

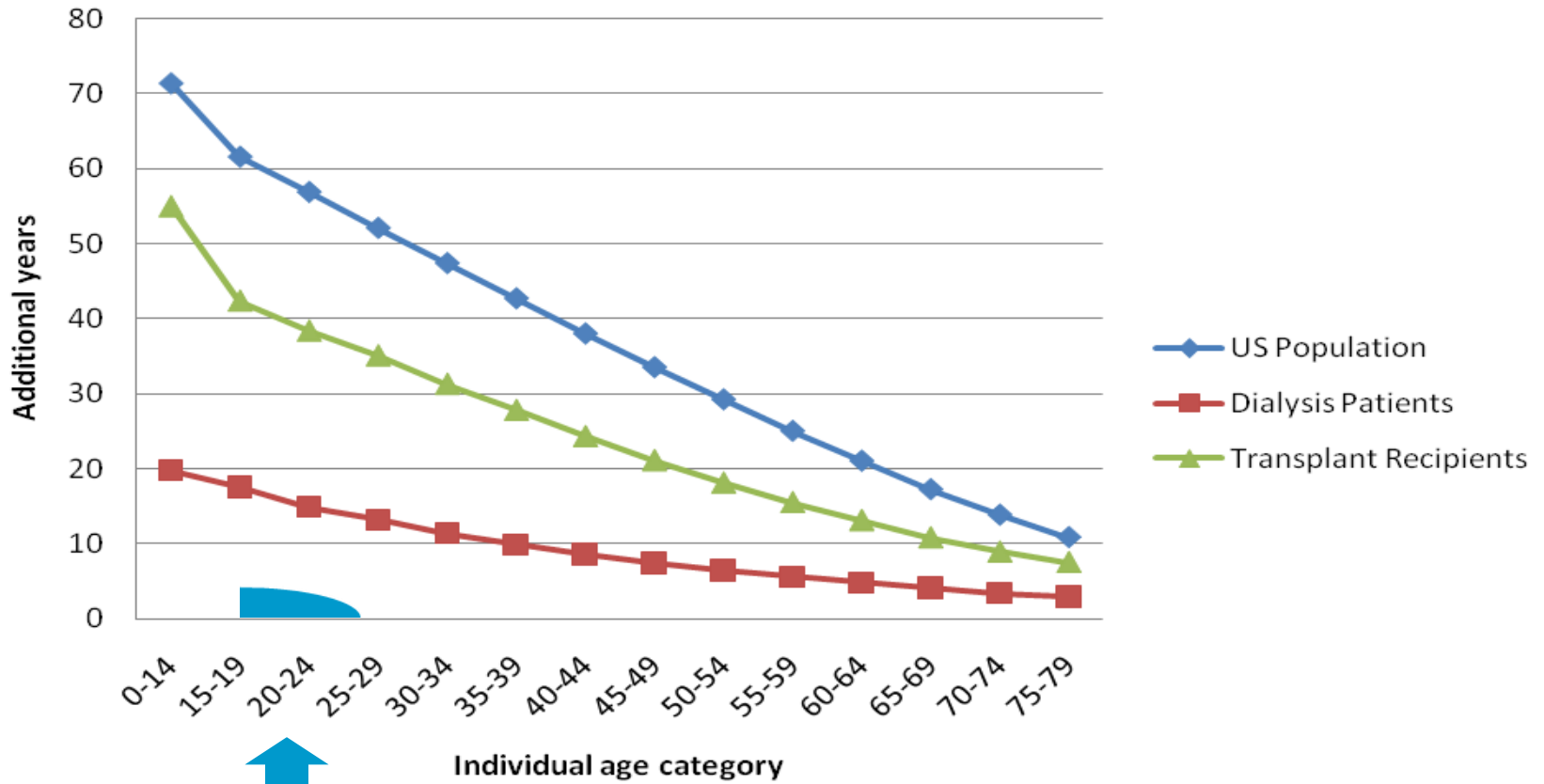
# The New Kidney Allocation System: What You Need to Know

Quality Insights Renal Network 3  
Annual Meeting  
October 2, 2014

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Chief  
Transplant Division  
Barnabas Health



## Expected Remaining Lifetimes



Pre Dialysis Era



# Dialysis Status in USA

- 500,000 patients on dialysis in 2013
- 100,000 patients start dialysis each year

# Why Transplant?



Quality of Life



*Diet*  
*Travel*  
*Pregnancy*  
*Job*  
*Lifestyle*  
*Athletics*

Cost



*Society*  
5 Year cost  
Dialysis: 345,000  
Transplant: 155,000  
*Patient*

Long Term  
Issues

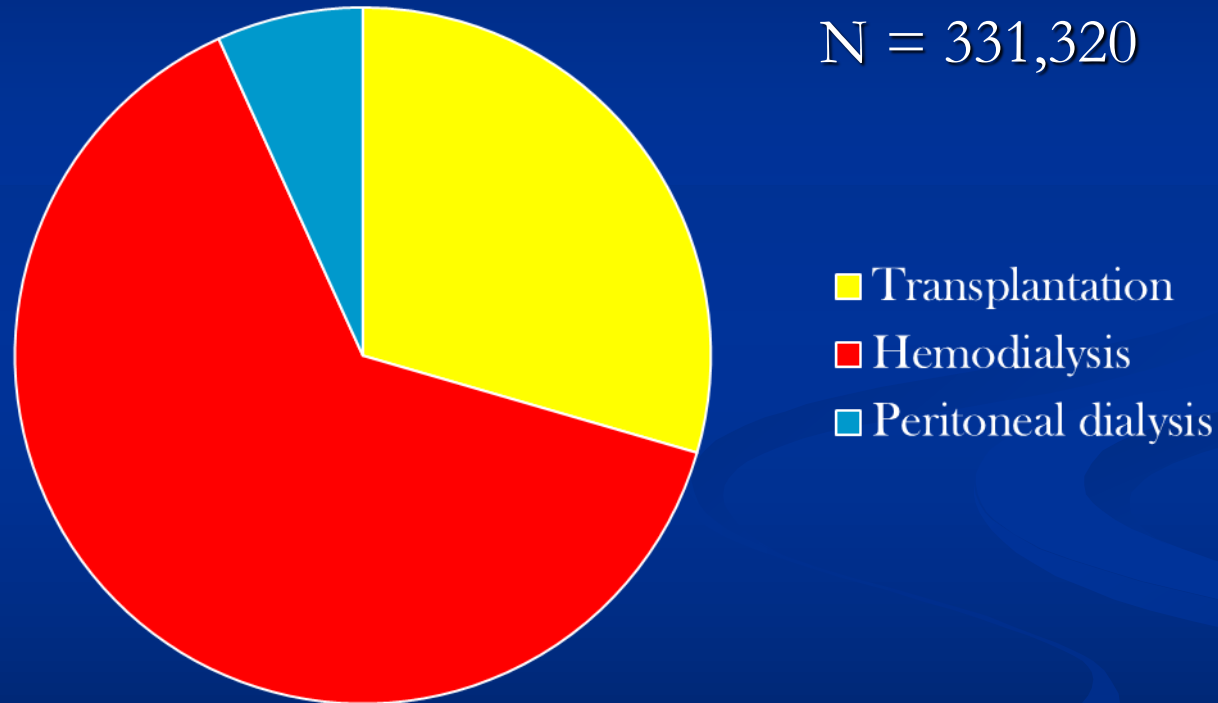


*Medical*  
*Psychosocial*  
*Dietary*  
*Financial*  
*Life Expectancy*

Life Expectancy



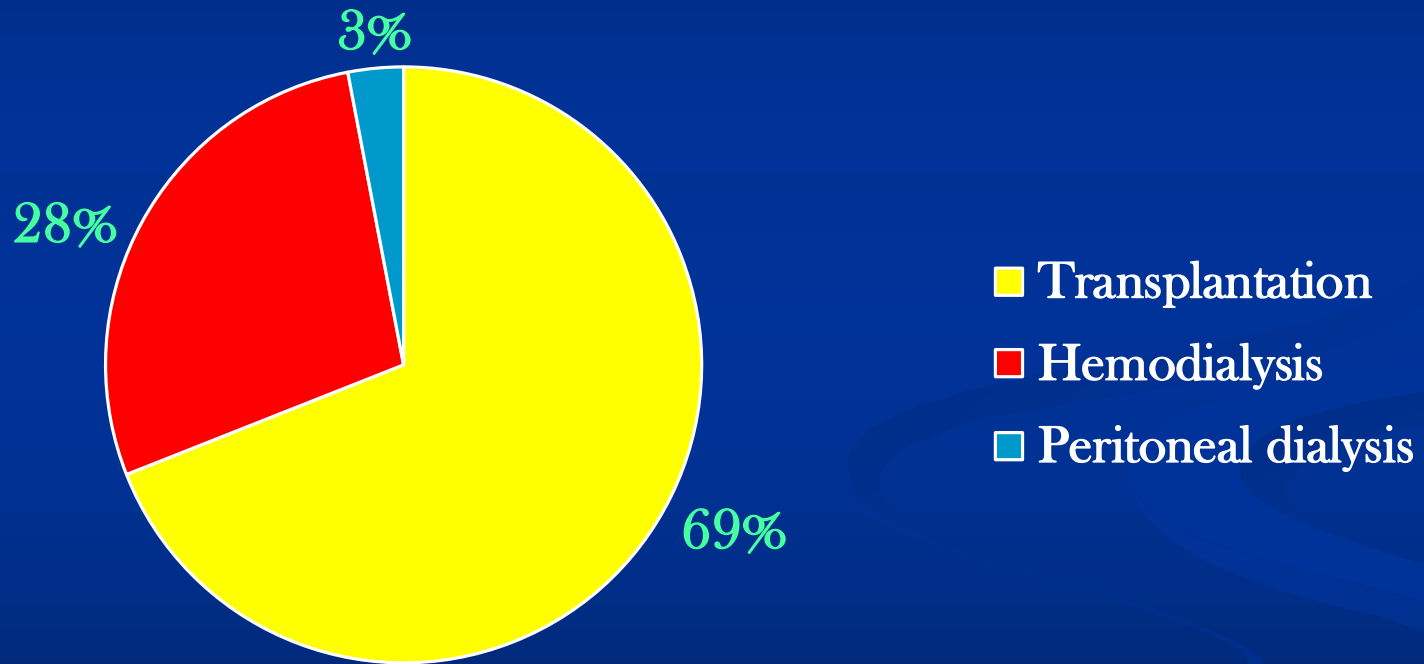
# Treatment Modalities for ESRD Patients



US Renal Data System. *USRDS 2000 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*. Bethesda, Md: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2000.

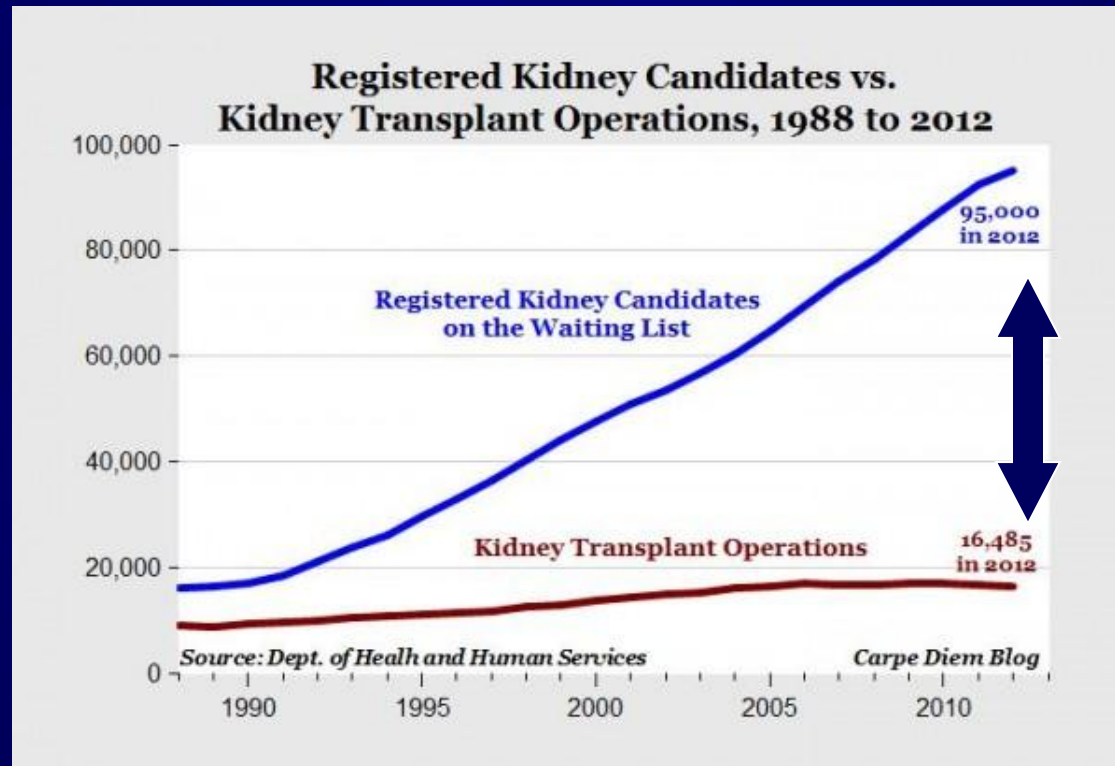


# 10-Year Survival Rates by Modality



US Renal Data System. *USRDS 2000 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*. Bethesda, Md: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2000.

# Annual Transplant Activity Vs. Waiting List [USA]





# NUMBER OF LIVING AND DECEASED KIDNEY DONOR TRANSPLANTS, UNITED STATES, 1988 – 2013



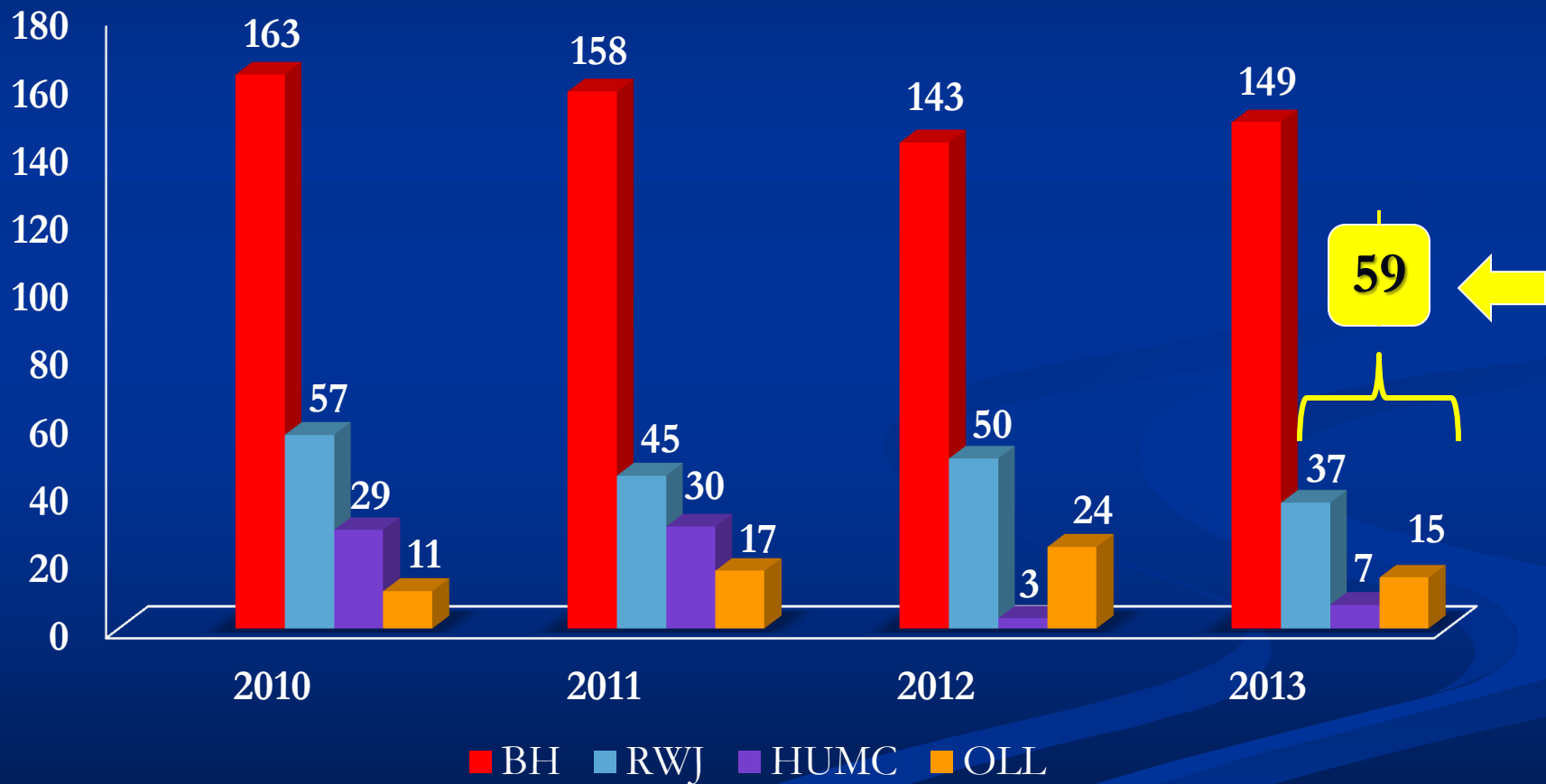


# Increasing Waiting List

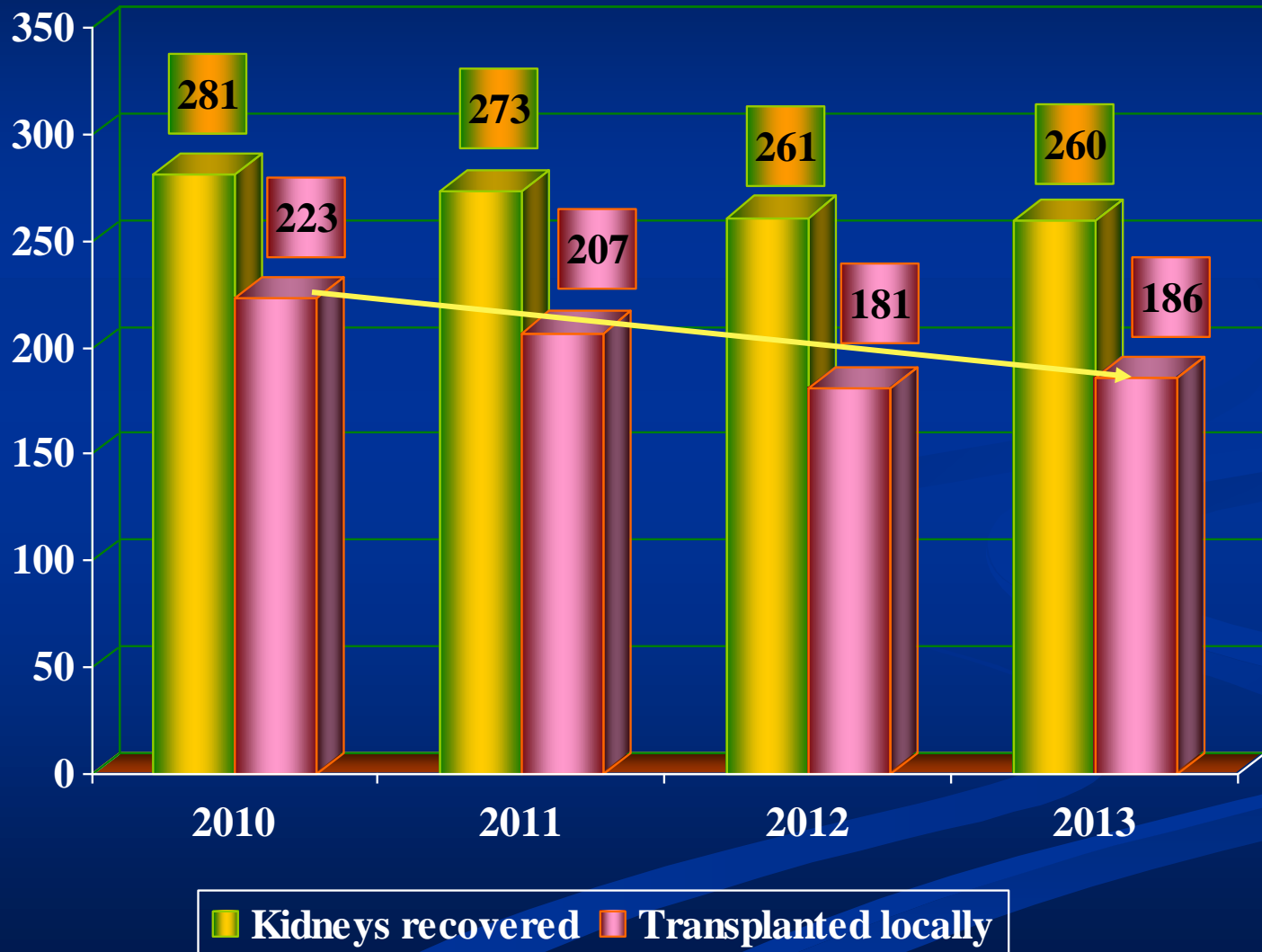
- High Success Rates
- Elderly
- Diabetics
- Retransplants
- Multiorgans

# NJ Transplant Centers:

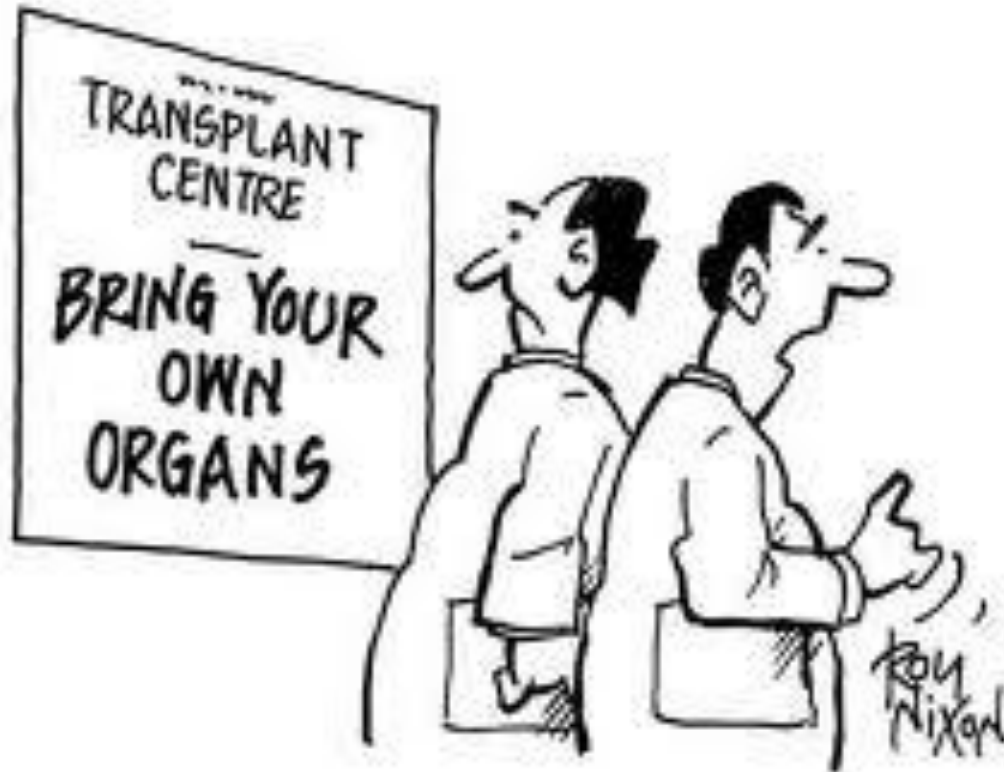
## *Total Deceased Donor Volume*



# NJ Procurement : Kidney



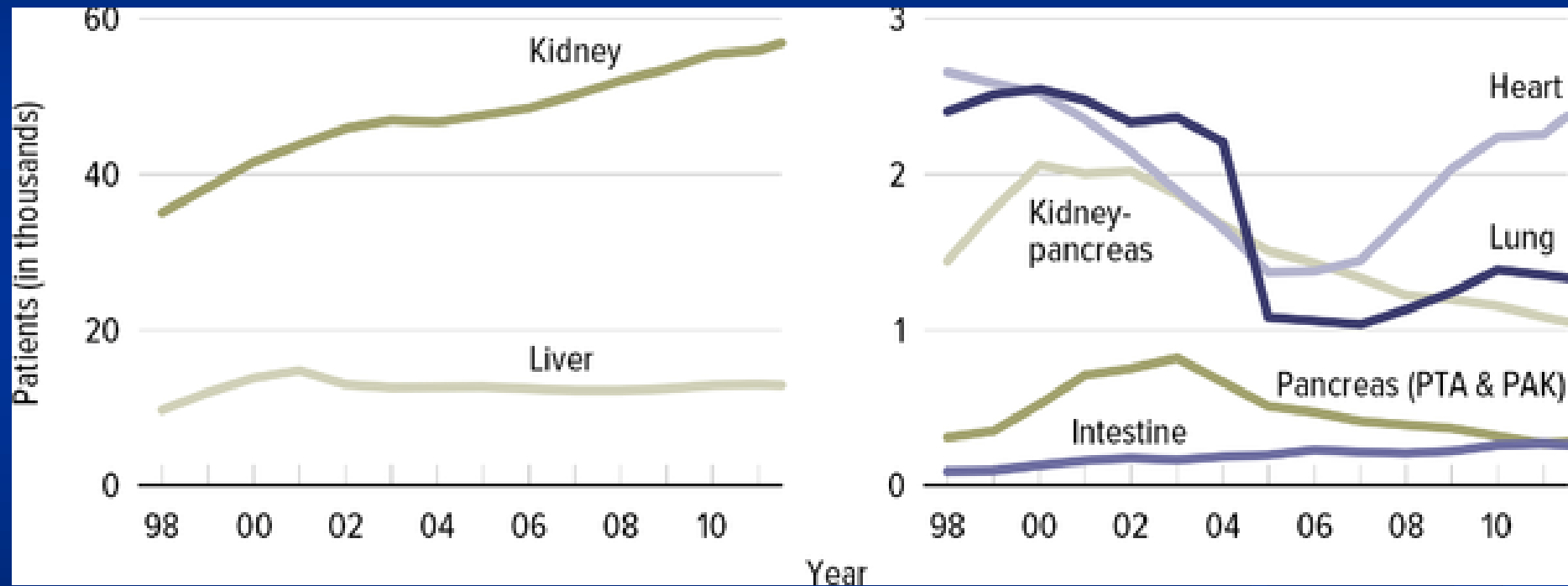
\*\* Does not include imports



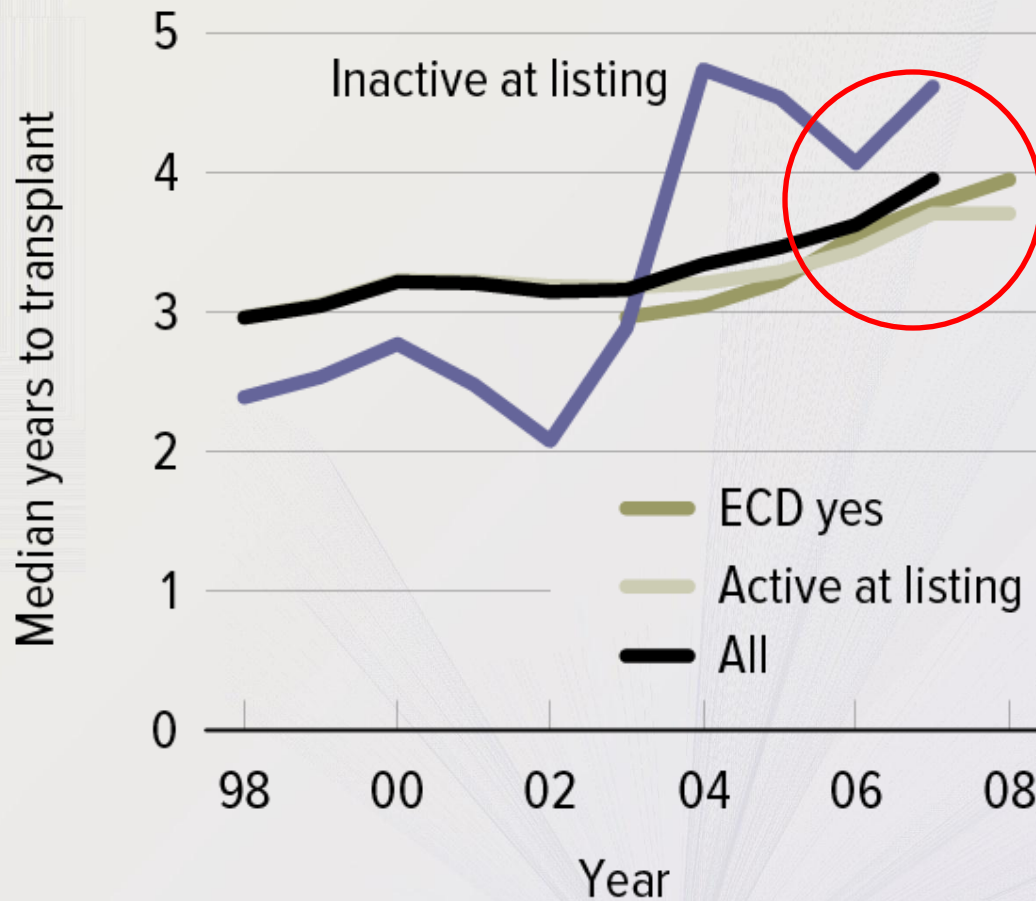
"I HAD NO IDEA THINGS WERE QUITE SO DESPERATE."



# Active Listing as of 2013

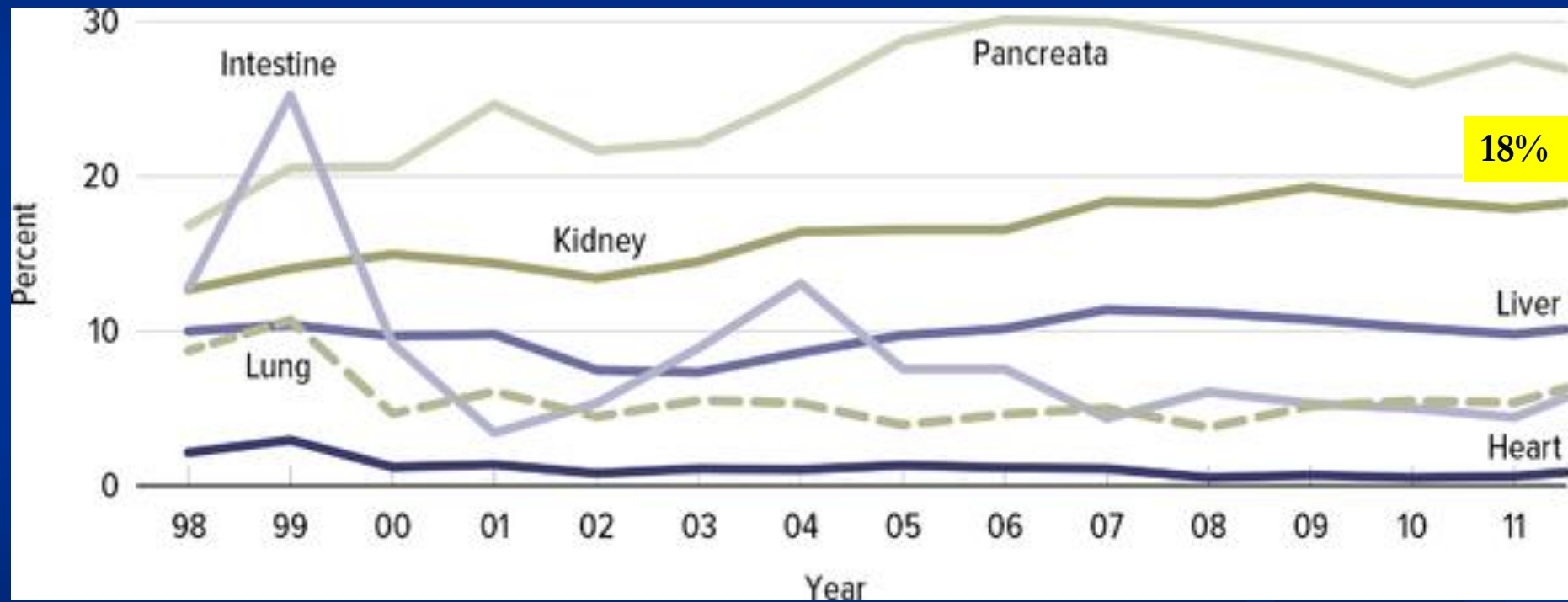


# KI 1.10 Median years to kidney transplant for wait-listed adult patients



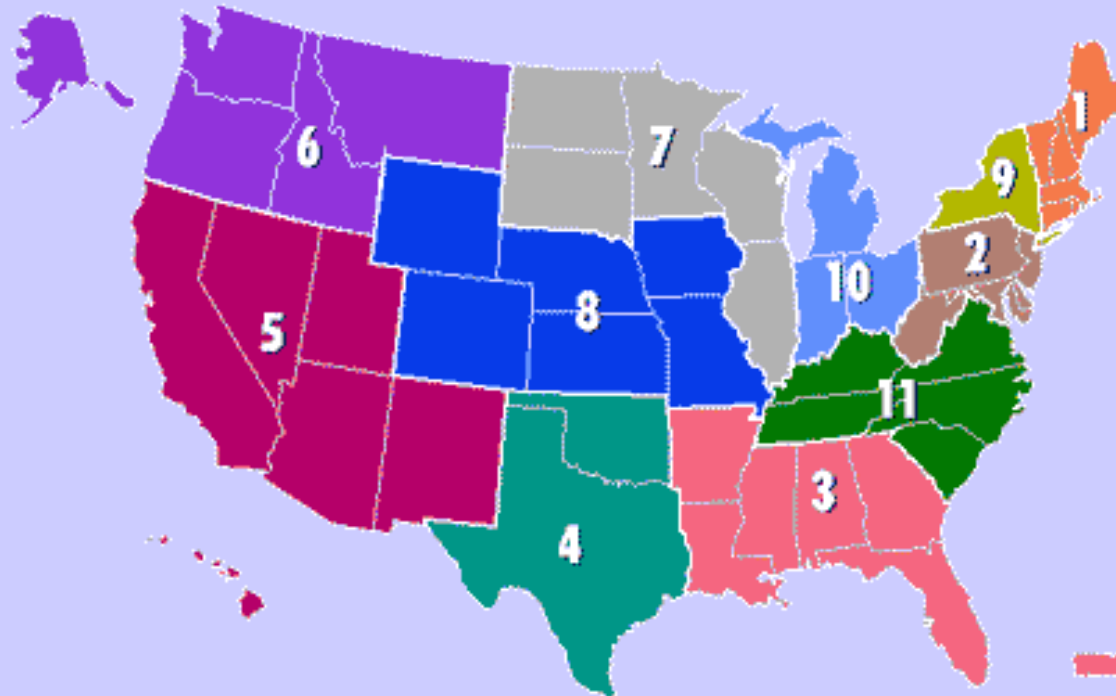


# Discard Rate





# UNOS Regional Map





# UNOS Point System

## Algorithm for organ allocation

| <u>Category</u>              | <u>Points</u>   |
|------------------------------|---|
| <u>HLA Antigen matching</u>  |   |
| 0 mm                         | Mandatory share   |
| 0BDR MM                      | 7   |
| 1BDRMM                       | 5   |
| 2BDRMM                       | 2   |
| <u>PRA</u>                   |   |
| >80%                         | 4   |
| <80%                         | 0   |
| <u>Waiting time</u>          | 1/year, 1 to longest waiting, others fraction based on position on the waiting list |
| <u>Pediatric</u>             | <11 : 3 additional, >11 : 2 Additional  |
| <u>Previous living donor</u> | additional points   |



- 41 year old black male developed ESRD. secondary to hypertension at age 28.
- Hemodialysis via AVF started at age 29.
- Patient had 6 AV access surgeries.
- Referred to Transplant Center at age 40.
- Blood Group “O”



# Blood group B wait times



# We labeled kidneys as

- SCD ( Young)
- ECD (Old or Marginal)
- DCD ( Slow functioning)
- High Risk ( Hep C +)



# We Labeled Patient as

- Young children < 18
- Difficult to transplant based on PRA
- Unfortunate (Previous living donor)
- Great match
- Better match
- Waiting on the list longest ( In the Queue first as opposed to Not on dialysis)
- By BG: No advantage given to Blood Group B



# Case number 1

- 76 year old man ESRD due to hypertension.
- Creatinine 6.0 mg/dl
- Listed for transplantation 4 years ago when creatinine was 3.0 mg/dl
- In excellent health and all recent age appropriate testing is normal
- Great support system
- Admitted for a deceased donor transplant



# Case number 1 Continued

- Donor is a 16 year old girl
- Brought to ICU intubated following drowning in the backyard pool
- Declared brain dead after 3 days of treatment
- 1 kidney Matched the 76 year old recipient and the other matched a 67 year old female
- 76 year old died 1 year later of an infection and the 67 year old lost the kidney due to BKV nephropathy after 2 years.



# Both started dialysis





3 years old: My mom is the best!

7 years old: Mom I love you!

10 years old: Mom what ever!

17 years old: OMG my mom is so annoying!

25 years old: I wanna go back home!

35 years old: Mom you were right

50 years old: I dont wanna lose my mom!

70 years old: I would give everything to have my mom  
with me!

# Objectives

- Explain the new kidney allocation policy and its goals
- Summarize basic changes in allocation components for deceased donor kidneys
- Describe patient indicators appropriate for transplant evaluation referral
- List resources for additional information including education of patients



# Why change kidney allocation?

- High kidney discard rates
- Variability in access to transplant
- Unrealized graft years
- Unnecessarily high re-transplant rates



# Predicted outcomes of the change

- Approximately **8,000** additional life years gained annually
- Improved access for highly sensitized candidates
- Improved access for ethnic minority candidates
- Comparable levels of kidney transplants at regional/national levels

# Current System



Points

Priority

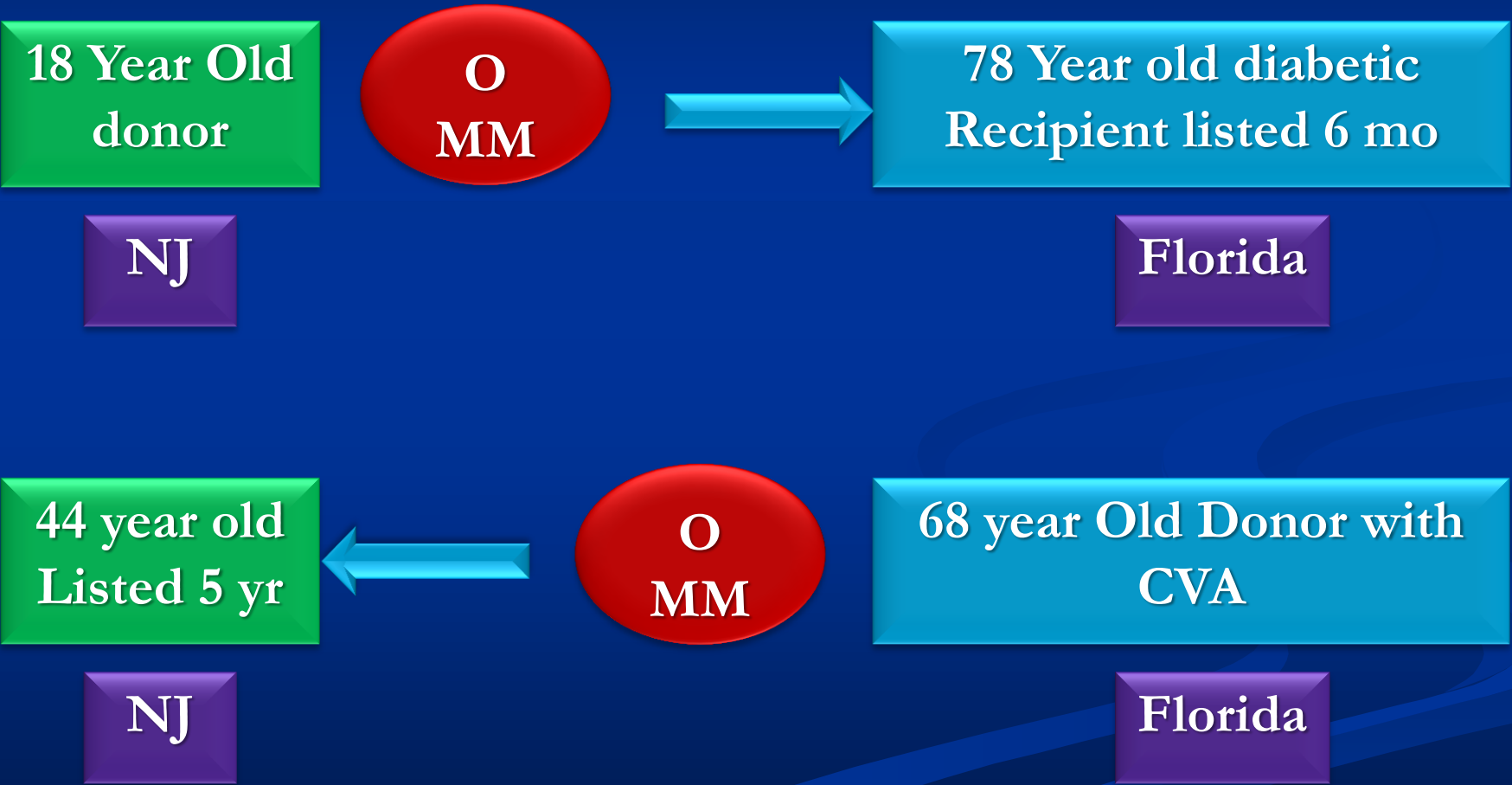
Points regardless of  
adult Age, Dialysis  
time, or life year  
benefit or regardless  
of kidney  
characteristic

Pediatrics  
Hi PRA  
Living Donor  
O Mismatch

Wait- List Time

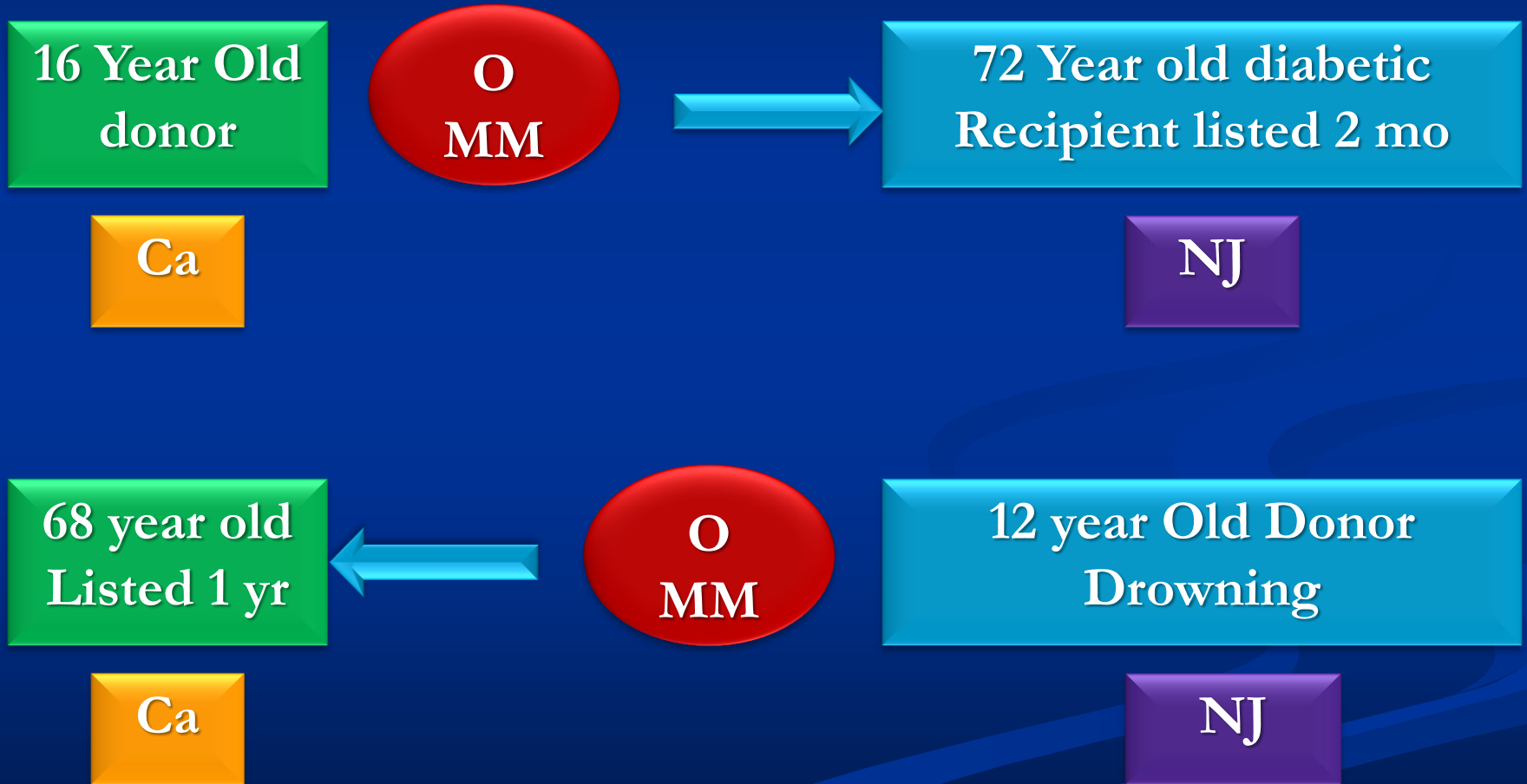


# Sharing and Payback System





# Sharing and Payback System



# Factors used to determine groups

## ■ KDPI

- Donor age
- Race/ethnicity
- Hypertension
- Diabetes
- Serum creatinine
- COD CVA
- Height
- Weight
- DCD
- HCV

## ■ Candidate

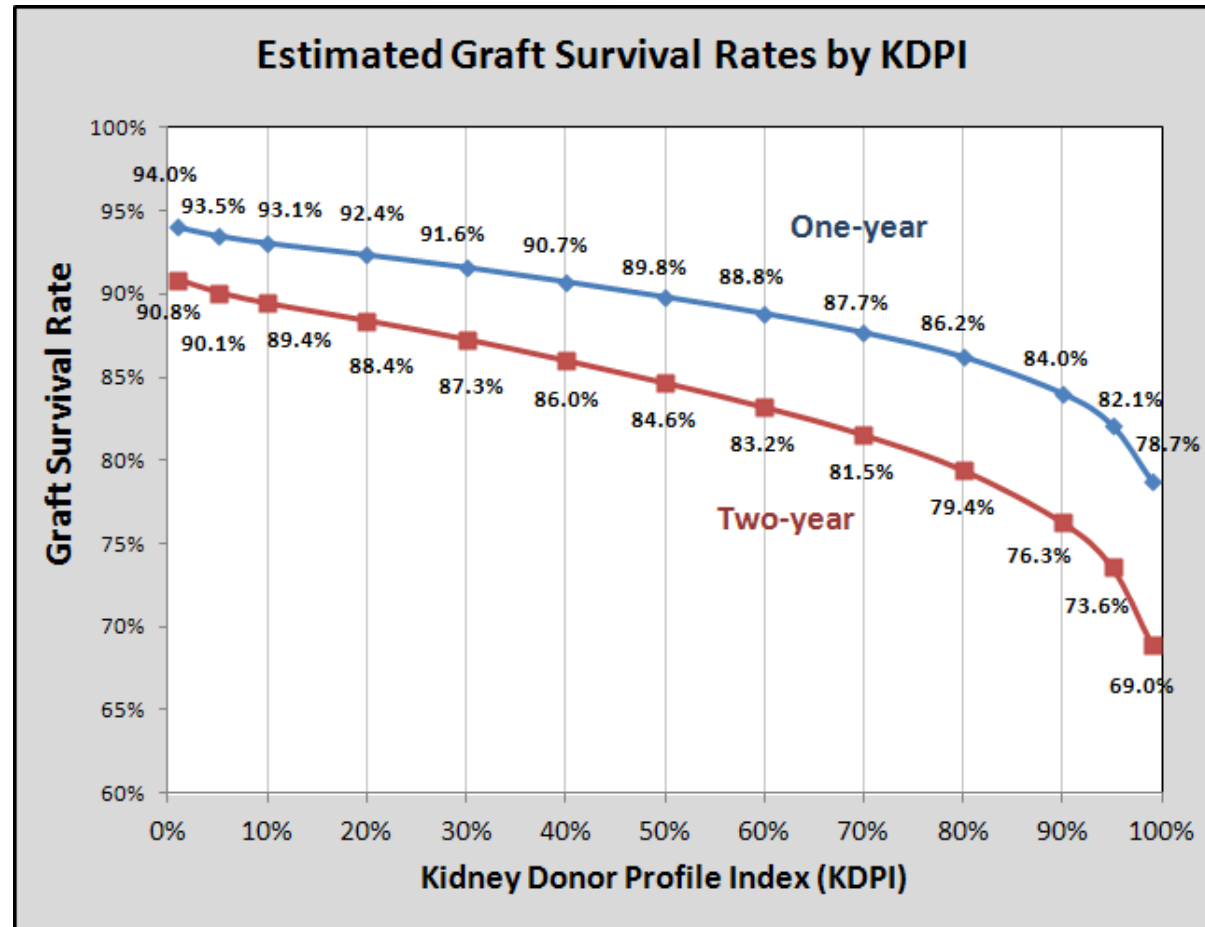
### Estimated Post-Transplant Survival (EPTS)

- Candidate Age
- Candidate Diabetes
- Prior transplant
- ESRD time

# Kidney Donor Profile Index (KDPI)

## KDPI Variables

- Donor age
- Height
- Weight
- Ethnicity
- History of Hypertension
- History of Diabetes
- Cause of Death
- Serum Creatinine
- HCV Status
- DCD Status





# Addressing System Limitations

| Stated Limitation of the Current System   | Applicable Concepts  |
|---|--|
| Mismatch between potential survival of the kidney and the recipient   | Survival matching  |
| Variability in access to transplantation by blood group and geographic location   | A2/A2B, broader sharing  |
| High discard rates of kidneys that could benefit candidates on the waiting list   | KDPI, expedited placement,   |
| Reduce differences in transplant access for populations described in NOTA (e.g., candidates from racial/ethnic minority groups, pediatric candidates, and sensitized candidates). | ESRD time, broader sharing, CPRA sliding scale, maintain peds priority |

# Major Allocation Components

- Replace SCD/ECD with *Kidney Donor Profile Index* (KDPI)
- Add *longevity matching* using Estimated Post-Transplant Survival (EPTS) score for candidates and KDPI for donors
- Increase access for *sensitized candidates* w/ CPRA sliding scale and additional sharing priority
- Include *pre-registration dialysis time* in waiting time calculation
- Increase access for *Blood Type B* candidates
- Base pediatric priority on KDPI
- Remove *payback system*

# New System



Points

Priority



Pediatrics  
Hi PRA  
Living Donor

Points for  
Kidney with longevity  
Patient w life yr benefit  
Dialysis Time credit  
Advantage Blood Group B

Wait- List Time



Kidney  
Longest survival

Kidney  
Limited survival

KDPI 20

KDPI 80

EPTS Hi

EPTS low

10 year old

65 year old

Patient  
Longest survival

Patient  
Limited survival



# Case number 2: CPRA

- 36 year old white female ESRD due to FSGS
- Started hemo at age 18 ( Had 2 pregnancies)
- After 2 years received a LDK from a cousin
- 3 more pregnancies, 1 child
- Lost kidney due to recurrence at age 26
- Received 5 units of pack cells
- PRA 98

# Sensitized Candidates

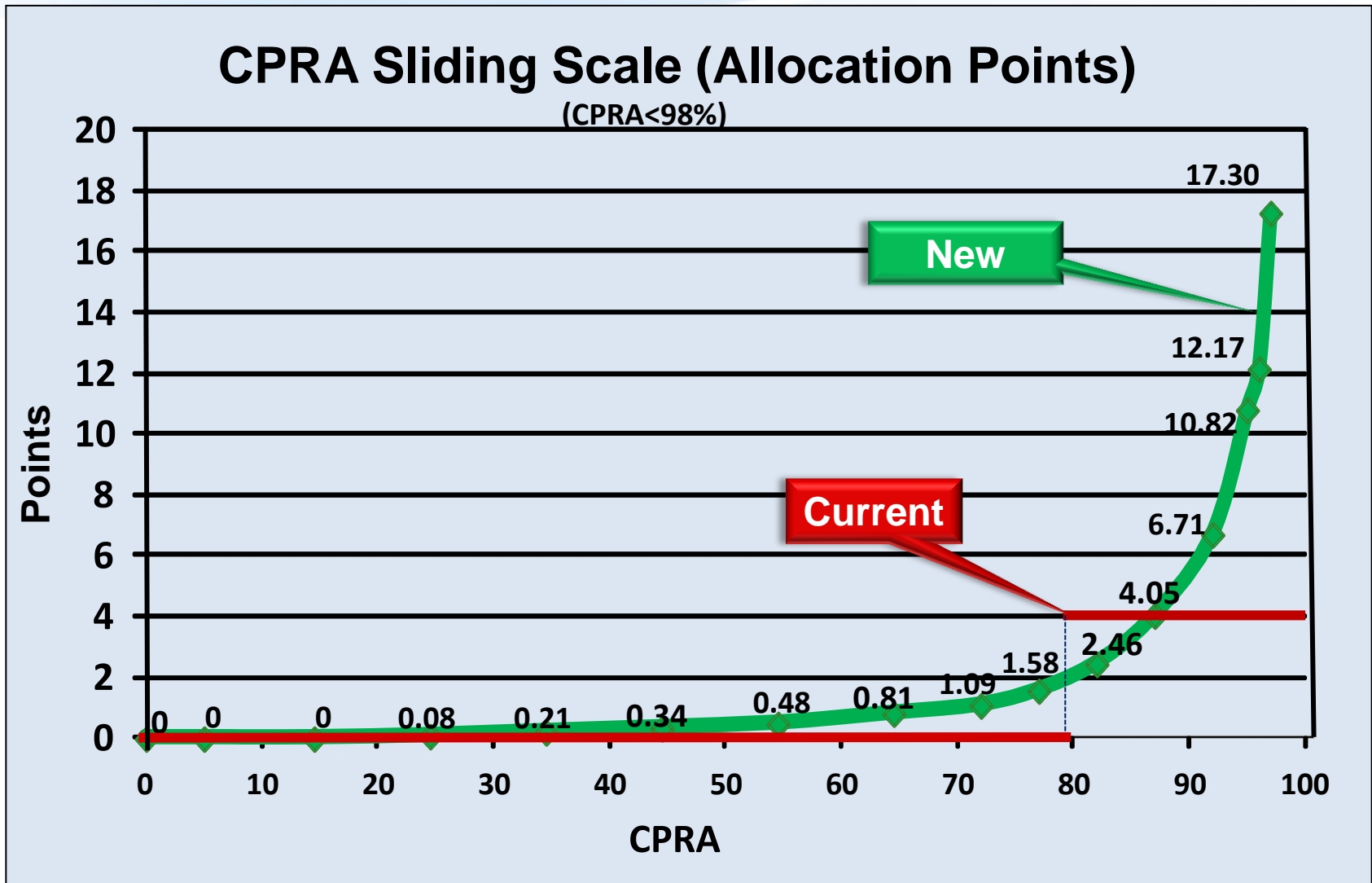
**Current**

CPRA  $\leq 80\%$  receive 4 additional points and zero points for moderately sensitized candidates

**New**

Points assigned based on a sliding scale starting at CPRA  $\geq 20\%$

# Point changes: Sensitization



# Revised waiting time calculation

## Current

Waiting time begins at/after registration with GFR  $\leq 20$  ml/min **OR** On Dialysis

## New

Waiting time points awarded for dialysis prior to registration (pediatric and adults)

- Recognizes time spent with ESRD as basis for priority

## Reminder

Waiting time points based on GFR remains the same

| Sequence A  | Sequence B   | Sequence C  | Sequence D                   |
|---|--|---|------------------------------|
| Highly Sensitized   | Highly Sensitized  | Highly Sensitized                                   | Highly Sensitized            |
| 0-ABDRmm (top 20% EPTS)   | 0-ABDRmm   | 0-ABDRmm  | 0-ABDRmm                     |
| Prior living donor<br>Local pediatrics<br>Local top 20% EPTS<br>0-ABDRmm (all)<br>Local (all)<br>Regional pediatrics<br>Regional (top 20%)<br>Regional (all)<br>National pediatrics<br>National (top 20%)<br>National (all) | Prior living donor<br>Local pediatrics<br>Local adults<br>Regional pediatrics<br>Regional adults<br>National pediatrics<br>National adults | Prior living donor<br>Local<br>Regional<br>National | Local + Regional<br>National |

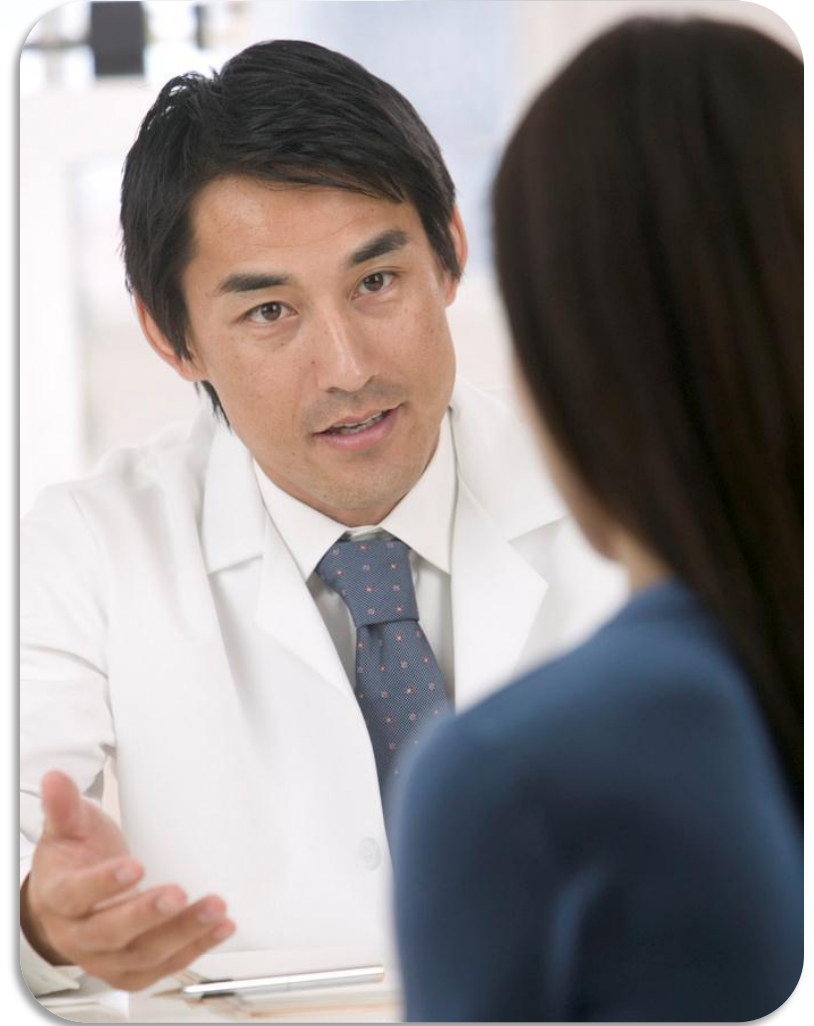
**0-ABDR Mismatch  
Priority**

# Implementation

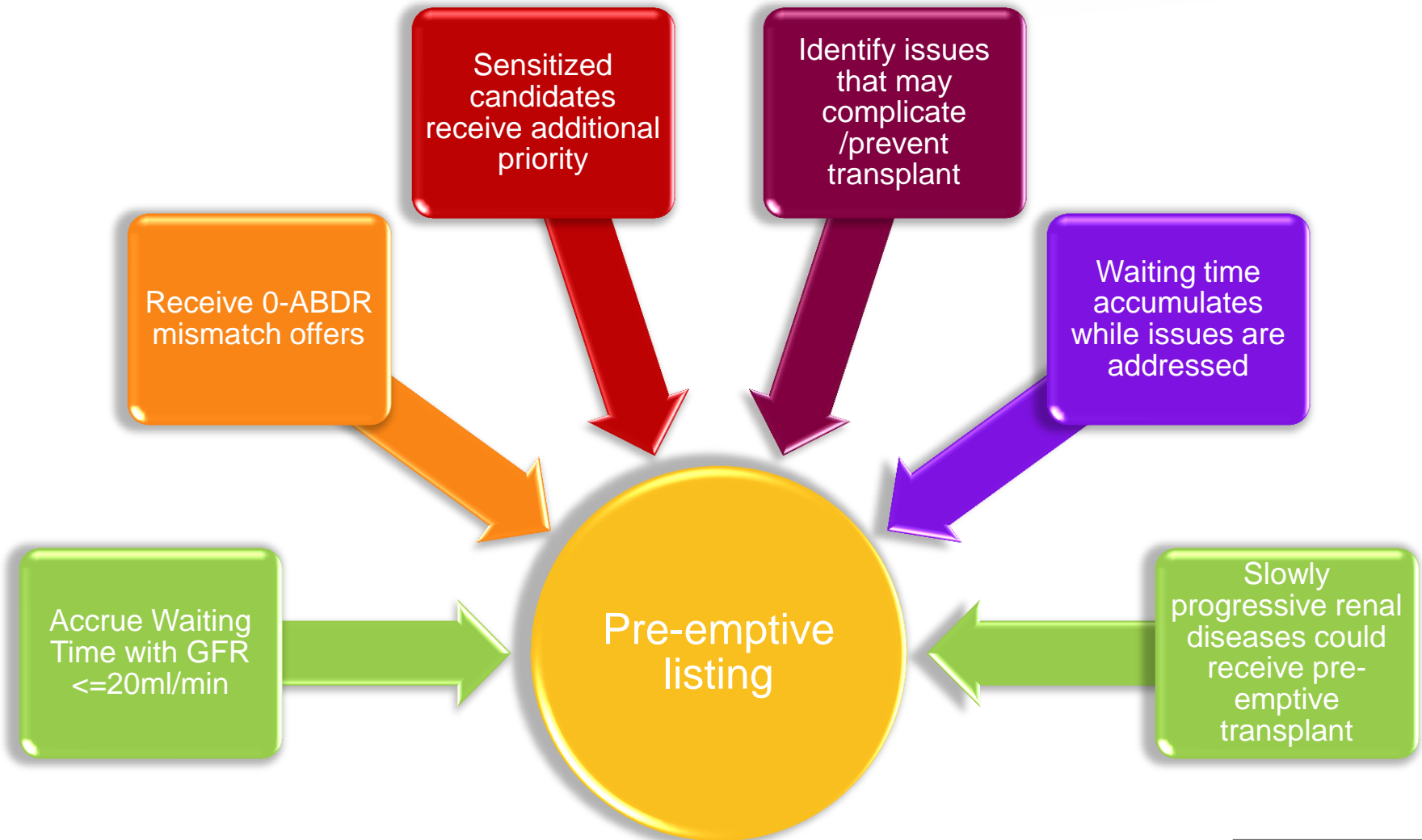
| Phase I   | Phase II  |
|---|---|
| <ul style="list-style-type: none"><li>• Data updates required</li><li>• New reports released</li><li>• Calculators made available</li></ul> | <ul style="list-style-type: none"><li>• New allocation rules applied</li><li>• Variances turned off</li><li>• Payback system turned off</li></ul> |
| Anticipated <b>mid</b> 2014   | Anticipated <b>end</b> 2014   |

# Early referral

- There is no established system to ensure that medically appropriate candidates are referred for transplantation

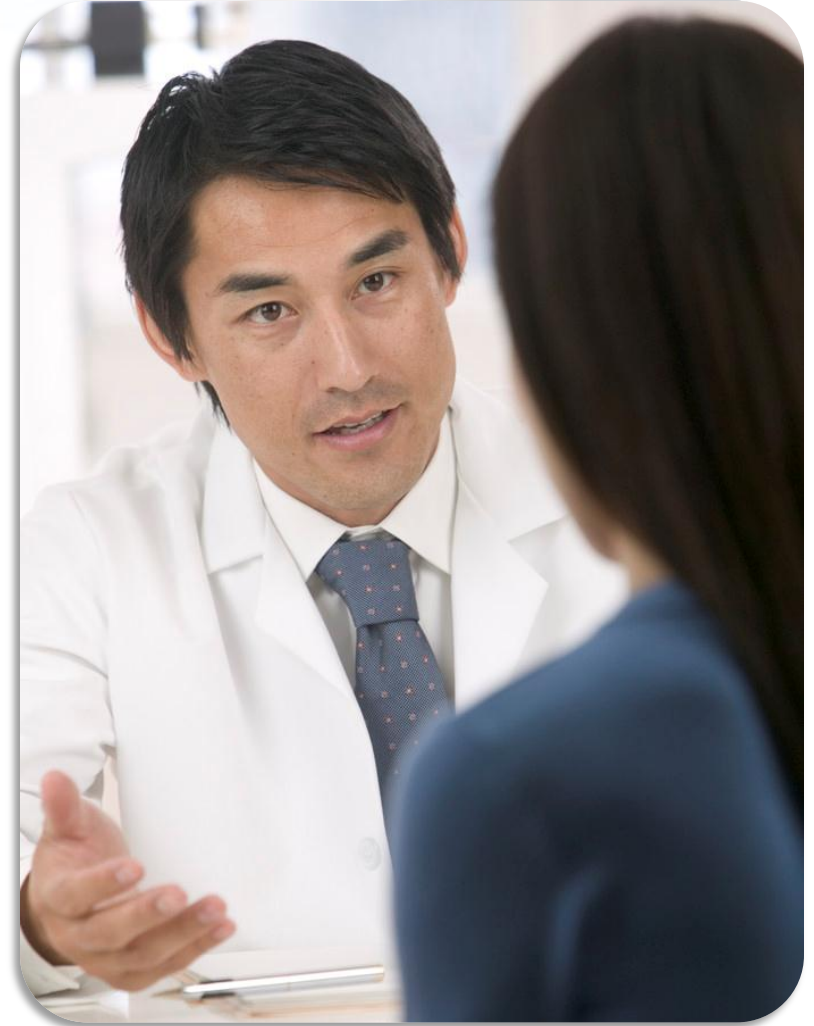


# Importance of early referral



# Guidance on early referral

- Patients with chronic kidney disease (**Stage 3 or higher**) or ESRD should be referred for transplant evaluation



# Guidance on early referral

- Pre-emptive transplant and timely, early referral is the goal
  - GFR range = 25-30
- Education about transplant must begin before ESRD to be most effective
  - Stage 3-4 CKD
- Begin discussing the importance of living donors
- Initiate weight loss and smoking cessation counseling as necessary

# Check for Prior Living Organ Donors



- Prior living organ donors get additional priority and 4 points

# Kidney Allocation System Communication, Education, and Resources

# Resources for professionals

- Kidney Allocation Toolkit
  - FAQs
  - Sample messaging for discussing changes with patients
  - Patient brochure
  - Guidance for early referral considerations

Subscribe to RSS feeds and a monthly newsletter

<http://transplantpro.org/kidney-allocation-system/>

# More information

OPTN web site - <http://optn.transplant.hrsa.gov>

UNOS web site\* - <http://www.unos.org>

Transplant Living\* - <http://www.transplantliving.org>

Transplant Pro\* - <http://transplantpro.org>

\*These are a service of United Network for Organ Sharing and are not produced under the OPTN contract.



**Thank You**

