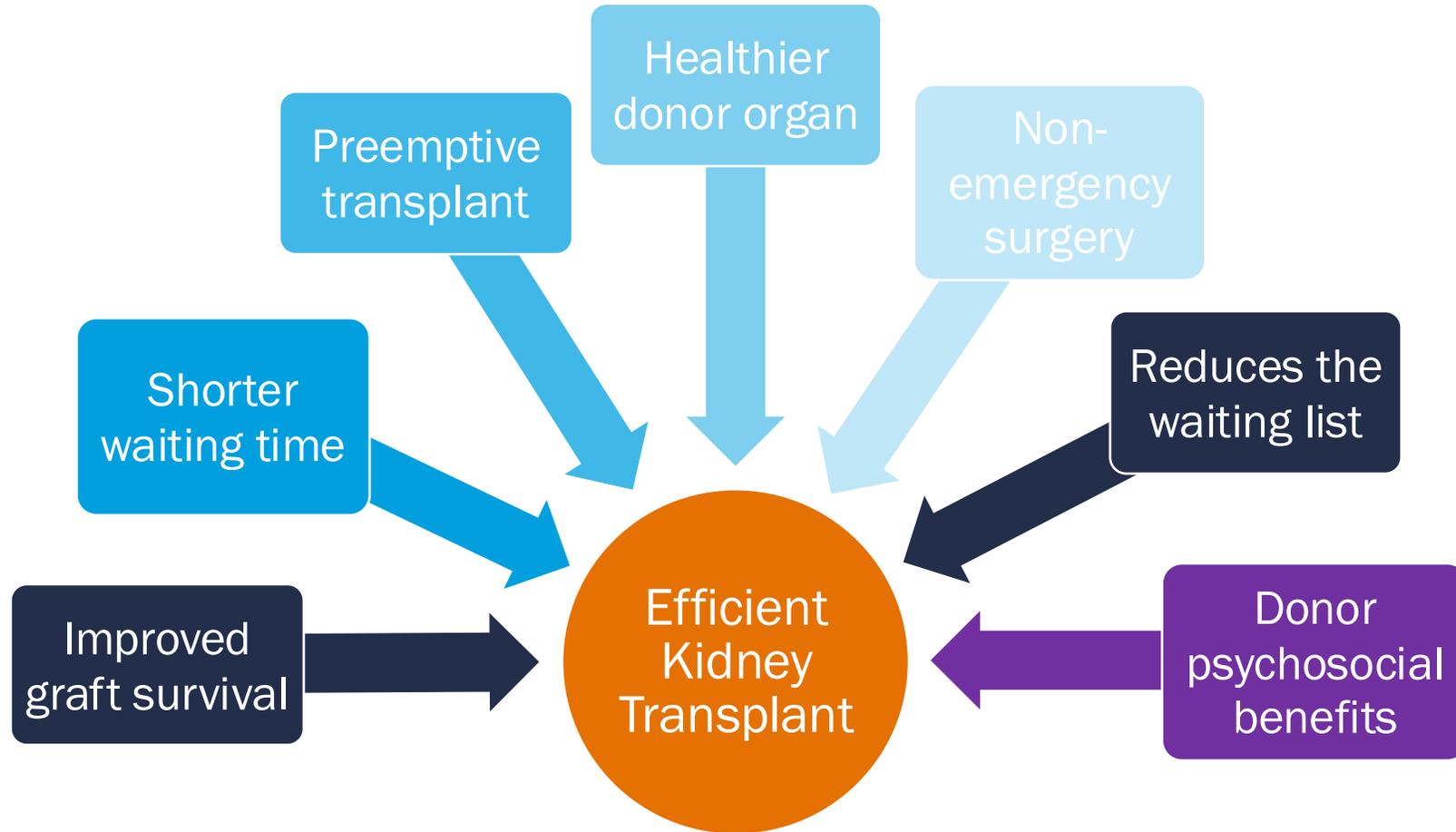


Figure 7.22 Graft survival at 1, 5, and 10 years after transplant, 1999-2018

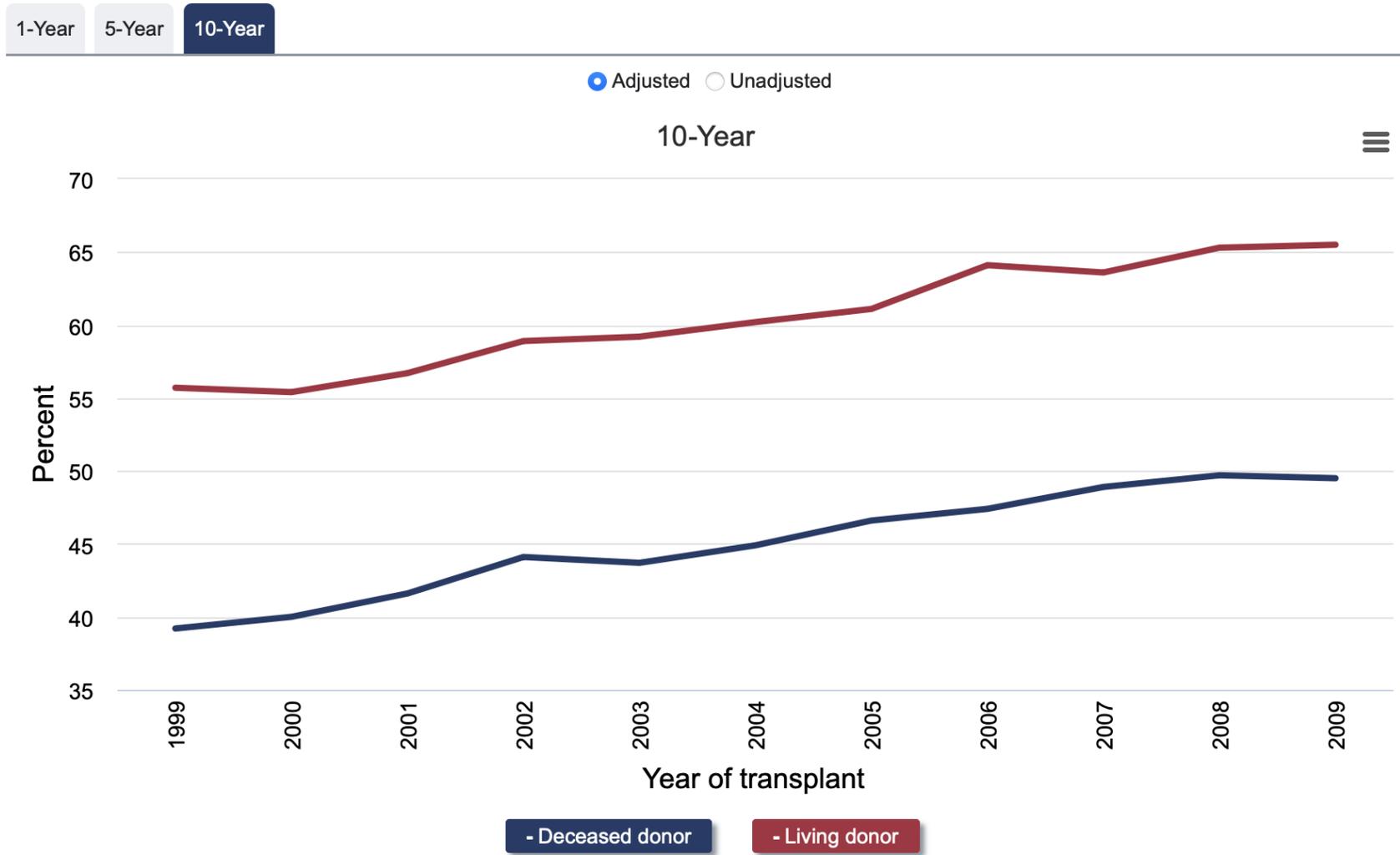
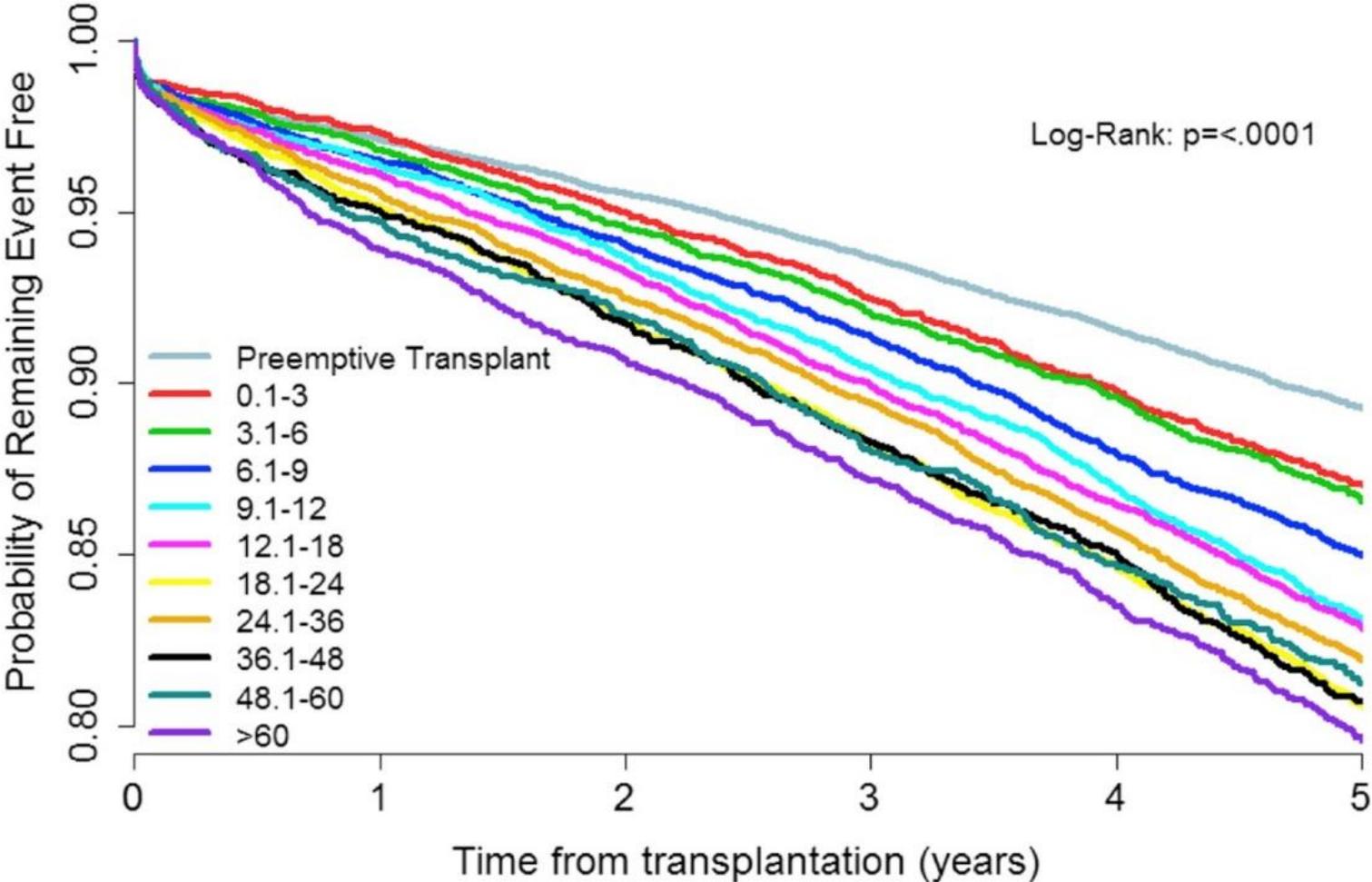


Figure 7.23 Patient survival at 1, 5, and 10 years after transplant, 1999-2018



Effect of Dialysis Time Exposure and Transplant Outcome



Preemptive Kidney Transplant Is The Best Possible Transplant

- Definition: Kidney transplantation **before** a patient starts **dialysis**.
- Provides **superior outcomes** compared to post-dialysis transplants.
- **Only 5% of incident ESKD patients** who initiated dialysis in 2021 were wait listed **before ESKD onset** (USRDS 2023 report).
- **Only 2.5%** of all kidney transplants in the US **are preemptive**

Why To Consider Preemptive Kidney Transplant

BENEFITS



Better long-term graft survival



Lower risk of delayed graft function and acute rejection



Avoidance of dialysis-associated risks and costs



Lower risk of transfusion



Higher likelihood of patients remaining employed

RISKS



Earlier exposure to standard surgical risks

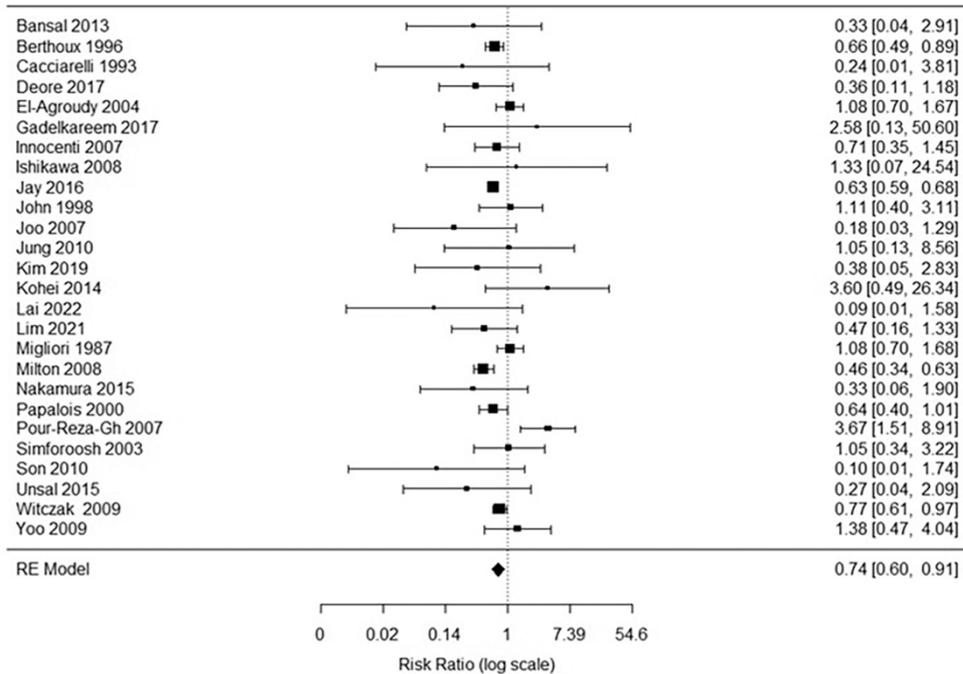
Concerns about lower adherence to immunosuppressive medications



Not fully utilizing remaining native kidney function

Lower Risk of Patient Death and Graft Loss with Preemptive Living Donor Transplant

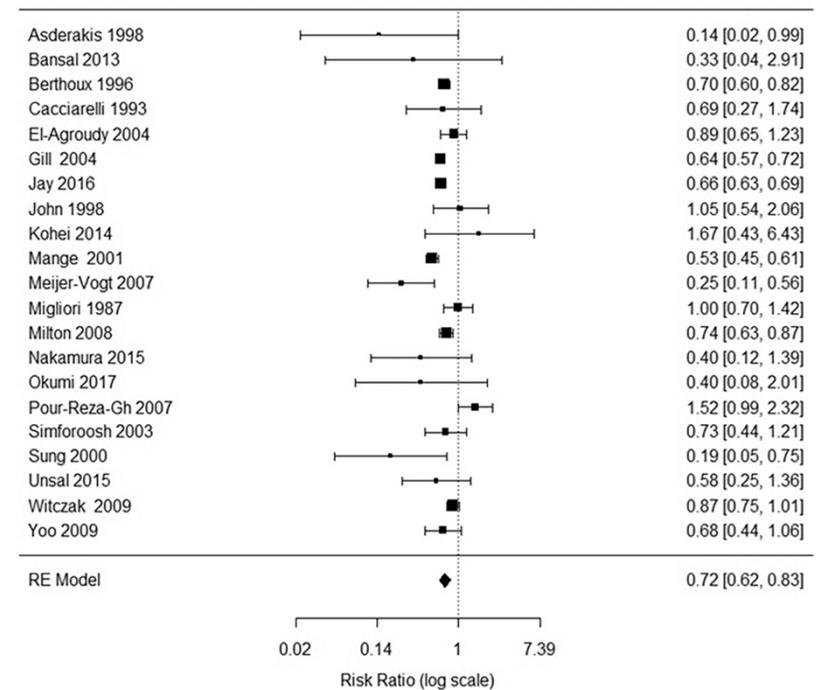
■ Patient Survival



← Favours PKT

Favours nPKT →

■ Graft Survival



← Favours PKT

Favours nPKT →

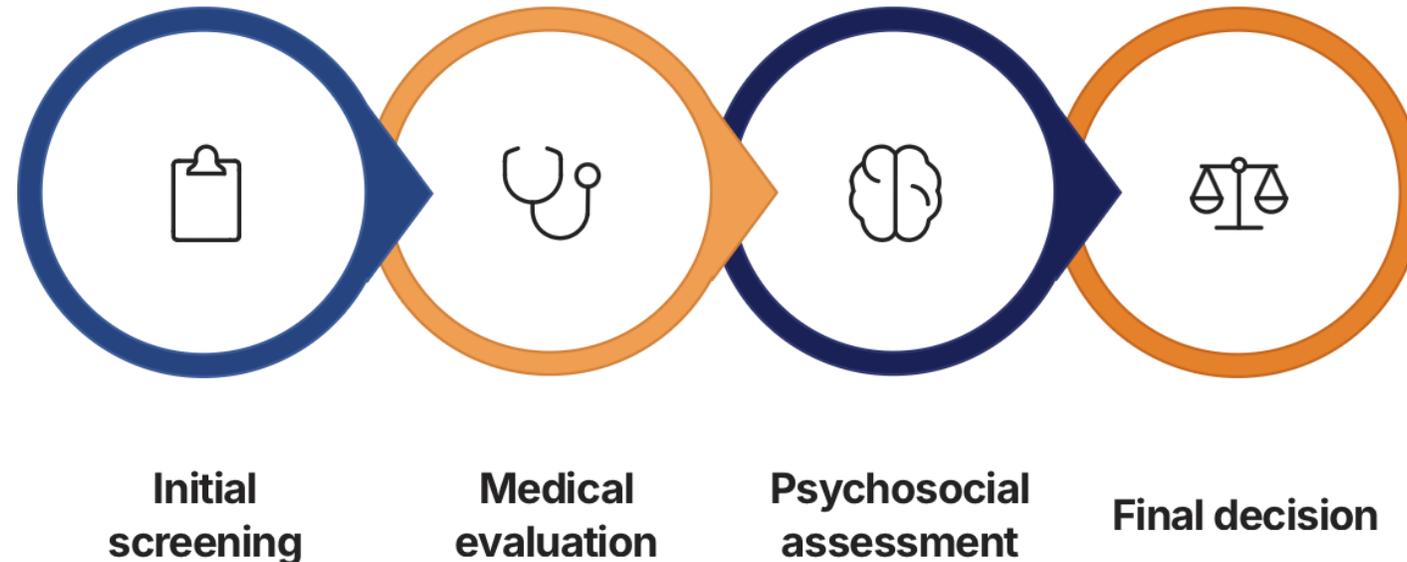
Important Points

- The waiting list is long, exceeding 94 thousand people waiting for kidney transplants.
- Living kidney donation provides superior post transplant outcomes and can shorten the wait time.
- Preemptive kidney transplant is the most ideal type of transplant to reduce morbidity, mortality and cost.



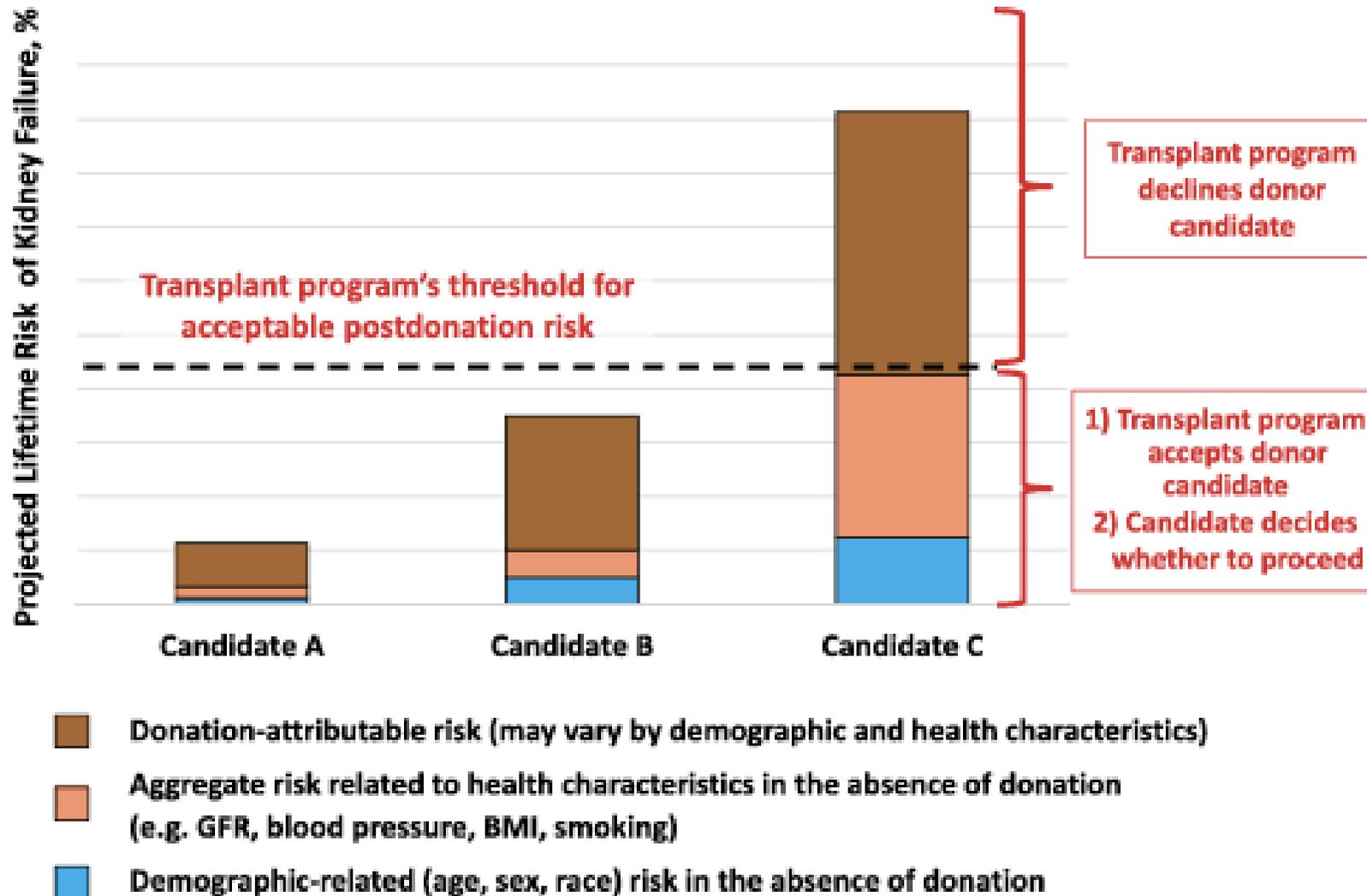
Living Kidney Donor Candidate Selection

Donor Selection: Balancing Risk and Benefit

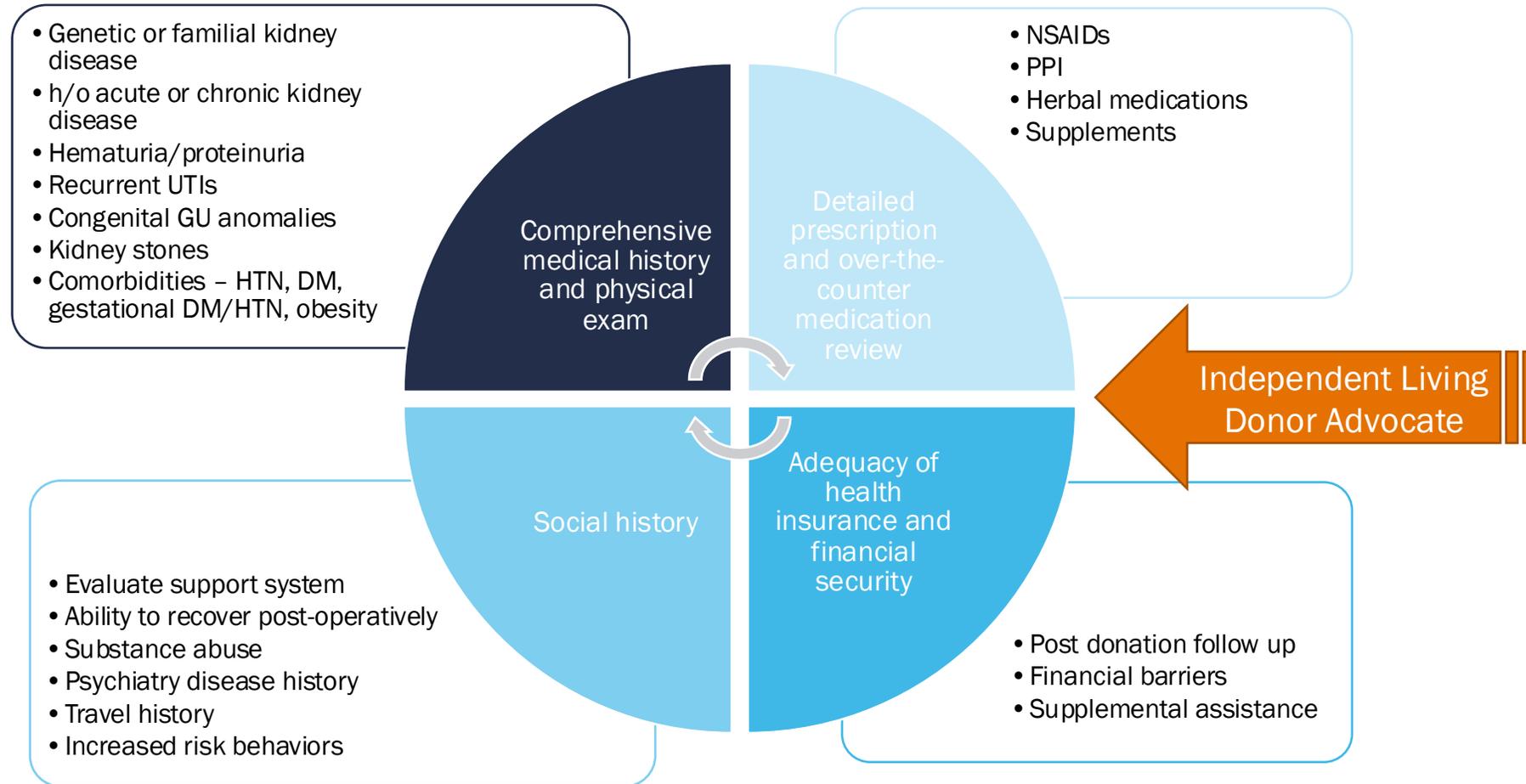


- KDIGO guidelines emphasize a comprehensive evaluation process to ensure donor **safety and optimal recipient** outcomes.
- Multi-step approach meticulously weighs potential risks vs. life-saving benefits of donation.

Living Donor Evaluation



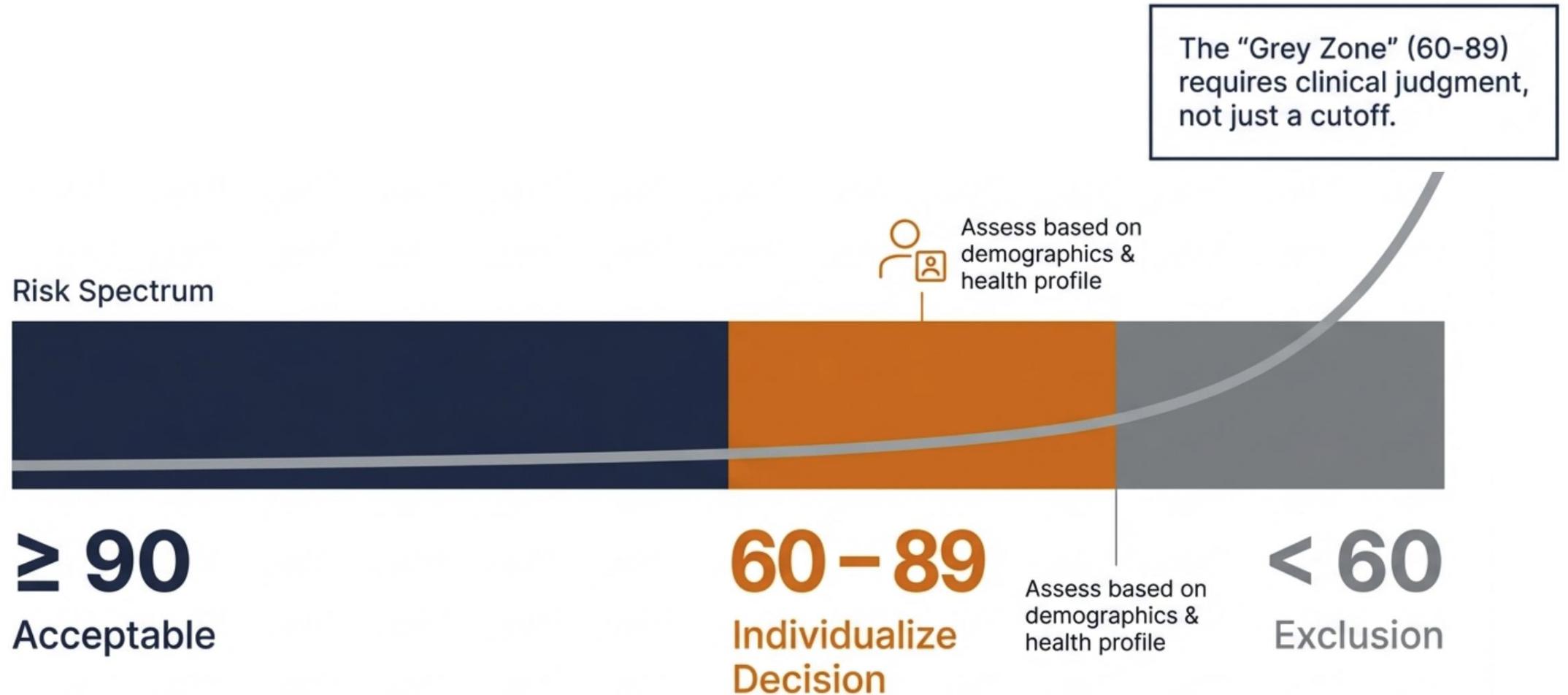
Evaluation Of The Potential Living Kidney Donor



Living Donor Evaluation Testing

Criteria	Test
Compatibility	<ul style="list-style-type: none">• ABO verification• HLA antibody screening
Kidney Function & Anatomy	<ul style="list-style-type: none">• Estimated GFR – serum creatinine and/or cystatin C• 24 hr urine collection• Iothalamate or iohexol measured GFR• Urinalysis, urine protein and/or albumin to creatinine ratio• Imaging → CT or MRI
Blood Pressure	<ul style="list-style-type: none">• In office reading• 24hr ABPM
Diabetes	<ul style="list-style-type: none">• Fasting blood glucose• Oral glucose tolerance test• HbA1c
Hyperlipidemia	<ul style="list-style-type: none">• Fasting lipid profile• Uric acid
Transmissible Infections	<ul style="list-style-type: none">• RPR• QF gold - latent TB*• Endemic infection risk assessment• HIV antibody• HCV/HBV NAT
Cancer	<ul style="list-style-type: none">• Age/history-driven screening

GFR Selection Thresholds



Psychosocial Assessment Of Potential Living Donors

Key Areas Assessed:

- Motivation and understanding of donation
- Emotional stability and coping mechanisms
- Social support systems
- Absence of coercion or financial incentives
- Realistic expectations of recovery and long-term impact

Importance:

- Ensures donors are **fully aware of the implications**, both physical and psychological, and have adequate support structures in place.
- It **protects** against exploitation and promotes long-term well-being.



Special Considerations: Independent Living Donor Advocate

Ensuring Donor Autonomy

The ILDA serves as an independent voice, ensuring the donor's decision is voluntary and free from coercion.

Informed Consent

Facilitates a comprehensive understanding of risks, benefits, and alternatives, separate from the recipient's team.

Confidentiality

Maintains strict confidentiality, providing a safe space for donors to express concerns without prejudice.

Long-Term Well-being

Advocates for the donor's psychosocial and medical well-being both before and after donation.

Long-Term Follow-Up

First Year

Frequent donor follow up at 1, 3, 6, and 12 months is recommended.

Assess kidney function (serum creatinine with GFR estimation), blood pressure, and protein in urine.

Monitoring for surgical complications.

*The OPTN specifically mandates follow up at 6, 12 and 24 months.

Years 2-5

Annual follow-up visits to track renal health, metabolic parameters, and overall health status. Emphasis on lifestyle advice.

Beyond 5 Years

Continued monitoring, typically annually, to detect any potential long-term risks such as hypertension or declining renal function. Encouragement of preventative care.

- Only 67% of donors had complete clinical data at 6 months, which decreased to 60% at 1 year and 50% at 2 years.
- Completeness for laboratory data at 6 months, 1 year, and 2 years was 51%, 40%, and 30%, respectively.



What happens after organ donation?

Whether an organ is given to help save the life of a family member, a friend, or someone never met, the living donor



Take Home Points

- Living donor evaluation is a complex and thorough process.
- Every living donor program must decide what the appropriate risk threshold for donation would be.
- KDIGO guidelines do not recommend donation with an eGFR <60 ml/min
- Long-term follow up of living donors in the US is not mandatory but efforts are on the make to enhance this follow up



Living Kidney Donor Risks and Outcomes

Risks of living donation

Evaluation Risks

- Misattributed paternity.
- Reportable infections.
- Other incidental findings

Surgical Risks

- Bleeding, VTE (~0.01-0.03%)
- Wound complications
- 90-day all-cause death ~ 1 in 10000 (0.009%)
- Acute kidney injury: expected 30-60%

Long Medical Risk:

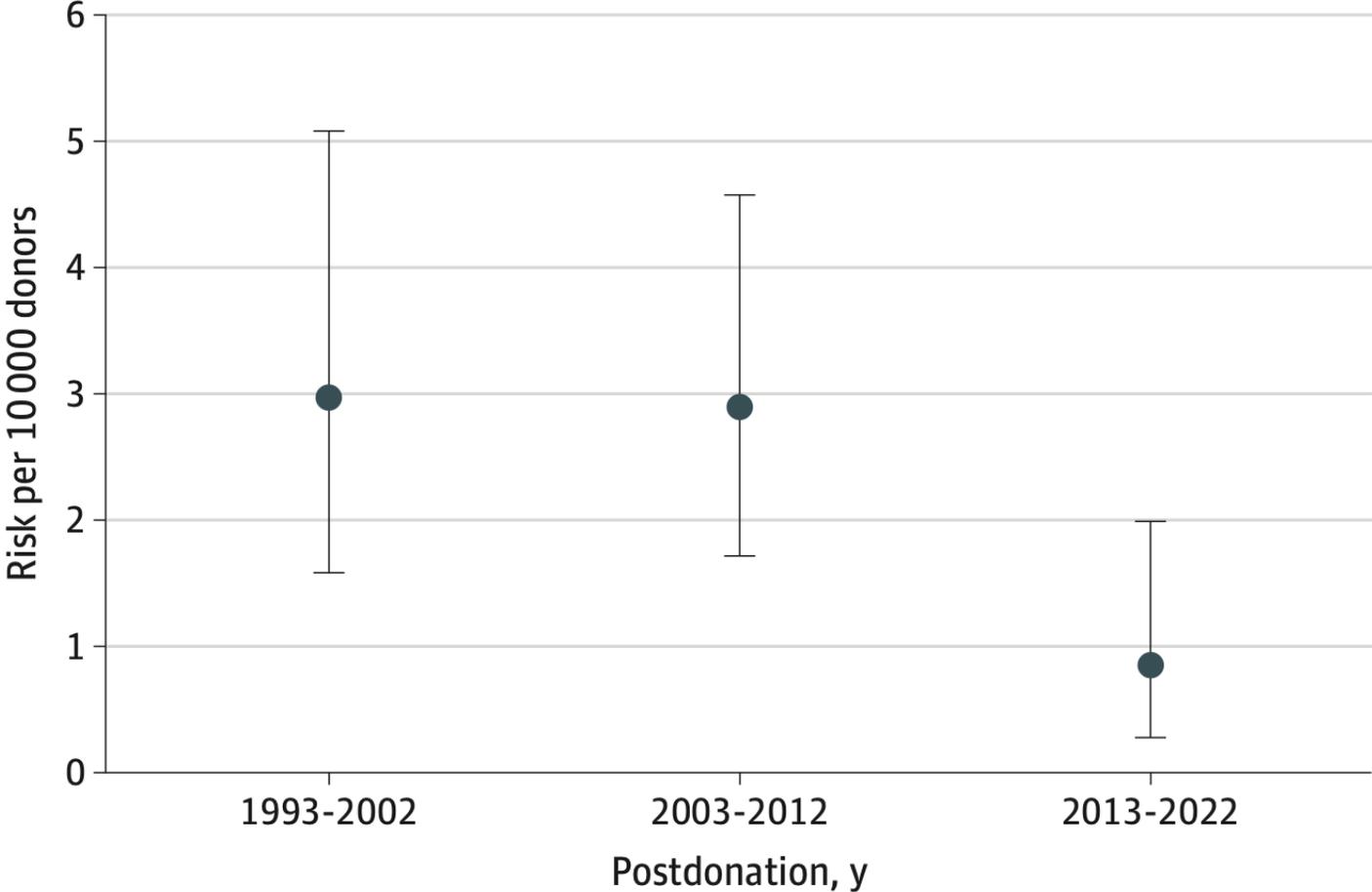
- Increased risk for ESKD
- Increased risk of hypertension
- Increase risk preeclampsia and gestational hypertension

Psychosocial Financial Risks:

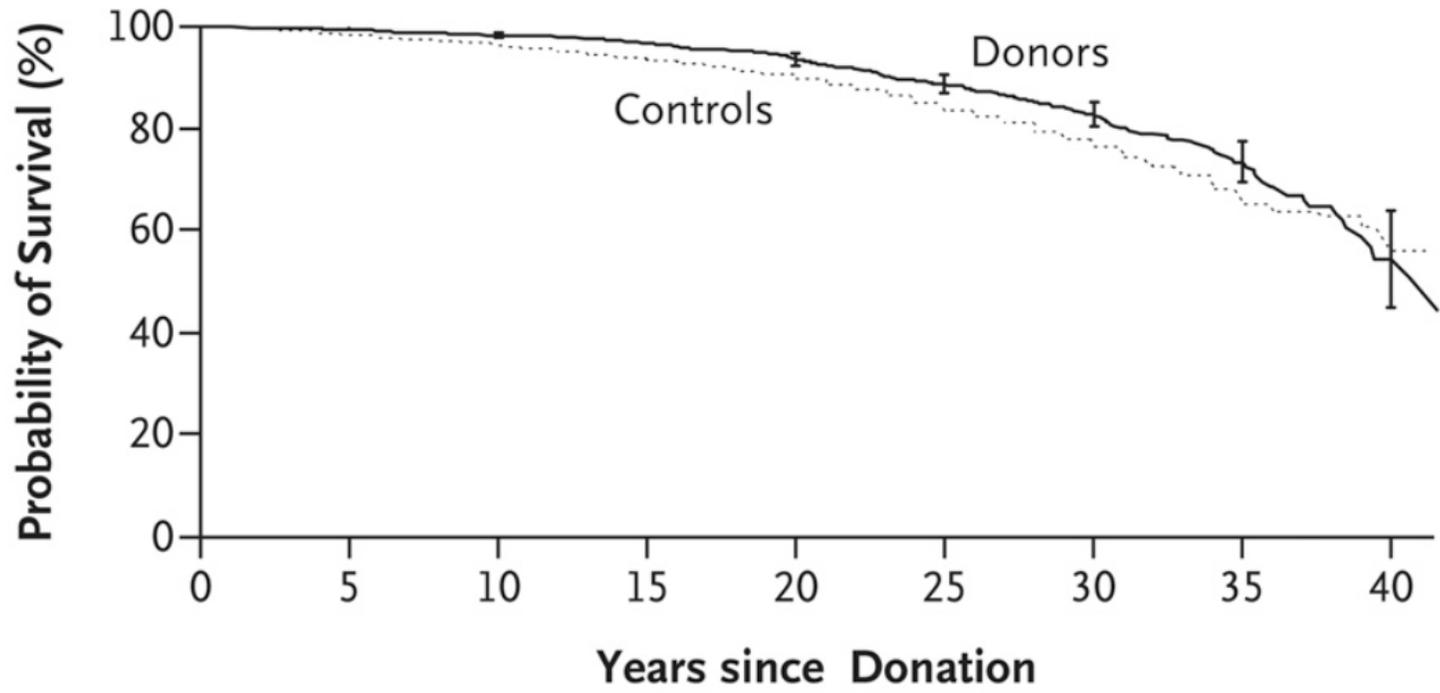
- Depression/anxiety
- Relationship strain
- Lost income/uncovered costs
- Insurance or employment challenges

Perioperative Mortality

B 90-d Mortality risk by era



Observed vs. Expected Survival of Living Kidney Donors



No. of Donors	3698	2716	2065	1575	1228	775	410	140	16
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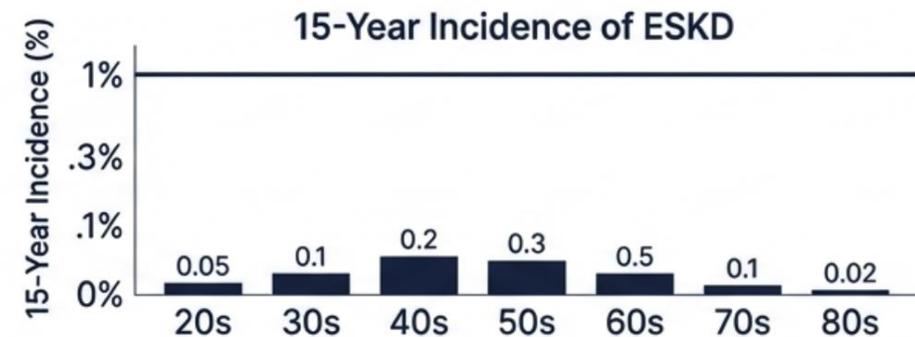
Counseling Donors About Long-term Risk Of ESKD

Relative Risk: INCREASED

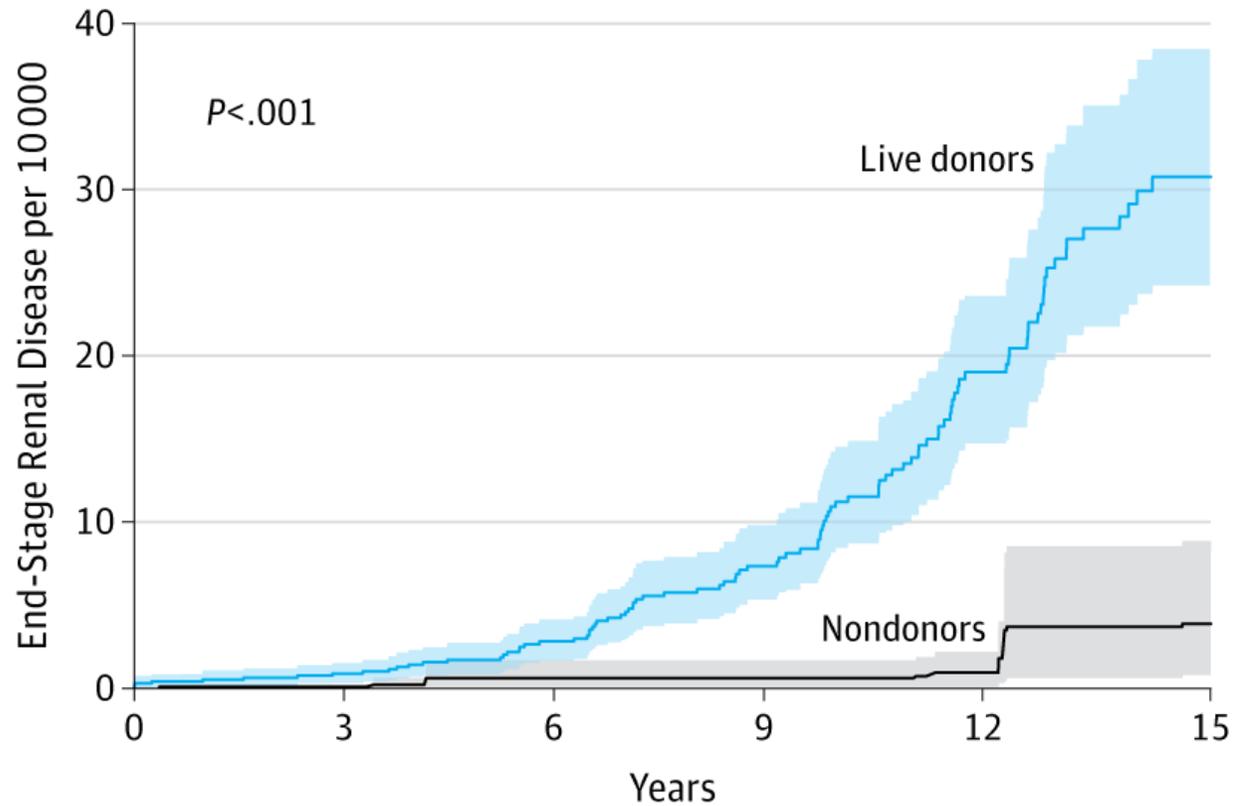
Donation represents a **loss of renal mass**. Risk is **higher compared to healthy non-donors**.

Absolute Risk: REMAINS LOW

In the 15 years post-donation, **incidence of ESKD is <1%** for most demographics.



A Cumulative incidence of end-stage renal disease

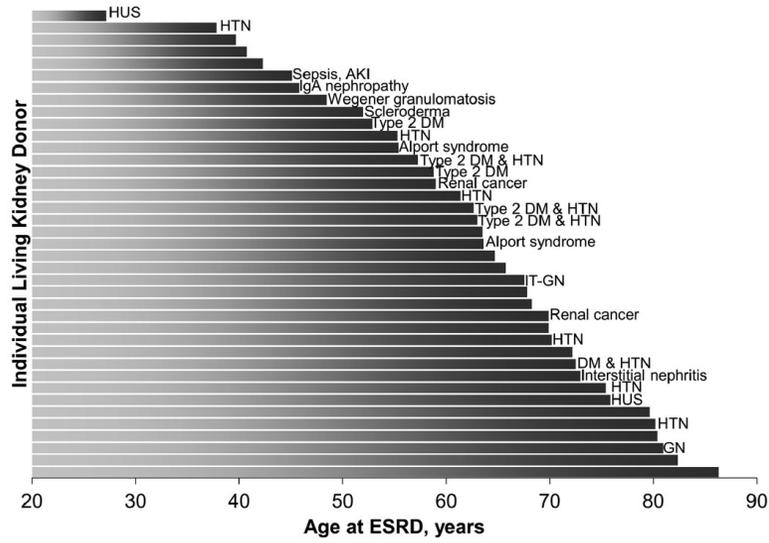


Risk of End Stage Kidney Disease

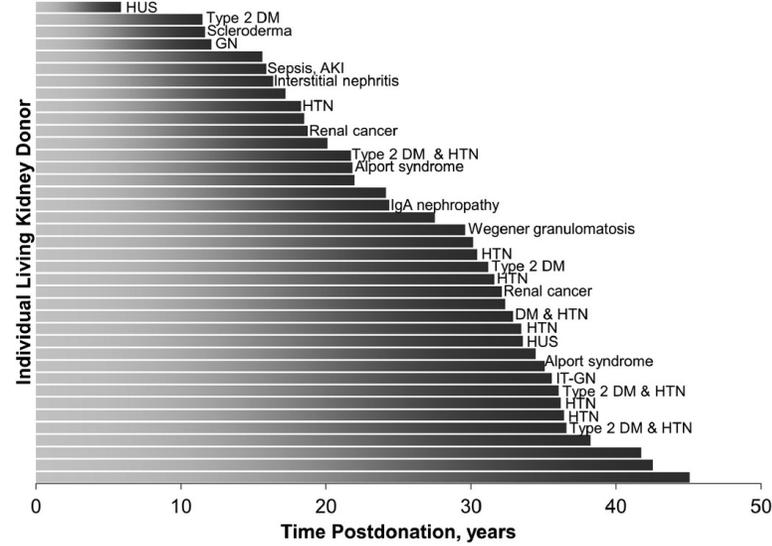
No. at risk

Live donors	96 217	77 587	58 979	39 231	21 573	8 781
Nondonors	96 217	95 930	95 422	94 734	94 199	50 124

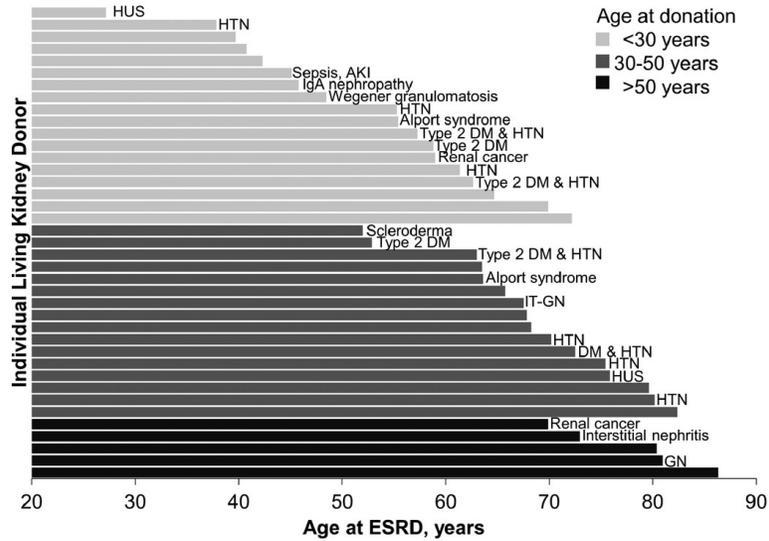
A Age at ESRD



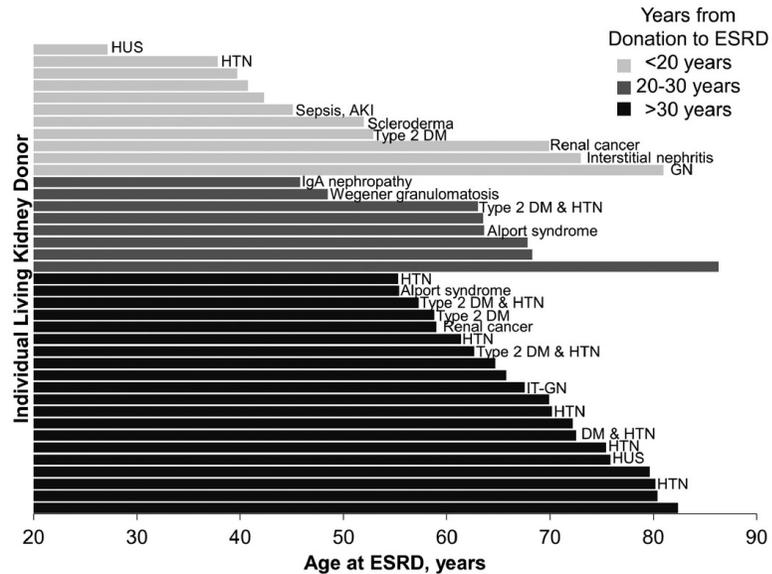
B Years Postdonation



C Age at donation and ESRD

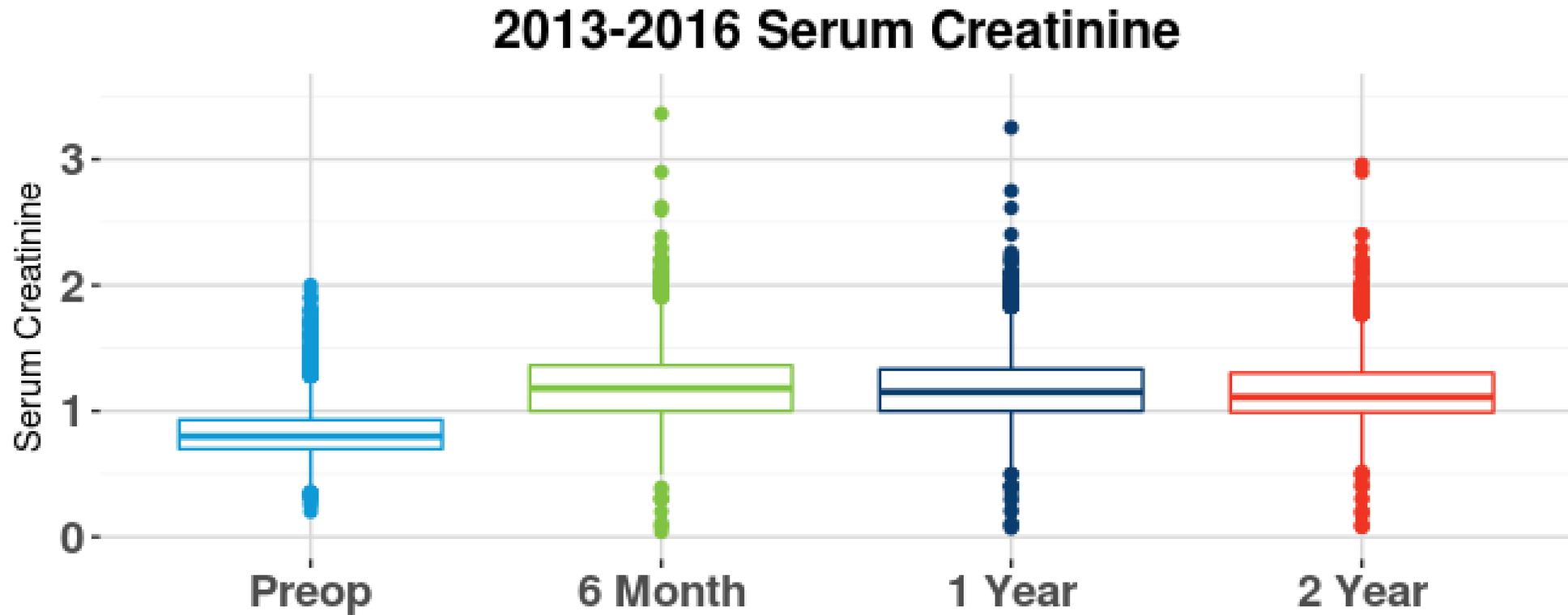


D Interval Between Donation and ESRD and Age at ESRD

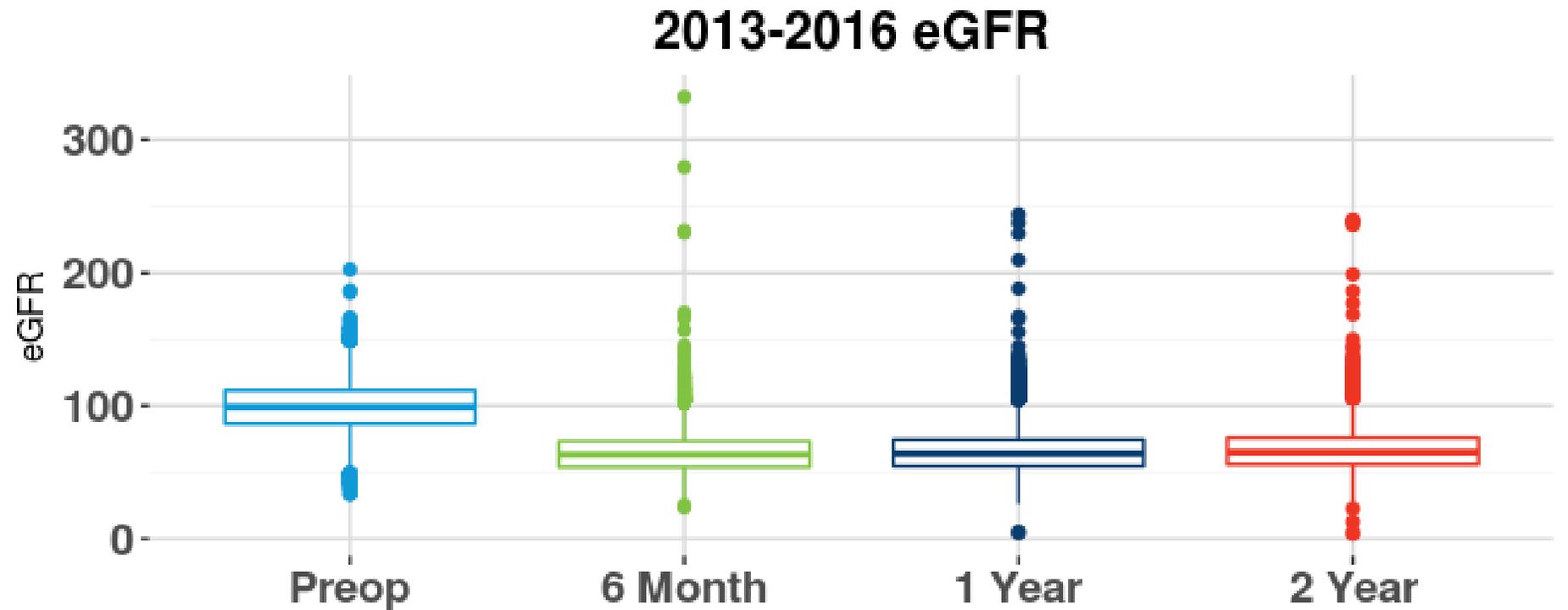
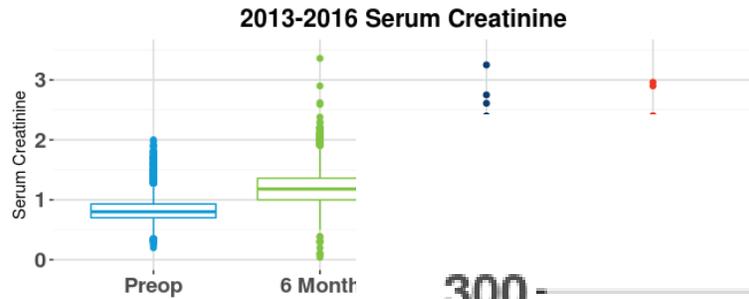


Causes of donor ESKD

Kidney Donor Function



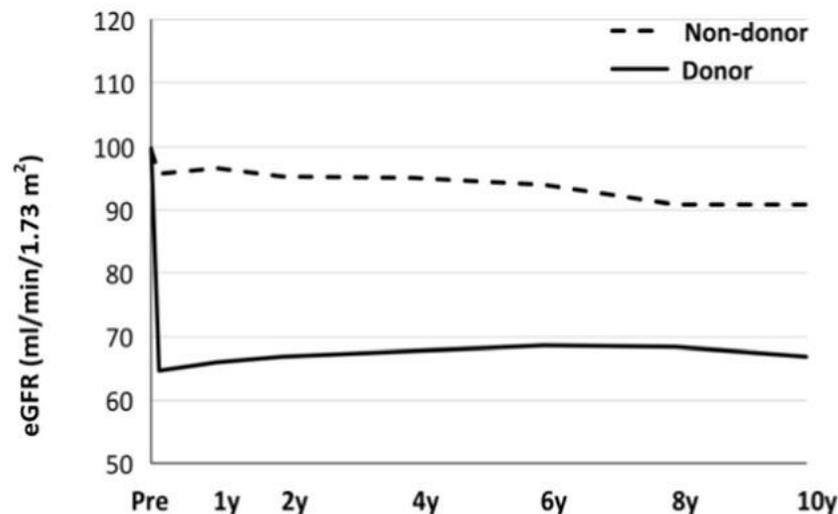
Kidney Donor Function



Changes in Kidney Function Following Living Donor Nephrectomy



604 living kidney donors
matched to
2,414 healthy non-donors
from Alberta, Canada
(2002-2016)



Non-donors:
-0.85 mL/min/1.73 m²
per year

Average annual change in
eGFR over time

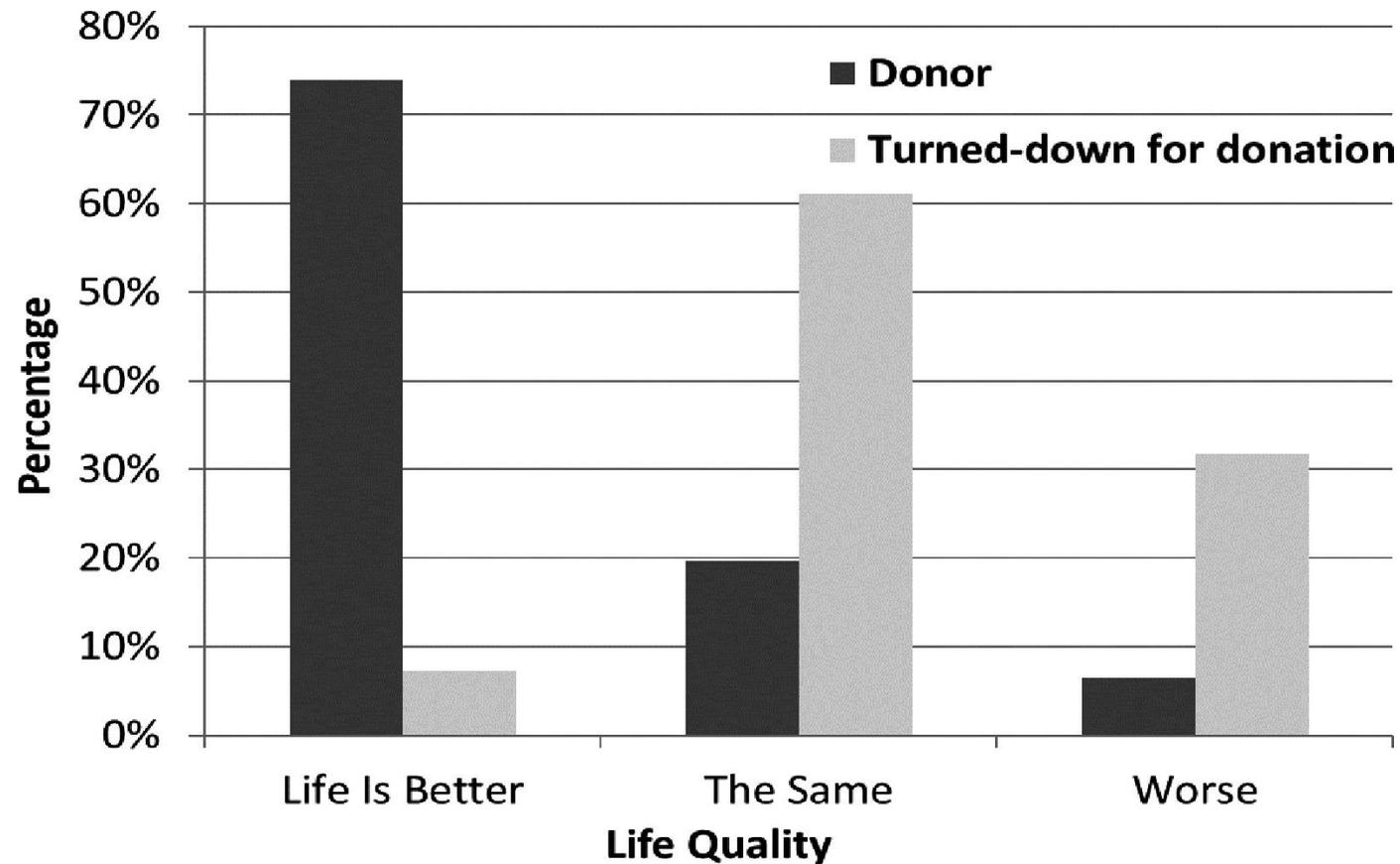
Donors:
+0.35 mL/min/1.73 m²
per year

6 weeks-2 years: +1.06
2-5 years: +0.64
≥5 years: -0.06

CONCLUSION:

The function in the remaining kidney of a living donor on average initially increases by 1 mL/min/1.73 m² per year which we attribute to glomerular hyperfiltration; however, this begins to plateau by 5 years postdonation.

Outcomes for individuals turned down for living kidney donation



Reese, P. et al. Clinical Transplantation. 2018;32:e13408.

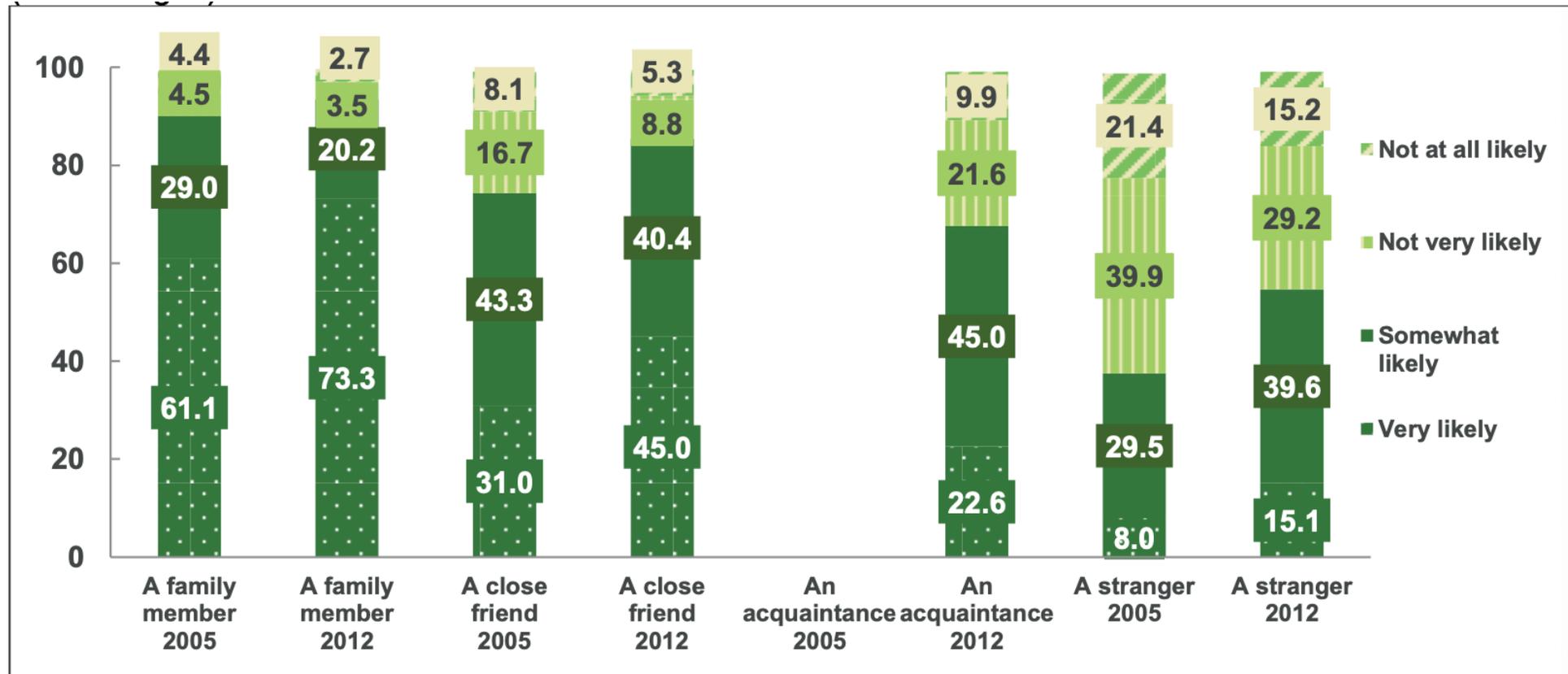
Take Home Points

- Living kidney donation does not impact a donor's life span.
- The perioperative donor nephrectomy mortality has improved by ~66% over the past 30 yrs.
- Donors have a small risk of end-stage kidney disease following donation.
- Donors GFR improves overtime up to about 5 yrs post donation.
- Rejecting a living donor candidate carries psychosocial risk for the donor and appropriate support is needed



Expanding Access to Living Kidney Donor Transplantation

Likelihood of Living Donation to a Family Member, Close Friend, Acquaintance or Stranger



3 Considerations On Teaching About Living Kidney Donation

1st

- **All of Us Must Teach**

- Everyone needs to educate patients about living donation
- Prior living donors and recipients can be assets to the teaching team

2nd

- **Include Family and Friends**

- Enhances engagement
- Use multimodal materials – written, audiovisual
- The space matters – **comfortable place**

3rd

- **Solve for disparities**

- Culturally and language concordant
- Bridge digital literacy



Social Media Can Enhance Reach to Living Kidney Donors

Why Using Social Media to Enhance Living Donation?

Our patients are already on the internet; they engage with their network and support system on-line and off-line.



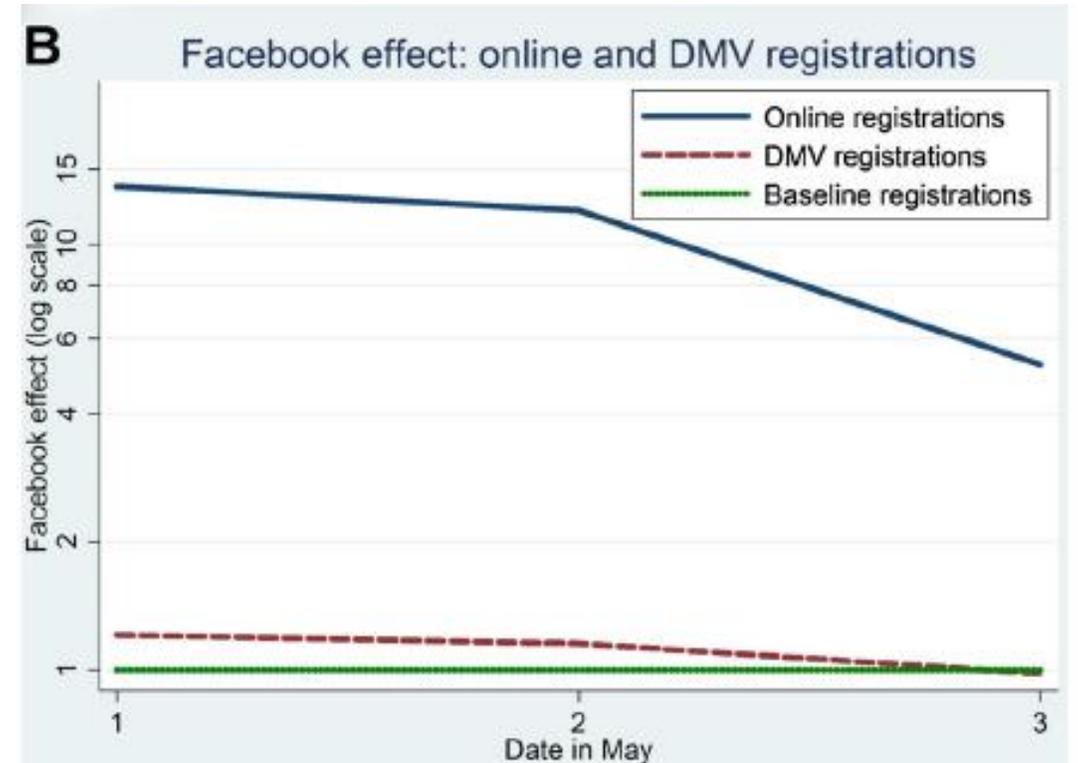
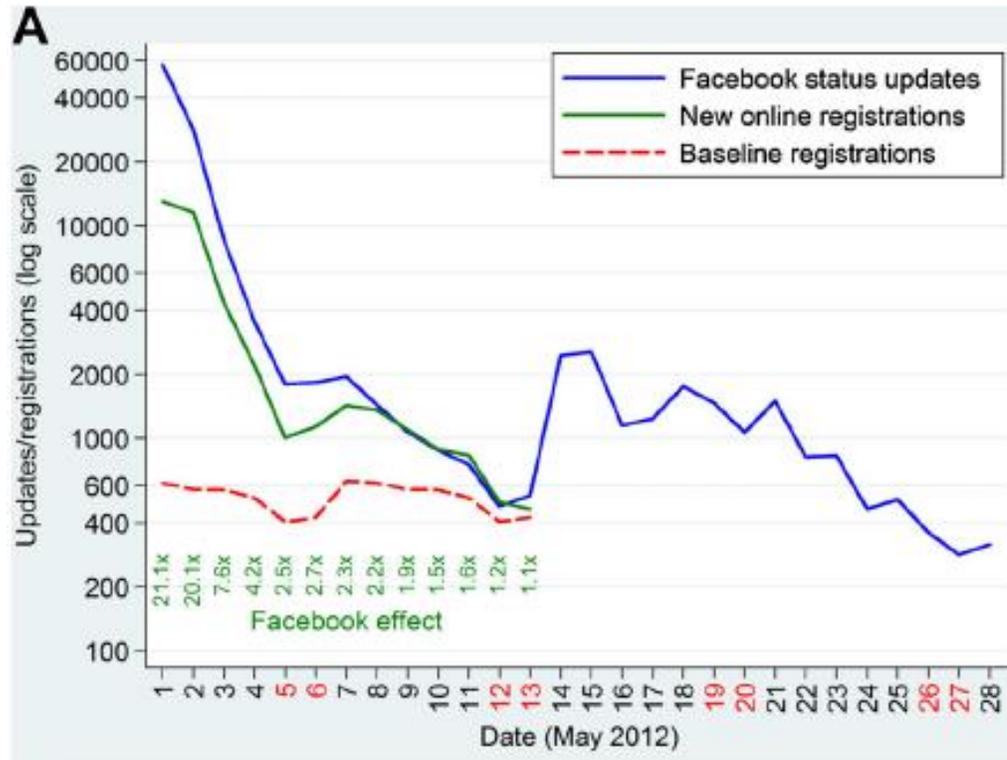
We, the healthcare teams are also online, and value the ease of communication social media provides.



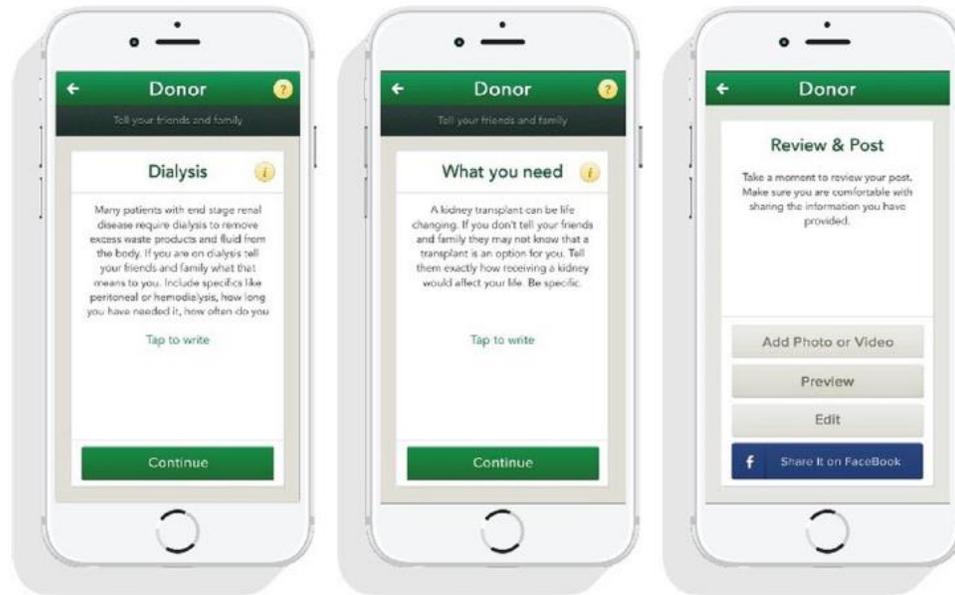
More than one study in organ donation, has shown that interventions at this level can facilitate organ donor registrations and living donor referrals.



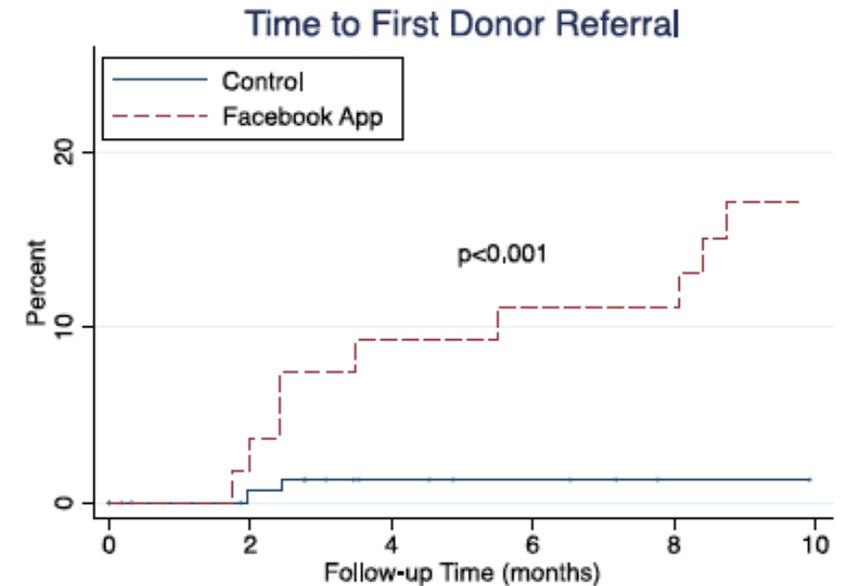
The Facebook Effect



An App to Enhance Living Donation



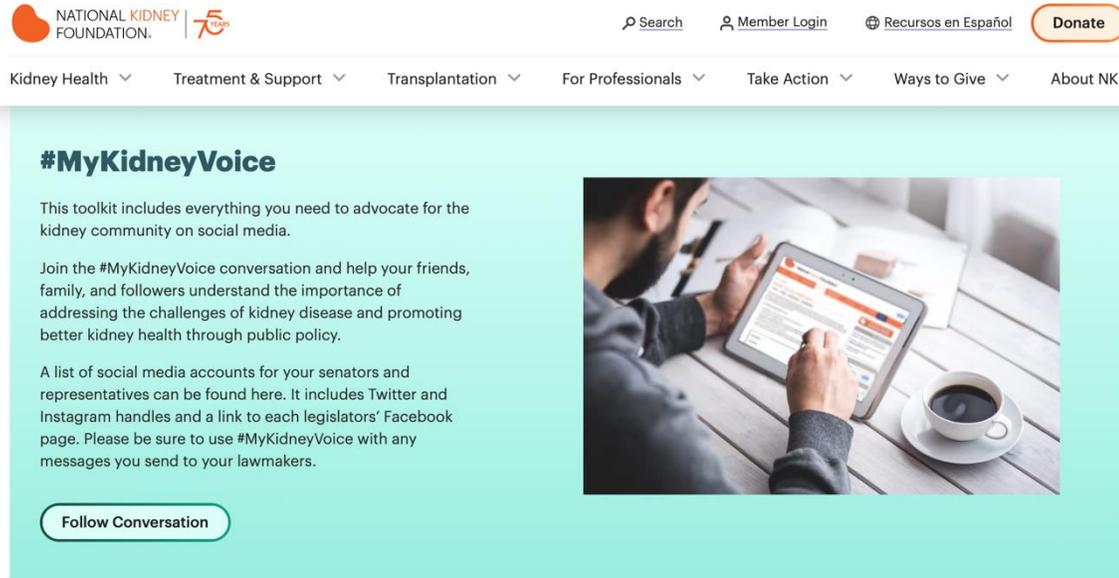
Participants were 6.61 times more likely to have a donor come forward on their behalf (OR 2.43-17.98, $p < 0.001$)



Number at risk		0	2	4	6	8	10
Control	154	150	144	142	139	138	138
Facebook App	54	53	49	46	46	40	40

Figure 2: Time to first live donor referral comparing candidates using the Facebook app with matched controls.

Social Media Tools For Patients

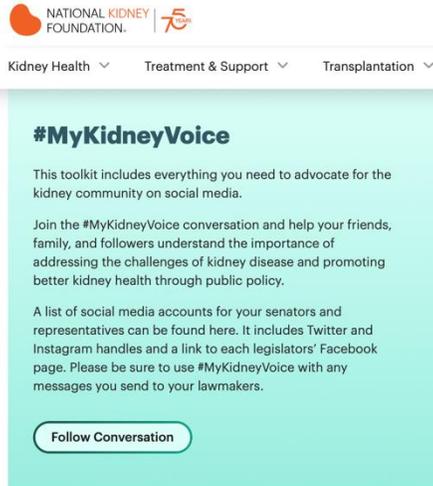


The screenshot shows the National Kidney Foundation website. At the top left is the logo with "NATIONAL KIDNEY FOUNDATION" and a "75 YEARS" anniversary mark. Navigation links include "Search", "Member Login", "Recursos en Español", and a "Donate" button. A menu bar contains "Kidney Health", "Treatment & Support", "Transplantation", "For Professionals", "Take Action", "Ways to Give", and "About NKF". The main content area features a teal background with the heading "#MyKidneyVoice". Below the heading is a paragraph: "This toolkit includes everything you need to advocate for the kidney community on social media." This is followed by another paragraph: "Join the #MyKidneyVoice conversation and help your friends, family, and followers understand the importance of addressing the challenges of kidney disease and promoting better kidney health through public policy." A third paragraph states: "A list of social media accounts for your senators and representatives can be found here. It includes Twitter and Instagram handles and a link to each legislators' Facebook page. Please be sure to use #MyKidneyVoice with any messages you send to your lawmakers." At the bottom left of this section is a "Follow Conversation" button. To the right of the text is an image of a person using a tablet at a table with a coffee cup.

Include the **patient's family and friends** in education

A robust social network is a primary predictor of finding a donor

Social Media Tools For Patients



NATIONAL KIDNEY FOUNDATION | 75th

Kidney Health ▾ Treatment & Support ▾ Transplantation ▾

#MyKidneyVoice

This toolkit includes everything you need to advocate for the kidney community on social media.

Join the #MyKidneyVoice conversation and help your friends, family, and followers understand the importance of addressing the challenges of kidney disease and promoting better kidney health through public policy.

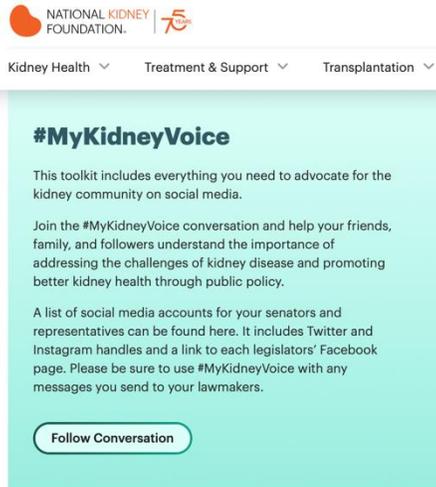
A list of social media accounts for your senators and representatives can be found here. It includes Twitter and Instagram handles and a link to each legislators' Facebook page. Please be sure to use #MyKidneyVoice with any messages you send to your lawmakers.

[Follow Conversation](#)

Social Media Advocacy Toolkit

- **Hashtag: #MyKidneyVoice**
- **Talking Points**
- **Twitter Tips**
- **Facebook Tips**
- **Sample Social Media Posts for Home Dialysis**
- **Sample Social Media Posts for Advocacy Resources**
- **Sample Social Media Posts for Voices for Kidney Health**
- **Sample Social Media Posts for Living Donation**
- **Sample Social Media Posts for Increased Funding**

Social Media Tools For Patients



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<https://www.kidney.org/take-action/advocate/social-media-advocacy-toolkit>

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Social Media Tools For Patients



What do you want to do today?



VIEW
stories



TELL
my story



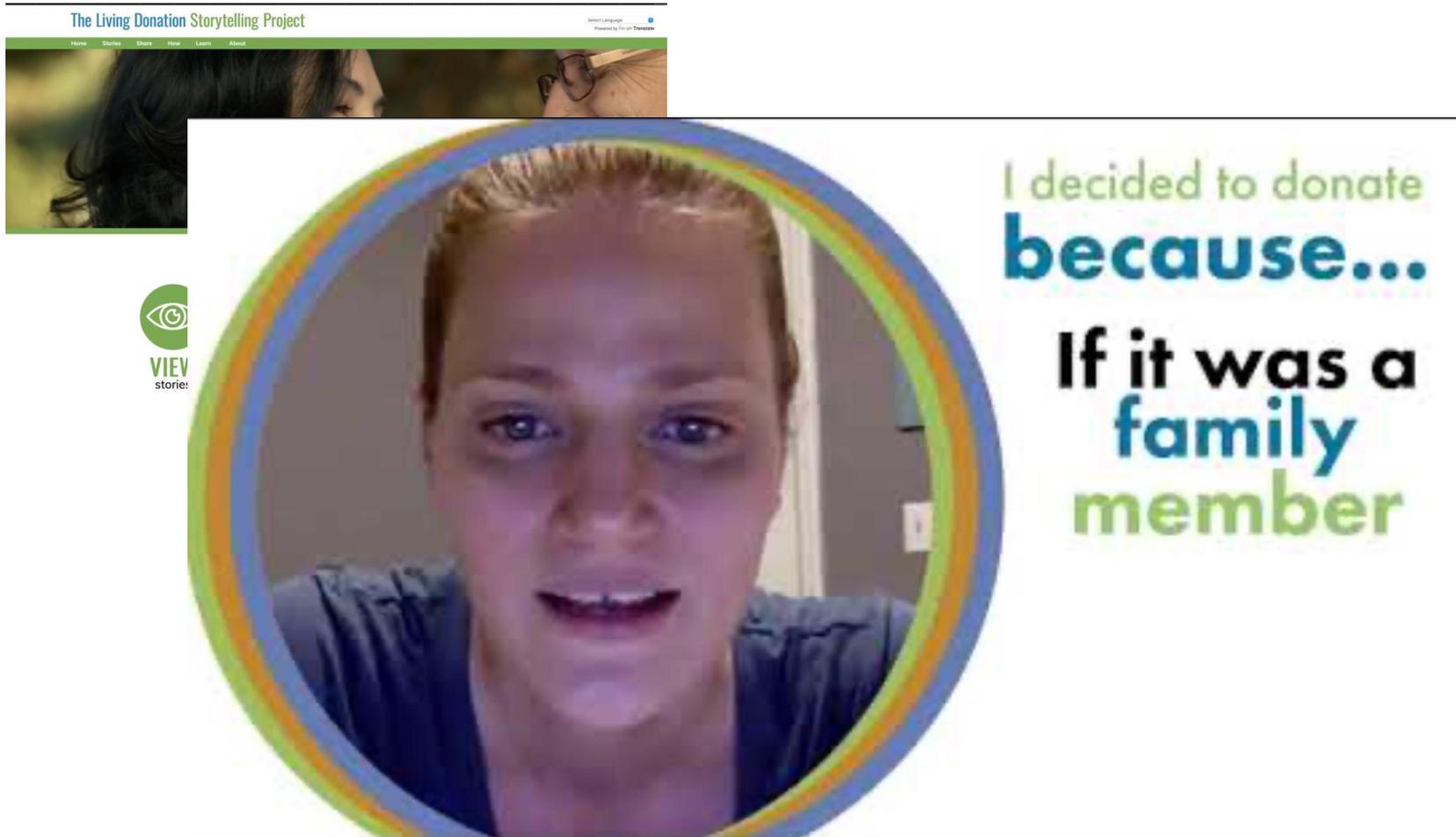
EXPLORE
living donation



JOIN
the community

<https://livingdonationstories.org>

Social Media Tools For Patients



The screenshot shows a website titled "The Living Donation Storytelling Project". The navigation menu includes "Home", "Stories", "Share", "How", "Learn", and "About". A language selection dropdown is set to "Select Language" with "Preferred: English" and "Translate" options. The main content area features a video testimonial of a woman with blonde hair, wearing a blue shirt, framed by a colorful circular border. To the left of the video is the "VIEV stories" logo, which consists of a green circle with a white eye icon and the text "VIEV stories" below it. To the right of the video, the text reads: "I decided to donate because..." in green, followed by "because..." in large blue font, and "If it was a family member" in large green font.



Infórmate Acerca de la Donación de Riñón en Vida para Hispanos/Latinos



Opciones de Tratamiento

Beneficios y Riesgos

Donación: Paso-a-Paso

Temas Financieros

Temas Migratorios

Mitos y Creencias Culturales

☰ Quiénes Somos

☰ Recursos



Bienvenido a Infórmate

El objetivo de ésta página bilingüe es educar a los hispanos / latinos acerca de la donación de riñón en vida.

Abarcaremos temas diversos como ideas culturales erróneas, opciones de tratamiento, los pasos para convertirse en un donador en vida, los riesgos y beneficios de la donación, las cuestiones financieras y los problemas de los inmigrantes. Este sitio web informa y apoya a los posibles donantes, pacientes, familiares y amigos acerca de la donación de riñón en vida a través del uso de testimonios, entrevistas, telenovelas, juegos interactivos, y las descripciones de los recursos y las políticas disponibles. El ampliar el conocimiento de los riesgos y beneficios de la donación de riñón en vida ayudará a los pacientes y a las familias de los hispanos / latinos a tomar decisiones de tratamiento más informadas.

[APRENDE MAS »](#)

¿SABÍA USTED?

Los riñones de donadores de riñón en vida funcionan mejor y duran más que los riñones de donadores fallecidos. »

Tres meses después de la donación, los donadores de riñón en vida tienen la misma esperanza de vida o más de la población en general porque los donantes son muy saludables, para empezar. »

Si un donante puede padecer enfermedad renal después de la donación, él o ella se pondrá en la parte superior de la lista de espera de donante fallecido. »

La donación es voluntaria. Los donadores pueden detener el proceso de donación en cualquier momento. »

Los donadores en vida pueden ser cualquier persona que está lo suficientemente sano para donar. »

El seguro del destinatario paga por el costo de la cirugía de

<https://informate.org>

Take Home Point

- Social Media is the primary driver for direct altruistic donors
- Soliciting a donor publicly through a digital platform can be **less emotionally taxing** for a recipient than asking family or friends directly.
- It empowers patients and family to maintain and gain access to life-saving transplants.
- There are a variety of freely available tools. Share them with your patients.



Kidney Paired Donation

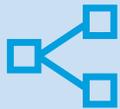


Kidney Paired Donation (KPD) Enhances Living Donor Kidney Transplantation



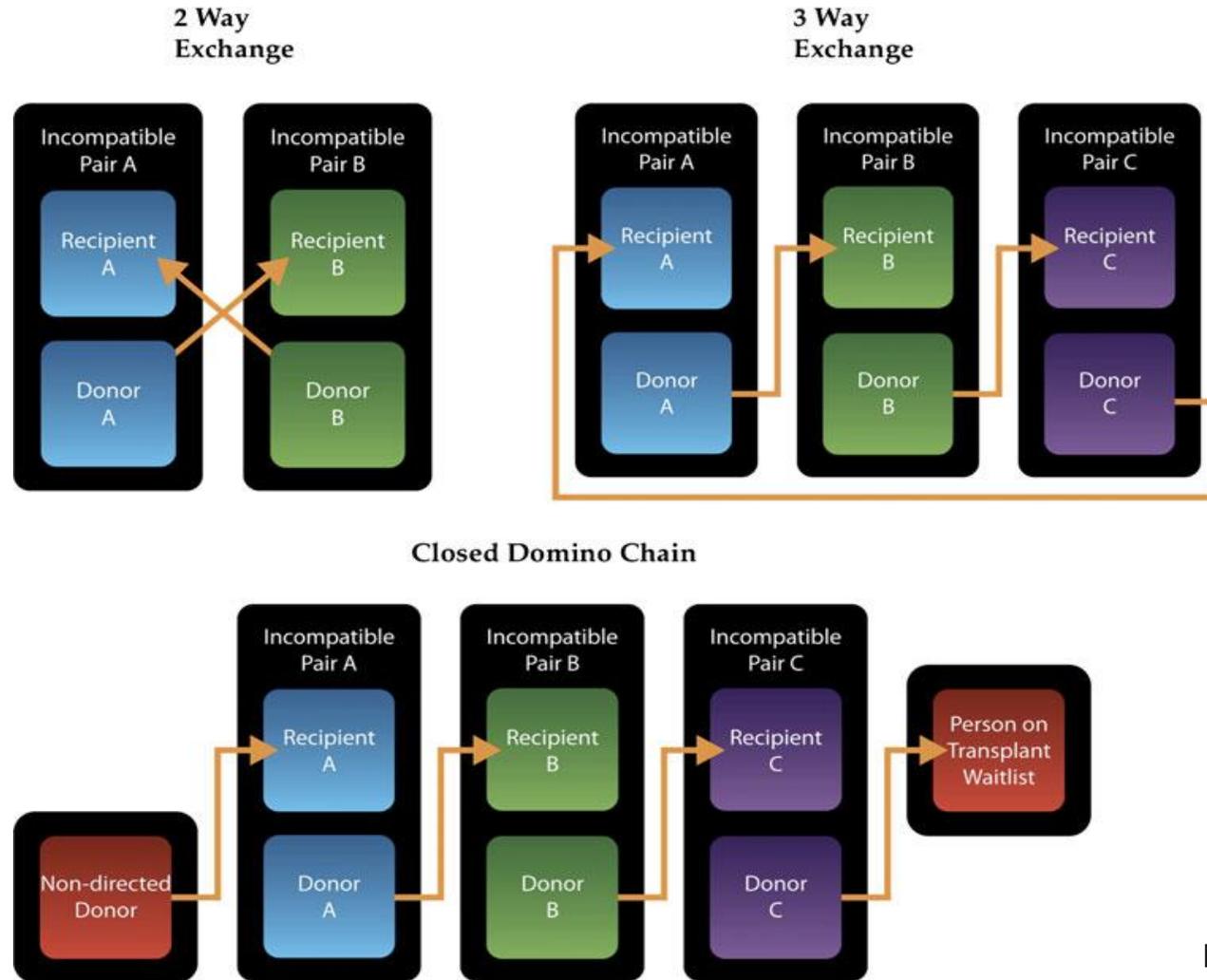
Approach to living donor kidney transplant originally designed to overcome biological incompatibility

ABO incompatible = anti ABO antibodies
HLA incompatible = preformed donor specific antibodies



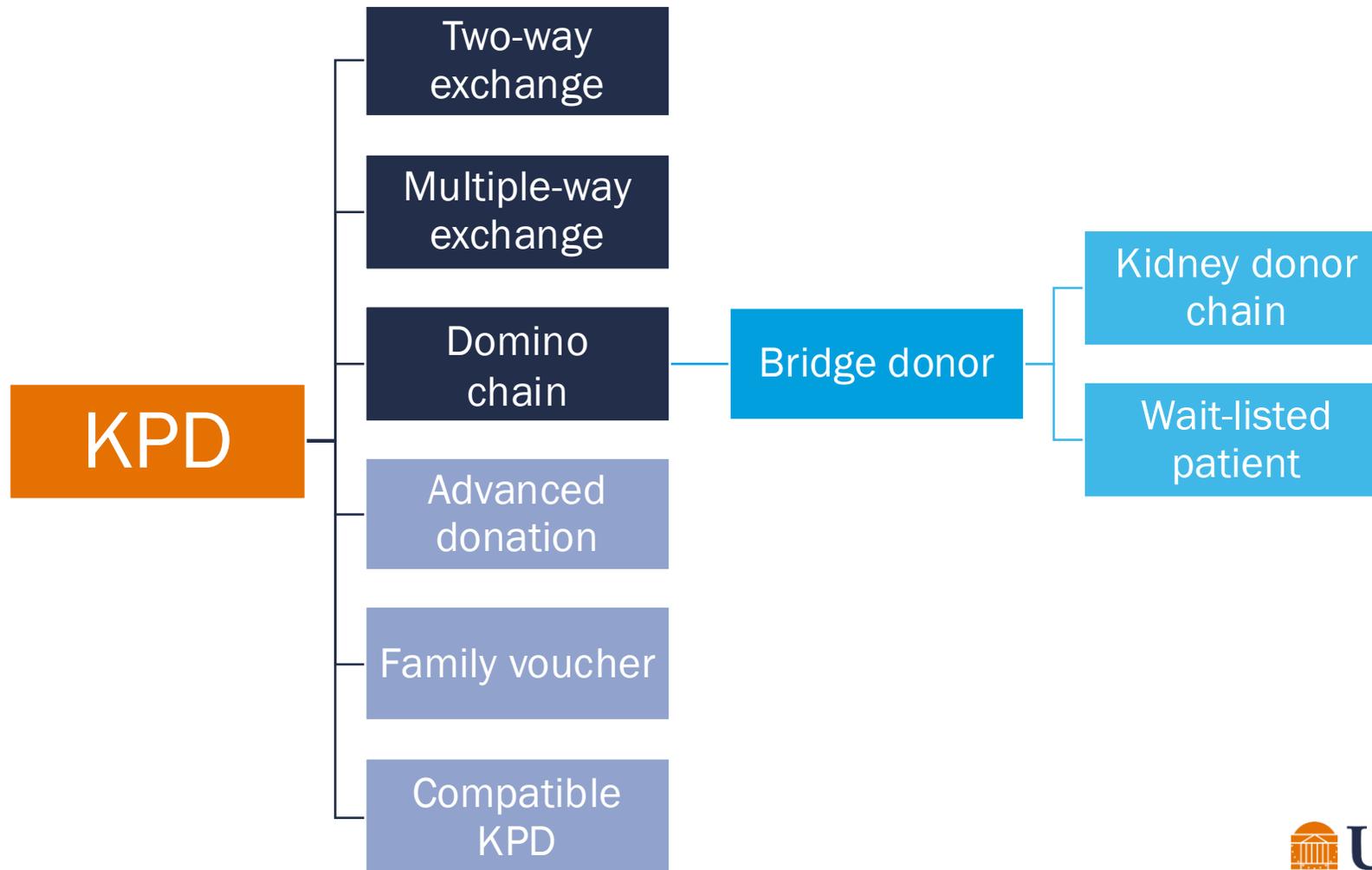
Two or more incompatible donor-recipient pairs exchange kidneys and all recipients benefit from compatible transplants

Types of Kidney Paired Donation



Malik & Cole. Curr Transpl Rep (2014) 1:10–17

Types of Kidney Paired Donation





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Methodist Specialty and Transplant Hospital-San Antonio Performs a Record 250 Paired Kidney Exchange Transplants



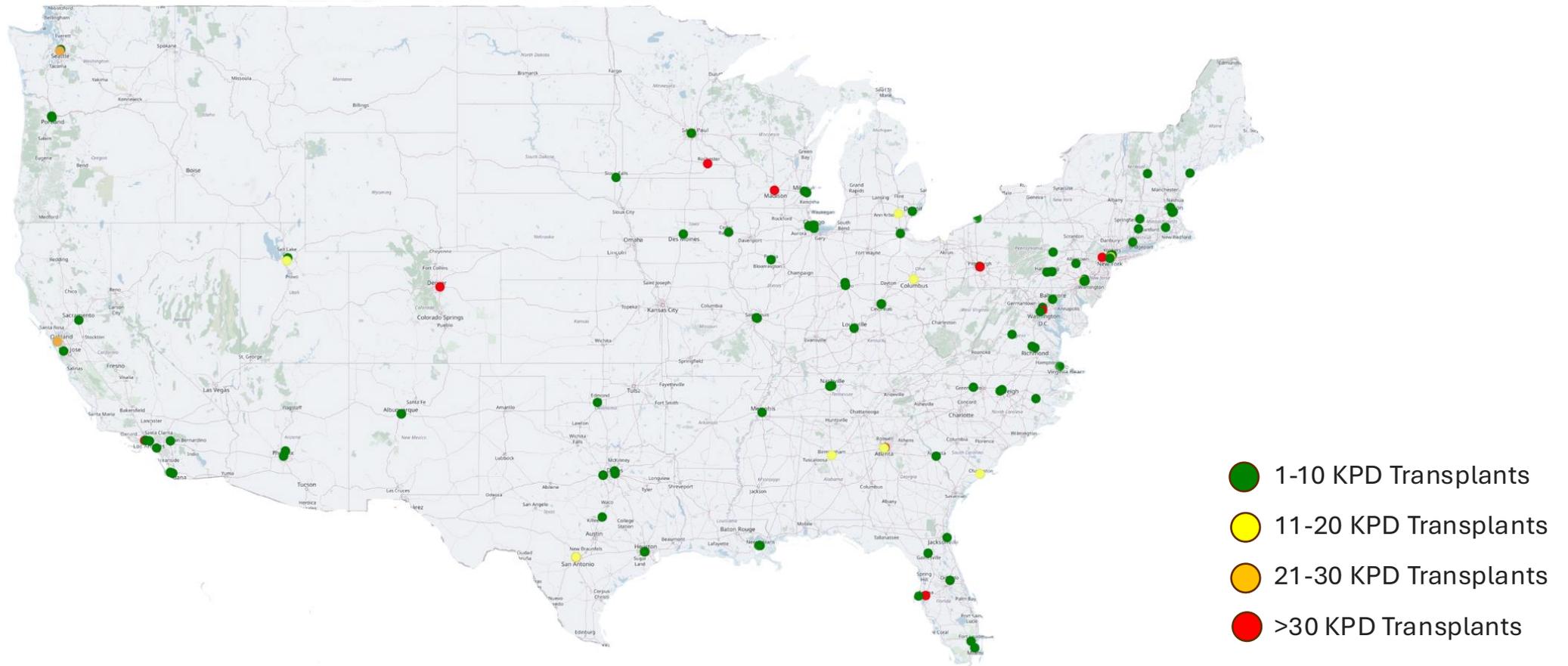
TEXAS TRANSPLANT INSTITUTE
AT METHODIST SPECIALTY AND TRANSPLANT HOSPITAL
A CAMPUS OF METHODIST HOSPITAL
San Antonio, Texas

NEWS PROVIDED BY
Methodist Healthcare System →
Feb 10, 2014, 06:43 ET

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KPD is Unevenly Used in the U.S.



Kumar A, Nishio Lucar A, Doshi M. AJKD 2025;85(4):513-19.

Many Benefits of KPD for Patients

- Improved likelihood of living donor transplant for incompatible pairs
- Better antibody avoidance: Less Need for Desensitization
- Better HLA matching
- Better age matching
- Multiple ways to facilitate living donation
- Donor resources and protections
- Greater chance of preemptive kidney transplant

Programs and Systems Also Benefit from KPD

Lower healthcare cost by:

- Avoiding desensitization
- Reducing dialysis exposure

Remote donation

Expansion of Donor Pool

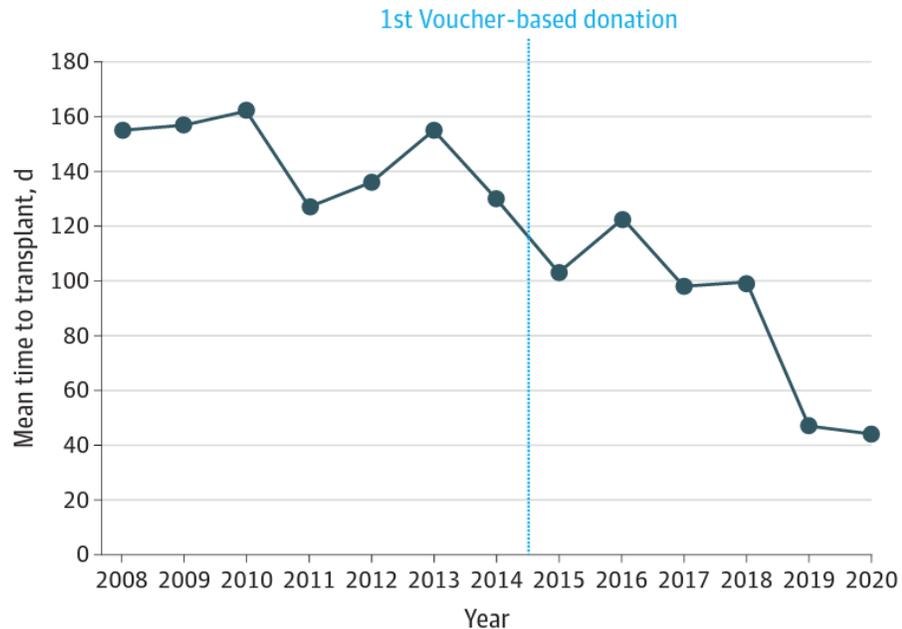
Living donor kidneys to wait list (domino chains)

Table 1. Living donation options and protection

Donor Options and Protections	Single Center	UNOS	Private	
			APKD	NKR
Established		2010	2006	2007
Oversight	Transplant center	HRSA	Private	Private
Voucher program ^a	No	No	No	Yes
Remote donation ^b	No	Yes	Yes	Yes
Nondirected donor (allowed to list family/ friend[s] as potential kidney recipient)	No	No	Yes	Yes
Prioritization of former living donors for LDKT	No ^c	No ^c	Yes	Yes
Prioritization for LDKT for orphan candidate ^d	Unknown	Yes	Yes	Yes
Donor mentors/coach ^e	Program-specific	No	No	Yes
Reimbursement program for lost wages, travel to transplant center, and dependent care	Only select donors: reimbursement based on recipient means (administered via NLDAC)		Universal	Universal
Legal support for unlawful employment termination or insurance discrimination	No	No	No	Yes
Cost to participate	Free	Free	Fixed	Variable based on program and level of participation
Publishes annual report	No	No	No	Yes
Number of LDKTs facilitated in 2023	Data not publicly available	15	Data not publicly available	1,430

Voucher-Based Kidney Donation Enhance Living Donor Kidney Transplants

Figure 2. Mean Waiting Time for Kidney-Paired Donation From 2008 to 2019



- Each voucher donation led to a chain with mean length of 2.3 transplants
- Time to voucher redemption: 167-876 days
- Voucher redemption to kidney transplant: 36-155 days

Compatible KPD Diversifies The Donor Pool

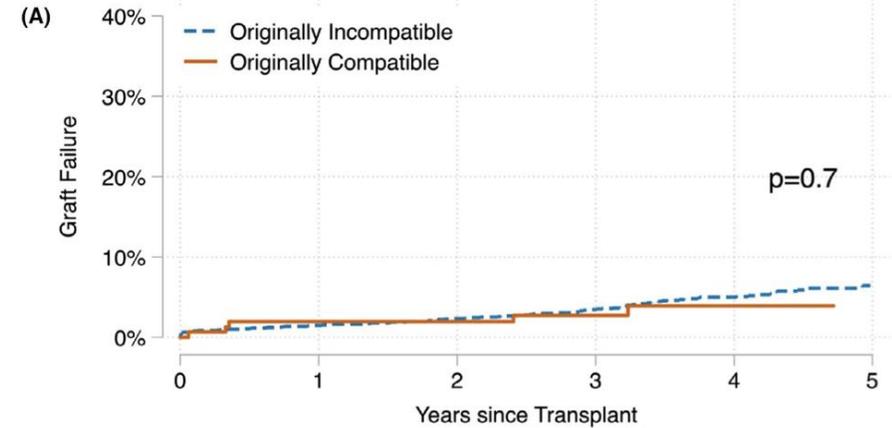
- Biologically compatible donor recipient pairs without ABO or HLA incompatibility
 - ✓ Direct donation possible
 - ✓ KPD to obtain a more “optimal” kidney donor and/or to facilitate additional transplants.
 - i/e : Wide age mismatch, extensive HLA mismatches, CMV/EBV risk mismatch
- Offsets extended wait times for blood type O candidates



Outcomes Of Compatible KPD

A compatible pair allowed for 2 additional transplants, 25% of whom had a cPRA >80%, and 11% with a cPRA >95%

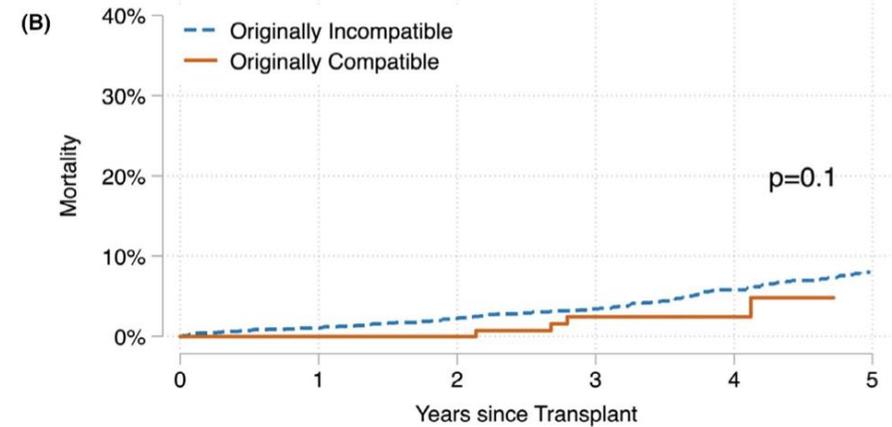
Originally Compatible vs. Originally Incompatible Recipients



Number at risk

Incompatible	2115	2065	1913	1353	938	603
Compatible	154	151	145	97	45	21

Originally Compatible vs. Originally Incompatible Recipients



Number at risk

Incompatible	2115	2093	1955	1398	985	648
Compatible	154	154	148	101	49	24

In Summary

- Living kidney donation is the best possible transplant a patient can have, particularly if done preemptively.
- Educating patients early and often is key to improve their comfort level with what can be a very daunting task.
- Everyone should be involved in patient education of living kidney donation.
- While living kidney donation is not without risk, outcomes for the donor are reasonable and excellent for the recipient.

In Summary

- Social media can facilitate the identification of potential kidney donors. 40% of Americans are willing to consider living kidney donation to a stranger.
- Kidney paired donation can maximize the benefit of living kidney donation and facilitate transplant when there are biological incompatibilities or chronological/logistical challenges

Transplant

 UVA Health



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Living Kidney Donors Deaths in the 1st Year after Donation

Kidney	<u>Days After Donation</u>		
	0-30	31-90	91-365
Cause			
Suicide	1	1	1
Accident/homicide	0	0	8
Overdose	0	1	1
Medical	3	0	1
Cancer	0	0	0
Unknown	0	1	0
Total	4	3	11