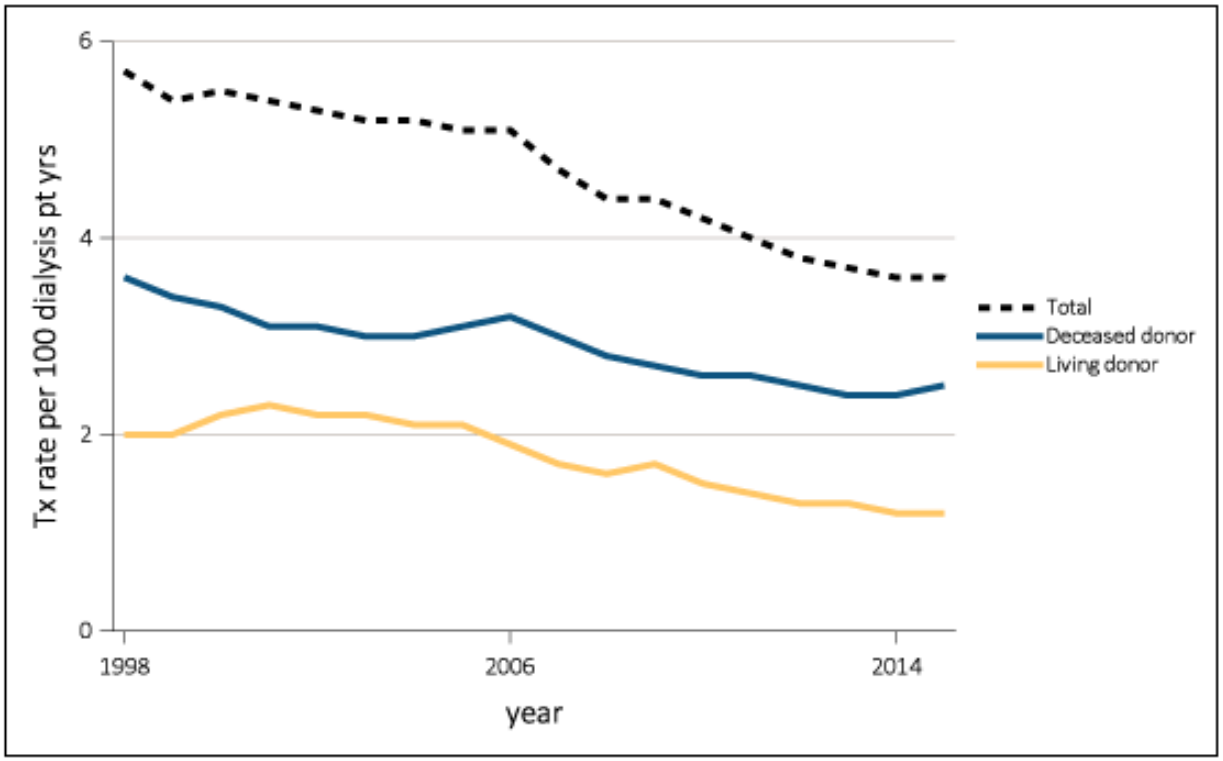
Kidney Transplantation

SKC In-service July 2018

Rate of Kidney Transplantation

Figure 6.7

Unadjusted kidney transplant rates, by donor type, 1998-2015



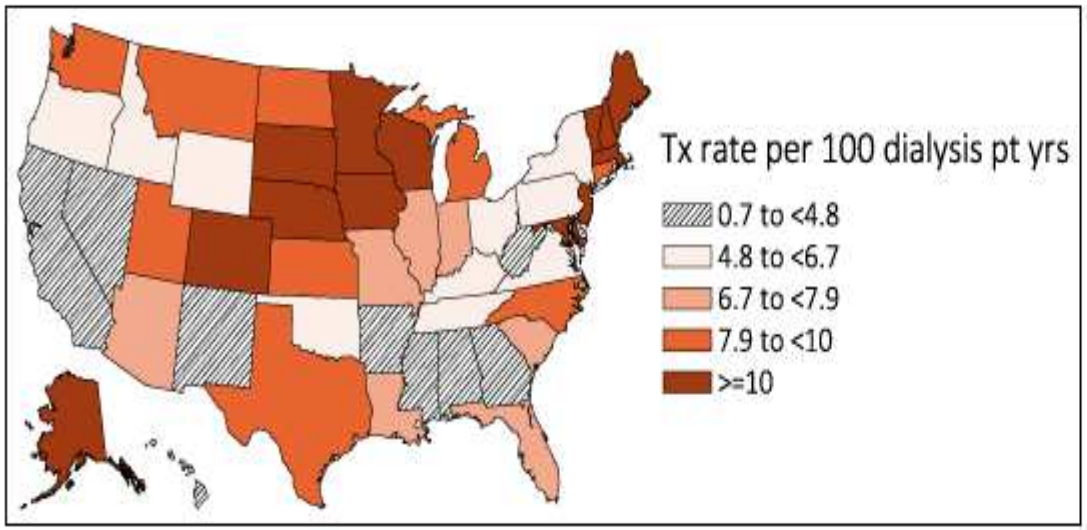
Data Source: Reference Table E.9. Unadjusted transplant rates are for all dialysis patients. Note that trends may be influenced by changes to the kidney allocation system policy (KAS) that were implemented in December 2014.

Abbreviations: pt yrs, patient years; tx, transplant.

Geographic Rate

Figure 6.8

Geographic distribution of unadjusted transplant rate by state, 2015



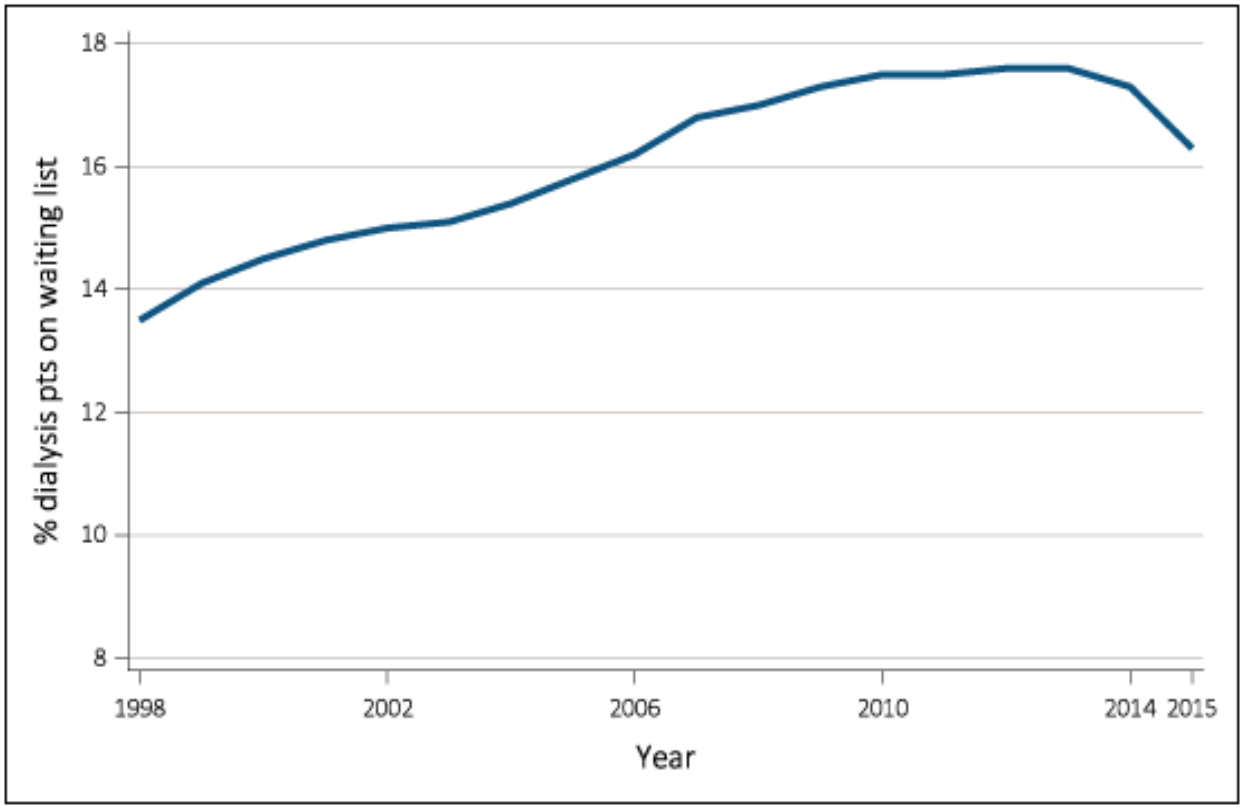
Data Source: Special analyses, USRDS ESRD Database. Geographic distribution of unadjusted transplant rate by state, 2015. Note that trends may be influenced by changes to the kidney allocation system policy (KAS) that were implemented in December 2014.

Abbreviation: pt yrs; patient years; tx, transplant.

USRDS

Figure 6.2

Percentage of dialysis patients who were wait-listed, 1998-2015



Data Source: Reference Table E.4. Percentage of dialysis patients on the kidney waiting list is for all dialysis patients. Note that trends may be influenced by changes to the kidney allocation system policy (KAS) that were implemented in December 2014. Abbreviation: pts, patients.

Scribner Kidney Center 2018

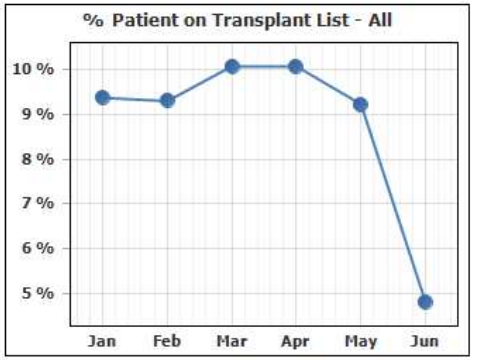
IN CENTER

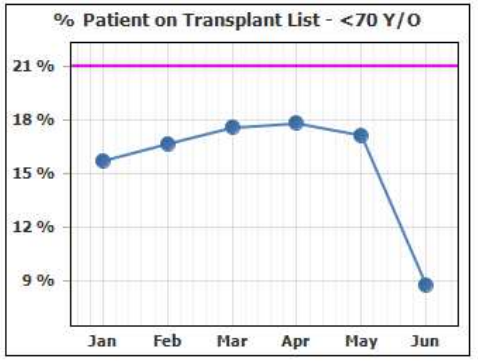
Quality Assessment (Data Review)

Transplant Status — **Goal: 21% < 70 y/o on Transplant List**

IN CENTER	Jan	Feb	Mar	Apr	May	Jun
Patient Census	128	129	129	129	130	125
# Transplanted During the Month	2	0	0	0	0	2
# Not a Transplant Candidate	65	67	64	63	63	61
# Referred	58	60	62	63	62	52
# on Transplant List	12	12	13	13	12	6
% on Transplant List	9%	9%	10%	10%	9%	5%
# Not Referred	3	2	2	2	2	2
# Not Referred & Interested & Eligible	0	0	0	1	1	1
# Not Referred Not Assessed (in workup)	3	2	2	1	1	1
# Patients < 70 y/o	70	72	74	73	70	68
# < 70 y/o on Transplant List	11	12	13	13	12	6
% < 70 y/o on Transplant List	16%	17%	18%	18%	17%	9%

Numbers include all HD patients assigned to the facility at the end of month and reflect patient's status as of end of that time.

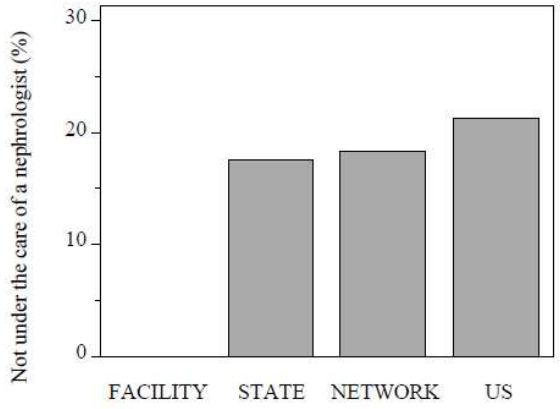


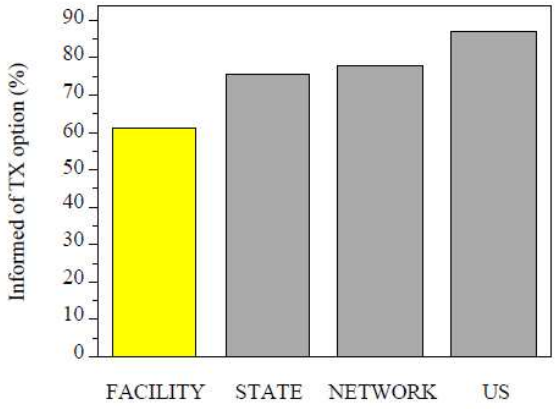


DFR: Scribner

Patient Characteristics (Tables 1 and 2):

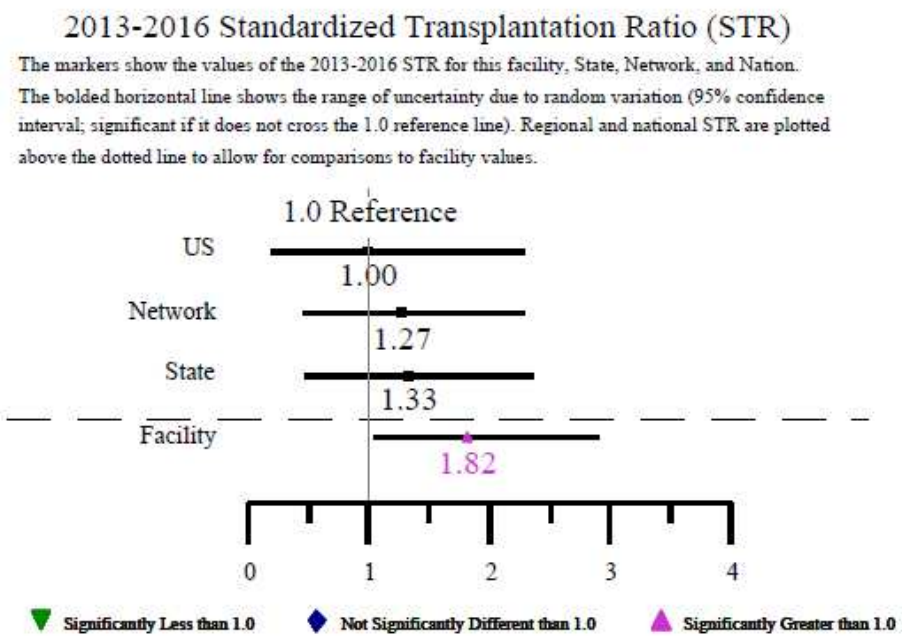
- Among the 31 incident patients with Medical Evidence Forms (CMS-2728) indicating treatment at this facility during 2016:
  - 0% of these patients were not under the care of a nephrologist before starting dialysis, compared to 18% in your State, 18% in your Network, and 21% nationally.
  - 61% of these patients were informed of their transplant options, compared to 76% in your State, 78% in your Network, and 87% nationally.
- Among the patients treated at this facility on December 31, 2016, 19% were treated in a nursing home during the year, compared to 15% nationally.

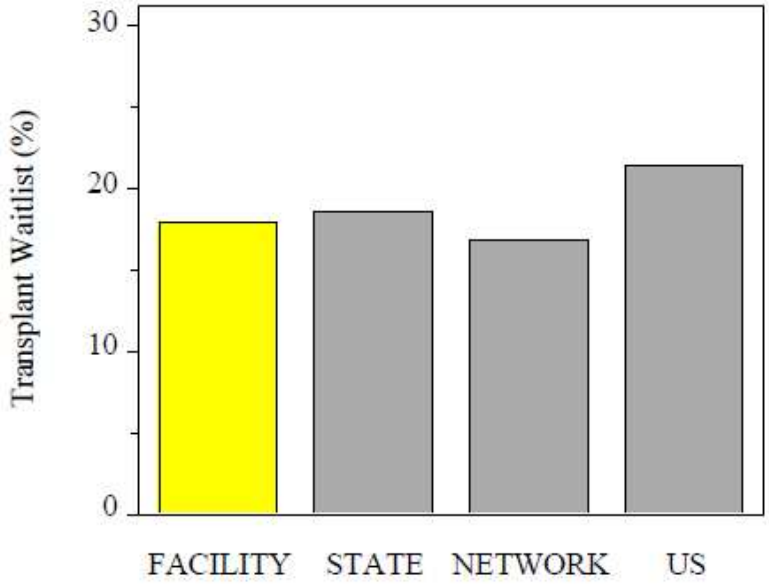




DFR: Scribner

- Of the patients under age 70 treated at this facility during 2013-2016 who had not previously received a transplant, 7% were transplanted annually, while a rate of 4% would be expected for these patients.
- The 2013-2016 Standardized 1st Transplantation Ratio (STR) of observed to expected number of patients transplanted for this facility is 1.82, which is 82% higher than expected for this facility. This difference is statistically significant ($p<0.05$) and is unlikely to be due to random chance. The 2013-2016 STR for your State and Network is 1.33 and 1.27, respectively.
- Among the 67 dialysis patients under age 70 treated at this facility on December 31, 2016, 18% were on the kidney transplant waitlist, compared to 21% nationally. This difference is not statistically significant ($p>=0.05$) and is plausibly due to random chance. The percentage of patients on the kidney transplant waitlist on December 31, 2016, in your State and Network is 19% and 17%, respectively.





Transplant vs Dialysis

vol 2 Table 5.4 Expected remaining lifetime (years) by age, sex, and treatment modality of prevalent dialysis patients and transplant patients, and the general U.S. population, 2014

	ESRD patients 2014				General U.S. population 2014	
	Dialysis		Transplant			
Age	Male	Female	Male	Female	Male	Female
0-14	23.8	23.1	59.3	60.3	70.7	75.4
15-19	21.8	19.1	47.6	48.7	59.7	64.4
20-24	18.8	16.1	43.4	44.5	55.0	59.5
25-29	16.2	14.1	39.4	40.7	50.3	54.6
30-34	14.1	12.6	35.1	36.6	45.7	49.7
35-39	12.6	11.5	31.1	33.0	41.0	45.0
40-44	11.0	10.3	27.2	28.9	36.5	40.3
45-49	9.3	8.8	23.3	25.2	32.0	35.6
50-54	7.9	7.7	19.9	21.8	27.7	31.1
55-59	6.6	6.6	16.7	18.4	23.7	26.8
60-64	5.5	5.7	13.9	15.4	19.9	22.6
65-69	4.6	4.8	11.4	12.7	16.2	18.6
70-74	3.8	4.0	9.4	10.3	12.8	14.8
75-79	3.2	3.5	7.6[a]	8.6[a]	9.8	11.4
80-84	2.6	2.9			7.1	8.4
85+	2.1	2.3			3.8	4.4

Data Source: Reference Table H.13; special analyses, USRDS ESRD Database; and National Vital Statistics Report. "Table 7. Life expectancy at selected ages, by race, Hispanic origin, race for non-Hispanic population, and sex: United States, 2013 (2017)."

Expected remaining lifetimes (years) of the general U.S. population and of period prevalent dialysis and transplant patients. [a]Cell values combine ages 75+. Abbreviation: ESRD, end-stage renal disease.

Living Donation

- Outcomes with living donation are generally better
- Surgery can be planned/scheduled
- Donor kidney has less ischemia time (time outside of the body)
- Requires a completely healthy donor
- Matching is not a prerequisite due to possibility of donor exchanges

Deceased Donation

- Requires a wait time
- Patients can often leave the list or develop complications during this time
- Patient has to be “on call” for organ
- Longer ischemia time, higher risk of delayed graft function
- Patient has the option to accept higher risk organs in exchange for a shorter wait time
- In general outcomes are worse for deceased donation than living donation but still much better than staying on dialysis

Wait Times

vol 2 Table 6.1 Median waiting time (in years) for kidney transplant, by blood type and PRA, 1998-2010

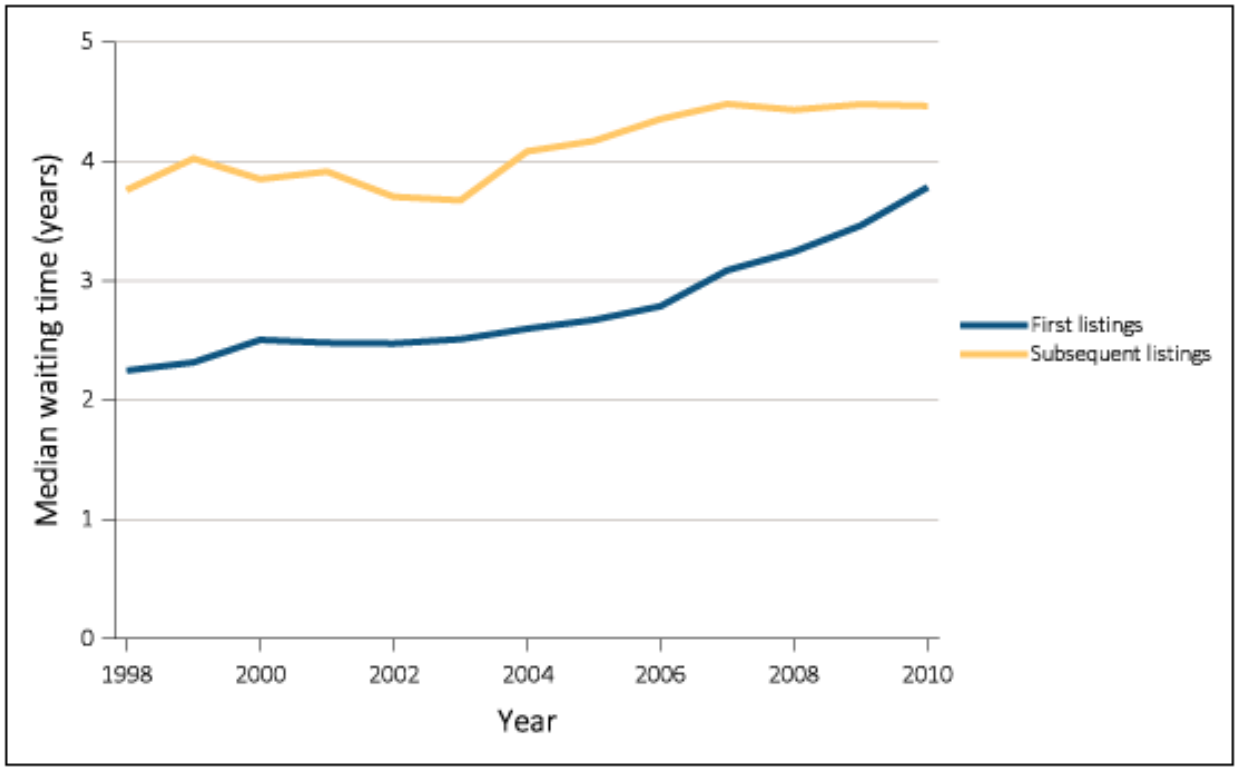
Blood type	PRA	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blood type A	PRA = 0	1.5	1.5	1.7	1.7	1.7	1.7	1.8	1.7	2.0	2.2	2.3	2.5	2.9
	0 < PRA =< 20%	1.6	1.6	1.8	2.2	2.2	1.9	1.9	2.0	1.8	2.2	2.6	2.5	2.5
	20% < PRA =< 80%	2.8	3.2	3.0	3.5	3.0	3.0	3.3	2.9	2.9	3.0	2.5	2.5	2.5
	80% < PRA < 98%	5.6	4.3	4.1	4.0	4.0	5.0	4.2	6.1	4.7	4.9	3.6	4.2	3.7
	98% =< PRA =< 100%	6.5	^	8.0	7.9	8.4	9.7	5.9	9.2	7.1	7.1	^	^	^
Blood type B	PRA = 0	3.3	3.6	3.9	3.6	3.6	3.5	3.4	3.4	4.0	3.9	4.0	4.1	4.8
	0 < PRA =< 20%	3.6	3.9	4.2	4.5	4.2	3.6	3.7	4.3	4.0	3.5	3.9	4.5	4.8
	20% < PRA =< 80%	4.6	4.4	5.3	7.5	5.6	6.2	7.4	5.5	5.5	5.0	5.2	5.2	3.7
	80% < PRA < 98%	4.4	7.0	^	11.9	^	7.5	11.5	6.6	^	6.4	6.6	6.6	^
	98% =< PRA =< 100%	^	^	^	10.0	^	^	^	^	^	^	^	^	5.9
Blood type AB	PRA = 0	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.1	1.2	1.5	1.4	1.6	2.0
	0 < PRA =< 20%	1.1	1.3	1.1	1.4	0.8	1.4	1.2	1.2	1.1	1.2	1.1	1.8	1.4
	20% < PRA =< 80%	1.8	3.1	3.0	2.1	2.9	2.5	2.9	3.6	2.7	3.2	2.1	2.6	1.4
	80% < PRA < 98%	4.6	4.3	4.9	7.1	1.8	3.7	^	2.7	2.0	4.1	7.0	5.8	3.2
	98% =< PRA =< 100%	1.9	6.2	13.5	3.0	^	4.6	^	2.1	^	^	6.4	6.6	^
Blood type O	PRA = 0	2.8	3.0	3.1	3.1	3.1	3.0	3.2	3.4	3.5	3.9	3.9	4.2	4.7
	0 < PRA =< 20%	3.5	3.2	3.6	3.7	3.7	3.4	3.6	3.7	3.2	3.8	4.1	3.8	4.7
	20% < PRA =< 80%	4.8	4.5	4.6	5.2	4.2	4.1	5.0	4.4	4.3	4.5	4.1	4.1	4.3
	80% < PRA < 98%	4.8	6.7	8.0	7.1	5.9	6.6	8.8	5.4	6.1	7.5	6.3	5.6	4.8
	98% =< PRA =< 100%	5.5	^	14.6	8.0	10.8	8.5	^	10.3	9.1	^	7.4	^	^

Data Source: Special analyses, USRDS ESRD Database. Abbreviation: PRA, panel reactive antibodies. ^ Value is blank since the estimated time to transplant probability had not reached 50% (median) at the end of the follow up, so the median waiting time could not be calculated.

Wait time is increasing…

Figure 6.4

Median waiting time for kidney transplant, 1998-2010



Data Source: Reference Tables E.2. Median waiting time to kidney transplant. Median waiting time is calculated for all candidates enrolled on the waiting list in a given year.

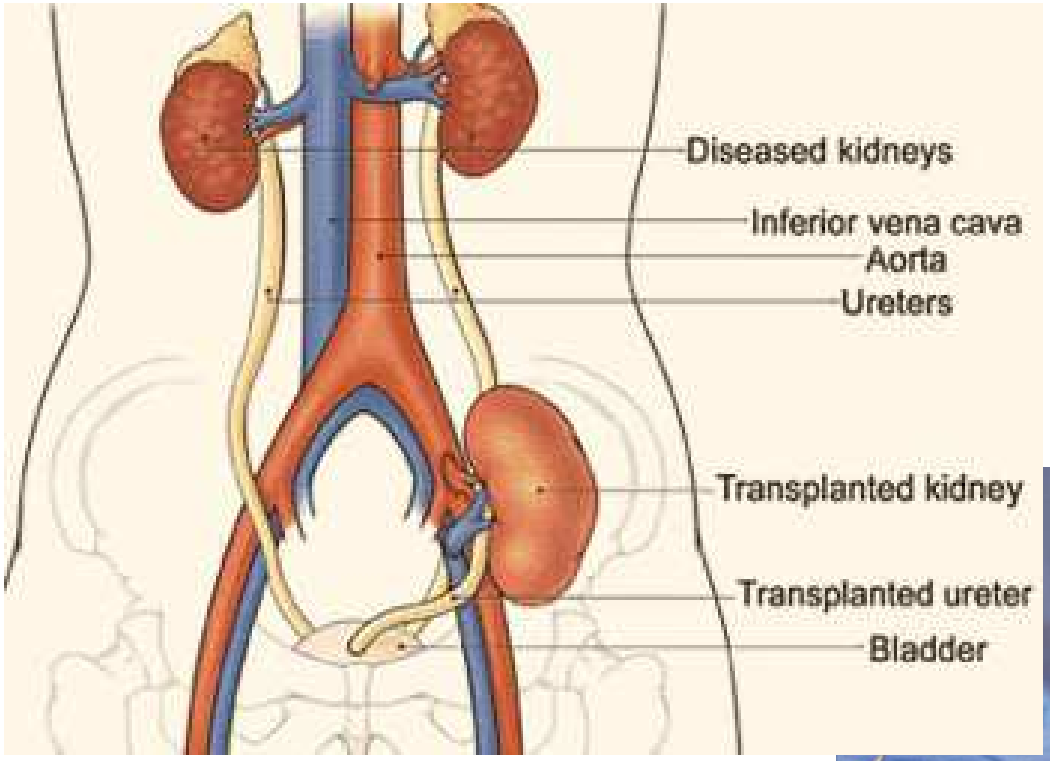
Kidney Transplant Workup

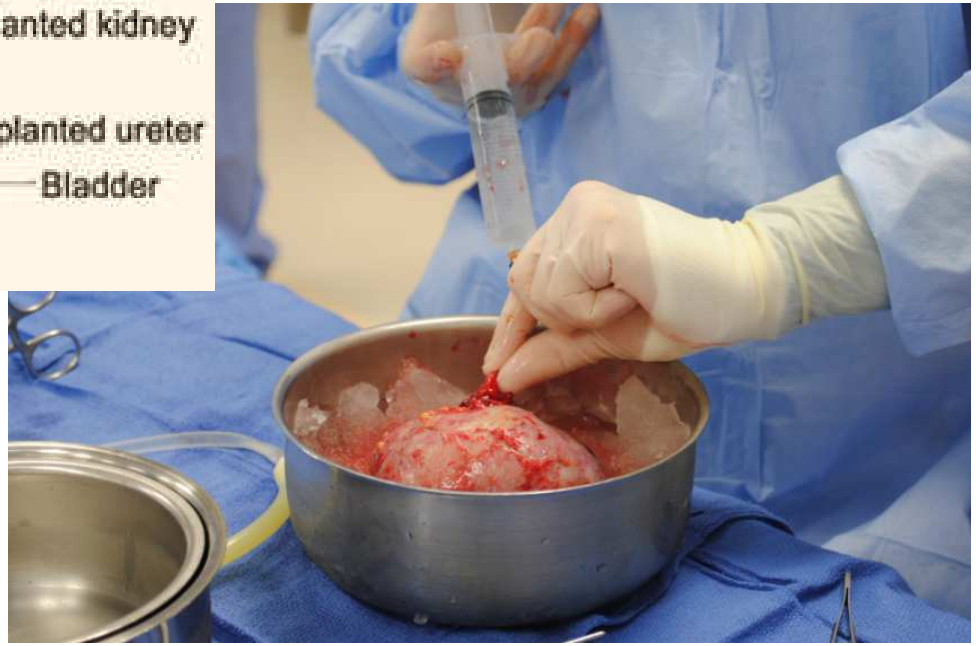
- Patient specific
- Usually includes multiple visits with the transplant team
  - Transplant nephrologist
  - Transplant surgeon
  - Nurse
  - Social worker / psychiatrist
  - Nutrition
  - Financial
- Blood testing, imaging, cardiac and vascular testing
- After workup complete, team meets and decides upon candidacy

Contraindications to Transplant

- Medical
  - Significant cardiac disease
  - Significant peripheral vascular disease
  - Active or untreated malignancy
  - Infectious concerns
  - Anatomical concerns
  - Others, per program standards
- Social
  - Inability to follow through with care plans or demonstrate ability to regularly attend appointments or take medications
  - Support system available
  - Substance abuse or smoking
- Financial
  - Requires insurance coverage. AEM does not cover transplant

Surgery


Diseased kidneys
Inferior vena cava
Aorta
Ureters
Transplanted kidney
Transplanted ureter
Bladder



Post Surgical Period

- Immediate post surgical hurdles to overcome
- Strong immunosuppression required IV
- Anticipate anywhere from 5-14 days in hospital
- Frequent labs and visits (1-2 times weekly) required upon discharge for about 3-6 months
- Patients are fragile and more prone to complications, particularly infection in the first 6 months
- After about 6 months out risks decrease
- Patients still require regular labs and visits every 1-3 months
- Any lapse in medications can lead to kidney loss

Transplant Outcomes

vol 2 Table 6.4 Trends in 1-, 5-, & 10-year deceased-donor kidney transplant outcomes, 1998-2014

	One year post-transplant			Five years post-transplant			Ten years post-transplant		
Year	Probability of all-cause graft failure (%)	Probability of return to dialysis or repeat transplant (%)	Probability of death (%)	Probability of all-cause graft failure (%)	Probability of return to dialysis or repeat transplant (%)	Probability of death (%)	Probability of all-cause graft failure (%)	Probability of return to dialysis or repeat transplant (%)	Probability of death (%)
1998	12.6	8.9	5.5	33.8	24.1	18.2	56.7	40.6	37.9
1999	13.2	8.8	5.9	33.6	23.0	18.8	56.3	39.3	38.1
2000	12.7	8.1	6.4	33.9	22.7	19.6	56.3	38.3	38.9
2001	12.2	8.0	5.7	33.1	21.3	19.7	55.3	36.7	38.5
2002	12.3	8.3	5.6	32.8	22.1	18.8	53.5	35.9	37.0
2003	11.8	7.3	5.6	31.7	20.3	18.4	54.4	35.7	37.6
2004	11.1	7.1	5.4	31.3	20.5	18.2	53.2	35.4	36.7
2005	11.2	6.9	6.0	29.9	19.0	17.8	52.4	33.4	36.5
2006	10.4	6.6	5.1	29.3	18.6	17.1			
2007	9.5	5.9	4.6	28.2	17.7	16.8			
2008	9.4	6.0	4.5	26.8	16.1	16.3			
2009	9.3	5.5	4.9	26.9	16.4	16.2			
2010	8.8	5.4	4.4	26.6	16.0	16.5			
2011	7.4	4.4	3.9						
2012	7.8	4.7	3.8						
2013	7.7	4.7	3.5						
2014	6.9	3.8	3.7						

Data Source: Reference Tables F.2, F.14, I.26; F.5, F.17, I.29; F.6, F.18, I.30. Outcomes among recipients of a first-time deceased-donor kidney transplant, unadjusted. Note that trends may be influenced by changes to the kidney allocation system (KAS) policy that were implemented in December 2014.

Post Transplant Complications

- Rejection
- Infection
- Cancer
- Return of primary kidney disease
- Medication complications

What about the fistula?

- Options:
  - Leave it
  - Ligate it

- Decision depends upon the patient, expected longevity, risk for complication/graft failure

How do we improve transplant rates?

- Talk with patients about transplant
- Encourage living donation
- Encourage patients to get evaluated
- Help them get though the workup
- Address and troubleshoot potential barriers to transplant
- Make sure all patients have a transplant status that is documented and correct

Questions?