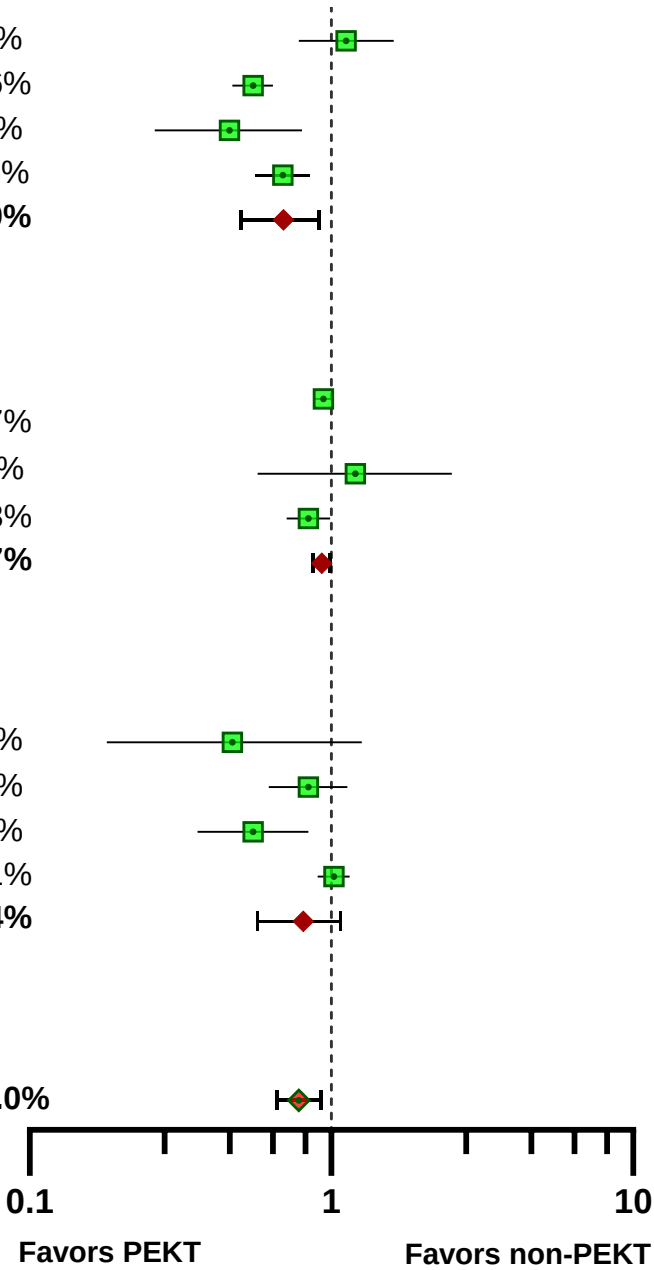
Supplemental Fig 1. Forest plot of all-cause mortality in the donor type subgroup

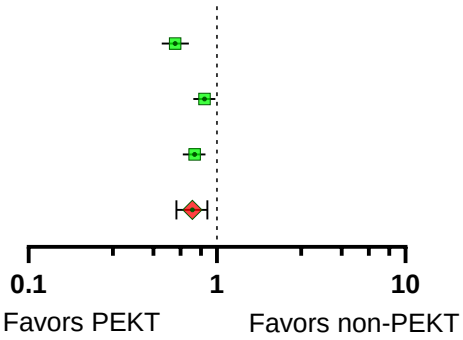
Study	HR [95% CI]	Weight
Living Donor		
Irish 2019	1.12 [0.78, 1.61]	8.4%
Jay 2016	0.55 [0.47, 0.64]	12.6%
Milton 2008	0.46 [0.26, 0.80]	5.5%
Kasiske 2002 [LD]	0.69 [0.56, 0.85]	11.5%
Subtotal	**0.67 [0.50, 0.91]**	**37.9%**
Heterogeneity; I^2 = 80%		
Deceased Donor		
Grams 2013	0.94 [0.87, 1.01]	13.7%
Kessler 2011	1.20 [0.57, 2.51]	3.7%
Kasiske 2002 [DD]	0.84 [0.71, 0.99]	12.3%
Subtotal	**0.93 [0.87, 0.99]**	**29.7%**
Heterogeneity; I^2 = 0%		
Mixed / Unknown		
Girerd 2018	0.47 [0.18, 1.26]	2.3%
Haller 2017	0.84 [0.62, 1.13]	9.7%
Naveed 2011	0.55 [0.36, 0.84]	7.3%
Goldfarb 2006	1.02 [0.90, 1.15]	13.1%
Subtotal	**0.78 [0.57, 1.07]**	**32.4%**
Heterogeneity; I^2 = 71%		
Total	**0.78 [0.66, 0.92]**	**100.0%**
Heterogeneity; I^2 = 85%		



Supplemental Fig 2. Forest plot of death with functioning graft

Study	HR [95% CI]	Weight
Prezelin 2019	0.60 [0.51, 0.71]	31.3%
Gill 2018	0.86 [0.75, 0.98]	34.5%
Johnston 2013	0.76 [0.66, 0.87]	34.1%
Total	**0.74 [0.61, 0.89]**	**100.0%**

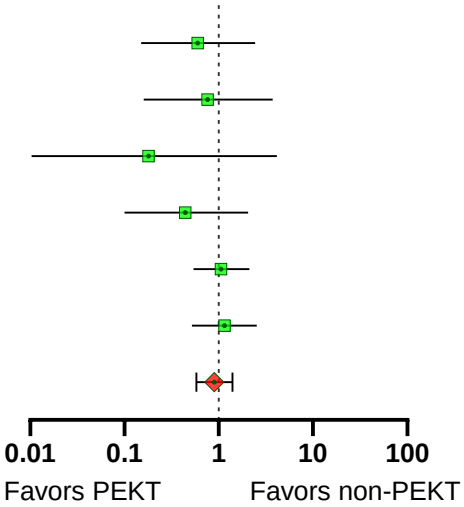
Heterogeneity; I^2 = 82%



Supplemental Fig 3. Forest plot of cardiovascular disease

Study	RR [95% CI]	Weight
Okumi 2017	0.60 [0.15, 2.44]	9.8%
Goto 2016	0.76 [0.16, 3.75]	7.6%
Hayashida 2013	0.18 [0.01, 4.12]	1.9%
Son 2010	0.44 [0.10, 2.05]	8.2%
Innocenti 2007	1.06 [0.54, 2.11]	41.3%
Ekstrand	1.15 [0.52, 2.52]	31.1%
Total	**0.90 [0.58, 1.40]**	**100.0%**

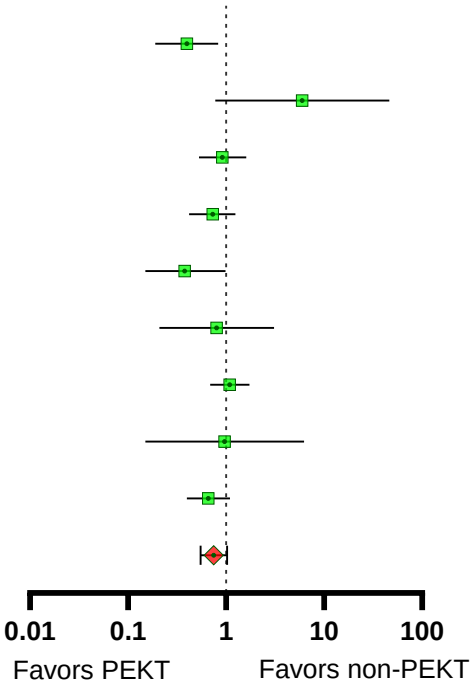
Heterogeneity; $I^2 = 0\%$



Supplemental Fig 4. Forest plot of biopsy-proven acute rejection

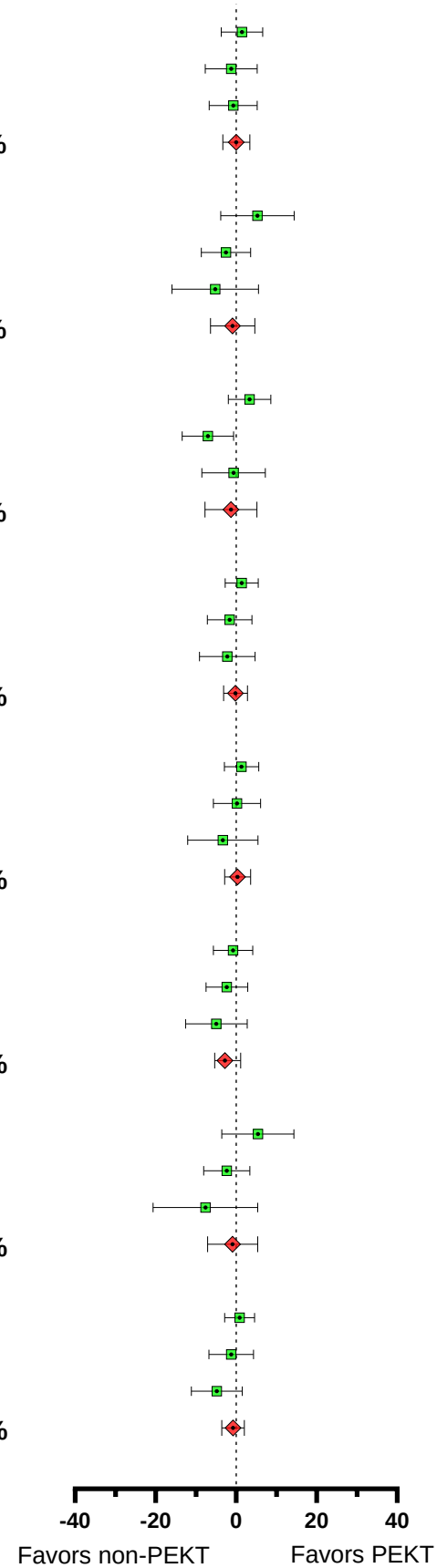
Study	RR [95% CI]	Weight
Girerd 2018	0.40 [0.19, 0.83]	12.0%
Morales 2015	6.00 [0.78, 46.42]	2.1%
Kohei 2014	0.92 [0.53, 1.61]	16.4%
Sayin 2013	0.73 [0.42, 1.25]	16.8%
Luo 2012	0.38 [0.15, 0.99]	8.1%
Son 2010	0.80 [0.21, 3.09]	4.5%
Jung 2010	1.09 [0.69, 1.73]	19.6%
Ishikawa 2008	0.97 [0.15, 6.26]	2.6%
Innocenti 2007	0.66 [0.40, 1.10]	18.0%
Total	**0.75 [0.55, 1.03]**	**100.0%**

Heterogeneity; I^2 = 36%



Supplemental Fig 5. Forest plot of quality of life (SF-36)

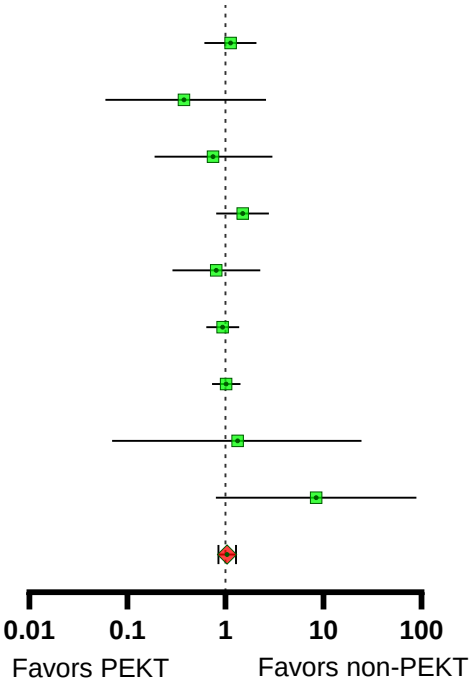
Study	MD [95% CI]	Weight
Auneau-Enjalbert 2021	1.44 [−3.70, 6.58]	42.0%
Mitsui 2020	−1.20 [−7.65, 5.25]	26.7%
Matsumura 2018	−0.70 [−6.65, 5.25]	31.3%
Total (PF)	**0.06 [−3.27, 3.39]**	**100.0%**
Heterogeneity; I^2 = 0%		
Auneau-Enjalbert 2021	5.32 [−3.79, 14.43]	28.5%
Mitsui 2020	−2.50 [−8.60, 3.60]	49.7%
Matsumura 2018	−5.20 [−15.96, 5.56]	21.8%
Total (RP)	**−0.86 [−6.38, 4.66]**	**100.0%**
Heterogeneity; I^2 = 25%		
Auneau-Enjalbert 2021	3.36 [−1.89, 8.61]	37.7%
Mitsui 2020	−7.00 [−13.39, −0.61]	33.6%
Matsumura 2018	−0.60 [−8.49, 7.29]	28.7%
Total (BP)	**−1.26 [−7.72, 5.19]**	**100.0%**
Heterogeneity; I^2 = 67%		
Auneau-Enjalbert 2021	1.41 [−2.71, 5.53]	52.3%
Mitsui 2020	−1.60 [−7.12, 3.92]	29.1%
Matsumura 2018	−2.20 [−9.10, 4.70]	18.6%
Total (GH)	**−0.14 [−3.12, 2.84]**	**100.0%**
Heterogeneity; I^2 = 0%		
Auneau-Enjalbert 2021	1.36 [−2.93, 5.65]	56.3%
Mitsui 2020	0.20 [−5.66, 6.06]	30.1%
Matsumura 2018	−3.30 [−12.03, 5.43]	13.6%
Total (VT)	**0.38 [−2.84, 3.60]**	**100.0%**
Heterogeneity; I^2 = 0%		
Auneau-Enjalbert 2021	−0.75 [−5.62, 4.12]	43.6%
Mitsui 2020	−2.30 [−7.48, 2.88]	38.6%
Matsumura 2018	−4.90 [−12.54, 2.74]	17.7%
Total (SF)	**−2.08 [−5.30, 1.13]**	**100.0%**
Heterogeneity; I^2 = 0%		
Auneau-Enjalbert 2021	5.41 [−3.56, 14.38]	31.2%
Mitsui 2020	−2.30 [−8.03, 3.43]	50.5%
Matsumura 2018	−7.60 [−20.60, 5.40]	18.3%
Total (RE)	**−0.86 [−7.10, 5.38]**	**100.0%**
Heterogeneity; I^2 = 36%		
Auneau-Enjalbert 2021	0.88 [−2.86, 4.62]	55.3%
Mitsui 2020	−1.20 [−6.72, 4.32]	25.4%
Matsumura	−4.80 [−11.13, 1.53]	19.3%
Total (MH)	**−0.75 [−3.53, 2.04]**	**100.0%**
Heterogeneity; I^2 = 14%		



Supplemental Fig 6. Forest plot of cytomegalovirus infection

Study	RR [95% CI]	Weight
Okumi2017	1.13 [0.61, 2.07]	11.9%
Noda 2016	0.38 [0.06, 2.60]	1.2%
Morales 2015	0.75 [0.19, 3.03]	2.3%
Debska 2015	1.50 [0.81, 2.78]	11.5%
Oishi 2015	0.81 [0.29, 2.28]	4.2%
Hayashida 2013	0.94 [0.64, 1.39]	28.9%
Jung 2010	1.02 [0.73, 1.43]	38.7%
Ishikawa 2008	1.33 [0.07, 24.54]	0.5%
Ekstrand 1993	8.42 [0.80, 89.04]	0.8%
Total	**1.04 [0.85, 1.29]**	**100.0%**

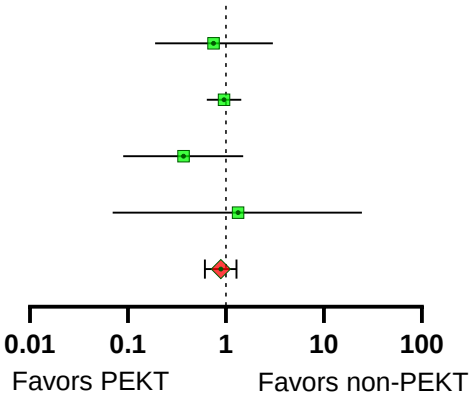
Heterogeneity; $I^2 = 0\%$



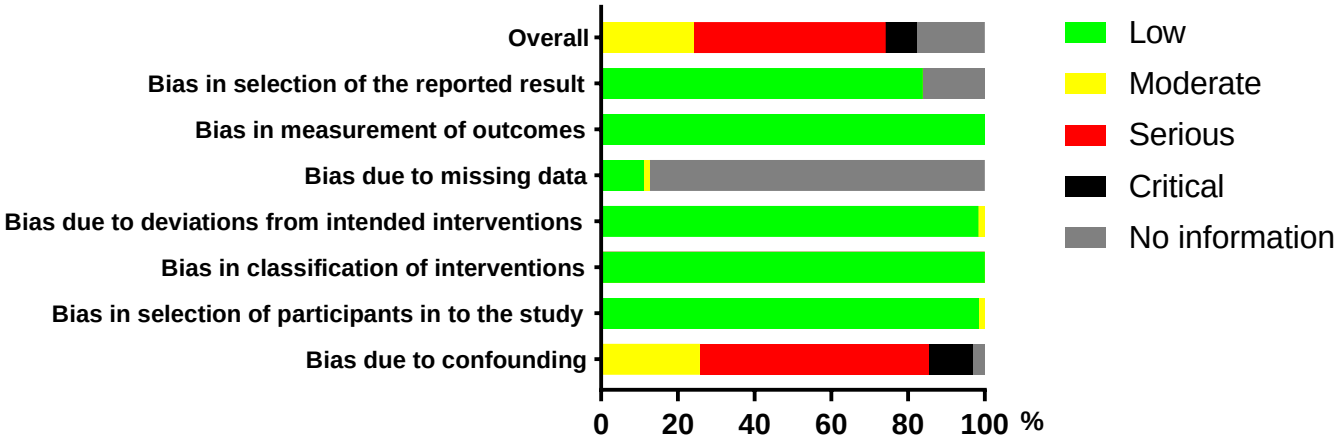
Supplemental Fig 7. Forest plot of urinary tract infection

Study	RR [95% CI]	Weight
Morales 2015	0.75 [0.19, 3.03]	7.1%
Debska 2015	0.96 [0.64, 1.44]	84.3%
Jung 2010	0.37 [0.09, 1.50]	7.0%
Ishikawa 2008	1.33 [0.07, 24.54]	1.6%
Total	**0.89 [0.61, 1.29]**	**100.0%**

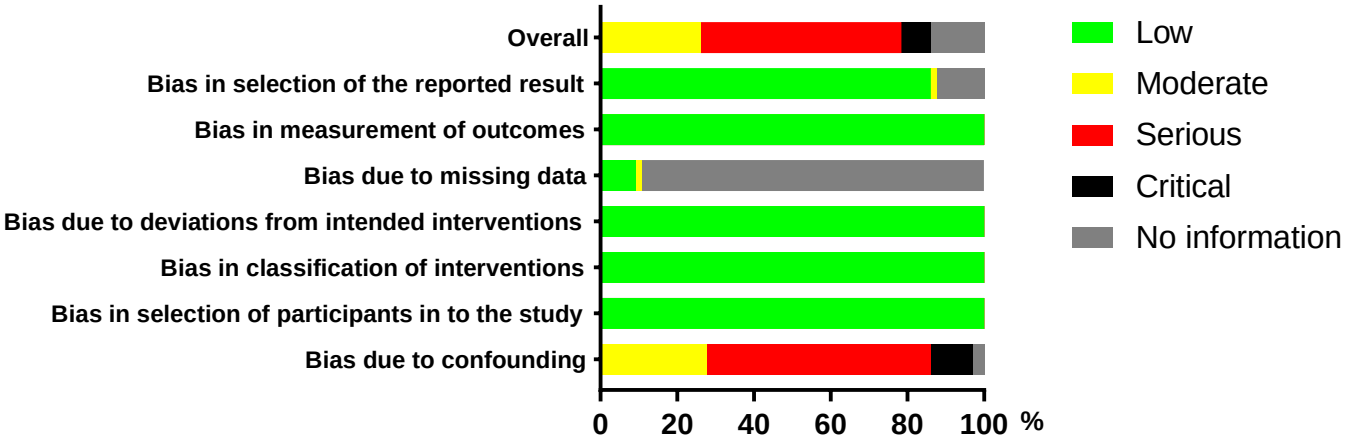
Heterogeneity; I^2 = 0%



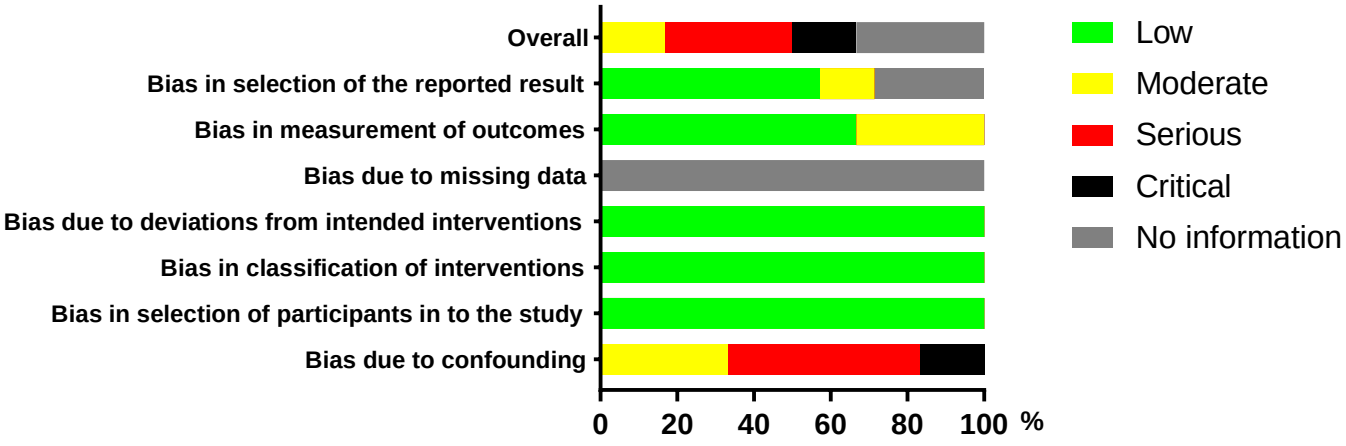
Supplemental Fig 8. Risk of bias assessment of patient mortality



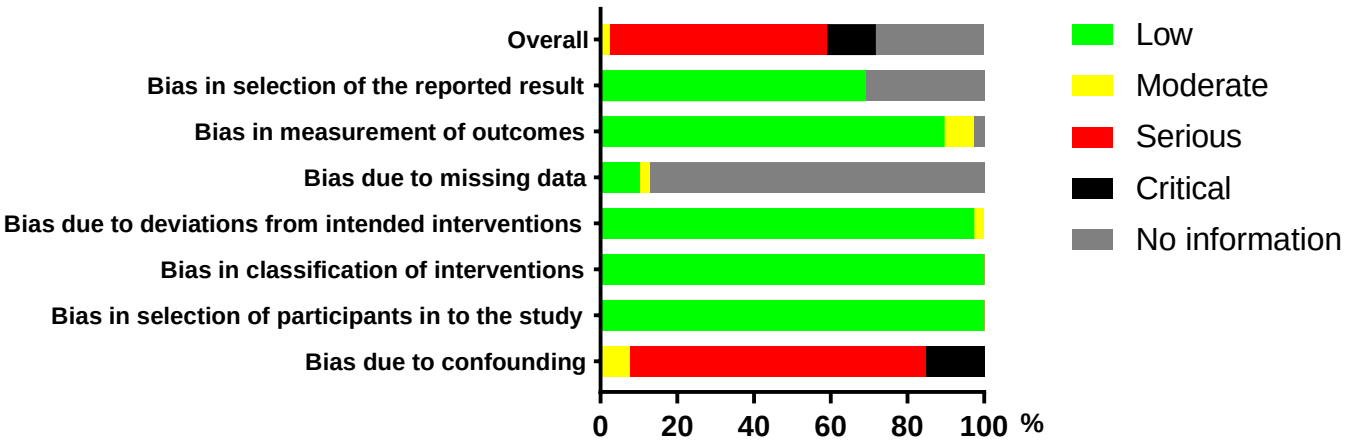
Supplemental Fig 9. Risk of bias assessment of graft survival



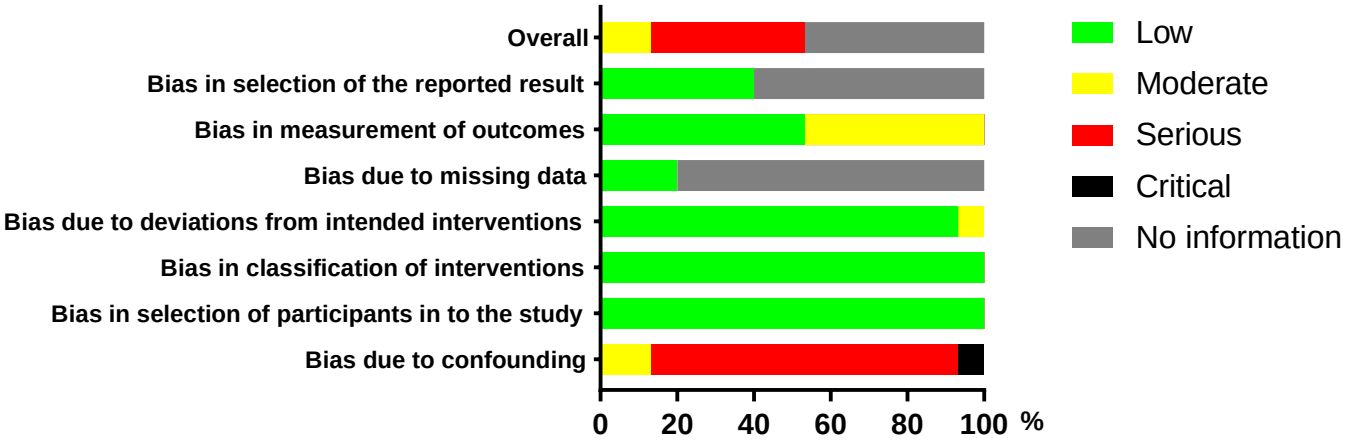
Supplemental Fig 10. Risk of bias assessment of cardiovascular disease



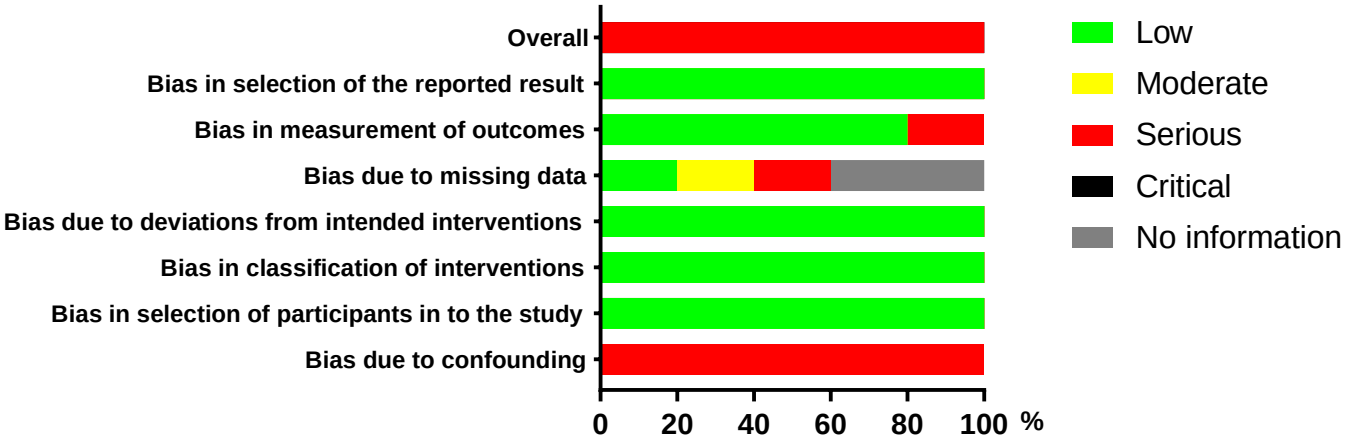
Supplemental Fig 11. Risk of bias assessment of biopsy-proven acute rejection



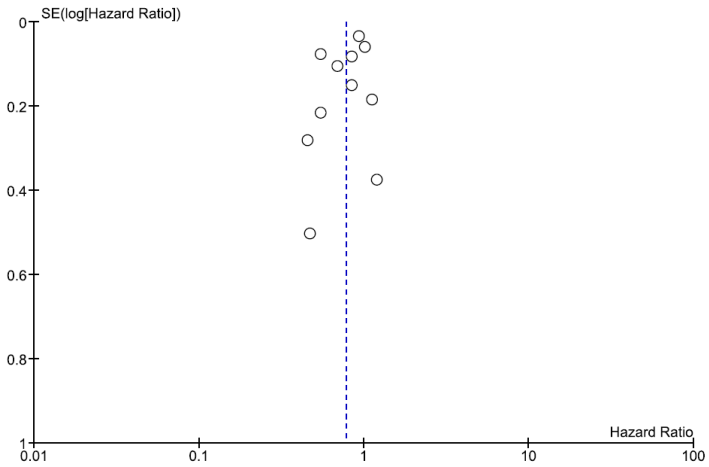
Supplemental Fig 12. Risk of bias assessment of infections



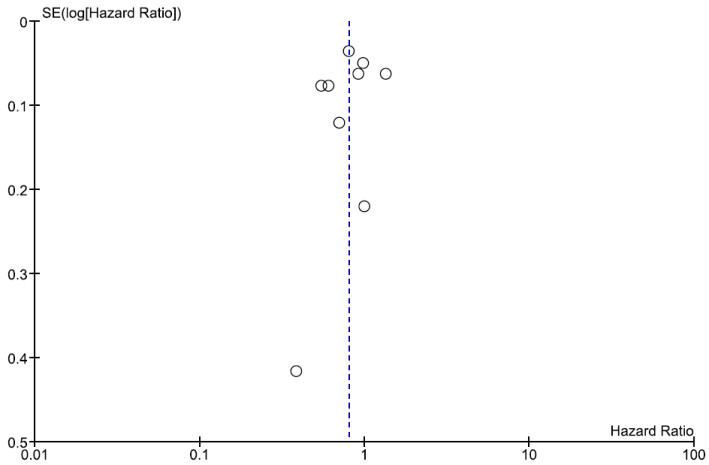
Supplemental Fig 13. Risk of bias assessment of quality of life



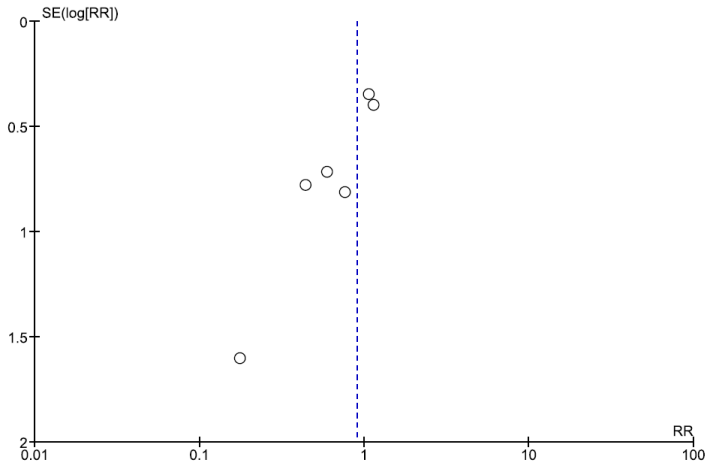
Supplemental Fig 14. Funnel plot of patient mortality



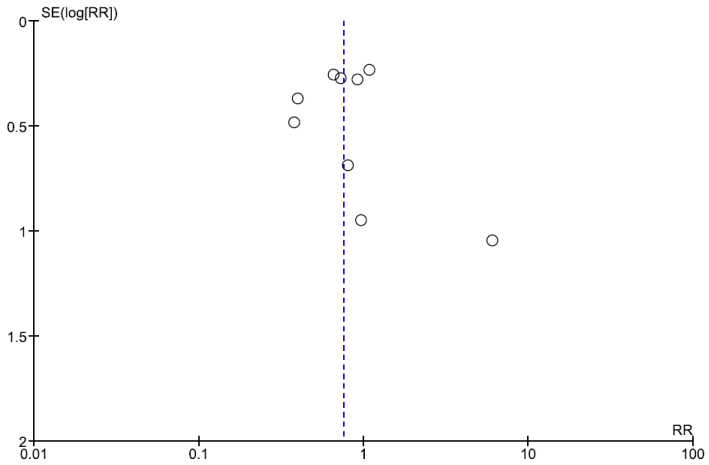
Supplemental Fig 15. Funnel plot of graft survival



Supplemental Fig 16. Funnel plot of cardiovascular diseases

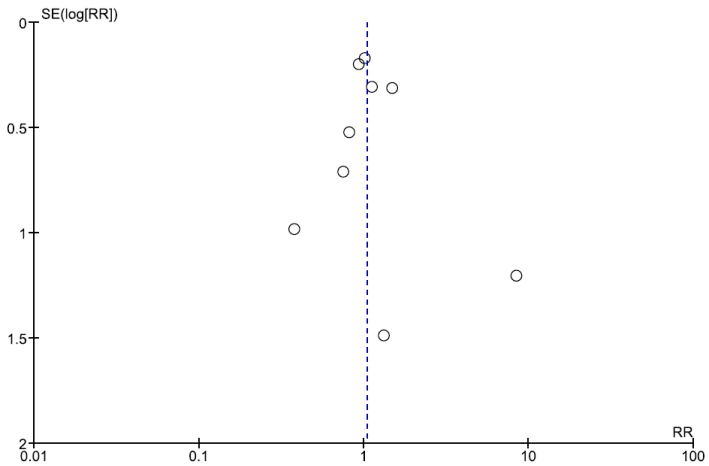


Supplemental Fig 17. Funnel of biopsy-proven acute rejection

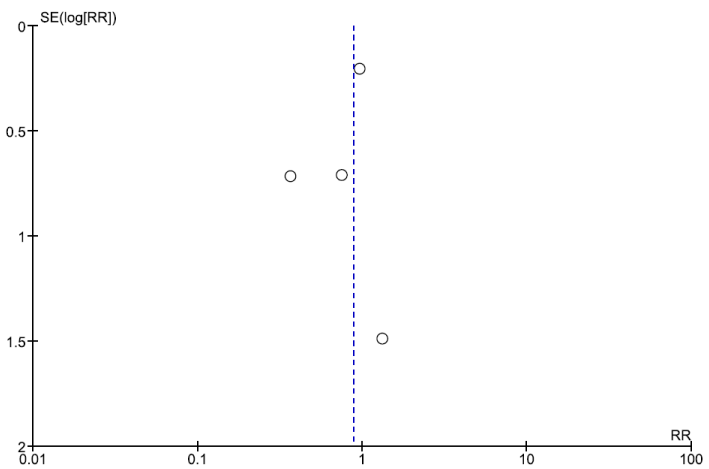


Supplemental Fig 18. Funnel of infections

a. cytomegalovirus infection

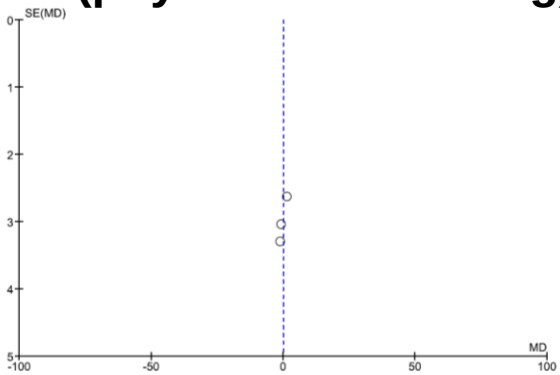


b. urinary tract infection

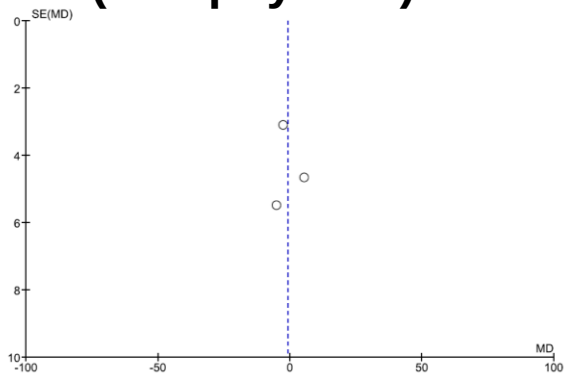


Supplemental Fig 19. Funnel of SF-36 scores

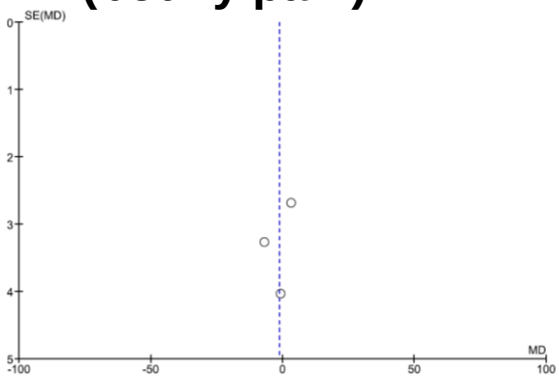
a. PF (physical functioning)



b. RP (role physical)

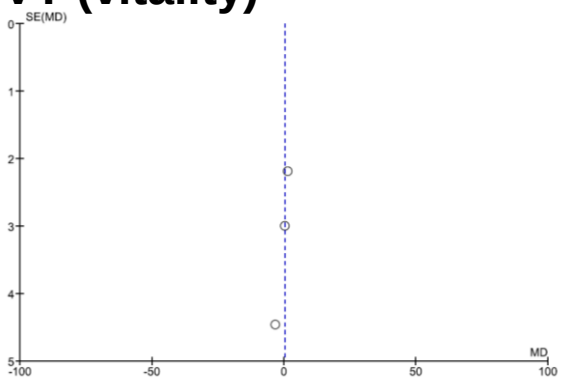


c. BP (bodily pain)

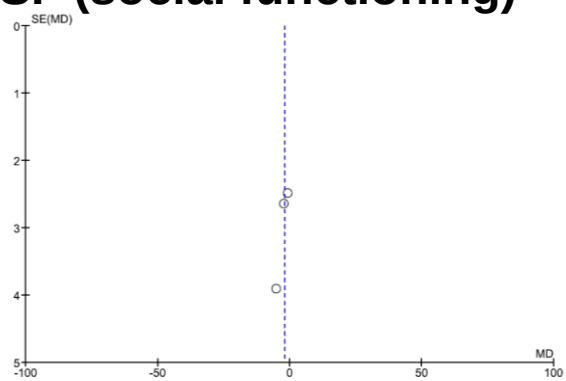


d. GH (general health)

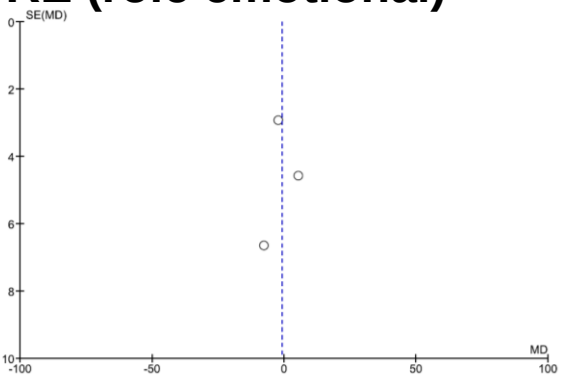
e. VT (vitality)



f. SF (social functioning)



g. RE (role emotional)



h. MH (mental health)