Supplemental Online Content

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### eTable 1. Systematic Review Search Strategy

| Search | Query | Items Found |
|--------|-------|-------------|
| #1     | exp Renal Dialysis/ | 121,201 |
| #2     | ((end stage or endstage) adj (kidney or renal or dialysis)).tw,kw,rn. | 46,448 |
| #3     | ((kidney or renal) adj dialy*).tw,kw,rn. | 1,563 |
| #4     | (dialy* adj (patient* or therapy or modalit*)).tw,kw,rn. | 23,650 |
| #5     | exp HSemodialysis/ | 121,201 |
| #6     | (h$emodialy* or h$emofilt* or intradialy*).tw,kw,rn. | 74,139 |
| #7     | (in-center or incenter or nocturnal or home) adj3 (h$emodialy* or dialy*).tw,kw,rn. | 2,840 |
| #8     | exp Peritoneal Dialysis/ | 27,436 |
| #9     | *dialysis, peritoneal/ | 14,577 |
| #10    | (tenckhoff* automated or continuous or ambulatory) adj3 (peritoneal or dialy*).tw,kw,rn. | 8,029 |
| #11    | (peritoneal dialysis or pd or capd or ccpd or apd or ipd or nipd or tpd).tw,kw,rn. | 200,177 |
| #12    | or/1-11 | 347,979 |
| #13    | exp Kidney Transplantation/ | 101,600 |
| #14    | (kidney or renal) adj (transplant* or candidate* or organ or nephrop* or wait list* or recipient*).tw,kw,rn. | 84,690 |
| #15    | or/13-14 | 119,517 |
| #16    | 12 and 15 | 20,596 |
| #17    | ((graft or acute or delayed) adj (function or rejection or failure or survival)).tw,kw,rn. | 58,512 |
| #18    | (outcome or death or mortality or survival or cardiovascular or glomerular filtration or hospitalization or infection* or re-transplant* or vascular thrombosis or costs or health-related quality of life or hrqol or qol or physical function or psychological or mental health or psychosocial or patient-reported outcomes).tw,kw,rn. | 5,458,065 |
| #19    | or/17-18 | 5,476,647 |
| #20    | 16 and 19 | 11,100 |
| #21    | Randomized Controlled Trials as Topic/ | 153,578 |
| #22    | random allocation/ | 106,741 |
| #23    | Controlled Clinical Trials as Topic/ | 5,625 |
| #24    | control groups/ | 1,817 |
| #25    | clinical trials as topic/ or clinical trials, phase i as topic/ or clinical trials, phase ii as topic/ or clinical trials, phase iii as topic/ or clinical trials, phase iv as topic/ | 218,772 |
| #26    | randomized controlled trial.pt. | 561,679 |

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| #   | Description                                                                 | Count   |
|-----|----------------------------------------------------------------------------|---------|
| #27 | controlled clinical trial.pt.                                               | 94,744  |
| #28 | (clinical trial or clinical trial phase i or clinical trial phase ii or clinical trial phase iii or clinical trial phase iv).pt. | 591,229 |
| #29 | (random$ or RCT or RCTs).tw,kw.                                            | 1,309,697|
| #30 | (randomi?ed or randomly or RCT$1 or placebo$).tw,kw.                       | 1,105,268|
| #31 | ((singl$ or doubl$ or trebl$ or tripl$) adj5 (mask$ or blind$ or dumm$)).tw,kw. | 190,122  |
| #32 | (controlled adj5 (trial$ or stud$)).tw,kw.                                | 441,956  |
| #33 | (clinical$ adj5 trial$).tw,kw.                                            | 473,067  |
| #34 | ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw,kw. | 1,690,649|
| #35 | (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw,kw. | 6,364    |
| #36 | ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw,kw. | 6,364    |
| #37 | trial.ti.                                                                  | 239,520  |
| #38 | (assign$ or allocat$).tw.                                                  | 486,508  |
| #39 | or/21-38                                                                   | 3,899,049|
| #40 | 20 and 39                                                                  | 2,877    |
| #41 | (nRCT or nRCTs or non-RCT?).tw,kw.                                        | 1,200    |
| #42 | (control$ adj2 stud$3).tw,kw.                                             | 259,374  |
| #43 | control group/                                                             | 1,817    |
| #44 | (control$ adj2 group$1).tw,kw.                                            | 569,469  |
| #45 | exp comparative study/                                                     | 1,910,498|
| #46 | ((comparative or comparison) adj (study or studies)).tw,kw.                | 120,532  |
| #47 | exp cohort study/                                                          | 2,313,394|
| #48 | (cohort$ adj2 stud$3).tw,kw.                                              | 292,767  |
| #49 | exp case control study/                                                    | 1,296,808|
| #50 | ((case-control$ or case-based or case-comparison) adj (study or studies)).tw,kw. | 120,692  |
| #51 | or/41-50                                                                   | 4,743,817|
| #52 | 20 and 51                                                                  | 4,544    |
| #53 | 40 or 52                                                                   | 6,106    |
| #54 | (comment or editorial or interview or letter or news or newspaper article).pt. | 2,285,371|
| #55 | 53 not 54                                                                  | 6,073    |
| #56 | limit 55 to human                                                          | 5,709    |
**eTable 1. Systematic Review Search Strategy (Continued)**

| Search | Query | Items Found |
|--------|-------|-------------|
| #1     | Renal Dialysis/exp AND [embase]/lim | 98529       |
| #2     | ((‘end stage’:ti,ab OR endstage:ti,ab) AND (kidney:ti,ab OR renal:ti,ab OR dialysis:ti,ab)) AND [embase]/lim | 68032       |
| #3     | ((kidney:ti,ab OR renal:ti,ab) AND dialy*:ti,ab) AND [embase]/lim | 81645       |
| #4     | (dialy*:ti,ab AND (patient*:ti,ab OR therapy:ti,ab OR modalit*:ti,ab)) AND [embase]/lim | 119886      |
| #5     | H$emodialysis/exp AND [embase]/lim | 153695      |
| #6     | (h$emodialy*:ti,ab OR h$emofilt*:ti,ab OR intradialy*:ti,ab) AND [embase]/lim | 109132      |
| #7     | ((‘in-center’:ti,ab OR incenter:ti,ab OR nocturnal:ti,ab OR home:ti,ab) AND (h$emodialy*:ti,ab OR dialy*:ti,ab)) AND [embase]/lim | 7407        |
| #8     | Peritoneal Dialysis/exp AND [embase]/lim | 40432       |
| #9     | ((tenckhoff*:ti,ab OR automated:ti,ab OR continuous:ti,ab OR ambulatory:ti,ab) AND (peritoneal:ti,ab OR dialy*:ti,ab)) AND [embase]/lim | 18689       |
| #10    | #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 | 266869      |
| #11    | ‘Kidney Transplantation’/exp AND [embase]/lim | 149971      |
| #12    | ((kidney:ti,ab OR renal:ti,ab) AND (transplant*:ti,ab OR candidate*:ti,ab OR organ:ti,ab OR nephrop*:ti,ab OR ‘wait list’*:ti,ab OR recipient*:ti,ab)) AND [embase]/lim | 278066      |
| #13    | #11 OR #12 | 305349      |
| #14    | #10 AND #13 | 66373        |
| #15    | ((‘graft’:ti,ab OR acute:ti,ab OR delayed:ti,ab) AND (function:ti,ab OR rejection:ti,ab OR failure:ti,ab OR survival:ti,ab)) AND [embase]/lim | 638877      |
| #16    | (death:ti,ab OR mortality:ti,ab OR survival:ti,ab OR cardiovascular:ti,ab OR ‘glomerular filtration’:ti,ab OR hospitalisation:ti,ab OR infection*:ti,ab OR retransplant*:ti,ab OR ‘vascular thrombosis’*:ti,ab OR cost*:ti,ab OR ‘health related quality of life’:ti,ab OR hrqol:ti,ab OR qol:ti,ab OR ‘physical function’:ti,ab OR psychological:ti,ab OR ‘mental health’:ti,ab OR psychosocial:ti,ab OR ‘patient reported outcome’*:ti,ab) AND [embase]/lim | 5974471     |
| #17    | #15 OR #16 | 6226363      |
| #18    | #14 AND #17 | 43583        |
| #19    | (news:it OR ‘newspaper article’:it OR comment:it OR editorial:it OR interview:it OR letter:it OR review:it OR ‘systematic review’:it OR ‘case report’:it OR ‘case series’:it) AND [embase]/lim | 3635619     |
| #20    | #18 NOT #19 | 38891        |
| #21    | #20 AND ([article]/lim OR [article in press]/lim OR [conference abstract]/lim OR [conference paper]/lim) | 38186        |
| #22 | #21 AND ([child]/lim OR [preschool]/lim OR [school]/lim OR [adolescent]/lim OR [adult]/lim OR [young adult]/lim OR [middle aged]/lim OR [aged]/lim OR [very elderly]/lim) | 26383 |
| #23 | #22 AND 'article'/it | 14428 |
| #24 | #22 AND 'article'/it AND ('case control study'/de OR 'clinical article'/de OR 'clinical study'/de OR 'clinical trial'/de OR 'clinical trial topic'/de OR 'cohort analysis'/de OR 'comparative effectiveness'/de OR 'comparative study'/de OR 'controlled clinical trial'/de OR 'controlled clinical trial topic'/de OR 'controlled study'/de OR 'hospital based case control study'/de OR 'intention to treat analysis'/de OR 'major clinical study'/de OR 'observational study'/de OR 'phase 4 clinical trial'/de OR 'phase 4 clinical trial topic'/de OR 'population based case control study'/de OR 'prospective study'/de OR 'randomized controlled trial'/de OR 'randomized controlled trial topic'/de OR 'retrospective study'/de) | 12487 |
### eTable 1. Systematic Review Search Strategy (Continued)

#### PubMed (From Inception to March 18, 2022)

| Search | Query                                                                 | Items Found |
|--------|----------------------------------------------------------------------|-------------|
| #1     | (((((renal dialysis[MeSH Terms]) OR (dialysis[MeSH Terms])) OR (peritoneal dialysis, continuous ambulatory[MeSH Terms])) OR (dialysis, peritoneal[MeSH Terms])) OR (hemodialysis[MeSH Terms])) | 144,031     |
| #2     | (((((intradialy*[Title/Abstract]) OR (hemodialy*[Title/Abstract])) OR (hemofilt*[Title/Abstract])) OR (in-center dialysis[Title/Abstract])) OR (nocturnal dialysis[Title/Abstract])) OR (home dialysis[Title/Abstract])) OR (peritoneal dialysis[Title/Abstract])) OR (automated peritoneal dialysis[Title/Abstract])) OR (continuous ambulatory peritoneal dialysis[Title/Abstract])) OR (CAPD[Title/Abstract]) | 95,629      |
| #3     | #1 OR #2                                                             | 168,904     |
| #4     | (renal transplantation[MeSH Terms]) AND (kidney transplantation[MeSH Terms]) | 101,598     |
| #5     | (((kidney transplant*[Title/Abstract]) OR (renal transplant*[Title/Abstract])) OR (kidney recipient*[Title/Abstract])) OR (renal recipient*[Title/Abstract]) | 85,405      |
| #6     | #4 OR #5                                                             | 119,627     |
| #7     | #3 AND #6                                                            | 13,681      |
| #8     | (((graft*[Title/Abstract]) OR (acute*[Title/Abstract])) OR (delayed*[Title/Abstract])) AND (((function*[Title/Abstract]) OR (rejection*[Title/Abstract])) OR (failure*[Title/Abstract])) OR (survival*[Title/Abstract])) | 447,441     |
| #9     | ((((((((((((((((((death*[Title/Abstract]) OR (mortality*[Title/Abstract])) OR (survival*[Title/Abstract])) OR (cardiovascular*[Title/Abstract])) OR (glomerular filtration*[Title/Abstract])) OR (hospitalization*[Title/Abstract])) OR (infection*[Title/Abstract])) OR (re-transplant*[Title/Abstract])) OR (vascular thrombosis*[Title/Abstract])) OR (costs*[Title/Abstract])) OR (health-related quality of life*[Title/Abstract])) OR (HRQOL*[Title/Abstract])) OR (QOL*[Title/Abstract])) OR (physical function*[Title/Abstract])) OR (psychological*[Title/Abstract])) OR (mental health*[Title/Abstract])) OR (psychosocial*[Title/Abstract])) OR (patient-reported outcomes*[Title/Abstract])) | 4,918,083   |
| #10    | #8 OR #9                                                             | 5,121,717   |
| #11    | #7 AND #10                                                           | 6,748       |
| #12    | ((((Case Reports[Publication Type]) OR Comment[Publication Type]) OR Editorial[Publication Type]) OR Guideline[Publication Type]) OR Letter[Publication Type]) OR News[Publication Type]) OR Newspaper Article[Publication Type]) OR Review[Publication Type] | 7,097,559   |
| #13    | #11 NOT #12                                                         | 4,819       |
| #14    | Filters: Humans                                                      | 4,484       |

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**eTable 1. Systematic Review Search Strategy (Continued)**

| Search | Query                                                                 | Items Found |
|--------|----------------------------------------------------------------------|-------------|
| #1     | MeSH descriptor: [Renal Dialysis] explode all trees                  | 5,467       |
| #2     | MeSH descriptor: [Dialysis] explode all trees                        | 235         |
| #3     | MeSH descriptor: [Peritoneal Dialysis] explode all trees             | 919         |
| #4     | MeSH descriptor: [Peritoneal Dialysis, Continuous Ambulatory] explode all trees | 457         |
| #5     | intradialy* OR hemodialy* OR hemofilt* OR in-center dialysis OR nocturnal dialysis OR home dialysis OR peritoneal dialysis OR automated peritoneal dialysis OR continuous ambulatory peritoneal dialysis OR CAPD | 15,755      |
| #6     | #1 OR #2 OR #3 OR #4 OR #5                                          | 16,963      |
| #7     | MeSH descriptor: [Kidney Transplantation] explode all trees          | 3,695       |
| #8     | kidney transplant* OR renal transplant* OR kidney recipient OR renal recipient | 18,511      |
| #9     | #7 OR #8                                                             | 18,511      |
| #10    | #6 AND #9                                                            | 2,479       |
| #11    | graft function OR graft rejection OR graft survival OR graft failure OR acute rejection OR delayed rejection | 16,055      |
| #12    | death OR mortality OR survival OR cardiovascular OR glomerular filtration OR hospitalization OR infection* OR re-transplant* OR vascular thrombosis OR costs OR health-related quality of life OR HRQOL OR QOL OR physical function OR psychological OR mental health OR psychosocial OR patient-reported outcomes | 581,474     |
| #13    | #11 OR #12                                                           | 585,343     |
| #14    | #10 AND #13                                                          | 1,384       |
| #15    | Limit to Trials                                                      | 1,228       |
eTable 1. Systematic Review Search Strategy (Continued)

| Search | Query                                                                                                                                                                                                 | Items Found |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| #1     | TITLE-ABS-KEY (“renal dialysis” OR dialysis OR hemodialysis OR “peritoneal dialysis” OR intradialy* OR hemodialy* OR hemofilt* OR “in-center dialysis” OR “nocturnal dialysis” OR “home dialysis” OR “automated peritoneal dialysis” OR “continuous ambulatory peritoneal dialysis” OR CAPD) | 275,220     |
| #2     | TITLE-ABS-KEY (“renal transplant*” OR “kidney transplant” OR “kidney recipient” OR “renal recipient”)                                                                                                  | 78,984      |
| #3     | #1 AND #2                                                                                                                                                                                               | 16,481      |
| #4     | TITLE-ABS-KEY (“graft function” OR “graft rejection” OR “graft survival” OR “graft failure” OR “acute rejection” OR “delayed rejection”)                                                                 | 182,872     |
| #5     | TITLE-ABS-KEY (death OR mortality OR survival OR cardiovascular OR glomerular filtration OR hospitalization OR infection* OR re-transplant* OR “vascular thrombosis” OR costs OR “health-related quality of life” OR HRQOL OR QOL OR “physical function” OR psychological OR “mental health” OR psychosocial OR “patient-reported outcomes”) | 999,427     |
| #6     | #4 OR #5                                                                                                                                                                                                | 1,150,606   |
| #7     | #3 AND #6                                                                                                                                                                                                | 8,194       |
| #8     | ( EXCLUDE ( DOCTYPE, "re" ) OR EXCLUDE ( DOCTYPE, "le" ) OR EXCLUDE ( DOCTYPE, "sh" ) OR EXCLUDE ( DOCTYPE, "ch" ) OR EXCLUDE ( DOCTYPE, "ed" ) OR EXCLUDE ( DOCTYPE, "no" ) OR EXCLUDE ( DOCTYPE, "er" ) OR EXCLUDE ( DOCTYPE, "bk" ) ) AND ( EXCLUDE ( SRCTYPE, "k" ) OR EXCLUDE ( SRCTYPE, "d" ) ) | 6,950       |
eTable 1. Systematic Review Search Strategy (Continued)

| Search | Query | Items Found |
|--------|-------|-------------|
| #1     | AB (“renal dialysis” OR dialysis OR hemodialysis OR “peritoneal dialysis” OR intradialy* OR hemodialy* OR hemofilt* OR “in-center dialysis” OR “nocturnal dialysis” OR “home dialysis” OR “automated peritoneal dialysis” OR “continuous ambulatory peritoneal dialysis” OR CAPD) | 23,742 |
| #2     | AB (“renal transplant*” OR “kidney transplant” OR “kidney recipient” OR “renal recipient”) | 5,930 |
| #3     | S1 AND S2 | 1,366 |
| #4     | AB (“graft function” OR “graft rejection” OR “graft survival” OR “graft failure” OR “acute rejection” OR “delayed rejection”) | 4,341 |
| #5     | AB (death OR mortality OR survival OR cardiovascular OR glomerular filtration OR hospitalization OR infection* OR re-transplant* OR vascular thrombosis OR costs OR health-related quality of life OR HRQOL OR QOL OR physical function OR psychological OR mental health OR psychosocial OR patient-reported outcomes) | 1,115,632 |
| #6     | S4 OR S5 | 1,117,091 |
| #7     | S3 AND S6 | 897 |
| #8     | Limiters: Academic Journals; Narrow by Subject Age: - all child; Expanders - Apply equivalent subjects | 512 |
| Elements     | Criteria for Inclusion                                                                                                                                             | Criteria for Exclusion                                                                 |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Populations | • Kidney transplant recipients regardless of age, donor sources (living or deceased donor), and comorbid conditions  
|             | • Other subgroups analysis was also included if the studies providing data to calculate the effect estimates of the outcome of interest | • In vitro or animal studies                                                          |
| Interventions| • Dialysis modalities: in-center HD (conventional, short daily, and nocturnal), home HD, home PD (APD and CAPD)                                                  | • Studies recruiting participants who received both PD and HD treatment               |
| Comparators | • Any type of mode of pretransplant dialysis treatment                                                                                                          | • Studies without control groups                                                      |
| Outcomes    | • Primary outcomes  
|             |  ❖ All-cause mortality  
|             |  ❖ Overall graft failure  
|             |  ❖ Death-censored graft failure  
|             |  ❖ Delayed graft function  
|             | • Secondary outcomes  
|             |  ❖ Acute rejection  
|             |  ❖ Graft vessel thrombosis  
|             |  ❖ Oliguria (not producing urine in the first 24 hours)  
|             |  ❖ de novo heart failure  
|             |  ❖ NODAT  
|             | • Additional outcomes  
|             |  ❖ Changes in estimated glomerular filtration rate  
|             |  ❖ All-cause hospitalization  
|             |  ❖ Re-transplantation  
|             |  ❖ Re-entry of chronic dialysis  
|             |  ❖ HRQOL  
|             | • Studies not providing data to calculate the effect estimates of the outcome of interest                                                                       |                                                                                  |
| Timing      | • An extensive search strategy from the inception of bibliographic databases forward to assure all published literature was identified | • No limit timing of start date                                                       |
| Setting     | • Published RCTs, quasi-RCT, and comparative effectiveness observational studies (cohort studies and case-control studies) in any setting and context  
|             | • Gray literature, ongoing trial, and preprint data were browsed  
|             | • Studies will not be limited language                                                                                                                             | • Crossover, cross-sectional, N-of-one trial, case series/case reports, and phase I or II study design  
|             | • Reports not involving primary data including, narrative review, systematic review, meta-analysis, news items, consensus statement, guidelines, and opinion/editorials |                                                                                      |
Abbreviations: APD, automated peritoneal dialysis; CAPD, continuous ambulatory peritoneal dialysis; HD, hemodialysis; HRQOL, health-related quality of life; NODAT, new onset diabetes mellitus after transplantation; PD, peritoneal dialysis; PICOTS, populations, interventions, comparators, outcomes, timing, setting; RCTs, randomized controlled trials.
eTable 3. Characteristics of Study Participants Included in the Meta-Analysis

| First Author (Year) | Race, No (%) | BMI at Transplant in kg/m², Mean (SD) | HLA Mismatch, No. (%) | PRA Titer, Mean (SD) | Cause of ESKD, No (%) | HTN, No. (%) | Diabetes, No. (%) | CAD, No. (%) | Cerebrovascular Disease, No. (%) | PVD, No. (%) | Cancer, No. (%) |
|---------------------|--------------|--------------------------------------|-----------------------|---------------------|------------------------|--------------|------------------|--------------|----------------------------------|--------------|------------------|
| Pérez Fontán et al¹ (1998) | NR | NR | HLA-A mismatches: 1.3 | NR | NR | 42 (5.1%) | NR | NR | NR | NR | NR |
| Bleyer et al² (1999) | White: 80% in PD; 67% in HD | NR | 0-2 (50% in PD, 55% in HD); 3-4 (36% in PD, 33% in HD); 5-6 (13% in PD, 11% in HD) | 12.9 (23.5) in PD; 16.3 (26.9) in HD | NR | NR | NR | NR | NR | NR | NR |
| Ojo et al³ (1999) | White, 1643 (73.9%); Black, 475 (21.4%); Other race, 105 (4.7%) | NR | NR | 16.9 (27.5) | Diabetes, 505 (22.7%); HTN, 308 (13.8%); GN, 616 (27.7%); Other, 794 (35.7%) | NR | 505 (22.7%) | NR | NR | NR | NR |
| Van Biesen et al⁴ (2000) | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Snyder et al⁵ (2002) | White, 12746 (56.0%); Black, 6670 (29.3%); Other race, 3360 (14.7%) | >29, 3431 (15.1%) | NR | NR | Diabetes, 10077 (44.2%) | 14748 (64.8%) | 10077 (44.2%) | 8833 (38.8%) | NR | 2848 (12.5%) | NR |
| Chalem et al⁶ (2005) | NR | NR | 3.1 (1.2) | 0-14 (n=2928, 93.3%); 15-69 (n=159, 5.1%); ≥70 (n=51, 1.6%) | NR | NR | 110 (3.5%) | NR | NR | NR | NR |
| Fontana et al⁷ (2005) | NR | 19.4 (5.5) | NR | ICRF, 61 (37.2%); IARF, 20 (12.2%); hereditary, 32 (19.5%); congenital | NR | NR | NR | NR | NR | NR |

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On the basis of the whole sample (743 cases and 1,480 controls).

Abbreviations: BMI, body mass index; CAD, coronary artery disease; ESKD, end-stage kidney disease; GN, glomerulonephritis; HD, hemodialysis; HLA, human leukocyte antigens; HTN, hypertension; IARF, irreversible acute renal failure; ICRF, irreversible chronic renal failure; NR, not reported; PD, peritoneal dialysis; PRA, panel reactive antibody; PVD, peripheral vascular disease; SD, standard deviation.
**eTable 3. Characteristics of Study Participants Included in the Meta-Analysis (Continued)**

| First Author (Year) | Race, No (%) | BMI at Transplant in kg/m², Mean (SD) | HLA Mismatch, No. (%) | PRA Titer, Mean (SD) | Cause of ESKD, No (%) | HTN, No. (%) | Diabetes, No. (%) | CAD, No. (%) | Cerebrovascular Disease, No. (%) | PVD, No. (%) | Cancer, No. (%) |
|---------------------|--------------|--------------------------------------|-----------------------|----------------------|-----------------------|--------------|------------------|------------|-------------------------------|--------------|-----------------|
| Goldfarb-Rumyantzev et al (2005)† | White, 65176 (70.2%); Black, 21354 (23.0%); Asian, 3157 (3.4%); Other, 3157 (3.4%) | 25.4 (9.2) | 1.8 (1.5) | 12.1 (21.5) | Diabetes, 23397 (25.2%); HTN, 15969 (17.2%); GN, 23954 (25.8%); Other, 29524 (31.8%) | 48743 (52.5%) | 25254 (27.2%) | NR | NR | NR | NR |
| Resende et al (2009) | NR | NR | 0, (n=29, 6.9%); 1-6 (n=392, 93.1%) | <50% (n=380, 90.3%); ≥50% (n=41, 9.7%) | Diabetes, 28 (6.7%); HTN, 42 (10.0%); GN, 129 (30.6%); Other, 222 (52.7%) | NR | NR | NR | NR | NR | NR |
| Courivaud et al (2011) | White, 1896 (100%) | 23.1 (4.0) | NR | NR | NR | NR | 0 (0.0%) | NR | NR | NR | NR |
| Madziarska et al (2011) | White, 308 (100%) | 23.8 (3.8) | 3.5 (0.8) | NR | HTN, 52 (16.9%); GN, 154 (50.0%); Interstitial nephropathy, 42 (13.6%); PKD, 49 (15.9%); Other, 29524 (31.8%) | NR | 0 (0.0%) | NR | NR | NR | NR |
| Schwenger et al (2011) | White, 52812 (92.1%) | NR | 0-1 (n=8247, 14.4%); 2-4 (n=39880, 69.6%); 5-6 (n=9188, 16.0%) | NR | NR | NR | 5105 (8.9%) | NR | NR | NR | NR |
| Sezer et al (2011) | NR | 24.0 (10.5) | NR | NR | HTN, 66 (26.4%); GN, 59 (23.6%); Vesicoureteral reflux, 45 (18.0%); Other, 80 32.0% | NR | NR | NR | NR | NR | NR |

†On the basis of the whole cohort (n=92,844).
Abbreviations: BMI, body mass index; CAD, coronary artery disease; ESKD, end-stage kidney disease; GN, glomerulonephritis; HLA, human leukocyte antigens; HTN, hypertension; NR, not reported; PKD, polycystic kidney disease; PRA, panel reactive antibody; PVD, peripheral vascular disease; SD, standard deviation.
**eTable 3.** Characteristics of Study Participants Included in the Meta-Analysis (Continued)

| First Author (Year) | Race, No (%) | BMI at Transplant in kg/m², Mean (SD) | HLA Mismatch, No. (%) | PRA Titer, Mean (SD) | Cause of ESKD, No. (%) | HTN, No. (%) | Diabetes, No. (%) | CAD, No. (%) | Cerebrovascular Disease, No. (%) | PVD, No. (%) | Cancer, No. (%) |
|---------------------|--------------|--------------------------------------|-----------------------|----------------------|------------------------|--------------|------------------|--------------|-------------------------------|---------------|------------------|
| Kramer et al<sup>14</sup> (2012) | NR | NR | NR | NR | DM, 3985 (13.7%); HTN, 3054 (10.5%); GN, 7185 (24.7%); Other, 14864 (51.1%) | NR | NR | NR | NR | NR | NR | NR |
| Molnar et al<sup>15</sup> (2012) | Black, 3677 (25.3%) | 26.5 (6.0) | 3.6 (1.8) | 10.0 (24.0) | NR | Diabetes, 15 (6.3%); HTN, 16 (6.8%); GN, 76 (32.2%); PKD, 29 (12.3%); Other, 100 (42.4%) | NR | 5026 (34.6%) | NR | NR | NR | NR |
| Lopez-Oliva et al<sup>16</sup> (2014) | NR | 24.6 (4.1) | 0 (n=83, 35.2%); 1 (n=135, 57.2%); 2 (n=20, 8.5%) | NR | Diabetes, 15 (10.0%); HTN, 31 (19.4%); GN, 32 (20.0%); PKD, 18 (11.2%); Other, 63 (39.4%) | NR | NR | NR | NR | NR | NR |
| Martins et al<sup>17</sup> (2015) | NR | 22.4 (2.8) | 4.5 (1.1) | NR | NR | NR | 158 (100.0%) | 29 (18.4%) | NR | NR | NR |
| Dipalma et al<sup>18</sup> (2016) | NR | 25.1 (5.5) | 3.3 (0.8) | >10% (n=29, 18.1%) | Diabetes, 16 (10.0%); HTN, 31 (19.4%); GN, 32 (20.0%); PKD, 18 (11.2%); Other, 63 (39.4%) | 111 (69.4%) | 25 (15.6%) | 16 (10.0%) | 6 (3.8%) | 6 (3.8%) | 6 (3.8%) |
| Dębska-Ślisień et al<sup>19</sup> (2018) | NR | NR | 3.0 (NS) | NR | Diabetes, 40 (15.5%); HTN, 35 (13.2%); GN, 93 (35.0%); Chronic interstitial nephritis, 18 (6.8%); PKD, 25 (9.4%); Other, 55 (20.7%) | NR | NR | NR | NR | NR | NR |

Abbreviations: BMI, body mass index; CAD, coronary artery disease; ESKD, end-stage kidney disease; GN, glomerulonephritis; HLA, human leukocyte antigens; HTN, hypertension; NR, not reported; NS, not specified; PKD, polycystic kidney disease; PRA, panel reactive antibody; PVD, peripheral vascular disease; SD, standard deviation.
eTable 3. Characteristics of Study Participants Included in the Meta-Analysis (Continued)

| First Author (Year) | Race, No (%) | BMI at Transplant in kg/m², Mean (SD) | HLA Mismatch, No. (%) | PRA Titer, Mean (SD) | Cause of ESKD, No (%) | HTN, No. (%) | Diabetes, No. (%) | CAD, No. (%) | Cerebrovascular Disease, No. (%) | PVD, No. (%) | Cancer, No. (%) |
|---------------------|--------------|---------------------------------------|-----------------------|---------------------|-----------------------|-------------|------------------|-------------|-------------------------------|-------------|-----------------|
| Lin et al\(^2\) (2018) | Asian, 1812 (100.0%) | NR | NR | NR | NR | 1416 (78.1%) | 274 (15.1%) | 280 (15.4%) | 94 (5.2%) | NR | 49 (2.7%) |
| Marcacuzco et al\(^2\) (2018) | NR | 23.7 (3.7) | NR | NR | NR | NR | 165 (100.0%) | NR | NR | NR | NR |
| Balzer et al\(^2\) (2020) | NR | 24.8 (3.9) | NR | 9.7 (26.1) | Diabetes, 272 (13.6%); HTN, 123 (6.1%); GN, 526 (26.2%); Other, 1085 (54.1%) | NR | NR | 468 (23.3%) | NR | NR | NR |
| Scheuermann et al\(^3\) (2020) | NR | 24.9 (4.2) | NR | NR | NR | NR | 83 (100.0%) | 23 (27.7%) | NR | NR | NR |
| Lenihan et al\(^4\) (2021) | White, 16313 (58.9%); Black, 8909 (32.2%); Others, 2440 (8.8%) | 27.9 (5.2) | 0 (n=2099, 7.6%); 1-3 (n=6413, 23.2%); 4-6 (n=18668, 67.4%) | 14.7 (26.8) | Diabetes, 6991 (25.2%); HTN, 7187 (25.9%); GN, 6905 (24.9%); Other, 6519 (23.5%) | 25536 (92.2%) | 11229 (40.5%) | 6835 (24.7%) | 1903 (6.9%) | 5233 (18.9%) | 1839 (6.6%) |
| So et al\(^5\) (2021) | White, 674 (84.0%); Asian, 76 (9.5%); Other/unknown, 52 (6.5%) | 27.5 (4.7) | NR | Diabetes, 147 (18.3%); HTN, 107 (13.3%); GN, 276 (34.4%); Other/unknown, 272 (34.0%) | NR | 299 (37.3%) | 302 (37.7%) | 91 (11.4%) | 153 (19.1%) | NR |
| Prezelin-Reydit et al\(^6\) (2021) | NR | NR | 0-2 (n=317, 21.6%); 3-4 (n=977, 66.7%); 5-6 (n=171, 11.7%) | NR | Other/unknown, 248 (16.2%); GN, 468 (30.6%); Hereditary, 265 (17.3%); Vascular, 100 (6.5%); Congenital, 450 (29.4%) | NR | NR | NR | NR | NR |

\(^3\)On the basis of non-preemptive kidney transplantation cohort.

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Abbreviations: BMI, body mass index; CAD, coronary artery disease; ESKD, end-stage kidney disease; GN, glomerulonephritis; HLA, human leukocyte antigens; HTN, hypertension; NR, not reported; PRA, panel reactive antibody; PVD, peripheral vascular disease; SD, standard deviation.
| Cohort Studies First Author, Year | Selection Representativeness | Non-Exposed: Selection | Exposure: Ascertainment | Outcomes Not Present at Entry | Comparability Controls for: Donor age, type of donor, CIT | Control for: additional Factors† | Outcomes Assessment | Follow-up Long Enough | Adequacy of follow-up | Total NOS |
|----------------------------------|-----------------------------|------------------------|------------------------|-------------------------------|---------------------------------|---------------------------------|------------------|------------------------|----------------------|----------|
| Pérez Fontán et al1 (1998)      | *                           | *                      | ...                    | *                             | *                               | ...                             | *                | *                      | *                    | 7        |
| Bleyer et al2 (1999)            | *                           | *                      | ...                    | *                             | *                               | ...                             | *                | *                      | *                    | 8        |
| Van Biesen et al3 (2000)        | *                           | *                      | *                      | *                             | *                               | ...                             | *                | *                      | *                    | 7        |
| Snyder et al3 (2002)            | *                           | *                      | *                      | *                             | *                               | ...                             | *                | *                      | *                    | 7        |
| Chalem et al9 (2005)            | *                           | *                      | ...                    | *                             | *                               | ...                             | *                | *                      | *                    | 7        |
| Fontana et al7 (2005)           | *                           | *                      | *                      | *                             | *                               | ...                             | *                | *                      | *                    | 7        |
| Goldfarb-Rumyantzev et al8 (2005) | *                       | *                      | *                      | *                             | *                               | ...                             | *                | *                      | *                    | 8        |
| Resende et al7 (2009)           | *                           | *                      | ...                    | *                             | ...                             | ...                             | *                | *                      | *                    | 6        |
| Courivaud et al10 (2011)        | *                           | *                      | ...                    | *                             | ...                             | ...                             | *                | *                      | *                    | 6        |
| Madziarska et al11 (2011)       | *                           | *                      | ...                    | *                             | ...                             | ...                             | *                | *                      | *                    | 6        |
| Schwenger et al12 (2011)        | *                           | *                      | ...                    | *                             | *                               | *                               | ...               | *                      | *                    | 8        |
| Sezer et al13 (2011)            | *                           | *                      | *                      | *                             | ...                             | ...                             | *                | *                      | *                    | 6        |
| Kramer et al14 (2012)           | *                           | *                      | *                      | *                             | ...                             | ...                             | *                | *                      | *                    | 7        |
| Molnar et al15 (2012)           | *                           | *                      | *                      | *                             | *                               | *                               | *                | *                      | *                    | 9        |
| Lopez-Oliva et al16 (2014)      | *                           | *                      | ...                    | *                             | ...                             | ...                             | *                | *                      | *                    | 6        |
| Martins et al17 (2015)          | *                           | *                      | ...                    | *                             | ...                             | ...                             | *                | *                      | *                    | 7        |

†Study control for 3 of additional factors: panel reactive antibody, HLA mismatch, dialysis duration, co-morbidity

Abbreviations: CIT, cold ischemic time; HLA, human leukocyte antigens; NOS, Newcastle-Ottawa Scale.

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**eTable 4. Risk of Bias Assessment of Included Studies by the NOS (Continued)**

| Cohort Studies (Continued) | First Author, Year | Selection Representativeness | Non-Exposed: Selection | Exposure: Ascertainment | Outcomes Not Present at Entry | Comparability Controls for: Donor age, type of donor, CIT | Control for: additional Factors† | Outcomes Assessment | Follow-up Long Enough | Adequacy of follow-up | Total NOS |
|---------------------------|---------------------|------------------------------|------------------------|-------------------------|-----------------------------|----------------------------------------------------------|--------------------------------|---------------------|----------------------|---------------------|----------|
| Dipalma et al\(^1\)\(^8\)  (2016) | * | * | * | * | * | * | * | * | * | * | 7 |
| Dębska-Ślizień et al\(^1\)^9 (2018) | * | * | * | * | * | * | * | * | * | * | 6 |
| Lin et al\(^1\)\(^2\) (2018) | * | * | * | * | * | * | * | * | * | * | 7 |
| Marcacuzco et al\(^1\)\(^3\) (2018) | * | * | * | * | * | * | * | * | * | * | 6 |
| Balzer et al\(^1\)\(^4\) (2020) | * | * | * | * | * | * | * | * | * | * | 9 |
| Scheuermann et al\(^1\)\(^5\) (2020) | * | * | * | * | * | * | * | * | * | * | 7 |
| Lenihan et al\(^1\)\(^6\) (2021) | * | * | * | * | * | * | * | * | * | * | 9 |
| So et al\(^1\)\(^7\) (2021) | * | * | * | * | * | * | * | * | * | * | 6 |
| Prezelin-Reydit et al\(^1\)\(^8\) (2021) | * | * | * | * | * | * | * | * | * | * | 7 |

**Case-Control Studies**

| First Author, Year | Selection Cases: Definition | Cases: Representativeness | Controls: Selection | Controls: Definitions | Comparability Controls for: Donor age, type of donor, CIT | Control for: additional Factors† | Exposure Ascertainment | Same Method | Non-Response Rate | Total NOS |
|-------------------|-----------------------------|---------------------------|-------------------|---------------------|----------------------------------------------------------|--------------------------------|---------------------|-------------|-----------------|----------|
| Ojo et al\(^1\)\(^9\) (1999) | * | * | * | * | * | * | * | * | * | 8 |

*Study control for 3 of additional factors: panel reactive antibody, HLA mismatch, dialysis duration, co-morbidity
Abbreviations: CIT, cold ischemic time; HLA, human leukocyte antigens; NOS, Newcastle-Ottawa Scale.
**eTable 5. Subgroup Analysis of Primary Outcomes**

| Subgroup Comparison: All-Cause Mortality (PD vs. HD) | No. of Studies (Ref) | No. of Participants | HR (95% CI) | P Value | Heterogeneity Q Statistic | P Value | I² Index (95% CI) | χ² |
|-----------------------------------------------------|----------------------|---------------------|-------------|---------|--------------------------|---------|-------------------|----|
| **Study Population**                                |                      |                     |             |         |                          |         |                   |    |
| Adult                                               | 12 (5, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 128,971             | 0.92 (0.81 – 1.06) | 0.261   | 36.04                    | <0.001  | 69.5% (36.1 – 81.7) | 0.022 |
| Pediatric/mixed cases                               | 1 (8)                | 92,844              | 0.94 (0.91 – 0.97) | <0.001  | NA                       | NA      | NA                | NA |
| **Donor Type**                                      |                      |                     |             |         |                          |         |                   |    |
| Deceased                                            | 4 (12, 17, 18, 23)   | 57,578              | 1.34 (0.62 – 2.91) | 0.463   | 7.57                     | 0.056   | 60.4% (0.0 – 84.6) | 0.357 |
| Mixed cases/unspecified                             | 9 (5, 8, 14, 15, 16, 20, 21, 22, 25)            | 164,237             | 0.92 (0.81 – 1.03) | 0.144   | 30.64                    | <0.001  | 73.9 (39.8 – 85.0) | 0.014 |
| **Publication Date**                                |                      |                     |             |         |                          |         |                   |    |
| Before 2015                                          | 6 (5, 8, 12, 14, 15, 17) | 216,767             | 0.89 (0.83 – 0.96) | 0.002   | 15.52                    | 0.008   | 67.8% (0.0 – 84.4) | 0.004 |
| 2015 to 2022                                         | 7 (17, 18, 20, 21, 22, 23, 25) | 5,048               | 1.24 (0.81 – 1.89) | 0.322   | 17.80                    | 0.007   | 66.3% (0.0 – 83.0) | 0.172 |
| **Sample size**                                     |                      |                     |             |         |                          |         |                   |    |
| ≤1,000                                               | 6 (16, 17, 18, 21, 23, 25) | 1,466               | 1.27 (0.67 – 2.42) | 0.460   | 13.67                    | 0.018   | 63.4% (0.0 – 82.9) | 0.371 |
| >1,000                                               | 7 (5, 8, 12, 14, 15, 20, 22) | 220,349             | 0.90 (0.84 – 0.96) | 0.003   | 17.15                    | 0.009   | 65.0% (0.0 – 82.5) | 0.004 |
| **Study Setting**                                   |                      |                     |             |         |                          |         |                   |    |
| Single-center                                       | 6 (16, 17, 18, 21, 22, 23) | 2,670               | 0.98 (0.52 – 1.86) | 0.960   | 13.05                    | 0.023   | 61.7% (0.0 – 82.2) | 0.356 |
| Multicenter                                         | 7 (5, 8, 12, 14, 15, 20, 25) | 219,145             | 0.93 (0.85 – 1.01) | 0.086   | 24.14                    | <0.001  | 75.1% (33.5 – 86.6) | 0.007 |
| **Study Location**                                  |                      |                     |             |         |                          |         |                   |    |
| European                                            | 6 (16, 17, 18, 21, 22, 23) | 2,670               | 0.98 (0.52 – 1.86) | 0.960   | 13.05                    | 0.023   | 61.7% (0.0 – 82.2) | 0.356 |

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| Non-European region/international | 7 (5, 8, 12, 14, 15, 20, 25) | 219,145 | 0.93 (0.85 – 1.01) | 0.086 | 24.14 | <0.001 | 75.1% (33.5 – 86.6) | 0.007 |

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; PD, peritoneal dialysis.
## eTable 5. Subgroup Analysis of Primary Outcomes (Continued)

| Subgroup Comparison: Overall Graft Failure (PD vs. HD) | No. of Studies (Ref) | No. of Participants | HR (95% CI) | P Value | Heterogeneity | \( Q \) Statistic | P Value | \( I^2 \) Index (95% CI) | \( \tau^2 \) |
|-------------------------------------------------------|----------------------|----------------------|-------------|---------|---------------|-------------------|---------|--------------------------|--------|
| **Study Population**                                   |                      |                      |             |         |               |                   |         |                          |        |
| Adult                                                 | 8 (5, 6, 9, 12, 14, 16, 22, 23) | 117,762 | 0.96 (0.90 – 1.03) | 0.243 | 13.51 | 0.061 | 48.2% (0.0 – 75.2) | 0.003 |
| Pediatric/mixed cases                                 | 2 (8, 26)            | 94,224              | 0.97 (0.94 – 0.99) | 0.018 | 0.30 | 0.584 | 0.0% (NA) | <0.001 |
| **Donor Type**                                         |                      |                      |             |         |               |                   |         |                          |        |
| Deceased                                              | 4 (6, 9, 12, 23)     | 63,656              | 0.94 (0.90 – 0.98) | 0.010 | 0.17 | 0.983 | 0.0% (0.0 – 67.9) | <0.001 |
| Mixed cases/unspecified                               | 6 (5, 8, 14, 16, 22, 26) | 148,330 | 0.97 (0.91 – 1.02) | 0.212 | 13.18 | 0.022 | 62.1% (0.0 – 82.4) | 0.002 |
| **Publication Date**                                  |                      |                      |             |         |               |                   |         |                          |        |
| Before 2015                                           | 7 (5, 6, 8, 9, 12, 14, 16) | 208,517 | 0.96 (0.92 – 1.01) | 0.120 | 13.04 | 0.042 | 54.0% (0.0 – 78.4) | 0.002 |
| 2015 to 2022                                          | 3 (22, 23, 26)       | 3,469               | 0.94 (0.88 – 1.01) | 0.096 | 1.05 | 0.590 | 0.0% (0.0 – 72.9) | <0.001 |
| **Sample size**                                       |                      |                      |             |         |               |                   |         |                          |        |
| \( \leq 1,000 \)                                      | 3 (9, 16, 23)        | 740                 | 1.24 (0.86 – 1.77) | 0.244 | 0.96 | 0.618 | 0.0% (0.0 – 72.9) | <0.001 |
| \( >1,000 \)                                          | 7 (5, 6, 8, 12, 14, 22, 26) | 211,246 | 0.96 (0.92 – 0.99) | 0.018 | 11.45 | 0.076 | 47.6% (0.0 – 76.1) | 0.001 |
| **Study Setting**                                     |                      |                      |             |         |               |                   |         |                          |        |
| Single-center                                         | 4 (9, 16, 22, 23)    | 2,746               | 1.02 (0.74 – 1.42) | 0.897 | 3.93 | 0.269 | 23.7% (0.0 – 74.8) | 0.027 |
| Multicenter                                           | 6 (5, 6, 8, 12, 14, 26) | 209,240 | 0.96 (0.92 – 0.99) | 0.022 | 10.28 | 0.068 | 51.4% (0.0 – 78.7) | 0.001 |
| **Study Location**                                    |                      |                      |             |         |               |                   |         |                          |        |
| European                                              | 6 (6, 9, 16, 22, 23, 26) | 9,963   | 0.95 (0.89 – 1.02) | 0.133 | 4.20 | 0.521 | 0.0% (0.0 – 61.0) | <0.001 |
| Non-European region/international                      | 4 (5, 8, 12, 14)     | 202,023             | 0.96 (0.92 – 1.01) | 0.100 | 10.05 | 0.018 | 70.2% (0.0 – 87.5) | 0.002 |
Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; PD, peritoneal dialysis.
### eTable 5. Subgroup Analysis of Primary Outcomes (Continued)

| Subgroup Comparison: Death-Censored Graft Failure (PD vs. HD) | No. of Studies (Ref) | No. of Participants | HR (95% CI) | P Value | Heterogeneity | I² Index (95% CI) | τ² |
|-------------------------------------------------------------|----------------------|---------------------|-------------|---------|--------------|------------------|----|
| Study Population                                            |                      |                     |             |         |              |                  |     |
| Adult                                                       | 5 (5, 12, 15, 18, 20)| 96,439              | 0.98 (0.85 – 1.14) | 0.811 | 15.23 | 0.004 | 73.7% (0.0 – 87.5) | 0.016 |
| Pediatric/mixed cases                                       | NA                   | NA                  | NA          | NA     | NA            | NA               | NA |
| Donor Type                                                  |                      |                     |             |         |              |                  |     |
| Deceased                                                   | 2 (12, 18)           | 57,343              | 0.93 (0.72 – 1.20) | 0.598 | 1.18 | 0.278 | 14.9% (NA) | 0.017 |
| Mixed cases/unspecified                                    | 3 (5, 15, 20)        | 39,096              | 0.98 (0.75 – 1.30) | 0.915 | 8.74 | 0.013 | 77.1% (0.0 – 90.9) | 0.045 |
| Publication Date                                            |                      |                     |             |         |              |                  |     |
| Before 2015                                                 | 3 (5, 12, 15)        | 94,599              | 1.06 (0.92 – 1.21) | 0.453 | 8.66 | 0.013 | 76.9% (0.0 – 90.9) | 0.010 |
| 2015 to 2022                                                | 2 (18, 20)           | 1,840               | 0.71 (0.54 – 0.94) | 0.015 | 0.16 | 0.685 | 0.0% (NA) | <0.001 |
| Sample size                                                |                      |                     |             |         |              |                  |     |
| ≤1,000                                                      | 1 (18)               | 28                  | 0.60 (0.25 – 1.43) | 0.248 | NA   | NA   | NA   | NA |
| >1,000                                                      | 4 (5, 12, 15, 20)    | 96,411              | 1.00 (0.86 – 1.16) | 0.960 | 13.84 | 0.003 | 78.3% (2.7 – 90.0) | 0.015 |
| Study Setting                                               |                      |                     |             |         |              |                  |     |
| Single-center                                              | 1 (18)               | 28                  | 0.60 (0.25 – 1.43) | 0.248 | NA   | NA   | NA   | NA |
| Multicenter                                                | 4 (5, 12, 15, 20)    | 96,411              | 1.00 (0.86 – 1.16) | 0.960 | 13.84 | 0.003 | 78.3% (2.7 – 90.0) | 0.015 |
| Study Location                                              |                      |                     |             |         |              |                  |     |
| European                                                   | 1 (18)               | 28                  | 0.60 (0.25 – 1.43) | 0.248 | NA   | NA   | NA   | NA |
| Non-European region/international                           | 4 (5, 12, 15, 20)    | 96,411              | 1.00 (0.86 – 1.16) | 0.960 | 13.84 | 0.003 | 78.3% (2.7 – 90.0) | 0.015 |

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; PD, peritoneal dialysis.
**eTable 5.** Subgroup Analysis of Primary Outcomes (Continued)

| Subgroup Comparison: Delayed Graft Function (PD vs. HD) | No. of Studies (Ref) | No. of Participants | OR (95% CI) | P Value | Heterogeneity | I2 | τ² | P Value | ² Index (95% CI) |
|--------------------------------------------------------|----------------------|---------------------|-------------|---------|---------------|----| ----|---------|-----------------|
| **Study Population**                                   |                      |                     |             |         | Q Statistic   |    |     |         |                 |
| Adult                                                  | 5 (2, 4, 5, 13, 15)  | 46,944              | 0.73 (0.69 – 0.77) | <0.001  | 5.35          | 0.254 | 25.2% (0.0 – 72.4) | <0.001 |
| Pediatric/mixed cases                                  | 1 (7)                | 174                 | 0.83 (0.47 – 1.49) | 0.536   | NA            | NA   | NA  | NA      | NA              |
| **Donor Type**                                         |                      |                     |             |         |               |     |     |         |                 |
| Deceased                                              | 3 (2, 4, 7)          | 9,584               | 0.71 (0.63 – 0.79) | <0.001  | 0.89          | 0.639 | 0.0% (0.0 – 72.9) | <0.001 |
| Mixed cases/unspecified                                | 3 (5, 13, 15)        | 37,534              | 0.74 (0.69 – 0.81) | <0.001  | 4.53          | 0.104 | 55.8% (0.0 – 85.8%) | 0.003 |
| **Publication Date**                                   |                      |                     |             |         |               |     |     |         |                 |
| Before 2015                                            | 6 (2, 4, 5, 7, 13, 15) | 47,118            | 0.73 (0.70 – 0.76) | <0.001  | 5.58          | 0.349 | 10.4% (0.0 – 64.9) | <0.001 |
| 2015 to 2022                                           | NA                   | NA                  | NA          | NA      | NA            | NA   | NA  | NA      | NA              |
| **Sample size**                                        |                      |                     |             |         |               |     |     |         |                 |
| ≤1,000                                                 | 3 (4, 7, 13)         | 543                 | 0.72 (0.70 – 0.74) | <0.001  | 0.95          | 0.621 | 0.0% (0.0 – 72.9) | <0.001 |
| 1,000                                                  | 3 (2, 5, 15)         | 46,575              | 0.76 (0.68 – 0.84) | <0.001  | 3.79          | 0.150 | 47.2% (0.0 – 83.9) | 0.004 |
| **Study Setting**                                      |                      |                     |             |         |               |     |     |         |                 |
| Single-center                                          | 3 (4, 7, 13)         | 543                 | 0.72 (0.70 – 0.74) | <0.001  | 0.95          | 0.621 | 0.0% (0.0 – 72.9) | <0.001 |
| Multicenter                                            | 3 (2, 5, 15)         | 46,575              | 0.76 (0.68 – 0.84) | <0.001  | 3.79          | 0.150 | 47.2% (0.0 – 83.9) | 0.004 |
| **Study Location**                                     |                      |                     |             |         |               |     |     |         |                 |
| European                                               | 3 (4, 7, 13)         | 543                 | 0.72 (0.70 – 0.74) | <0.001  | 0.95          | 0.621 | 0.0% (0.0 – 72.9) | <0.001 |
| Non-European region/international                      | 3 (2, 5, 15)         | 46,575              | 0.76 (0.68 – 0.84) | <0.001  | 3.79          | 0.150 | 47.2% (0.0 – 83.9) | 0.004 |

Abbreviations: CI, confidence interval; HD, hemodialysis; NA, not applicable; OR, odds ratio; PD, peritoneal dialysis.
| Kidney Transplantation Outcomes (PD vs. HD) | No. of Studies (Ref) | No. of Participants | Effect Estimate (95% CI) | P Value | Heterogeneity | Q Statistic | P Value | I² Index (95% CI) | τ² |
|------------------------------------------|----------------------|---------------------|--------------------------|---------|---------------|------------|---------|------------------|----|
| **Primary Outcomes**                     |                      |                     |                          |         |               |            |         |                  |    |
| All-cause mortality                      | 4 (5, 12, 15, 22)    | 96,605              | HR 0.86 (0.75 – 0.99)    | 0.031   | 8.12          | 0.044      | 63.1%   | (0.0 – 85.4)     | 0.010 |
| Overall graft failure                    | 5 (5, 6, 12, 22, 26) | 89,314              | HR 0.97 (0.91 – 1.02)    | 0.259   | 7.41          | 0.116      | 46.0%   | (0.0 – 78.6)     | 0.002 |
| Death-censored graft failure             | 3 (5, 12, 15)        | 94,599              | HR 1.06 (0.92 – 1.21)    | 0.453   | 8.66          | 0.013      | 76.9%   | (0.0 – 90.9)     | 0.010 |
| Delayed graft function                   | 3 (2, 5, 15)         | 46,575              | OR 0.76 (0.68 – 0.84)    | <0.001  | 3.79          | 0.150      | 47.2%   | (0.0 – 83.9)     | 0.004 |
| **Secondary Outcomes**                   |                      |                     |                          |         |               |            |         |                  |    |
| Acute rejection                          | 1 (22)               | 2,006               | OR 0.70 (0.51 – 0.96)    | 0.029   | NA            | NA         | NA      | NA               | NA  |
| Graft vessel thrombosis                  | 1 (1)                | 827                 | OR 0.40 (0.13 – 1.24)    | 0.113   | NA            | NA         | NA      | NA               | NA  |
| Oliguria (not producing urine in the first 24 hours) | 1 (2) | 9,291 | OR 0.74 (0.62 – 0.87) | <0.001 | NA | NA | NA | NA | NA |
| de novo heart failure                    | 1 (24)               | 27,701              | HR 0.84 (0.78 – 0.91)    | <0.001  | NA            | NA         | NA      | NA               | NA  |
| NODAT                                    | NA                   | NA                  | NA                       | NA      | NA            | NA         | NA      | NA               | NA  |

†To include donor age, type of donor, cold ischemic time.

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; NODAT, new onset diabetes mellitus after transplantation; OR, odds ratio; PD, peritoneal dialysis.
eTable 7. Sensitivity Analysis: Restricting the Analysis to Studies Judged to Be of the Highest Quality (NOS ≥8 Points)

| Kidney Transplantation Outcomes (PD vs. HD) | No. of Studies (Ref) | No. of Participants | Effect Estimate (95% CI) | P Value | Heterogeneity Q Statistic | P Value | I² Index (95% CI) | τ² |
|---------------------------------------------|---------------------|---------------------|---------------------------|---------|--------------------------|---------|------------------|-----|
| **Primary Outcomes**                        |                     |                     |                           |         |                          |         |                  |     |
| All-cause mortality                          | 5 (5, 8, 12, 15, 22)| 189,449             | HR 0.91 (0.85 – 0.98)     | 0.009   | 9.27                     | 0.055   | 56.8% (0.0 – 82.0)| 0.003|
| Overall graft failure                        | 5 (5, 6, 8, 12, 22) | 180,778             | HR 0.97 (0.93 – 1.02)     | 0.216   | 7.24                     | 0.124   | 44.8% (0.0 – 78.3)| 0.001|
| Death-censored graft failure                 | 3 (5, 12, 15)       | 94,599              | HR 1.06 (0.92 – 1.21)     | 0.453   | 8.66                     | 0.013   | 76.9% (0.0 – 90.9)| 0.010|
| Delayed graft function                       | 3 (2, 5, 15)        | 46,575              | OR 0.76 (0.68 – 0.84)     | <0.001  | 3.79                     | 0.150   | 47.2% (0.0 – 83.9)| 0.004|
| **Secondary Outcomes**                      |                     |                     |                           |         |                          |         |                  |     |
| Acute rejection                              | 1 (22)              | 2,006               | OR 0.70 (0.51 – 0.96)     | 0.029   | NA                       | NA      | NA               | NA  |
| Graft vessel thrombosis                      | 1 (3)               | 1,991               | OR 1.87 (1.28 – 2.73)     | 0.001   | NA                       | NA      | NA               | NA  |
| Oliguria (not producing urine in the first 24 hours) | 1 (2)              | 9,291               | OR 0.74 (0.62 – 0.87)     | <0.001  | NA                       | NA      | NA               | NA  |
| de novo heart failure                        | 1 (24)              | 27,701              | HR 0.84 (0.78 – 0.91)     | <0.001  | NA                       | NA      | NA               | NA  |
| NODAT                                        | NA                  | NA                  | NA                         | NA      | NA                       | NA      | NA               | NA  |

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; NODAT, new onset diabetes mellitus after transplantation; OR, odds ratio; PD, peritoneal dialysis.
eTable 8. Sensitivity Analysis: Including the Analysis of Studies With the Directness of Effect Estimates

| Kidney Transplantation Outcomes (PD vs. HD) | No. of Studies (Ref) | No. of Participants | Effect Estimate (95% CI) | P Value | Heterogeneity |
|---------------------------------------------|----------------------|---------------------|--------------------------|---------|---------------|
|                                             |                      |                     |                          |         | Q Statistic  |
|                                             |                      |                     |                          |         | P Value       |
|                                             |                      |                     |                          |         | I² Index (95% CI) |
|                                             |                      |                     |                          |         | \( \tau^2 \) |
| **Primary Outcomes**                        |                      |                     |                          |         |               |
| All-cause mortality                         | 12 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23) | 221,013              | HR 0.90 (0.83 – 0.97)   | 0.010   | 28.44         |
|                                             |                      |                     |                          |         | 0.003         | 61.3% (11.7 – 77.9) | 0.007 |
| Overall graft failure                       | 8 (5, 6, 8, 12, 14, 16, 22, 23)                  | 210,185              | HR 0.96 (0.92 – 1.01)   | 0.093   | 14.17         |
|                                             |                      |                     |                          |         | 0.048         | 50.6% (0.0 – 76.1) | 0.002 |
| Death-censored graft failure                | 5 (5, 12, 15, 18, 20)                                  | 96,439               | HR 0.98 (0.85 – 1.14)   | 0.811   | 15.23         |
|                                             |                      |                     |                          |         | 0.004         | 73.7% (0.0 – 87.5) | 0.016 |
| Delayed graft function                      | 6 (2, 4, 5, 7, 13, 15)                                 | 47,118               | OR 0.73 (0.70 – 0.76)   | <0.001  | 5.58          |
|                                             |                      |                     |                          |         | 0.349         | 10.4% (0.0 – 64.9) | <0.001 |
| **Secondary Outcomes**                      |                      |                     |                          |         |               |
| Acute rejection                             | 1 (22)               | 2,006               | OR 0.70 (0.51 – 0.96)   | 0.029   | NA            |
| Graft vessel thrombosis                     | 2 (1, 19)           | 1,093               | OR 1.07 (0.15 – 7.57)   | 0.947   | 5.44          |
|                                             |                      |                     |                          |         | 0.020         | 81.6% (NA)        | 1.629 |
| Oliguria (not producing urine in the first 24 hours) | 1 (2)               | 9,291               | OR 0.74 (0.62 – 0.87)   | <0.001  | NA            |
|                                             |                      |                     |                          |         | NA            |
| De novo heart failure                       | 1 (24)              | 27,701              | HR 0.84 (0.78 – 0.91)   | <0.001  | NA            |
| NODAT                                       | 2 (10, 11)          | 2,204               | OR 1.57 (0.56 – 4.45)   | 0.393   | 5.48          |
|                                             |                      |                     |                          |         | 0.019         | 81.8% (NA)        | 0.463 |

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; NODAT, new onset diabetes mellitus after transplantation; OR, odds ratio; PD, peritoneal dialysis.
# eTable 9. Sensitivity Analysis: Excluding Studies That Were Conducted Among SPKT Patients

| Kidney Transplantation Outcomes (PD vs. HD) | No. of Studies (Ref) | No. of Participants | Effect Estimate (95% CI) | P Value | Heterogeneity | I² (95% CI) | τ² |
|--------------------------------------------|----------------------|---------------------|--------------------------|---------|---------------|-------------|----|
| **Primary Outcomes**                       |                      |                     |                          |         |               |             |    |
| All-cause mortality                        | 9 (5, 8, 12, 14, 15, 16, 18, 20, 25) | 219, 403            | HR 0.92 (0.84 – 1.01)   | 0.064   | 27.67         | 0.001       | 71.1% (30.2 – 83.8) | 0.008 |
| Overall graft failure                      | 8 (5, 6, 8, 9, 12, 14, 16, 26)         | 209,897             | HR 0.96 (0.92 – 0.99)   | 0.039   | 13.15         | 0.068       | 46.8% (0.0 – 74.6)   | 0.001 |
| Death-censored graft failure               | 5 (5, 12, 15, 18, 20)         | 96,439              | HR 0.98 (0.85 – 1.14)   | 0.811   | 15.23         | 0.004       | 73.7% (0.0 – 87.5)   | 0.016 |
| Delayed graft function                     | 6 (2, 4, 5, 7, 13, 15)         | 47,118              | OR 0.73 (0.70 – 0.76)   | <0.001  | 5.58          | 0.349       | 10.4% (0.0 – 64.9)   | <0.001 |
| **Secondary Outcomes**                     |                      |                     |                          |         |               |             |    |
| Acute rejection                            | NA                   | NA                  | NA                       | NA      | NA            | NA          | NA |
| Graft vessel thrombosis                    | 3 (1, 3, 19)         | 3,084               | OR 1.35 (0.50 – 3.65)   | 0.554   | 7.28          | 0.026       | 72.5% (0.0 – 89.7)   | 0.550 |
| Oliguria (not producing urine in the first 24 hours) | 1 (2)               | 9,291               | OR 0.74 (0.62 – 0.87)   | <0.001  | NA            | NA          | NA |
| de novo heart failure                      | 1 (24)               | 27,701              | HR 0.84 (0.78 – 0.91)   | <0.001  | NA            | NA          | NA |
| NODAT                                      | 2 (10, 11)           | 2,204               | OR 1.57 (0.56 – 4.45)   | 0.393   | 5.48          | 0.019       | 81.8% (NA)       | 0.463 |

Abbreviations: CI, confidence interval; HD, hemodialysis; HR, hazard ratio; NA, not applicable; NODAT, new onset diabetes mellitus after transplantation; OR, odds ratio; PD, peritoneal dialysis; SPKT, simultaneous pancreas-kidney transplantation.
### Table 10. Sensitivity Analysis: Post-Hoc Analysis Using the “Leave-One-Out” Approach

| First Author (Year)          | All-Cause Mortality | HR (95% CI) | Death-Censored Graft Failure | OR (95% CI) Delayed Graft Function |
|-----------------------------|---------------------|-------------|------------------------------|-----------------------------------|
| All studies                 | 0.92 (0.84-1.01)    | 0.96 (0.92-0.99) | 0.98 (0.85-1.14) | 0.73 (0.70-0.76) |
| Pérez Fontán et al1 (1998)  | NA                  | NA          | NA                          | NA                                |
| Bleyer et al2 (1999)        | NA                  | NA          | NA                          | 0.74 (0.69-0.78)                   |
| Ojo et al3 (1999)           | NA                  | NA          | NA                          | NA                                |
| Van Biesen et al4 (2000)    | NA                  | NA          | NA                          | 0.73 (0.70-0.76)                   |
| Snyder et al5 (2002)        | 0.92 (0.82-1.02)    | 0.95 (0.92-0.98) | 0.91 (0.76-1.09) | 0.73 (0.68-0.78) |
| Chalem et al6 (2005)        | NA                  | 0.96 (0.92-0.99) | NA                          | NA                                |
| Fontana et al7 (2005)       | NA                  | NA          | NA                          | 0.73 (0.69-0.77)                   |
| Goldfarb-Rumyantsev et al8 (2005) | 0.92 (0.81-1.06) | **0.96 (0.91-1.01)** | NA                          | NA                                |
| Resende et al9 (2009)       | NA                  | 0.96 (0.92-0.99) | NA                          | NA                                |
| Courivaud et al10 (2011)    | NA                  | NA          | NA                          | NA                                |
| Madziarska et al11 (2011)   | NA                  | NA          | NA                          | NA                                |
| Schwenger et al12 (2011)    | 0.93 (0.82-1.05)    | **0.96 (0.92-1.01)** | 0.95 (0.72-1.24) | NA                                |
| Sezer et al13 (2011)        | NA                  | NA          | NA                          | 0.74 (0.68-0.81)                   |
| Kramer et al14 (2012)       | 0.94 (0.85-1.05)    | **0.97 (0.94-1.00)** | NA                          | NA                                |
| Molnar et al15 (2012)       | 0.94 (0.86-1.02)    | NA          | 0.96 (0.81-1.14) | 0.72 (0.70-0.74) |
| Lopez-Oliva et al16 (2014)  | 0.93 (0.85-1.02)    | 0.96 (0.93-0.99) | NA                          | NA                                |
| Martins et al17 (2015)      | **0.91 (0.84-0.99)** | NA          | NA                          | NA                                |
| Dipalma et al18 (2016)      | 0.92 (0.84-1.01)    | NA          | 1.00 (0.86-1.16) | NA                                |
| Dębska-Ślizień et al19 (2018) | NA                  | NA          | NA                          | NA                                |
| Lin et al20 (2018)          | **0.91 (0.82-0.99)** | NA          | 1.04 (0.90-1.20) | NA                                |
| Marcacuzco et al21 (2018)   | 0.92 (0.84-1.01)    | NA          | NA                          | NA                                |
| Balzer et al22 (2020)       | 0.93 (0.85-1.02)    | 0.96 (0.93-0.99) | NA                          | NA                                |
| Scheuermann et al23 (2020)  | 0.92 (0.84-1.01)    | 0.96 (0.92-0.99) | NA                          | NA                                |
| Lenihan et al24 (2021)      | NA                  | NA          | NA                          | NA                                |
| So et al25 (2021)           | **0.90 (0.83-0.97)** | NA          | NA                          | NA                                |
| Prezcelin-Reydit et al26 (2021) | NA | **0.96 (0.92-1.00)** | NA                          | NA                                |

Abbreviations: CI, confidence interval; HR, hazard ratio; NA, not applicable; OR, odds ratio.
### eTable 11. Meta-Regression of Primary Outcomes

| Covariate                                                                 | No. of Studies (Reference) | All-Cause Mortality | P Value |
|---------------------------------------------------------------------------|----------------------------|---------------------|---------|
| **Study Characteristics**                                                 |                            |                     |         |
| Risk of bias by NOS (per 1 point)                                        | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 0.96 (0.76 – 1.20) | 0.685   |
| Proportion of PD modality (per %)                                        | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.00 (0.98 – 1.02) | 0.811   |
| Study population (adult vs. pediatric/mixed cases)                       | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.17 (0.55 – 2.48) | 0.663   |
| Donor type (deceased vs. mixed cases/unspecified)                        | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 0.92 (0.47 – 1.81) | 0.790   |
| Publication date (before 2015 vs. 2015 to 2022)                         | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.30 (0.77 – 2.21) | 0.296   |
| Sample size (<1,000 vs. >1,000)                                         | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.11 (0.61 – 2.02) | 0.702   |
| Study setting (single-center vs. multicenter)                            | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.58 (1.02 – 2.44) | **0.040** |
| Study location (European vs. non-European region/international)         | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.58 (1.02 – 2.44) | **0.040** |
| **Recipient Characteristics**                                            |                            |                     |         |
| Recipient age (mean, per 1 year)                                         | 13 (8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.02 (0.98 – 1.07) | 0.298   |
| Female (per %)                                                           | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 0.99 (0.95 – 1.03) | 0.684   |
| BMI, (mean, per 1 kg/m²)                                                 | 9 (8, 15, 16, 17, 18, 21, 22, 23, 25)              | 1.21 (0.81 – 1.81) | 0.296   |
| White race, (per %)                                                      | 5 (5, 8, 12, 20, 25)                           | 1.00 (0.99 – 1.00) | 0.335   |
| Etiology of ESKD by glomerulonephritis (per %)                           | 6 (8, 14, 16, 18, 22, 25)                       | 1.01 (0.88 – 1.16) | 0.880   |
| Diabetes (per %)                                                         | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.01 (0.99 – 1.02) | 0.220   |
| Dialysis vintage (mean, per 1 year)                                      | 9 (12, 14, 16, 17, 18, 20, 21, 22, 23)           | **0.82 (0.70 – 0.98)** | **0.030** |
| **Donor and Peritransplant Characteristics**                             |                            |                     |         |
| Donor age (mean, per 1 year)                                             | 9 (8, 12, 15, 16, 17, 18, 21, 22, 23)             | 0.98 (0.92 – 1.03) | 0.352   |
| Living donor type (per %)                                                | 9 (8, 12, 14, 15, 16, 17, 18, 22, 23)             | 1.00 (0.97 – 1.03) | 0.979   |
| Cold ischemia time (mean, per 1 hr)                                      | 9 (8, 12, 15, 16, 17, 18, 21, 22, 23)             | 0.98 (0.86 – 1.12) | 0.712   |
| SPKT (per %)                                                             | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | 1.00 (0.99 – 1.02) | 0.564   |

†Effect size for each variable of interest reflecting unit change.

Abbreviations: BMI, body mass index; CI, confidence interval; ESKD, end-stage kidney disease; HR, hazard ratio; NA, not applicable; NOS, Newcastle-Ottawa scale; PD, peritoneal dialysis; SPKT, simultaneous pancreas-kidney transplantation.
### eTable 11. Meta-Regression of Primary Outcomes (Continued)

| Covariate                                                                 | Overall Graft Failure |   |   |
|---------------------------------------------------------------------------|-----------------------|--|--|
| **Study Characteristics**                                                 |                       |   |   |
| Risk of bias by NOS (per 1 point)                                         | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.05 (0.99 – 1.10) | 0.062 |
| Proportion of PD modality (per %)                                         | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.00 (0.99 – 1.10) | 0.747 |
| Study population (adult vs. pediatric/mixed cases)                        | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.01 (0.91 – 1.13) | 0.802 |
| Donor type (deceased vs. mixed cases/unspecified)                         | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.02 (0.90 – 1.16) | 0.713 |
| Publication date (before 2015 vs. 2015 to 2022)                           | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 0.97 (0.84 – 1.11) | 0.611 |
| Sample size (≤1,000 vs. >1,000)                                           | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 0.82 (0.47 – 1.41) | 0.415 |
| Study setting (single-center vs. multicenter)                             | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.08 (0.78 – 1.50) | 0.589 |
| Study location (European vs. non-European region/international)           | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.02 (0.90 – 1.16) | 0.694 |
| **Recipient Characteristics**                                             |                       |   |   |
| Recipient age (mean, per 1 year)                                          | 9 (6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.00 (0.99 – 1.00) | 0.604 |
| Female (per %)                                                             | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.01 (1.00 – 1.02) | 0.024 |
| BMI, (mean, per 1 kg/m²)                                                  | 4 (8, 16, 22, 23) | 0.92 (0.07 – 11.36) | 0.896 |
| White race, (per %)                                                       | 3 (5, 8, 12) | 1.00 (0.98 – 1.01) | 0.308 |
| Etiology of ESKD by glomerulonephritis (per %)                            | 6 (8, 9, 14, 16, 22, 26) | 1.01 (0.97 – 1.04) | 0.558 |
| Diabetes (per %)                                                           | 9 (5, 6, 8, 9, 12, 14, 16, 22, 23) | 1.003 (1.001 – 1.006) | 0.030 |
| Dialysis vintage (mean, per 1 year)                                       | 8 (6, 9, 12, 14, 16, 22, 23, 26) | 1.00 (0.95 – 1.05) | 0.928 |
| **Donor and Peritransplant Characteristics**                              |                       |   |   |
| Donor age (mean, per 1 year)                                              | 8 (6, 8, 9, 12, 16, 22, 23, 26) | 1.00 (0.99 – 1.00) | 0.650 |
| Living donor type (per %)                                                 | 9 (6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.00 (0.99 – 1.01) | 0.707 |
| Cold ischemia time (mean, per 1 hr)                                       | 8 (6, 8, 9, 12, 16, 22, 23, 26) | 0.99 (0.97 – 1.02) | 0.559 |
| SPKT (per %)                                                               | 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | 1.00 (0.98 – 1.01) | 0.685 |

**Effect size for each variable of interest reflecting unit change.**  
Abbreviations: BMI, body mass index; CI, confidence interval; ESKD, end-stage kidney disease; HR, hazard ratio; NA, not applicable; NOS, Newcastle-Ottawa scale; PD, peritoneal dialysis; SPKT, simultaneous pancreas-kidney transplantation.
### eTable 11. Meta-Regression of Primary Outcomes (Continued)

| Covariate                                                                 | No. of Studies (Reference) | HR (95% CI) † | P Value |
|---------------------------------------------------------------------------|----------------------------|---------------|---------|
| **Study Characteristics**                                                 |                            |               |         |
| Risk of bias by NOS (per 1 point)                                        | 5 (5, 12, 15, 18, 20)      | **1.23 (1.05 – 1.44)** | **0.026** |
| Proportion of PD modality (per %)                                        | 5 (5, 12, 15, 18, 20)      | 0.98 (0.95 – 1.01) | 0.142   |
| Study population (adult vs. pediatric/mixed cases)                       | 5 (5, 12, 15, 18, 20)      | NA            | NA      |
| Donor type (deceased vs. mixed cases/unspecified)                        | 5 (5, 12, 15, 18, 20)      | 1.14 (0.50 – 2.57) | 0.650   |
| Publication date (before 2015 vs. 2015 to 2022)                          | 5 (5, 12, 15, 18, 20)      | 0.67 (0.42 – 1.06) | 0.070   |
| Sample size (≤1,000 vs. >1,000)                                          | 5 (5, 12, 15, 18, 20)      | 1.62 (0.50 – 5.24) | 0.285   |
| Study setting (single-center vs. multicenter)                            | 5 (5, 12, 15, 18, 20)      | 1.62 (0.50 – 5.24) | 0.285   |
| Study location (European vs. non-European region/international)          | 5 (5, 12, 15, 18, 20)      | 1.62 (0.50 – 5.24) | 0.285   |
| **Recipient Characteristics**                                            |                            |               |         |
| Recipient age (mean, per 1 year)                                         | 4 (12, 15, 18, 20)         | 1.04 (0.94 – 1.16) | 0.220   |
| Female (per %)                                                            | 5 (5, 12, 15, 18, 20)      | 0.98 (0.94 – 1.03) | 0.341   |
| BMI, (mean, per 1 kg/m^2)                                                | 3 (12, 15, 18)             | NA            | NA      |
| White race, (per %)                                                      | 3 (5, 12, 20)              | 1.00 (0.96 – 1.05) | 0.519   |
| Etiology of ESKD by glomerulonephritis (per %)                            | 1 (18)                    | NA            | NA      |
| Diabetes (per %)                                                         | 5 (5, 12, 15, 18, 20)      | 1.01 (0.99 – 1.03) | 0.260   |
| Dialysis vintage (mean, per 1 year)                                      | 3 (12, 18, 20)             | 1.52 (0.23 – 10.13) | 0.218   |
| **Donor and Peritransplant Characteristics**                             |                            |               |         |
| Donor age (mean, per 1 year)                                             | 3 (12, 15, 18)             | 1.01 (0.47 – 2.20) | 0.860   |
| Living donor type (per %)                                                | 3 (12, 15, 18)             | 1.01 (0.87 – 1.16) | 0.631   |
| Cold ischemia time (mean, per 1 hr)                                      | 3 (12, 15, 18)             | 0.94 (0.53 – 1.69) | 0.423   |
| SPKT (per %)                                                             | 5 (5, 12, 15, 18, 20)      | NA            | NA      |

† Effect size for each variable of interest reflecting unit change.

Abbreviations: BMI, body mass index; CI, confidence interval; ESKD, end-stage kidney disease; HR, hazard ratio; NA, not applicable; NOS, Newcastle-Ottawa scale; PD, peritoneal dialysis; SPKT, simultaneous pancreas-kidney transplantation.

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### eTable 11. Meta-Regression of Primary Outcomes (Continued)

| Covariate                                                                 | No. of Studies (Reference) | OR (95% CI)† | P Value |
|---------------------------------------------------------------------------|----------------------------|--------------|---------|
| **Study Characteristics**                                                 |                            |              |         |
| Risk of bias by NOS (per 1 point)                                         | 6 (2, 4, 5, 7, 13, 15)     | 1.02 (0.95 – 1.11) | 0.449  |
| Proportion of PD modality (per %)                                        | 5 (4, 5, 7, 13, 15)        | 0.99 (0.97 – 1.01) | 0.135  |
| Study population (adult vs. pediatric/mixed cases)                        | 6 (2, 4, 5, 7, 13, 15)     | 1.16 (0.43 – 3.11) | 0.706  |
| Donor type (deceased vs. mixed cases/unspecified)                         | 6 (2, 4, 5, 7, 13, 15)     | 1.05 (0.87 – 1.27) | 0.516  |
| Publication date (before 2015 vs. 2015 to 2022)                           | 6 (2, 4, 5, 7, 13, 15)     | NA           | NA      |
| Sample size (≤1,000 vs. >1,000)                                          | 6 (2, 4, 5, 7, 13, 15)     | 1.06 (0.86 – 1.20) | 0.495  |
| Study setting (single-center vs. multicenter)                             | 6 (2, 4, 5, 7, 13, 15)     | 1.06 (0.86 – 1.30) | 0.495  |
| Study location (European vs. non-European region/international)           | 6 (2, 4, 5, 7, 13, 15)     | 1.06 (0.86 – 1.30) | 0.495  |
| **Recipient Characteristics**                                             |                            |              |         |
| Recipient age (mean, per 1 year)                                         | 5 (2, 4, 7, 13, 15)        | 1.00 (0.97 – 1.03) | 0.977  |
| Female (per %)                                                            | 5 (2, 4, 5, 13, 15)        | 1.00 (0.99 – 1.02) | 0.480  |
| BMI, (mean, per 1 kg/m²)                                                  | 3 (7, 13, 15)              | 1.02 (0.55 – 1.89) | 0.743  |
| White race, (per %)                                                       | 2 (2, 5)                   | NA           | NA      |
| Etiology of ESKD by glomerulonephritis (per %)                            | 1 (13)                     | NA           | NA      |
| Diabetes (per %)                                                          | 2 (5, 15)                  | NA           | NA      |
| Dialysis vintage (mean, per 1 year)                                      | 2 (2, 13)                  | NA           | NA      |
| **Donor and Peritransplant Characteristics**                              |                            |              |         |
| Donor age (mean, per 1 year)                                              | 3 (7, 13, 15)              | 1.00 (0.84 – 1.20) | 0.798  |
| Living donor type (per %)                                                 | 5 (2, 4, 7, 13, 15)        | 1.00 (0.99 – 1.01) | 0.743  |
| Cold ischemia time (mean, per 1 hr)                                       | 4 (2, 4, 7, 15)            | 0.96 (0.88 – 1.05) | 0.216  |
| SPKT (per %)                                                              | 6 (2, 4, 5, 7, 13, 15)     | NA           | NA      |

†Effect size for each variable of interest reflecting unit change.

Abbreviations: BMI, body mass index; CI, confidence interval; ESKD, end-stage kidney disease; NA, not applicable; NOS, Newcastle-Ottawa scale; OR, odds ratio; PD, peritoneal dialysis; SPKT, simultaneous pancreas-kidney transplantation.
# eTable 12. Publication Bias

| Kidney Transplantation Outcomes | No. of Studies (Reference) | P Value for Begg’s Test | P Value for Egger’s Test |
|---------------------------------|----------------------------|-------------------------|-------------------------|
| **Primary Outcomes**            |                            |                         |                         |
| All-cause mortality             | 13 (5, 8, 12, 14, 15,      | 0.951                   | 0.273                   |
|                                 | 16, 17, 18, 20, 21, 22,   |                         |                         |
|                                 | 23, 25)                    |                         |                         |
| Overall graft failure           | 10 (5, 6, 8, 9, 12, 14,    | 0.721                   | 0.947                   |
|                                 | 16, 22, 23, 26)            |                         |                         |
| Death-censored graft failure    | 5 (5, 12, 15, 18, 20)      | 0.806                   | 0.609                   |
| Delayed graft function          | 6 (2, 4, 5, 7, 13, 15)     | 1.000                   | 0.562                   |
| **Secondary Outcomes**          |                            |                         |                         |
| Acute rejection                 | 1 (22)                     | NA                      | NA                      |
| Graft vessel thrombosis         | 3 (1, 3, 19)               | 1.000                   | 0.760                   |
| Oliguria (not producing urine in the first 24 hours) | 1 (2) | NA | NA |
| de novo heart failure           | 1 (24)                     | NA                      | NA                      |
| NODAT                           | 2 (10, 11)                 | NA                      | NA                      |

Abbreviations: CI, confidence interval; NA, not applicable; NODAT, new onset diabetes mellitus after transplantation.
eTable 13. Quality of Evidence Synthesis and GRADE Evidence Profile of Outcomes

| Outcomes (PD vs. HD) | No. of Studies (Ref) | Study Design (Sample Size) | Quality Assessment: Required Domains | Other Issues | Finding and Direction (Magnitude) of Effect | Strength of Evidence |
|----------------------|----------------------|-----------------------------|-------------------------------------|--------------|--------------------------------------------|---------------------|
|                      |                      |                             | Study Limitations | Directions | Consistency | Precision | Reporting Bias | Finding and Direction (Magnitude) of Effect |                      |                   |
| All-cause mortality  | 13 (5, 8, 12, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25) | Non-RCTs (221,815) | High | Direct | Inconsistency | Precise | Undetected | • Duration-response association could not be determined | • Thirteen non-RCTs studies with a large sample size illustrated high study limitations and inconsistency of evidence findings based on the sensitivity analyses. | Very low (trivial) |
|                      |                      |                             |                        |            |             |          |             | • Present plausible confounding that would decrease the observed effect† |                      |                   |
| Overall graft failure| 10 (5, 6, 8, 9, 12, 14, 16, 22, 23, 26) | Non-RCTs (209,287) | High | Direct | Inconsistency | Imprecise | Undetected | • Duration-response association could not be determined | • Ten non-RCTs studies with a large sample size showed high study limitations, inconsistency, and imprecise, which subjected to the set of sensitivity analysis. | Very low (beneficial with PD) |
|                      |                      |                             |                        |            |             |          |             | • Weak strength of association (magnitude of effect) | • The summary pooled HR was 0.96 (95% CI, 0.92-0.99; P=0.024), with moderate degree of heterogeneity (I², 37.2%). |                   |

†On the basis of the E-value.

Abbreviations: CI, confidence interval; GRADE, Grading of Recommendations Assessment, Development and Evaluation; HD, hemodialysis; HR, hazard ratio; PD, peritoneal dialysis. OR, odds ratio; RCTs, randomized-controlled trials.

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| Outcomes (PD vs. HD) | No. of Studies (Ref) | Study Design (Sample Size) | Quality Assessment: Required Domains | Other Issues | Finding and Direction (Magnitude) of Effect | Strength of Evidence |
|----------------------|----------------------|---------------------------|--------------------------------------|-------------|---------------------------------------------|---------------------|
|                      |                      |                           | Study Limitations | Directions | Consistency | Precision | Reporting Bias |                          |                          |                             |
| Death-censored graft failure | 5 (5, 12, 15, 18, 20) | Non-RCTs (96,439) | High | Direct | Consistency | Precise | Undetected | • Duration-response association could not be determined | • Five non-RCTs studies revealed high study limitations and consistency based on the sensitivity analyses results. | • The summary pooled HR was 0.98 (95% CI, 0.85-1.14; P=0.811), with moderate degree of heterogeneity ($I^2$, 73.7%). | Very low (trivial) |
| Delayed graft function | 6 (2, 4, 5, 7, 13, 15) | Non-RCTs (47,118) | High | Direct | Consistent | Precise | Undetected | • Duration-response association could not be determined | • Six non-RCTs with high study limitations and low degree of heterogeneity ($F$, 10.4%). | • The summary pooled OR was 0.73 (95% CI, 0.70-0.76; P<0.001). | Low (beneficial with PD) |
| Acute rejection | 1 (22) | Non-RCTs (2,006) | High | Direct | Unknown | Precise | Suspected | • Duration-response association could not be determined | • A single study with high study limitations by Balzer et al (2020)\textsuperscript{22} revealed statistical significance (OR, 0.70; 95% CI, 0.51-0.97; P=0.029). However, the uncertainty in terms of prediction interval could not be estimated. | Insufficient data |

\textsuperscript{*}On the basis of the E-value.
Abbreviations: CI, confidence interval; GRADE, Grading of Recommendations Assessment, Development and Evaluation; HD, hemodialysis; HR, hazard ratio; OR, odds ratio; PD, peritoneal dialysis. OR, odds ratio; RCTs, randomized-controlled trials.
### eTable 13. Quality of Evidence Synthesis and GRADE Evidence Profile of Outcomes (Continued)

| Outcomes (PD vs. HD) | No. of Studies (Ref) | Study Design (Sample Size) | Study Limitations | Directions | Consistency | Precision | Reporting Bias | Other Issues | Finding and Direction (Magnitude) of Effect | Strength of Evidence |
|----------------------|----------------------|----------------------------|--------------------|------------|-------------|-----------|----------------|-------------|--------------------------------------------|----------------------|
| Graft vessel thrombosis | 3 (1, 3, 19) | Non-RCTs (3,084) | High | Direct | Inconsistency | Imprecise | Suspected | • Duration-response association could not be determined | • Three non-RCTs with high study limitations and imprecision (95% prediction interval, 1.00 x $e^{-5}$-1.23 x $10^0$). | Very low (trivial) |
| Oliguria (not producing urine in the first 24 hours) | 1 (2) | Non-RCTs (9,291) | High | Direct | Unknown | Precise | Suspected | • Duration-response association could not be determined | • A single study with high study limitations by Bleyer et al (1999) illustrated statistical significance (OR, 0.74; 95% CI, 0.62-0.87; $P<0.001$). However, the uncertainty in terms of prediction interval could not be estimated. | Insufficient data |
| de novo heart failure | 1 (24) | Non-RCTs (27,701) | High | Direct | Unknown | Precise | Suspected | • Duration-response association could not be determined | • A single study with a large sample size by Lenihan et al (2021) illustrated statistical significance (HR, 0.84; 95% CI, 0.78-0.91; $P<0.001$). However, the uncertainty in terms of prediction interval could not be estimated. | Insufficient data |

†On the basis of the E-value.

Abbreviations: CI, confidence interval; GRADE, Grading of Recommendations Assessment, Development and Evaluation; HD, hemodialysis; HR, hazard ratio; OR, odds ratio; PD, peritoneal dialysis. OR, odds ratio; RCTs, randomized-controlled trials.

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**eTable 13. Quality of Evidence Synthesis and GRADE Evidence Profile of Outcomes (Continued)**

| Outcomes (PD vs. HD) | No. of Studies (Ref) | Study Design (Sample Size) | Quality Assessment: Required Domains | Other Issues | Finding and Direction (Magnitude) of Effect | Strength of Evidence |
|----------------------|----------------------|-----------------------------|---------------------------------------|-------------|------------------------------------------|----------------------|
|                      |                      |                             | Study Limitations | Directions | Consistency | Precision | Reporting Bias | Duration-response association could not be determined  
 |                      |                      |                             |            |            |            |           |             | Present plausible confounding that would decrease the observed effect†  
 |                      |                      |                             |            |            |            |           |             | Two non-RCTs with high study limitations, high heterogeneity ($F$, 81.8%), and imprecision (effect estimates OR, 1.57; 95% CI, 0.56-4.45; $P=0.393$).  
 |                      |                      |                             |            |            |            |           |             | Publication bias cannot be ruled out due to the small number of studies included.  

†On the basis of the E-value.

| Abbreviations: CI, confidence interval; GRADE, Grading of Recommendations Assessment, Development and Evaluation; HD, hemodialysis; NODAT, new onset diabetes mellitus after transplantation; OR, odds ratio; PD, peritoneal dialysis. OR, odds ratio; RCTs, randomized-controlled trials. |
**eFigure 1. PRISMA Flow Diagram of the Literature Search and Selection**

- 31370 records identified through database search
  - Medline (n=5709)
  - Embase (n=12487)
  - PubMed (n=4484)
  - Cochrane (n=1228)
  - Scopus (n=6950)
  - CINAHL (n=512)

- 16 Additional articles identified through gray literature and hand search

- 11515 duplicates removed

- 19871 records screened

- 19720 records excluded based on title and abstract screening

- 151 Full-text articles assessed for eligibility

- 125 excluded
  - Not relevant (n=50)
  - Inadequate control for confounding factors (n=33)
  - Specific target population of interest not studied (n=14)
  - Data insufficient to calculate effect estimate (n=11)
  - Cross-sectional study/review article/case series (n=6)
  - Duplicate data/population (n=4)
  - No specific comparison groups available (n=3)
  - No outcome of interest (n=3)
  - Unclear definition of exposure or outcome (n=1)

- 26 eligible studies included in meta-analysis

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eFigure 2. Funnel Plot of Included Studies in the Meta-Analysis

A. All-Cause Mortality

B. Overall Graft Failure
eFigure 2. Funnel Plot of Included Studies in the Meta-Analysis (Continued)

C. Death-Censored Graft Failure

D. Delayed Graft Function

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