

Upcoming changes to the UNOS/OPTN kidney & pancreas allocation system

Francis L. Weng, MD, MSCE

Chief, Renal & Pancreas Transplant Division
Saint Barnabas Medical Center
Livingston, NJ


January 12, 2021



**Saint Barnabas
Medical Center**

**RWJBarnabas
HEALTH**

Outline

- 
- What is the current kidney transplant allocation system?
 - Why is this system going to be changed?
 - How is the allocation system going to change?
 - What will be the consequences of these changes?

Bottom line: Starting Feb 13, new kidney & pancreas organ allocation policies will be implemented

- Policies will broaden the distribution of organs
- Ultimate goal: greater equity in access to transplants throughout the U.S.
- Consequences
 - Long-term, there will be less geographic variation in transplant rates
 - Longer waiting times, for a few years, in New Jersey
 - Other unintended short-term side effects



UNITED NETWORK FOR ORGAN SHARING

Saving lives together

Organ Procurement and Transplantation Network

What is the current kidney allocation system?
How does it work right now?

Each candidate on the transplant waiting list has a certain number of “allocation points”

- Patients with more points are “higher” on the waiting list
- Points are mainly assigned based on 3 factors
 - Waiting time on list
 - Panel reactive antibody (PRA)
 - Match with the deceased donor
- There are a few other situations in which points are also given
- Allocation points for a candidate changes with each deceased donor
 - Because the level of matching with the donor impacts points

How do our patients get “allocation points” on the transplant waiting list?

If the candidate is	Then the candidate receives this many points
Registered for kidney transplant	1/365 of a point for each day
PRA 20-100%	Up to 202 points (!)
20-79%	0.08 - 1.58 points
80-89%	2.46 - 4.05 points
90-95%	6.71 - 10.82 points
96% and up	12.17 - 202.10 points
Mismatches at DR locus	
0 mismatches at DR locus	2 points
1 mismatch at DR locus	1 point

What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

How do our patients get “allocation points” on the transplant waiting list?

If the candidate is	Then the candidate receives this many points
Registered for kidney transplant	1/365 of a point for each day
PRA 20-100%	Up to 202 points (!)
20-79%	0.08 - 1.58 points
80-89%	2.46 - 4.05 points
90-95%	6.71 - 10.82 points
96% and up	12.17 - 202.10 points
Mismatches at DR locus	
0 mismatches at DR locus	2 points
1 mismatch at DR locus	1 point
Age 17 or below	1, 3, or 4 points, depending on age of candidate and if kidney donor is 0-antigen mismatch
Prior living donor	4 points

What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

Example of allocation points

- 60 male with ESRD from diabetes
 - On dialysis for 3.5 years
 - Placed on waiting list (“registered”) 2.5 years ago
- Dialysis time of 3.5 years: gives him 3.5 allocation points at baseline
 - *For patients registered after starting dialysis, waiting time starts on date of dialysis start*
- Donor has 2 mismatches at DR locus: **no extra allocation points**
- 0% PRA: **no extra allocation points**
- **Total allocation points: 3.5**

Further examples of allocation points, using variations on this hypothetical patient

	Total allocation points
3.5 years waiting time, 0% PRA, 2DR mismatch	3.5

Further examples of allocation points, using variations on this hypothetical patient

	Total allocation points
3.5 years waiting time, 0% PRA, 2DR mismatch	3.5
Candidate's PRA increases to <u>25%</u> (extra 0.08 points)	3.58

Further examples of allocation points, using variations on this hypothetical patient

	Total allocation points
3.5 years waiting time, 0% PRA, 2DR mismatch	3.5
Candidate's PRA increases to <u>25%</u> (extra 0.08 points)	3.58
Candidate's PRA increases to <u>85%</u> (extra 4.05 points)	7.55

Further examples of allocation points, using variations on this hypothetical patient

	Total allocation points
3.5 years waiting time, 0% PRA, 2DR mismatch	3.5
Candidate's PRA increases to <u>25%</u> (extra 0.08 points)	3.58
Candidate's PRA increases to <u>85%</u> (extra 4.05 points)	7.55
Donor has 1 mismatch at DR	4.5
Donor has 0 mismatches at DR	5.5

Currently, kidneys are allocated locally, then regionally, then nationally

Locally

- Donation service area encompasses most of NJ
- Served by an organ procurement organization

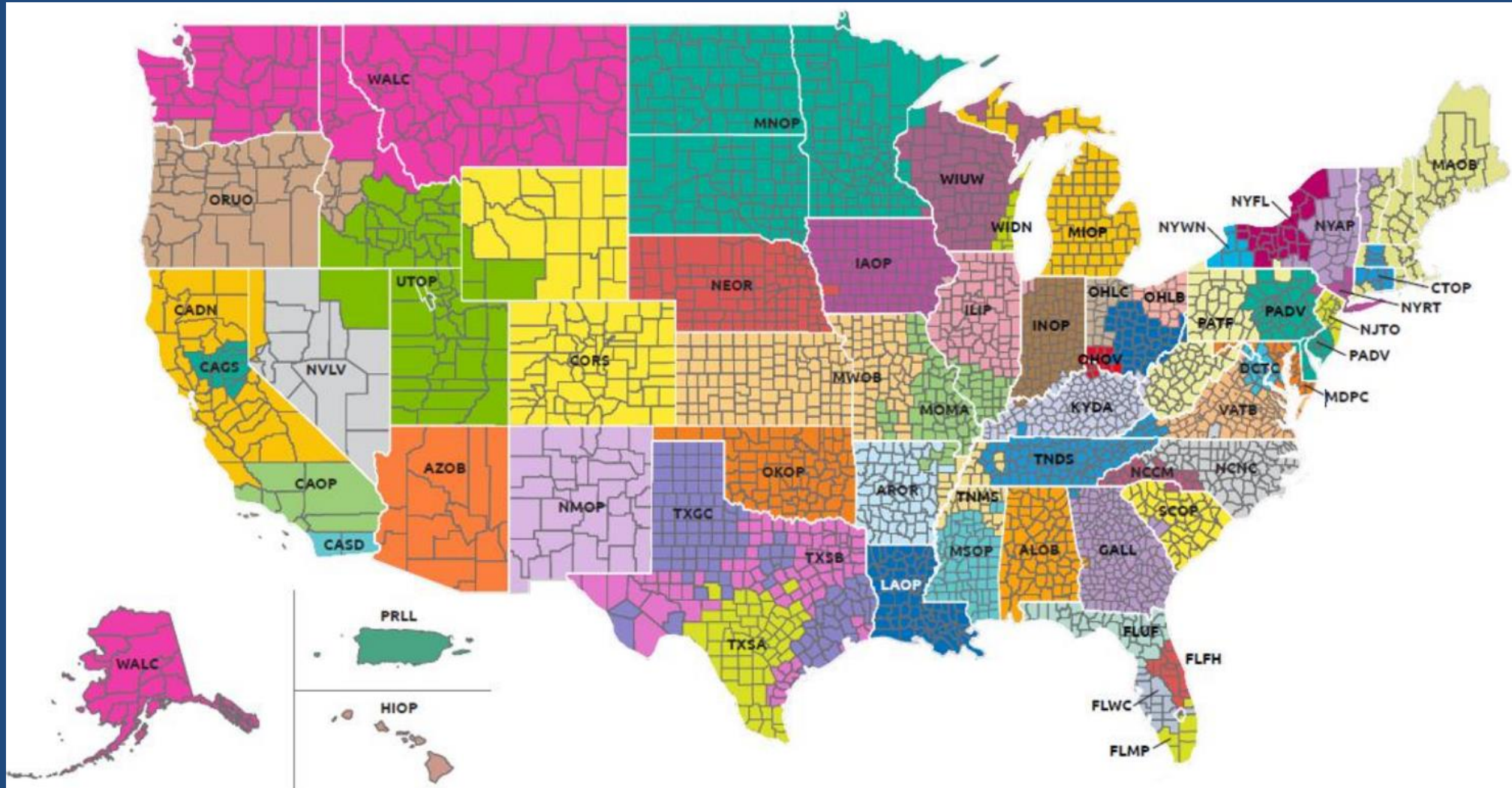
Regionally

- Region 2: NJ, PA, MD, DC, DE, WV

Nationally

- Entire rest of U.S.

“Local” refers to ~57 donation service areas, each served by an organ procurement organization



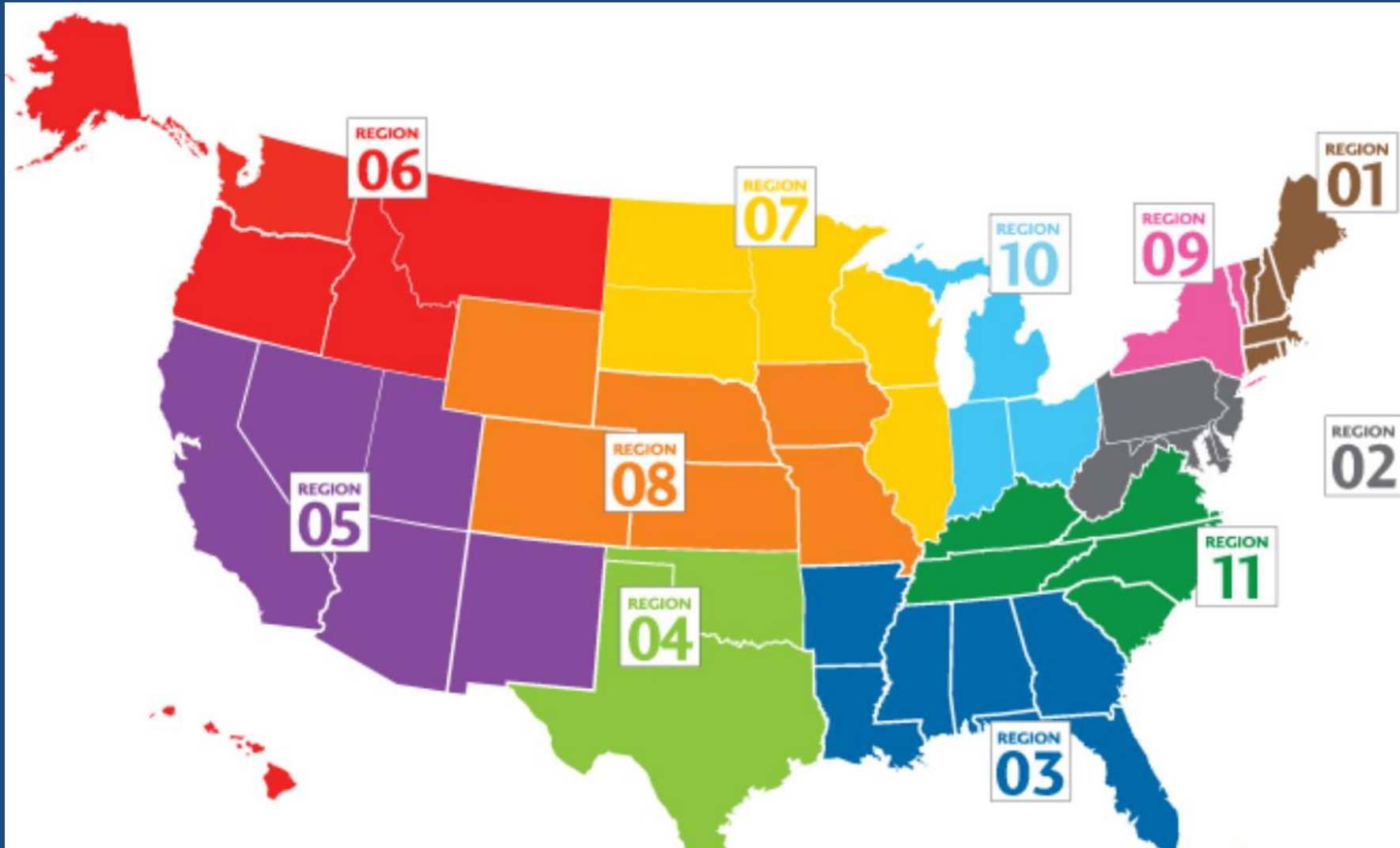
What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

For organ allocation, U.S. is also divided into 11 regions



What is the current system?

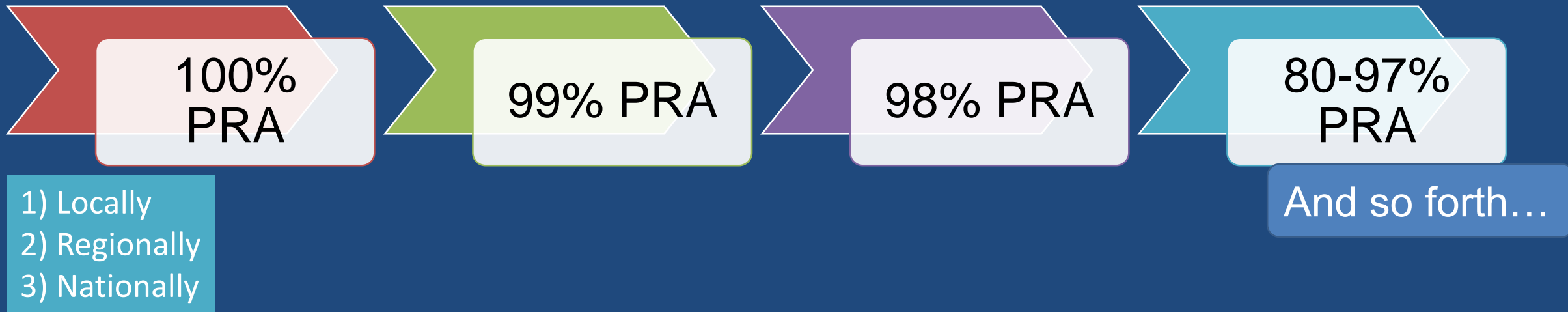
Why are things changing?

How will the system change?

What are the consequences?

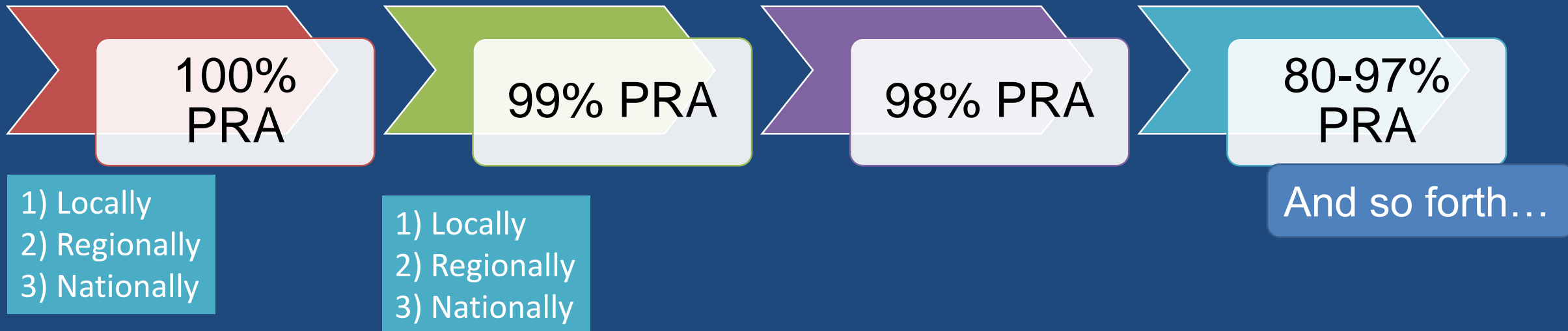
For each classification, the kidneys are offered locally, then regionally, then nationally

Within each classification, kidney are distributed
First, locally, in OPO's donation service area
Then, regionally, in OPO's region
Finally, nationally



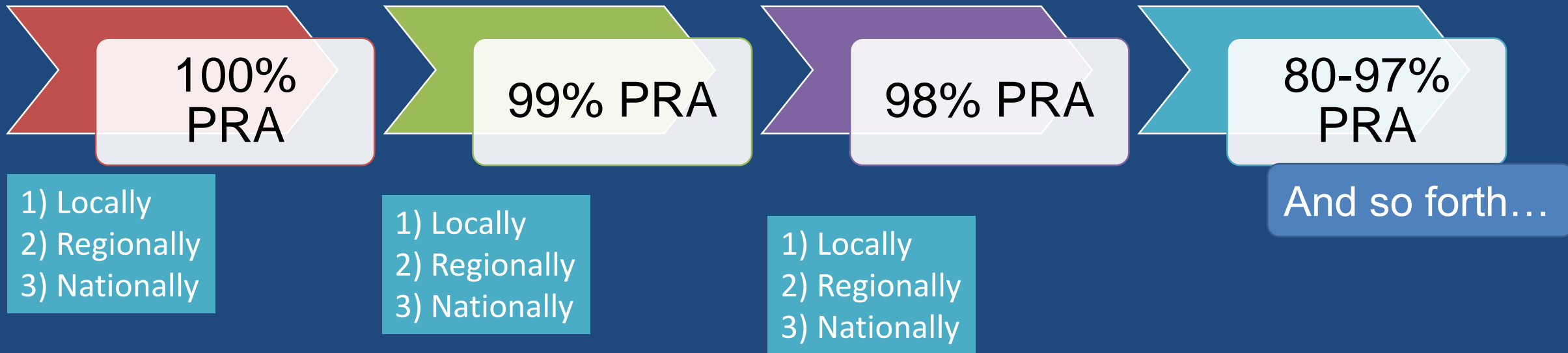
For each classification, the kidneys are offered locally, then regionally, then nationally

Within each classification, kidney are distributed
First, locally, in OPO's donation service area
Then, regionally, in OPO's region
Finally, nationally



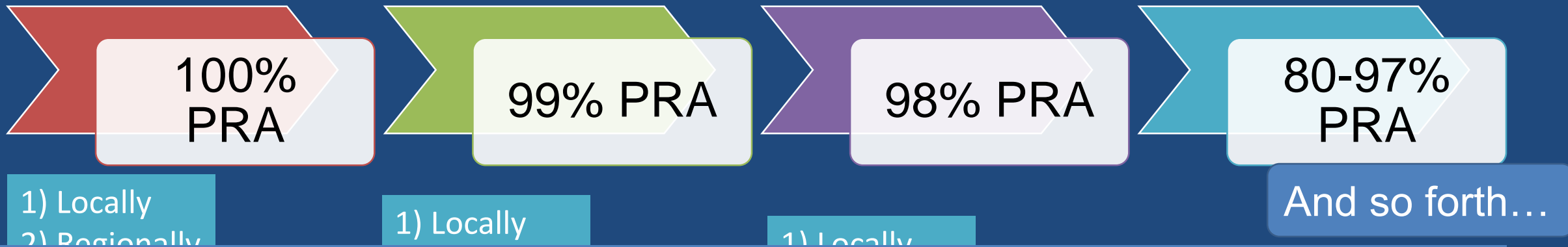
For each classification, the kidneys are offered locally, then regionally, then nationally

Within each classification, kidney are distributed
First, locally, in OPO's donation service area
Then, regionally, in OPO's region
Finally, nationally



For each classification, the kidneys are offered locally, then regionally, then nationally

Within each classification, kidney are distributed
First, locally, in OPO's donation service area
Then, regionally, in OPO's region
Finally, nationally



For organ allocation, a patient's local area (i.e. donation service area, organ procurement organization) and region are crucial

Why is the kidney transplant allocation system going to change on Feb 13, 2021?

What is the current system?

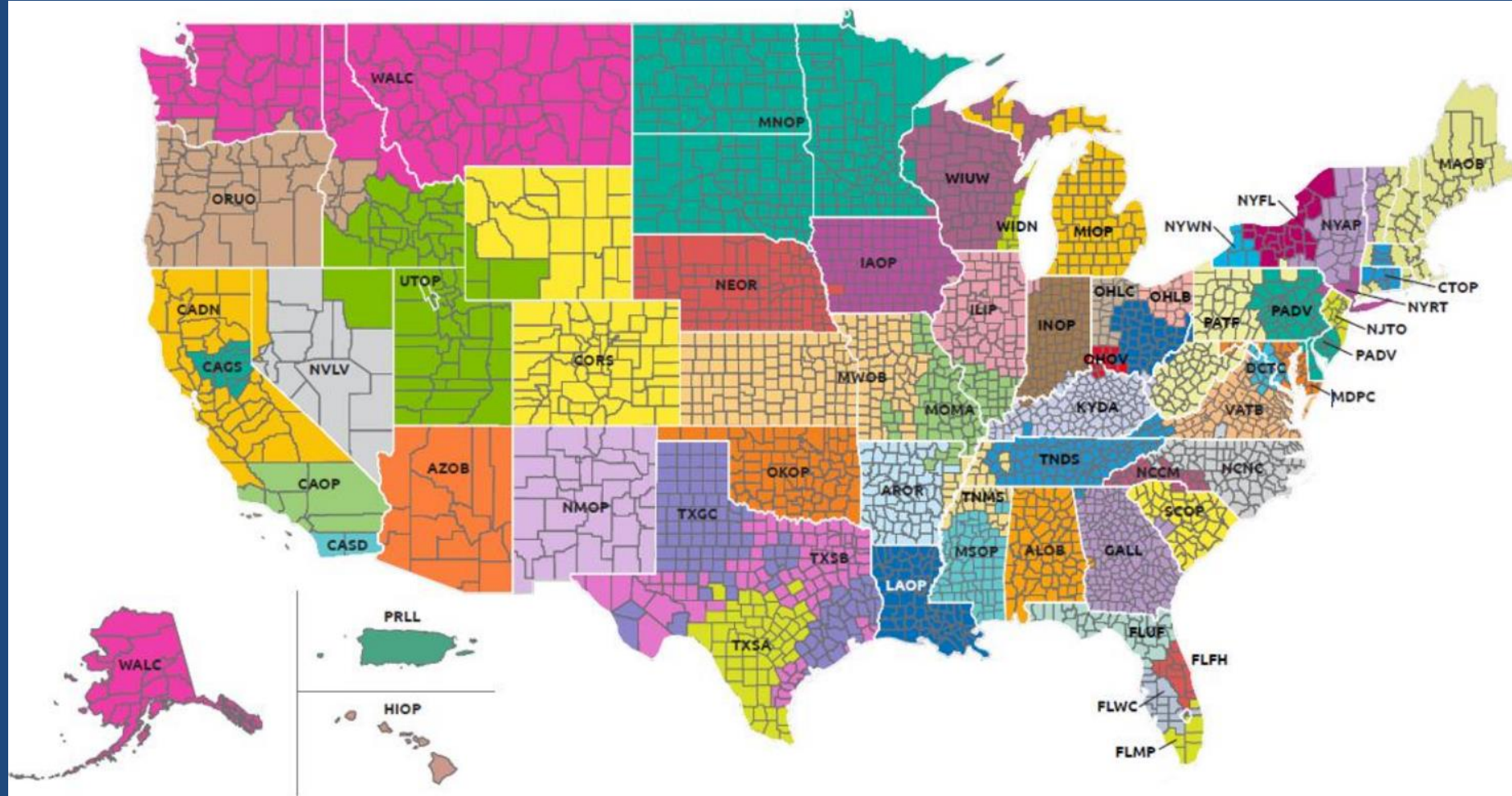
Why are things changing?

How will the system change?

What are the consequences?

The kidney transplant system is changing because organ allocation is not currently optimized

Local donation service areas were designed for organ procurement, not for organ allocation



What is the current system?

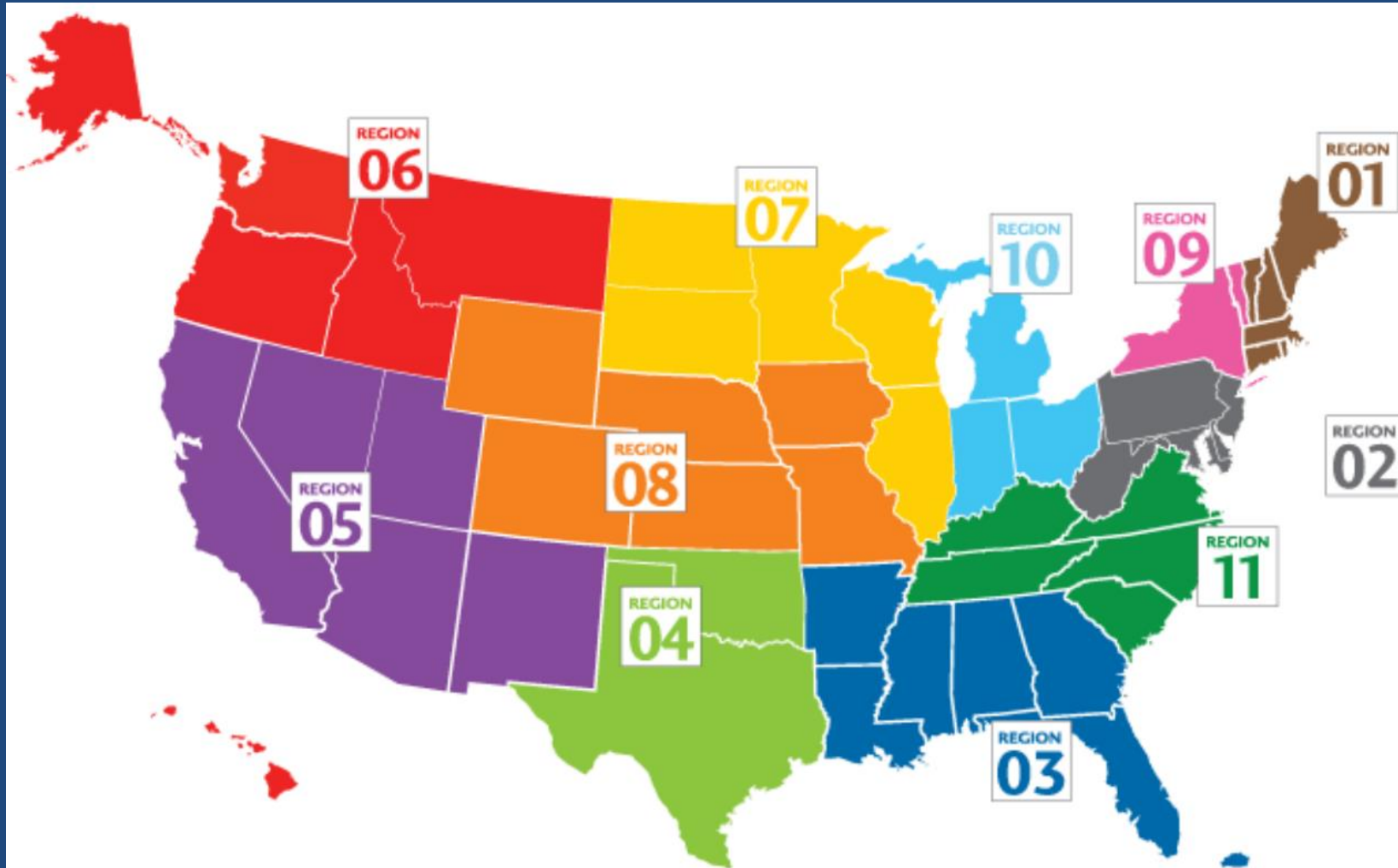
Why are things changing?

How will the system change?

What are the consequences?

The kidney transplant system is changing because organ allocation is not currently optimized

- Regions are administrative units
- Vary in size
- Not originally designed to optimize organ allocation and distribution



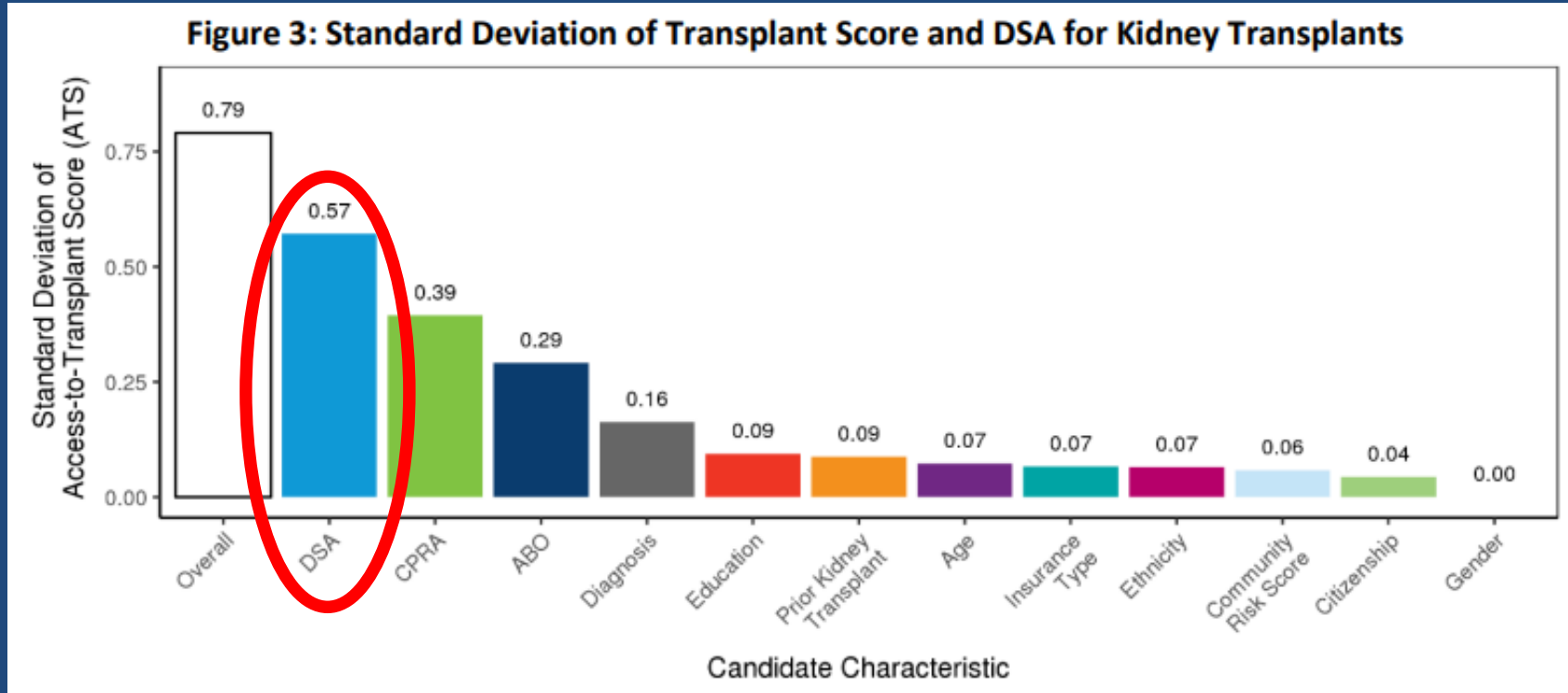
What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

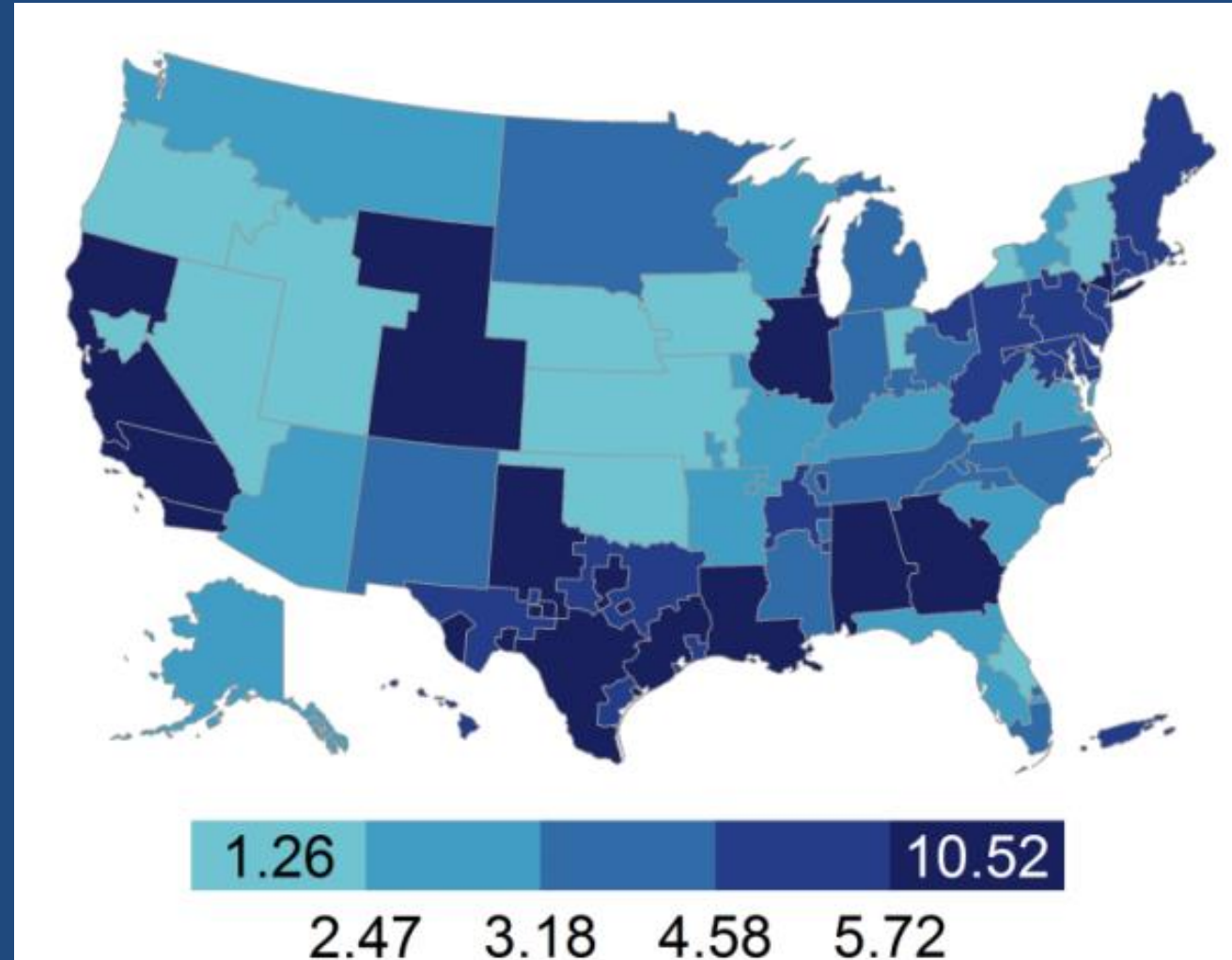
Currently, place of listing is the #1 factor affecting rate of kidney transplant, & this is not legal



- Federal “Final Rule” governs organ transplant in U.S. and states that
 - Allocation policies “shall not be based on a candidate’s place of residence or place of listing”, except to extent required by other regulations

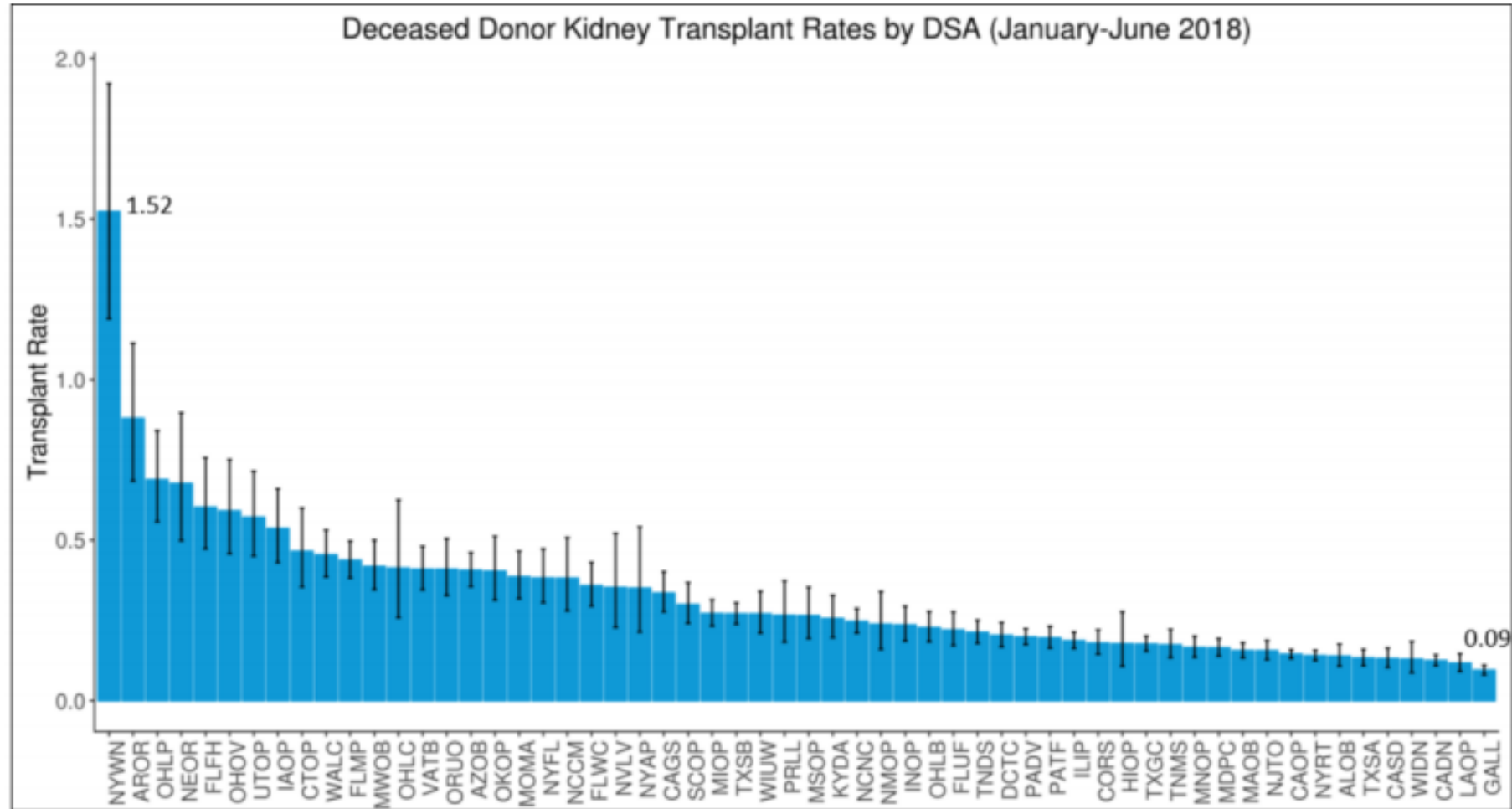
Across the U.S., median waiting times for kidney transplant vary from 1.28 – 10.52 years

- Map shows the Median Waiting Time to Deceased Donor Kidney Transplant, Adjusted for
 - Age, race, sex, blood type, & PRA
 - Program-specific factors
- Great variation across DSA and region
- Great variation across artificial boundaries (e.g. state lines)



Rates of kidney transplant vary 15-fold across different local areas (DSAs)

Figure 5: Kidney Alone Transplant Rate across DSAs (January to June 2018)



What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

How will the kidney transplant allocation system change on Feb 13, 2021?

What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

The change: Kidneys will be preferentially allocated in a 250NM circle around the donor hospital



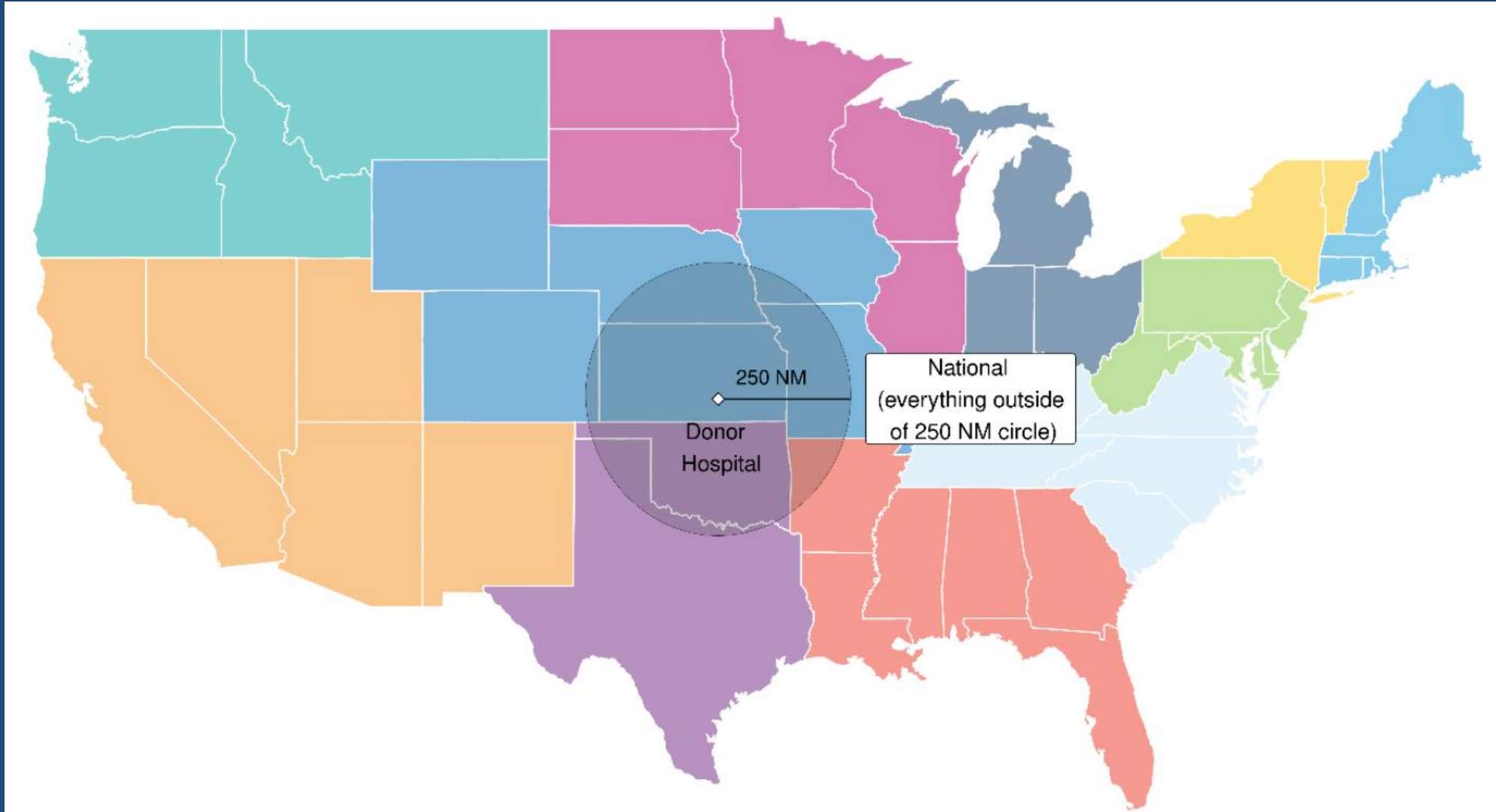
Donation service area and region will not be used for kidney allocation

Kidneys will be preferentially allocated in a 250 nautical mile circle around each donor hospital

Candidates inside the 250NM circle receive up to 2 proximity points
Proximity points decrease linearly out to edge of 250NM circle

“National” is candidates outside the 250NM circle around the donor hospital

How large is a 250 nautical mile circle?



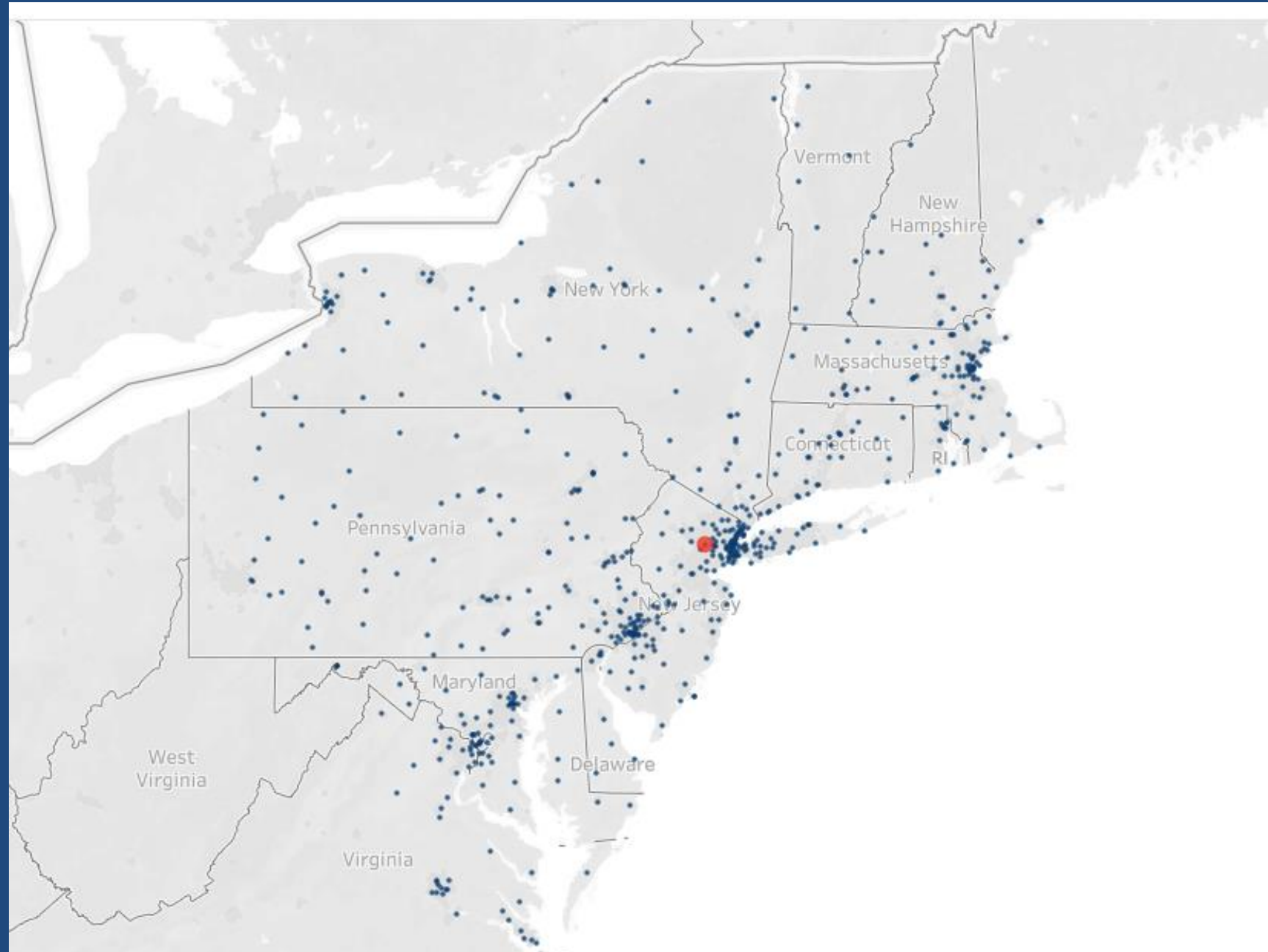
What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

What is a
250NM
radius around
Saint
Barnabas
Medical
Center in NJ?



What is the current system?

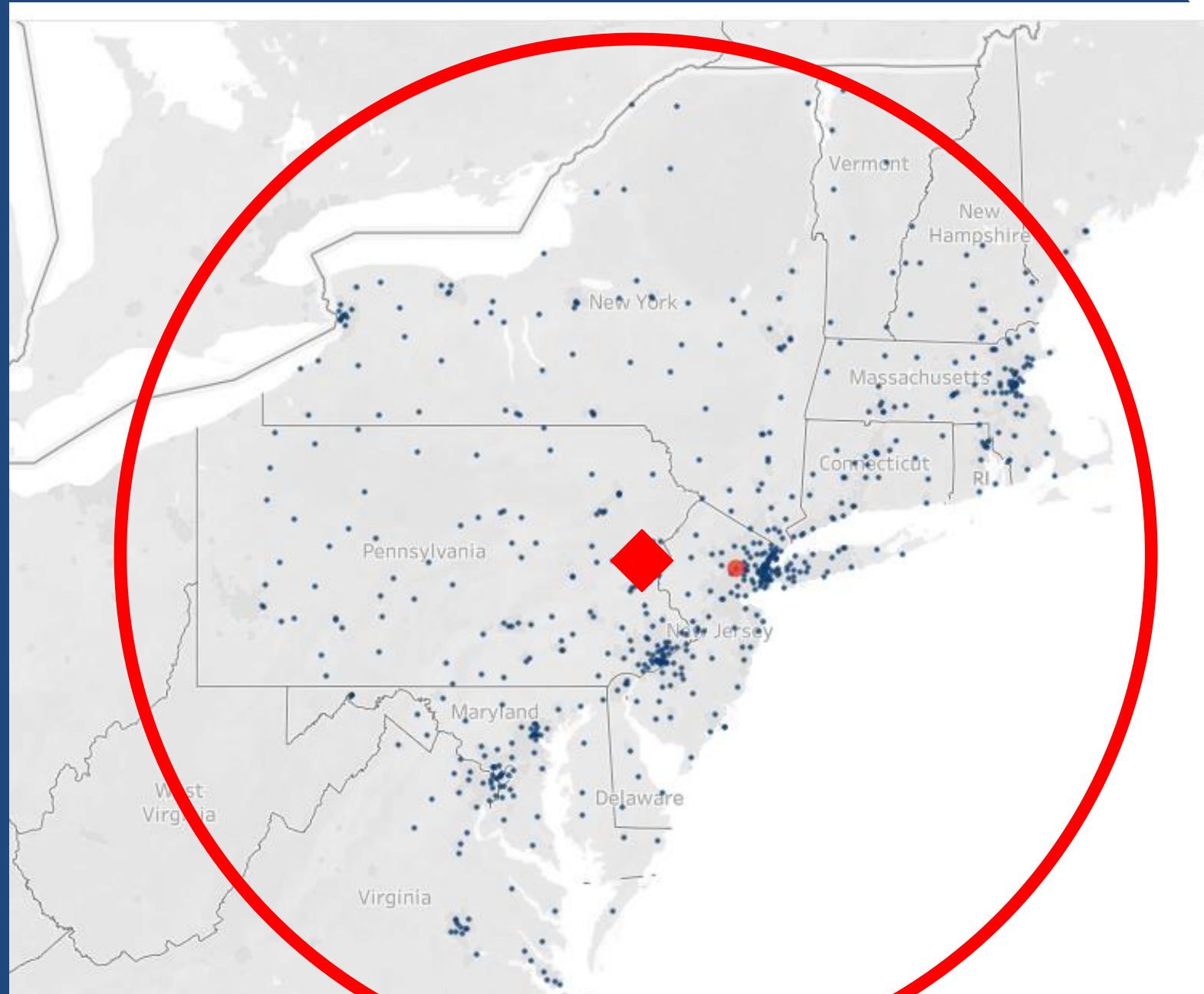
Why are things changing?

How will the system change?

What are the consequences?

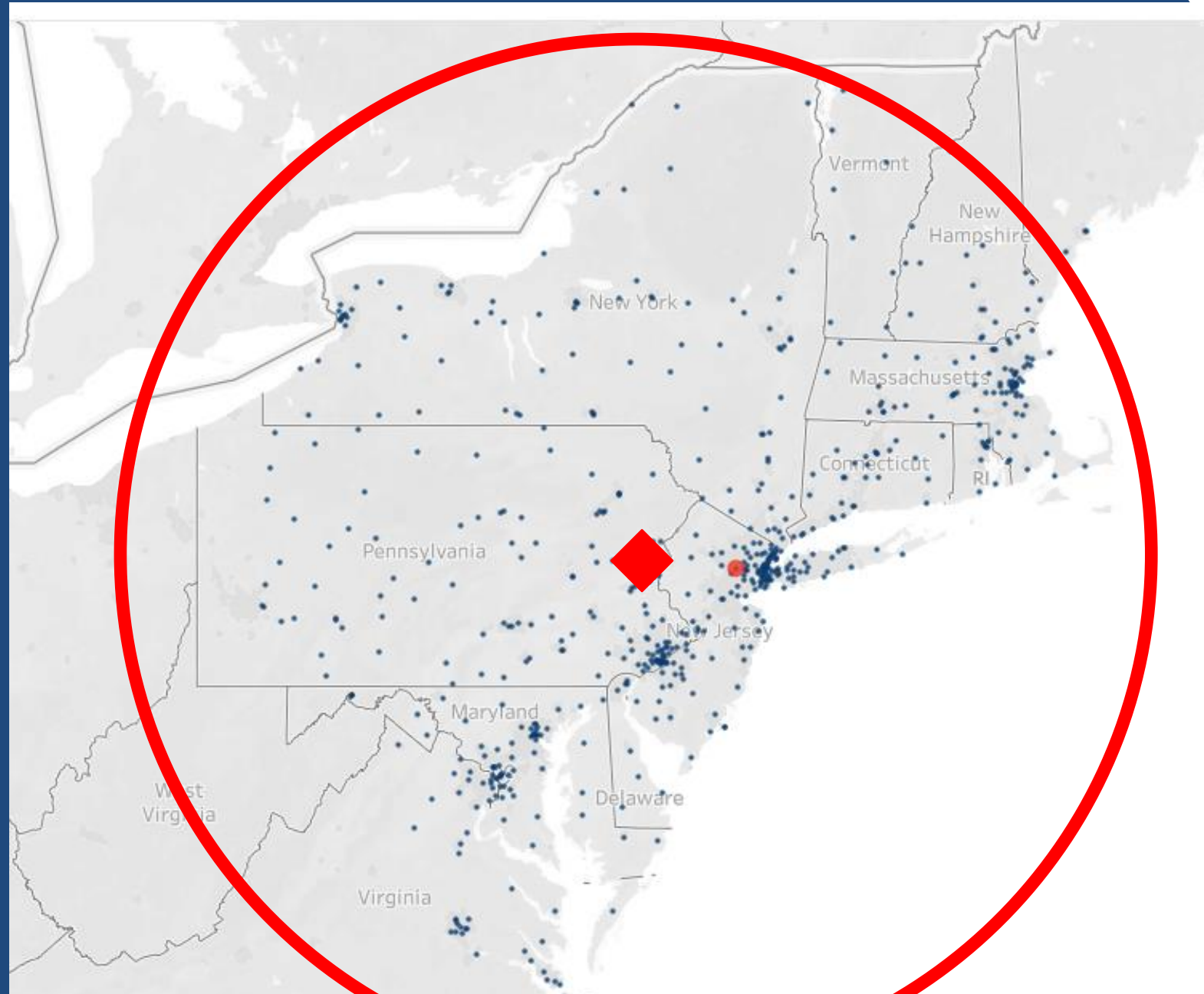
An example

- Donor hospital in eastern PA
- Draw 250NM circle around it
- Candidates listed at SBMC are 50NM away
 - Get **1.6 proximity points**
- Candidates listed in Boston are 200NM away
 - Get only **0.4 proximity points**
- If no matches in 250NM circle, then kidney is offered nationally



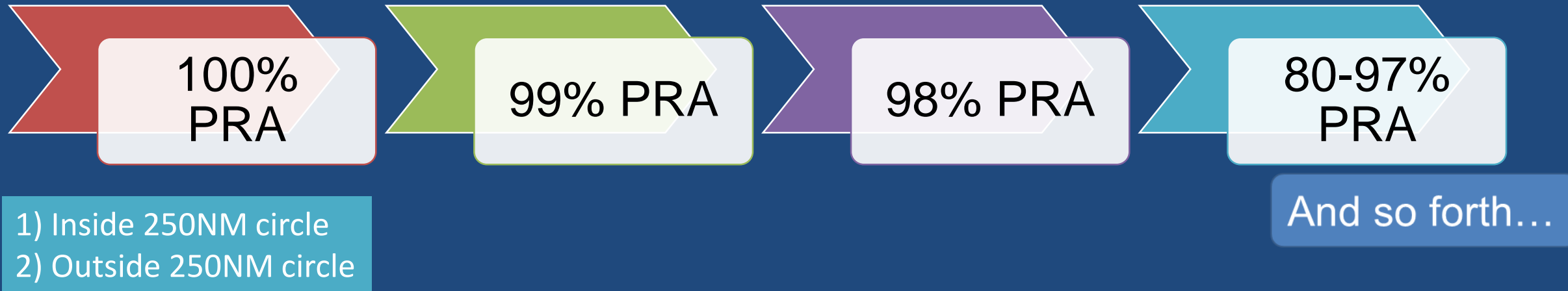
Same example

- Donor hospital in eastern PA
- Candidates listed at SBMC are 50NM away
 - Get 1.6 proximity points
- Candidates listed in NY City are 65NM away
 - Get 1.5 proximity points
- NJ transplant hospitals are all close to NYC



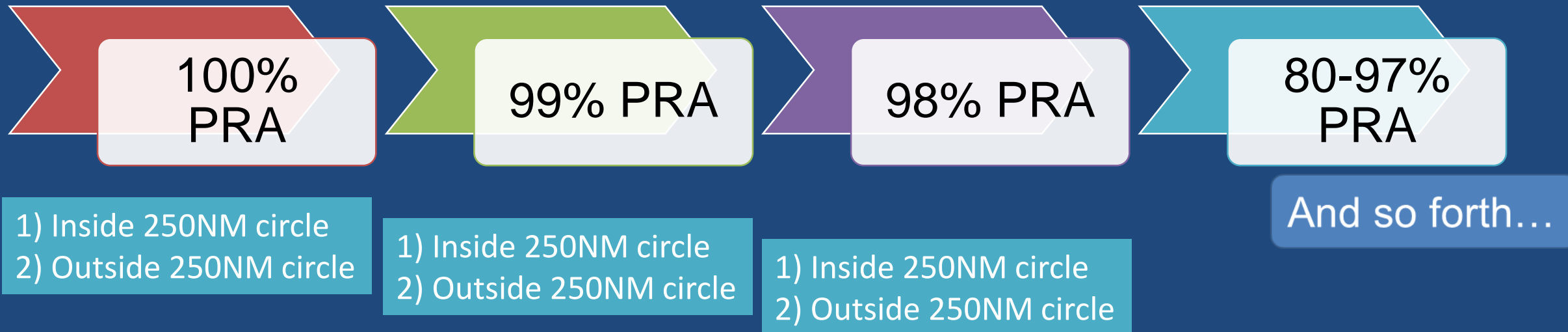
For each classification, the kidneys are offered locally then nationally

Within each classification, kidney are distributed
First, locally, inside 250NM circle around donor hospital
Then, nationally, outside 250NM circle



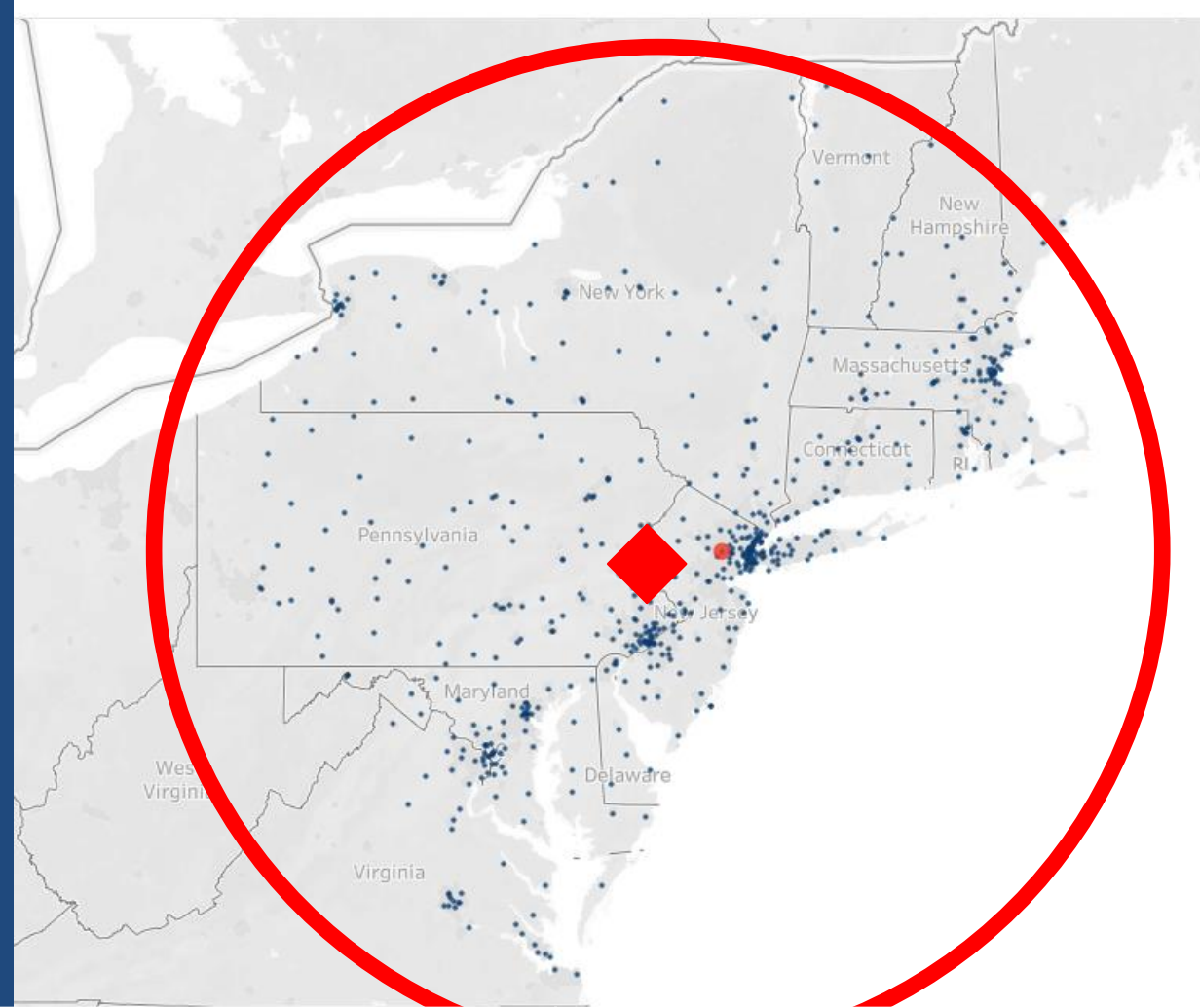
For each classification, the kidneys are offered locally then nationally

Within each classification, kidney are distributed
First, locally, inside 250NM circle around donor hospital
Then, nationally, outside 250NM circle



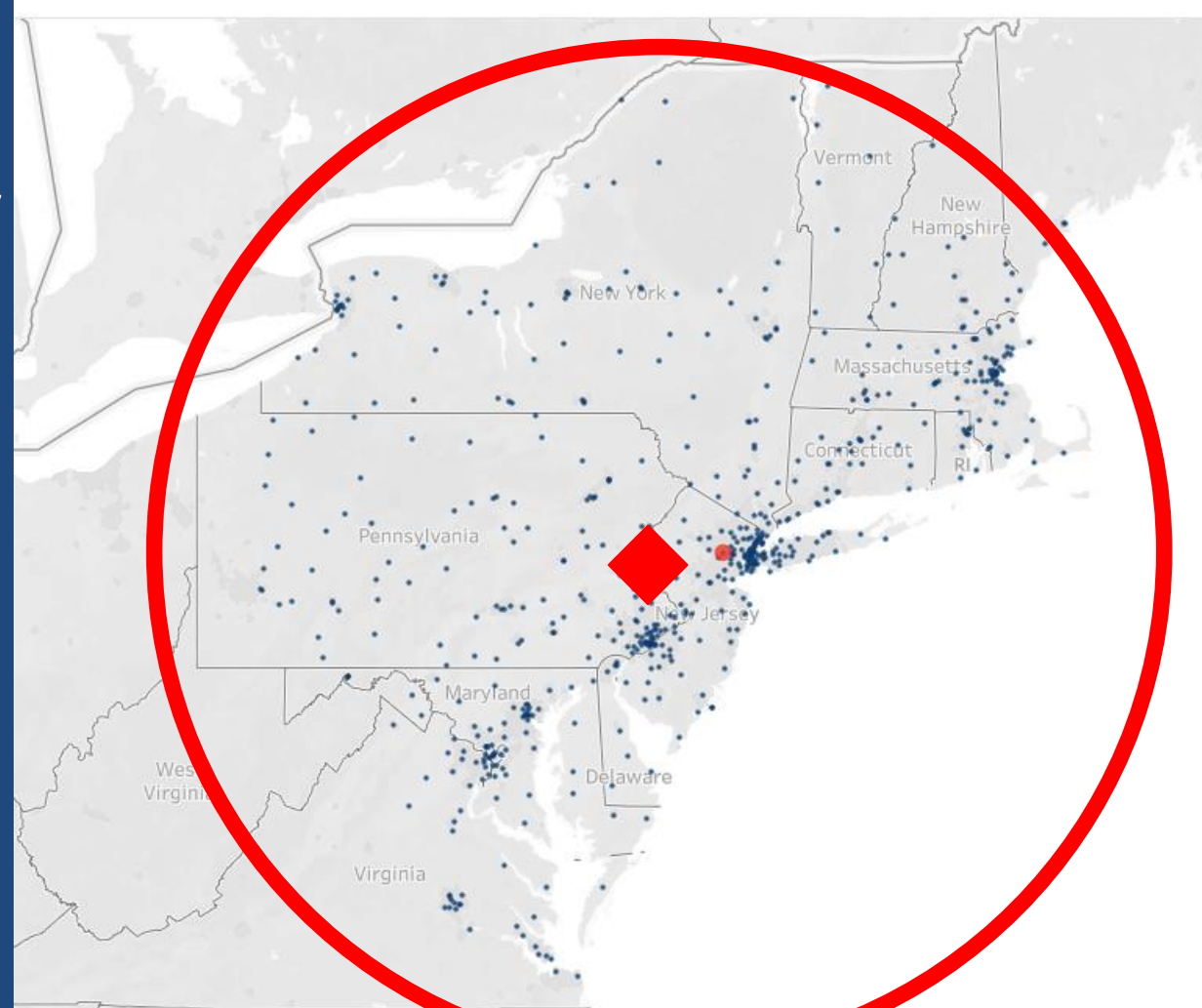
Same example of a donor hospital in eastern PA

- Candidates listed at SBMC get 1.6 proximity points
 - Waiting up to 5 years = 5 points
 - Might have 6.6 points



Same example of a donor hospital in eastern PA

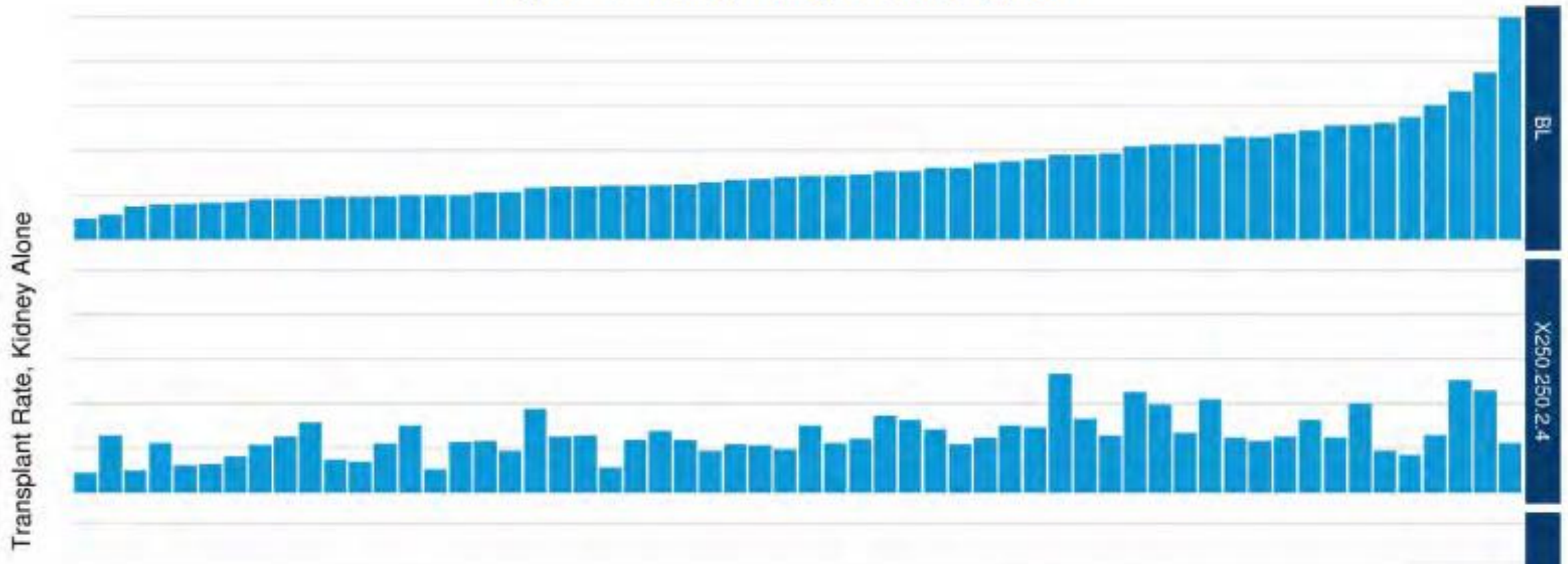
- Candidates listed at SBMC get 1.6 proximity points
 - Waiting up to 5 years = 5 points
 - Might have 6.6 points
- Candidates listed in NY City are 65NM away
 - Get 1.5 proximity points
 - Waiting up to 8 years = 8 points
 - Many candidates have 9.5 points
 - At least for this donor in eastern PA
- NJ transplant hospitals are all close to NYC



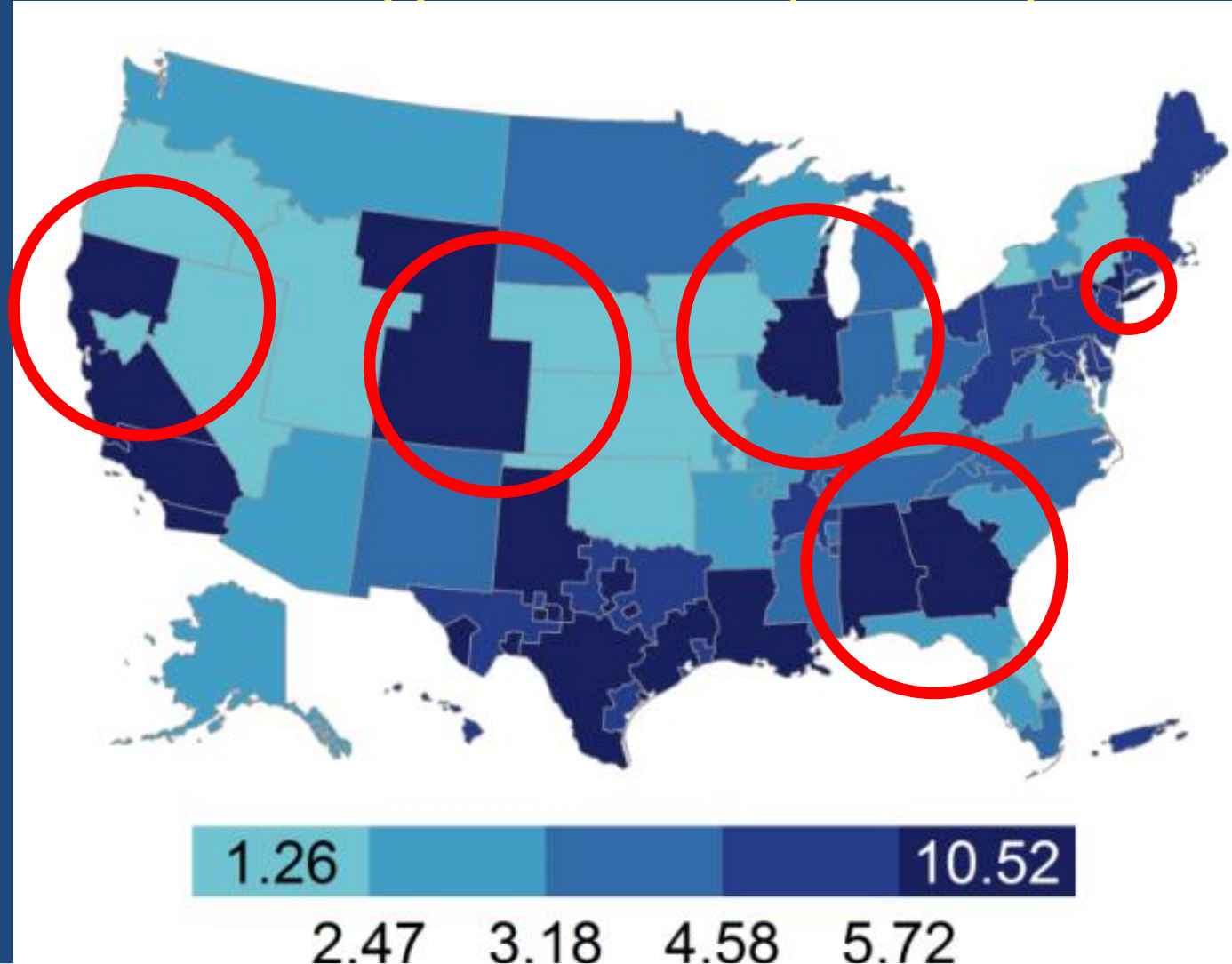
What will be the consequences of this change to the allocation system?

Nationally, new policy will eventually “even out” rates of kidney transplant across DSA’s

Figure 13: Kidney Transplant Rate by DSA



In areas of the U.S. with long waiting times right now, there will be a surge of kidney transplants



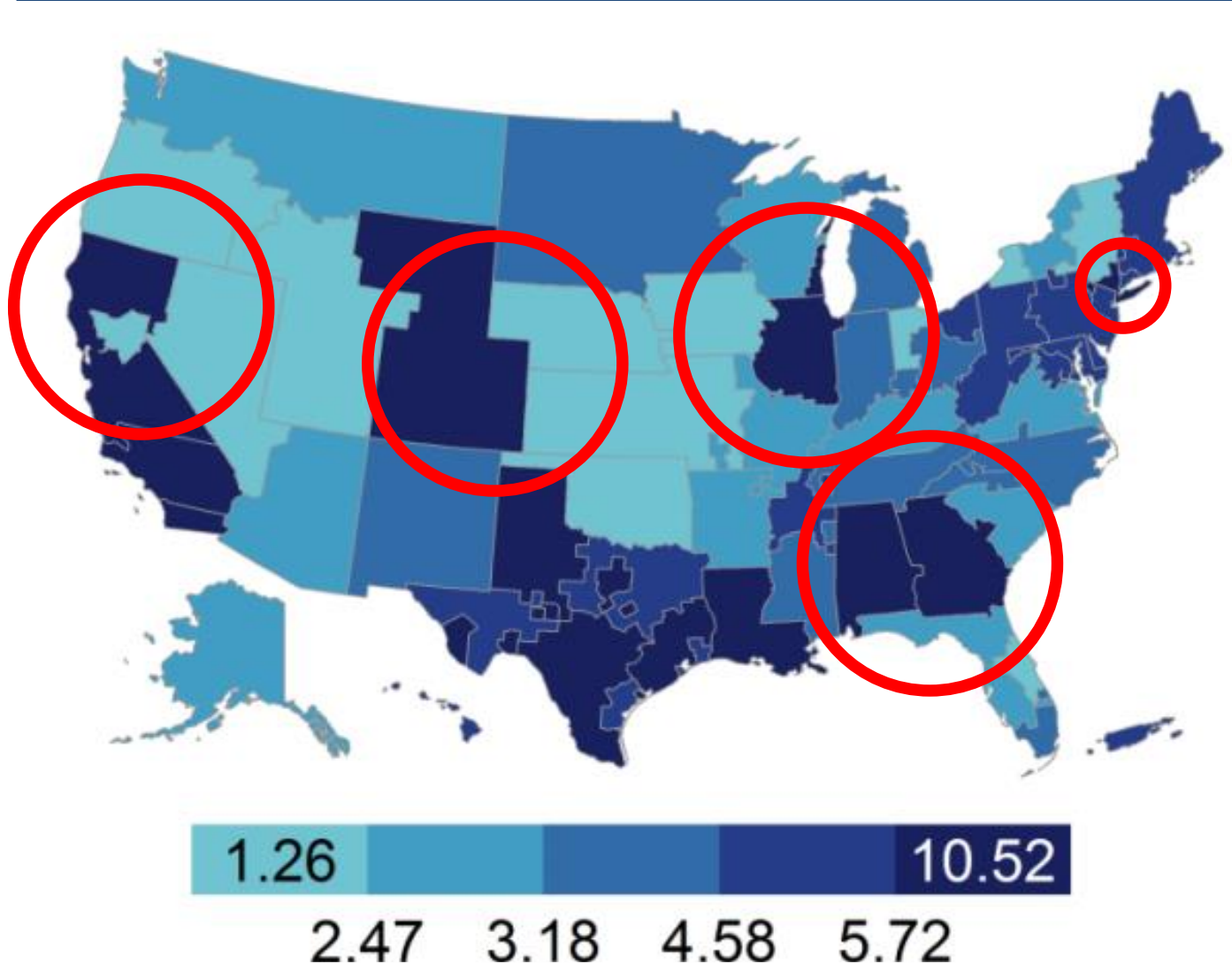
What is the current system?

Why are things changing?

How will the system change?

What are the consequences?

In areas adjacent to areas with long waiting times, there will be a decrease in kidney transplants



- Candidates at some transplant centers will benefit
 - They've been waiting a long time!
- Candidates at other transplant centers will have to wait longer for a transplant
 - Very upsetting for patients
 - Some patients at those centers will die while waiting for a transplant

Sharing kidneys in a 250NM radius means a lot of shipping of kidneys

Shipping of kidneys is logistically complicated and adds cold ischemia time to the transplant

Logistical complications of shipping kidneys

- Transplant centers will have to work with many different organ procurement organizations

Longer cold ischemia time

- Leads to higher discard rate of kidneys
- More complications
 - Delayed allograft function
 - Longer hospital stays

After Feb 13, how will these changes affect your patients who are waiting for transplant?



Patients expecting to be transplanted soon may have to wait longer

In near-term future, fewer patients in NJ will receive kidney offers

Living donor kidney transplant will be more important than ever

Listing at multiple transplant centers will offer much less of an advantage

The changes were supposed to start Dec 15, 2020, but implementation was postponed until Feb 13

- Postponement was announced on Dec 14, 2020
- Unclear if Feb 13, 2021 date will be postponed further
- Postponement of the changes is good for your patients waiting for transplant
- We will keep you updated

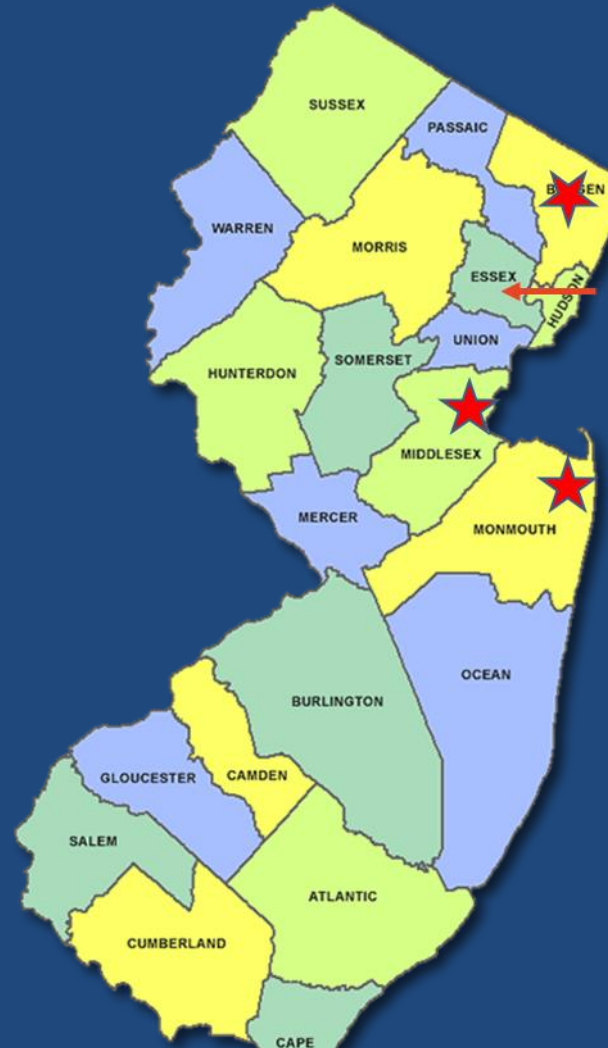


In meantime, Saint Barnabas will continue to evaluate and list transplant candidates like before

**The Renal and Pancreas
Transplant Division
at Saint Barnabas Medical Center**

**Announces the Grand Opening
of their River Edge Transplant
Satellite Unit**

10 Elizabeth Street
Third Floor, Suite 303
River Edge, NJ 07661



Saint Barnabas Medical Center

Satellite locations

- River Edge
- Edison
- West Long Branch

*We just started seeing
post-transplant patients at
satellites, too!*

Thank you for your support.
Questions?
