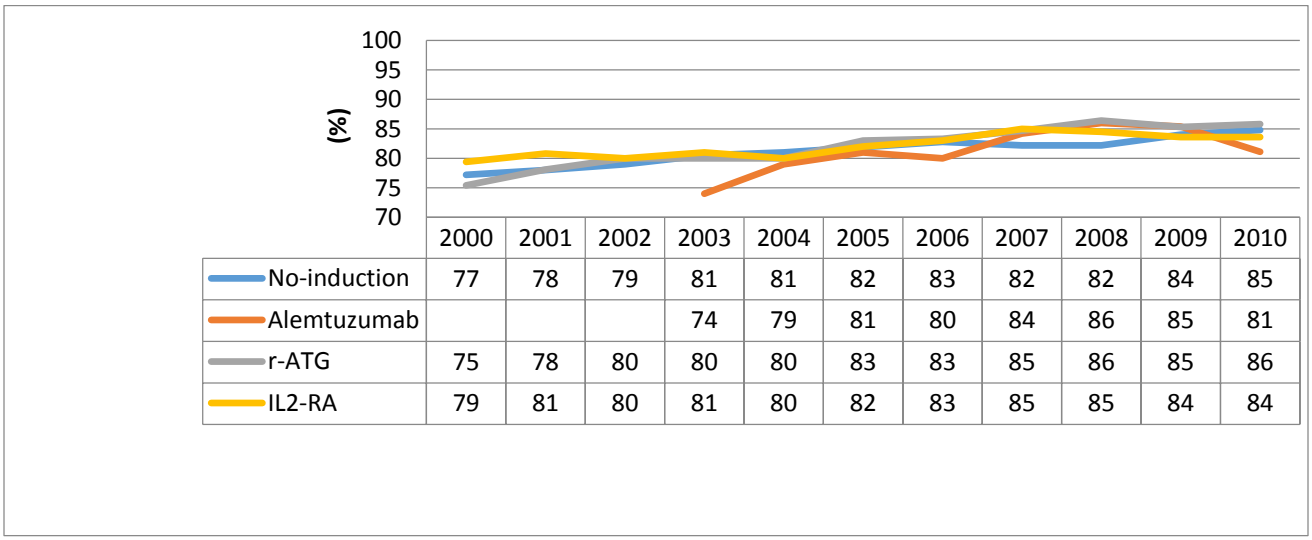
SUPPLEMENTAL MATERIAL

SUPPLEMENTAL FIGURE:

Figure S1. Overall graft survival at three-years by transplant year and induction type among DDRT recipients maintained on TAC/MPA in the U.S.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
No-induction	77	78	79	81	81	82	83	82	82	84	85
Alemtuzumab				74	79	81	80	84	86	85	81
r-ATG	75	78	80	80	80	83	83	85	86	85	86
IL2-RA	79	81	80	81	80	82	83	85	85	84	84

SUPPLEMENTAL TABLES:

Table S1. Causes of allograft failure and death in steroid group.

Cause of graft failure	**IL2-RA**	**r-ATG**	**Alemtuzumab**	**No-induction**	**P-value**
Steroid (N=7,285)					**<0.001**
Rejection (%)	**58.3**	51.8	48.7	**54.3**	
Infection (%)	6.3	7.6	8.3	**6.6**	
Surgical (%)	2.6	2.6	2.6	**2.7**	
Recurrent disease (%)	4.7	6.3	3.8	**3.8**	
Primary failure (%)	5.9	8.2	9.4	**9.8**	
Others (%)	22.2	23.5	27.2	**22.8**	

Cause of death	**IL2-RA**	**r-ATG**	**Alemtuzumab**	**No-induction**	**P**
Steroid (N=7,421)					<0.001
Graft failure (%)	1	0.3	0	1.5	
Infection (%)	15.6	14.6	12.7	12.8	
CVS (%)	21.9	23.4	20.3	23.3	
Malignancy (%)	8.6	9.3	3.6	7.9	
Other (%)	53	52.4	63.5	54.5	

Table S2. Causes of allograft failure and death in no-steroid group.

Cause of allograft failure	**IL2-RA**	**r-ATG**	**Alemtuzumab**	**P-value**
No-steroid (N=1,435)				**0.01**
Rejection (%)	36.7	42.2	45.3	
Infection (%)	14.7	8.1	10.2	
Surgical (%)	1.7	4.6	1.7	
Recurrent disease (%)	4	6.6	5.7	
Primary failure (%)	10.2	5.5	7.4	
Others (%)	32.8	33	29.7	

Cause of death	**IL2-RA**	**r-ATG**	**Alemtuzumab**	**P**
No-steroid (N=1474)				**0.04**
Graft failure (%)	0.5	0.4	0.5	
Infection (%)	17.2	11.7	14.3	
CVS (%)	25.1	22.4	21.4	
Malignancy (%)	13.5	13.7	8.4	
Other (%)	43.7	51.8	55.4	

Table S3. Post-transplant lymphoproliferative disorder (PTLD) by steroid groups and induction categories reported to the registry during study period.

STREOID	**IL2-RA**	**r-ATG**	**Alemtuzumab**	**No-induction**	**P**
N (%)	90 (0.6)	122 (0.4)	6 (0.2)	53 (0.4)	0.03
NO-STEROID	**IL2-RA**	**r-ATG**	**Alemtuzumab**		
N (%)	17 (1.1)	44 (0.5)	24 (0.5)		0.01

KDRI/KDPI:

KDRI (referring UNOS KDRI), similar to liver DRI, is calculated from 10 donor variables (age, height [cm], weight [kg], ethnicity, history of hypertension, history of diabetes, cause of death, terminal Scr, HCV status, and donation after cardiac death) reported in the UNOS DonorNet. It expresses the quality of the deceased donor kidneys relative to other donors.[1] A version of the KDRI, KDRI-median, is scaled to a value of 1.0 corresponding to the median donor among all deceased donors recovered in the prior calendar year [KDRI-median = KDRI / (scaling factor)]. The KDRI-median has been reported on a cumulative percentage scale, the KDPI, in the DonorNet since March 2012 (http://optn.transplant.hrsa.gov/ContentDocuments/Guide_to_Calculating_Interpreting_KDPI.pdf). In this manuscript, the KDRI is scaled for a factor of 1.2221, a median KDRI value among all kidney deceased kidney donors recovered during 2012. The KDPI range from 0 to 100%, and lower percentages represent better quality kidneys (especially KDPI<40%).

PROPENSITY SCORE (PS) CALCULATION:

PS is the probability that a patient would have been assigned to a specific treatment based on observed pre-treatment variables. Several adjustment methods for integrating the estimated PS have been suggested. These include matching, regression adjustment, and weighting [2-4]. For our analysis, we utilized the inverse probability of treatment weight (IPTW), in which the weights were calculated as the inverse of the PS [5]. Multinomial logistic regression was used to estimate the PS as the conditional probability that a patient would receive a specific induction treatment based on following 14 covariates: donor features (gender and KDPI), recipient characteristics (age, gender, race, diabetes status, cardiovascular disease, peak PRA, re-transplant status, and dialysis exposure), and transplant factors (CIT, HLAmm, donor/recipient weight ratio and year of transplant). Certain covariates were included in the PS analysis as a continuous variable, including KDPI, recipient age, CIT, donor/recipient weight ratio.

KDPI expresses the quality of the deceased donor kidneys relative to other donors in the deceased donor-pool. Most of the covariates were balanced after IPTW adjustment that is, after performing weighted regression (using one of the covariates as outcome, induction categories as a predictor, and PS as weights), the effect of induction therapy was no longer significant. Finally, PS-weighted regression models were fitted to compare the treatment effects thus controlling for selection bias.

REFERENCES:

1. Rao, PS, Schaubel, DE, Guidinger, MK, Andreoni, KA, Wolfe, RA, Merion, RM, Port, FK, Sung, RS: A comprehensive risk quantification score for deceased donor kidneys: the kidney donor risk index. *Transplantation,* 88: 231-236, 2009.

2. Kurth, T, Walker, AM, Glynn, RJ, Chan, KA, Gaziano, JM, Berger, K, Robins, JM: Results of multivariable logistic regression, propensity matching, propensity adjustment, and propensity-based weighting under conditions of nonuniform effect. *American journal of epidemiology,* 163: 262-270, 2006.

3. Spreeuwenberg, MD, Bartak, A, Croon, MA, Hagenaars, JA, Busschbach, JJ, Andrea, H, Twisk, J, Stijnen, T: The multiple propensity score as control for bias in the comparison of more than two treatment arms: an introduction from a case study in mental health. *Medical care,* 48: 166-174, 2010.

4. Rubin, DB, Thomas, N: Matching using estimated propensity scores: relating theory to practice. *Biometrics,* 52: 249-264, 1996.

5. D'Agostino, RB, Jr.: Propensity score methods for bias reduction in the comparison of a treatment to a non-randomized control group. *Statistics in medicine,* 17: 2265-2281, 1998.