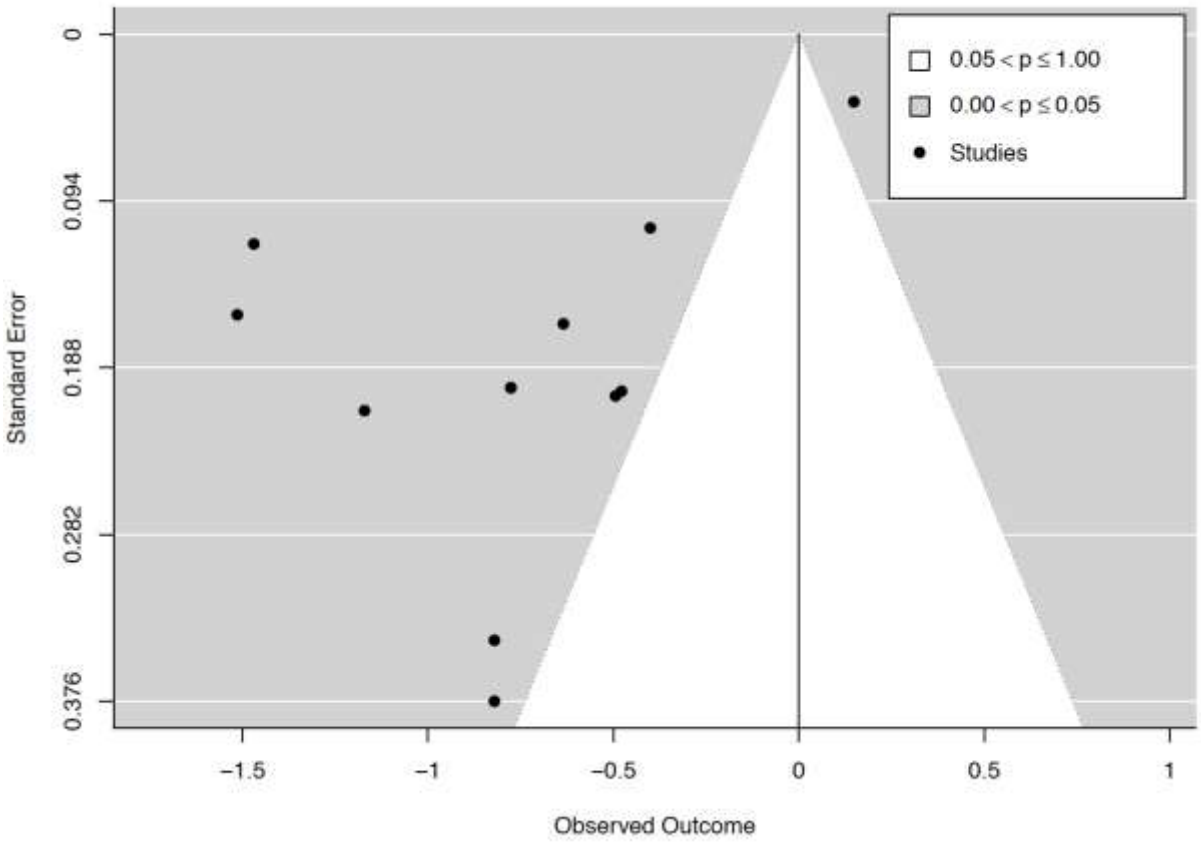
Figure S1. Contour-enhanced funnel plot to assess publication bias in effect estimates in all-cause mortality



Item S1. Electronic search strategies and results

Database: Ovid MEDLINE Epub Ahead of Print, In-Process & other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE ®: 1946 to Present

Search Strategy:

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1 Palliative Care/ or terminal care/ or hospice care/ (73177)
2 ((palliative or conservative or hospice or supportive or non-dialysis or nondialysis or end-of-life or terminal or end-stage) adj3 (care or treatment or management)).mp. (159378)
3 1 or 2 (159378)
4 exp Renal Replacement Therapy/ (195395)
5 (Dialysis or dialyz* or hemodialysis or haemodialysis or hemofiltration or haemofiltration or hemodiafiltration or haemodiafiltration).mp. (182652)
6 4 or 5 (263116)
7 3 and 6 (3851)
8 renal insufficiency, chronic/ or kidney failure, chronic/ (106594)
9 esrd.mp. (15063)
10 (((kidney or renal) adj3 (disease or failure)) and (chronic or advanced or end-stage)).mp. (160701)
11 8 or 9 or 10 (164918)
12 7 and 11 (2557)
13 Renal Insufficiency, Chronic/px (408)
14 12 or 13 (2948)
15 limit 14 to yr="2009 -Current" (1602)
16 Epidemiologic Studies/ (7903)
17 exp Case-Control Studies/ (978377)
18 exp Cohort Studies/ (1835482)
19 Case control.tw. (114046)
20 (cohort adj (study or studies)).tw. (172240)
21 Cohort analy$.tw. (6829)
22 (Follow up adj (study or studies)).tw. (46499)
23 (observational adj (study or studies)).tw. (90061)
24 Longitudinal.tw. (218701)
25 Retrospective.tw. (461709)
26 Cross sectional.tw. (303252)
27 Cross-sectional studies/ (288706)
28 ep.fs. (1543741)
29 or/16-28 (3685097)
30 15 and 29 (651)
31 exp animals/ not humans.sh. (4559068)
32 30 not 31 (650)

Database: Embase <1974 to 2019 March 20>

Search Strategy:
---
1 exp palliative therapy/ or conservative treatment/ (170993)
2 terminal care/ or hospice care/ (40157)
3 ((palliative or conservative or hospice or supportive or non-dialysis or nondialysis or end-of-life or terminal or end-stage) adj3 (care or treatment or management)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word] (233668)
4 or/1-3 (281376)
5 exp renal replacement therapy/ (173536)
6 (Dialysis or dialyz* or hemodialysis or haemodialysis or hemofiltration or haemofiltration or hemodiafiltration or haemodiafiltration).mp. (247118)
7 5 or 6 (264374)
8 kidney failure/ or exp chronic kidney failure/ (205787)
9 end stage renal disease/ (24308)
10 (((kidney or renal) adj3 (disease or failure)) and (chronic or advanced or end-stage)).mp. (239136)
11 or/8-10 (323851)
12 4 and 7 and 11 (4170)
13 limit 12 to yr="2009 -Current" (2580)
14 clinical study/ (151717)
15 case control study/ (137226)
16 family study/ (25003)
17 longitudinal study/ (122409)
18 retrospective study/ (743750)
19 prospective study/ (502768)
20 cohort analysis/ (445314)
21 (Cohort adj (study or studies)).mp. (252585)
22 (Case control adj (study or studies)).tw. (120206)
23 (follow up adj (study or studies)).tw. (58902)
24 (observational adj (study or studies)).tw. (139578)
25 (epidemiologic$ adj (study or studies)).tw. (98954)
26 (cross sectional adj (study or studies)).tw. (181792)
27 or/14-26 (2292305)
28 13 and 27 (534)

List of reasons for excluding studies during title/abstract screening

- Duplicates
- Non-English articles
- Conference abstracts (no full texts)
- Non-primary investigations (editorials, opinions, commentaries, etc.)
- Wrong patient population
- Absence of dialysis recipients
- Absence of conservative kidney management recipients
- Cross-sectional studies
- Case studies or case series reports
- Qualitative studies
- Government documents, reports or descriptive studies

Item S2 Assessing level of confounder adjustment and risk of bias

We rated the adequacy of confounder adjustment in each study. A score of 0-4 was awarded to each study with higher scores indicating better or more adequate confounder adjustment. For studies that used propensity score matching, we included all variables that were used to construct the propensity score and those that were entered into the final outcome equation. For studies that performed a univariate analysis first to screen for potentially significant confounders, we did not include variables that were deemed insignificant and thus were not entered into the final regression model.

The following rating rules were used:

Score	Confounders adjusted in the analysis
0	Not adjusted for patient age at baseline
1	Patient age at baseline
2	Age AND comorbidities at baseline[1]
3	Age AND comorbidities AND indicators of kidney disease[2] AND [race/ethnicity OR sex/gender]
4	Age AND comorbidities AND indicators of kidney disease AND [race/ethnicity OR sex/gender] AND socioeconomic status[3]

[1]Valid comorbidity measures include a comorbidity score (e.g., a Charlson Comorbidity Index), specific disease indicators (e.g., diabetes), and a physical impairment score (e.g., a Karnofsky Performance Scale score);
[2]Indicators of kidney disease include primary diagnosis of kidney disease, the estimated glomerular filtration rate (eGFR) at baseline, and serum creatinine level at baseline;
[3]Socioeconomic indicators include but are not limited to income level, type of residence (urban vs. rural), type of insurance (public vs. private), and type of therapy center (e.g., privately owned vs. publicly funded health institution).

Studies with a score >=3 were deemed to have a low risk of bias due to confounding. On the next pages we present the assessment results using the Newcastle-Ottawa Scale for Cohort Studies on the selection, comparability and outcome of each study.

Source	List of measured confounders	Score
Brown (2015)	Unadjusted (results provided by authors after being contacted by email)	0
Chandna (2016)	Age, sex, race, comorbidity burden (high vs. low), and diabetes	3
Da Silva-Gane (2012)	Age, sex, weight, comorbidity burden (high vs. low), Karnofsky Performance Scale score, SF-36 physical health score, and eGFR	3
Hussain (2013)	Unadjusted (estimated from Kaplan-Meier curves)	0
Kwok (2016)	Unadjusted (estimated from Kaplan-Meier curves)	0
Raman (2018)	Age, peripheral vascular disease and living alone	2
Reindl-Schwaighofer (2017)	Age, sex, and indicators of comorbidities (COPD, diabetes, heart disease, vascular disease, liver disease, hypertension, and neoplasia)	2
Shih (2014)	Age, sex, monthly income, urbanization level, Charlson Comorbidity Index, disease indicators (diabetes, hypertension, dyslipidemia, atrial fibrillation, valvular heart disease, parkinsonism, autoimmune disease, drug abuse), primary renal disease (diabetes, glomerulonephritis, secondary glomerulonephritis/vasculitis, hypertension, cystic/hereditary/congenital, miscellaneous conditions), concomitant medications (antiplatelet agents, warfarin, ACE inhibitors/ARB, beta blockers, calcium channel blockers, diuretics, nitrate, statins, dipyridamole, steroids, estrogen/progesterone, non-steroidal anti-inflammatory drugs, selective serotonin re-uptake inhibitors, proton pump inhibitors, and oral hypoglycemic drugs)	4
Shum (2014)	Age, modified Charlson Comorbidity Index, and Basic Activities of Daily Living impairment score	2
Tam-Tham (2018)	Age, sex, location of residence, First Nation status, initial eGFR, annual progression of eGFR, duration between first and index eGFR, medications use (statins and angiotensin-converting enzyme inhibitor / angiotensin-receptor blockers), proteinuria, comorbidities indicators (dementia, cerebrovascular disease, myocardial infarction, congestive heart failure, peripheral vascular disease, COPD, liver disease, peptic ulcer disease, diabetes, hypertension, rheumatologic disease, para/hemiplegia, cancer, and metastatic sold tumor)	4
Teo (2010)	Age, sex, race, type of therapy center, and left ventricular ejection fraction	1
Verberne (2016)	Age and Davies comorbidity score	2

Assessment results using the Newcastle-Ottawa Scale for cohort studies

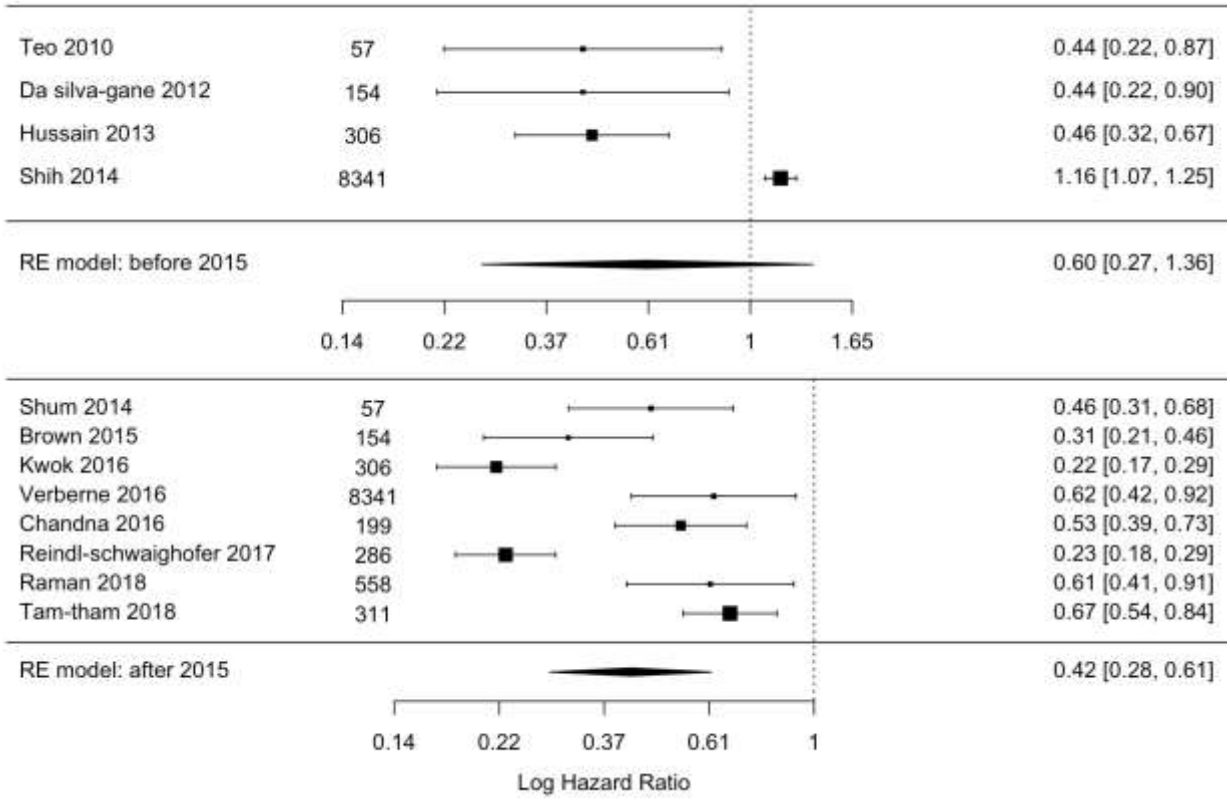
	Newcastle-Ottawa Scale for Cohort Studies Assessment Items (range of scores in each category)			
Source	**Selection (score=1-4)**	**Comparability (score=1-2)**	**Outcome (score=1-3)**	**Total score (score=3-9)**
Brown (2015)	3	2	3	8
Chandna (2016)	3	2	3	8
Da Silva-Gane (2012)	3	2	3	8
Hussain (2013)	3	1	3	7
Kwok (2016)	3	1	3	7
Raman (2018)	3	1	3	7
Reindl-Schwaighofer (2017)	3	2	3	8
Shih (2014)	4	2	3	9
Shum (2014)	4	2	3	9
Tam-Tham (2018)	4	2	3	9
Teo (2010)	3	1	3	7
Verberne (2016)	3	2	3	8

Assessment items are detailed in:http://www.ohri.ca/programs/clinical_epidemiology/nosgen.pdf

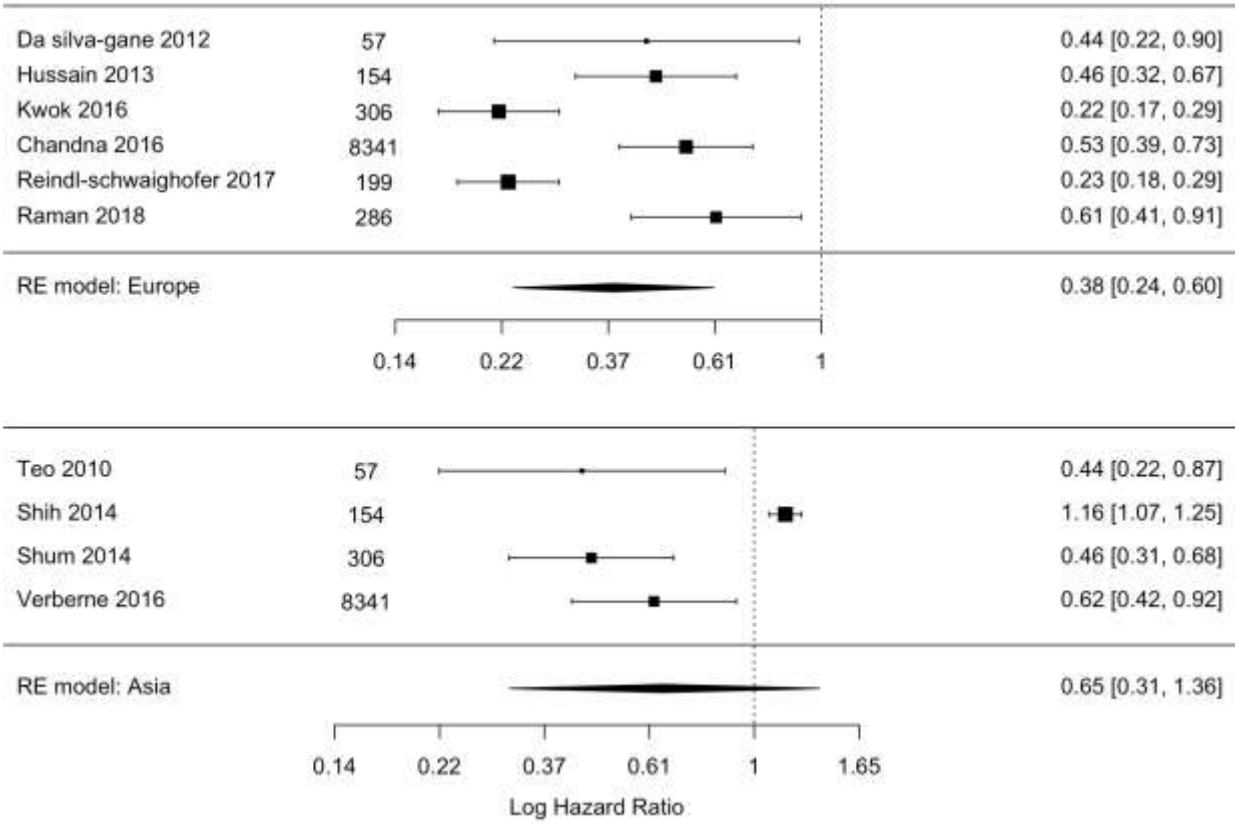
Item S3. Explore heterogeneity using subgroup analysis

*Only subgroups with at least 2 studies are plotted

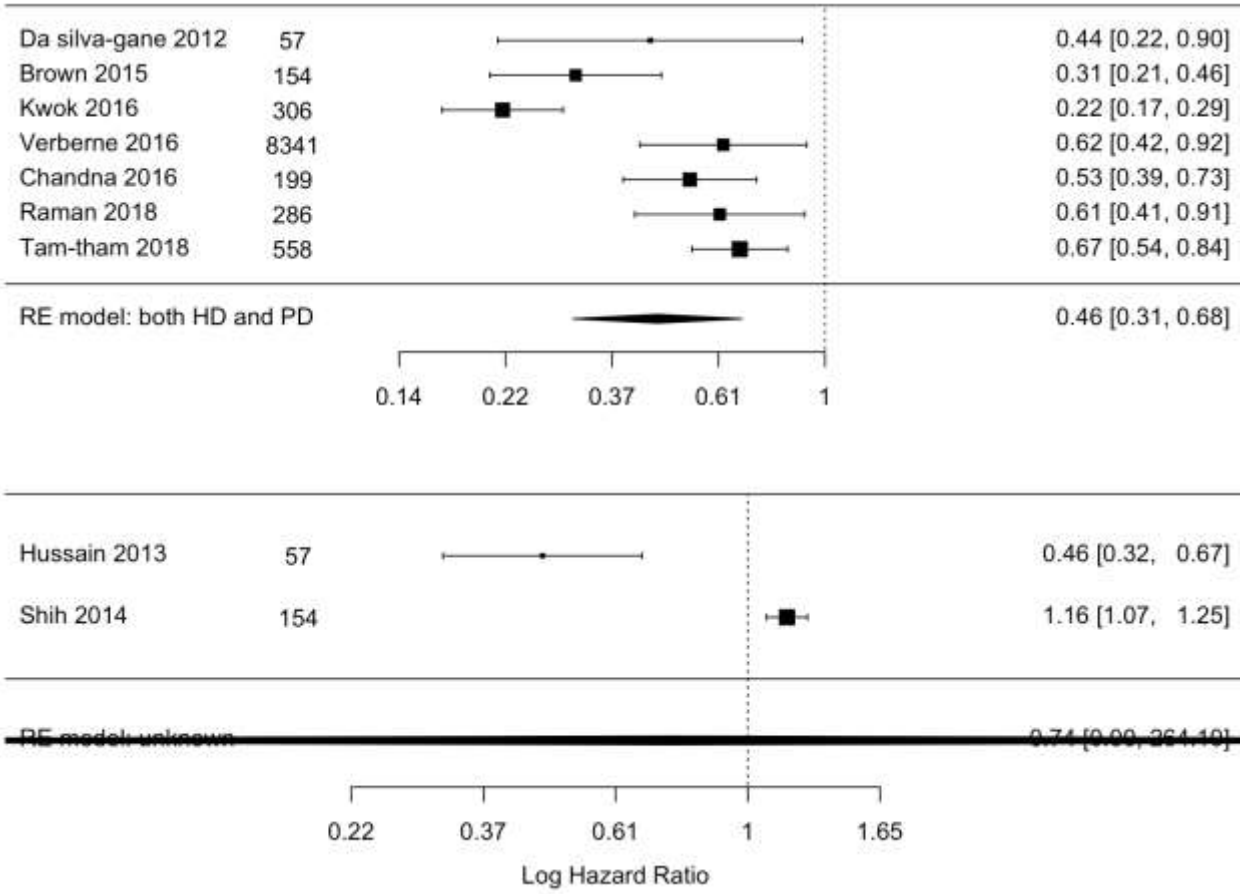
By publication era: before or after January 2015 (I^2=87% and 88%; P = 0.2)



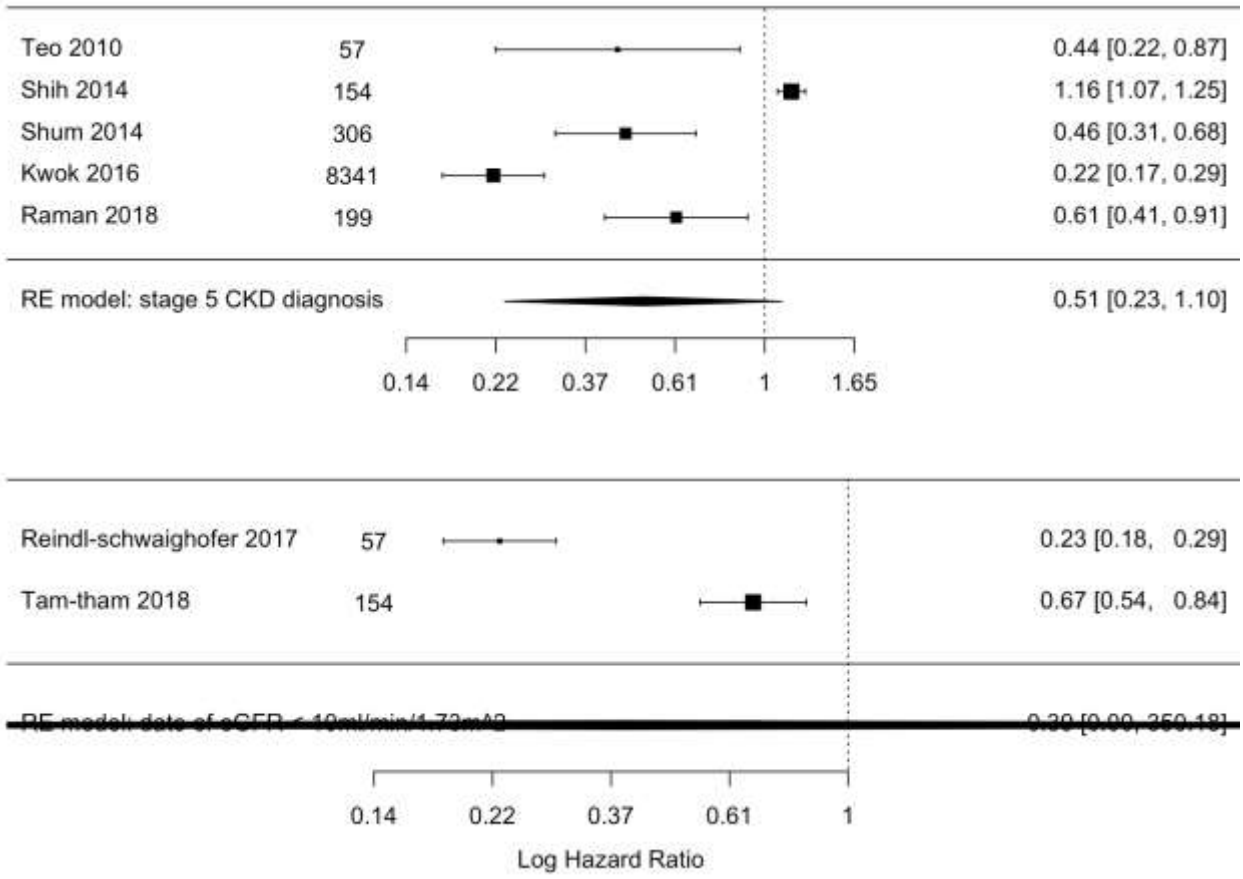
By study region: Europe; Asia (I^2=85% and 88%; P = 0.07)



By dialysis mode: PD only; both HD and PD; unknown (I^2=0%, 84%, and 95%; P = 0.6)

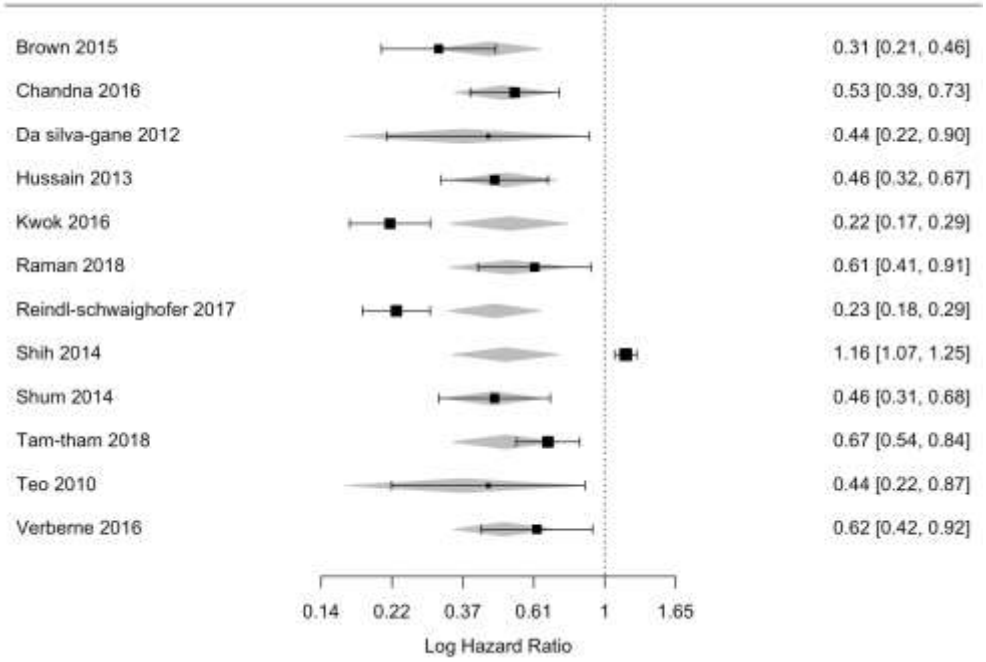


By study entry: stage 5 CKD diagnosis; eGFR < 10 ml/min/1.73m^2 (I^2=95% and 98%; P = 0.8)

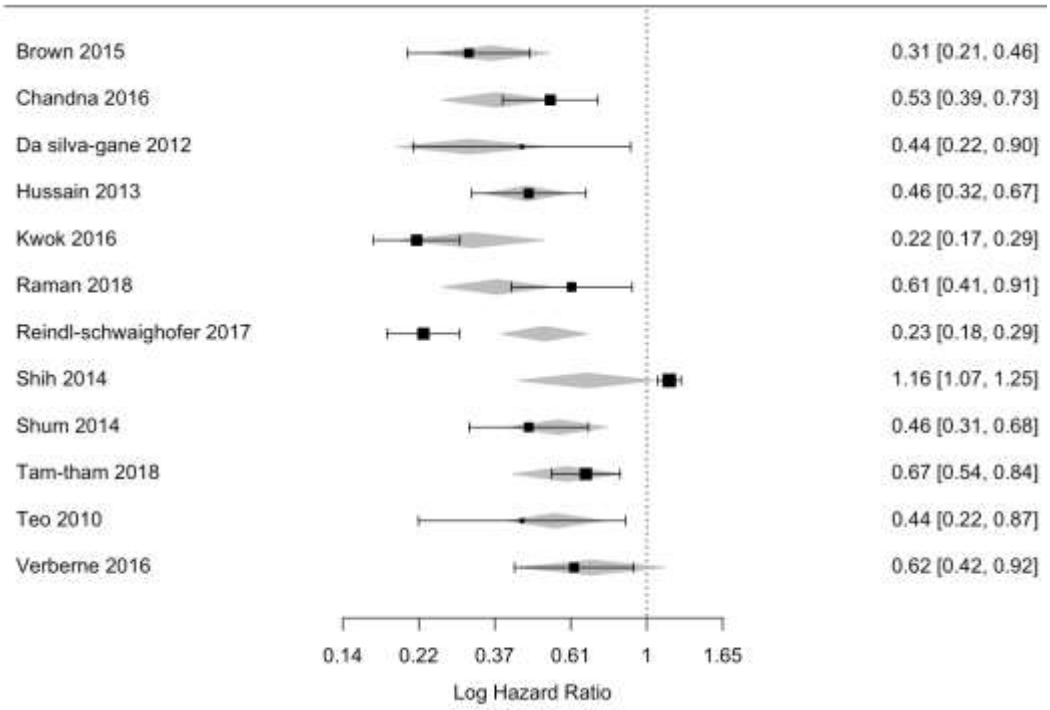


Item S4. Meta-regression by patient age and sex

By patient age at study entry
Meta-regression coefficient estimate = 0.02 (95% CI -0.03-0.07; *P* = 0.50)
Heterogeneity accounted by age = 0%

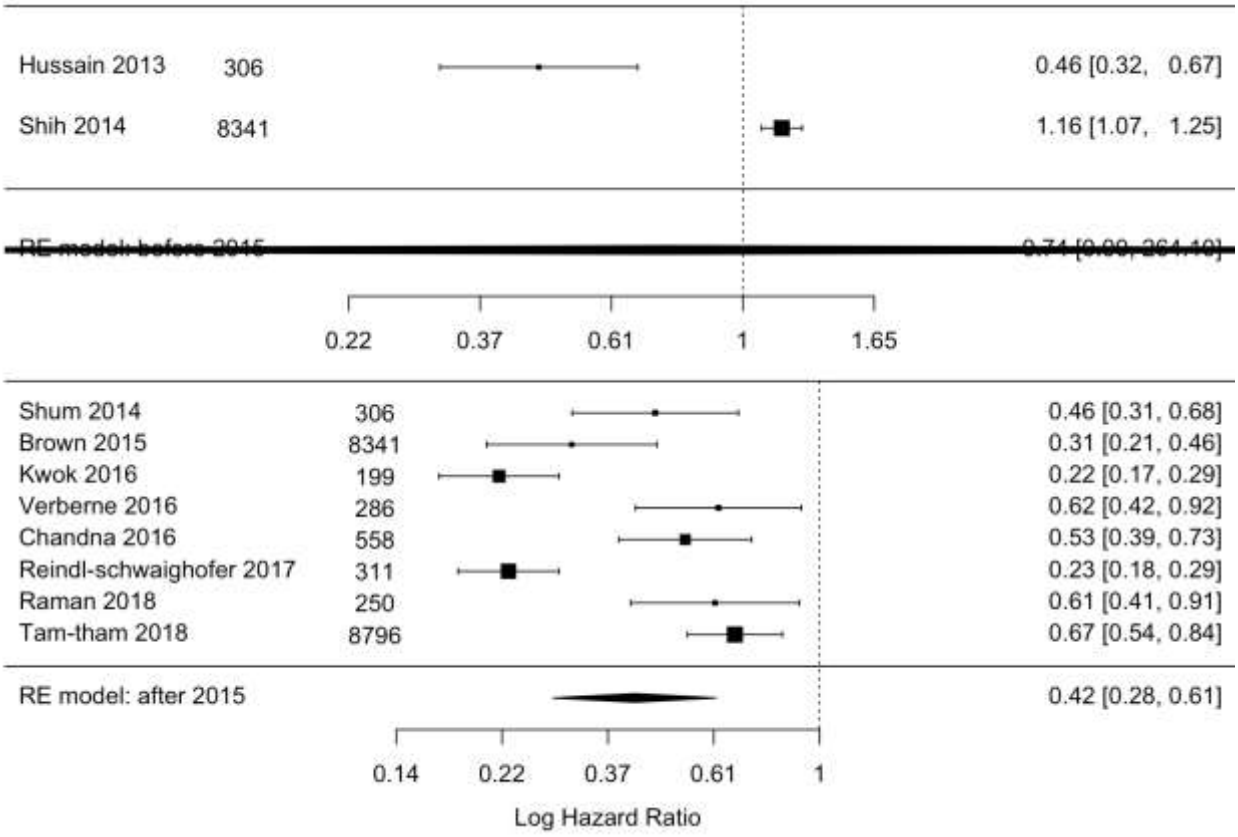


By sex (percentage of females) in the study cohort
Meta-regression coefficient estimate = 3.36 (95% CI -0.0062-7.72; *P* = 0.06)
Heterogeneity accounted by sex = 29%

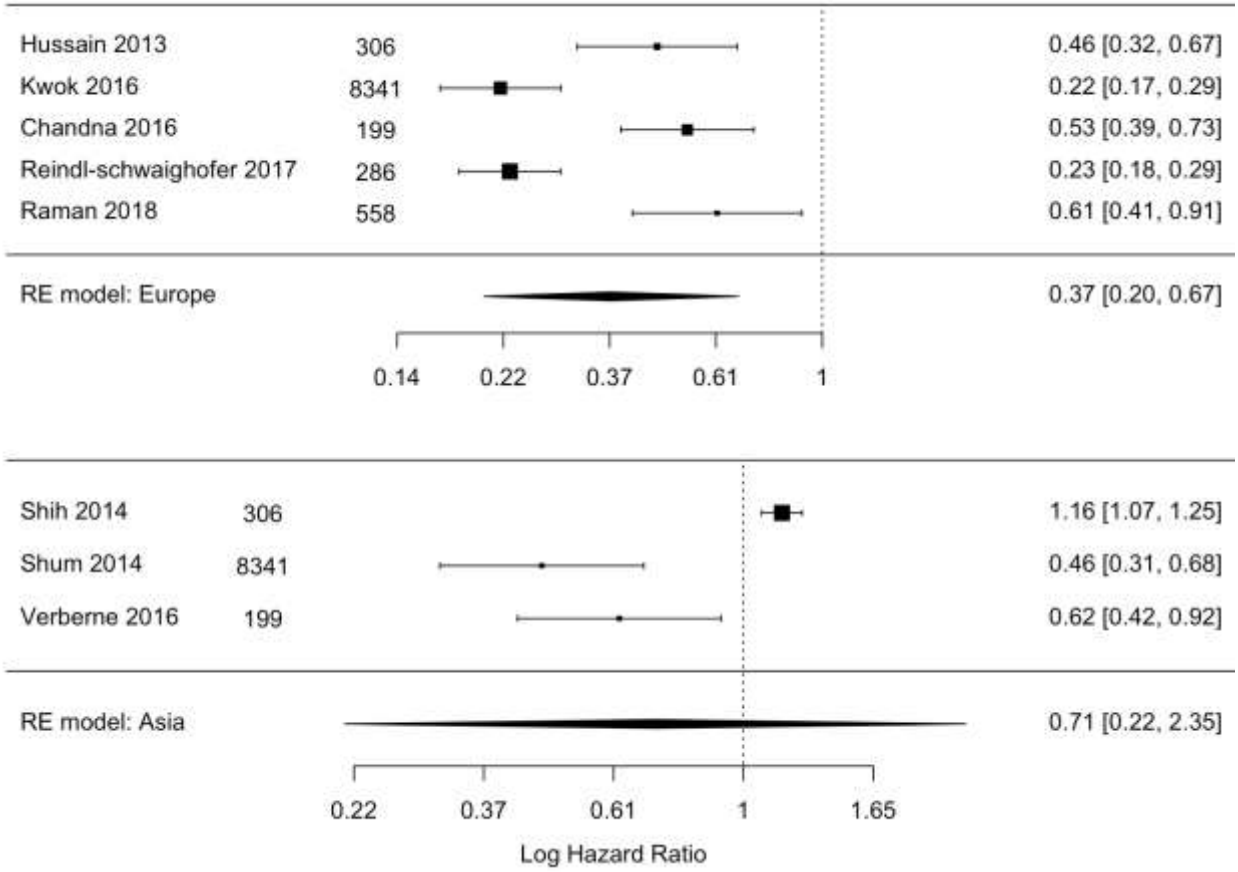


Item S5. Explore heterogeneity in studies with only older patients using subgroup analysis and meta-regression

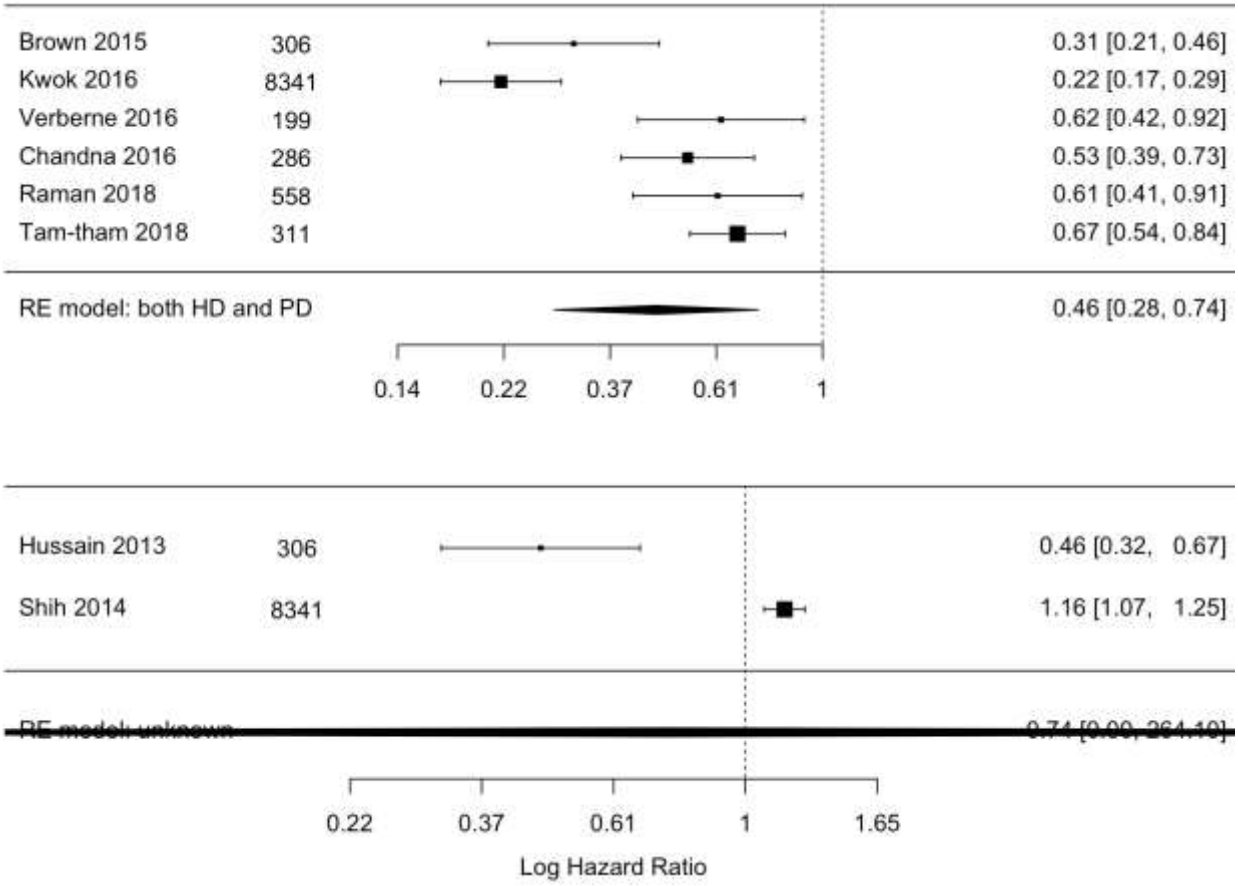
By publication era: before or after January 2015 (I^2=95% and 88%; P = 0.16)



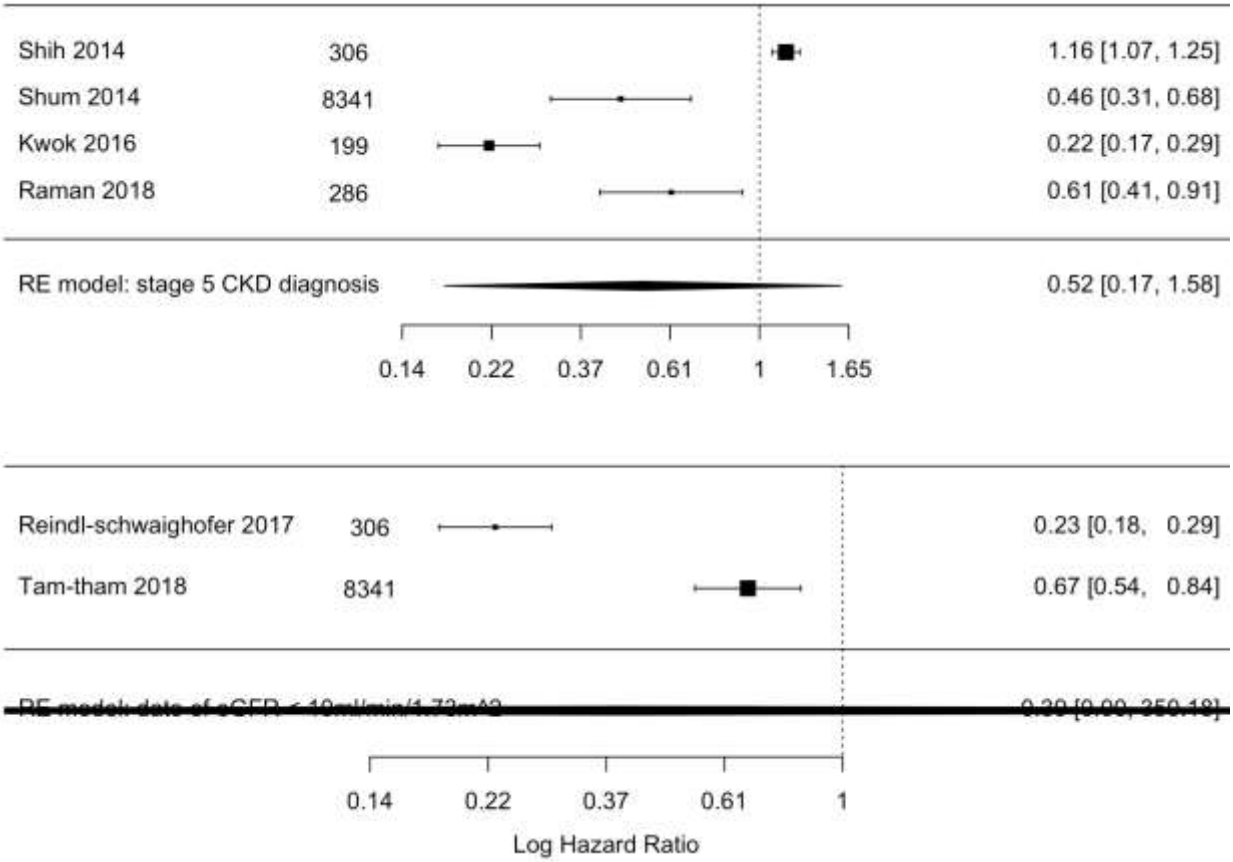
By study region: Europe; Asia (I^2=89% and 91%; P = 0.07)



By dialysis mode: both HD and PD; unknown (I^2=87%, and 95%; P = 0.3)



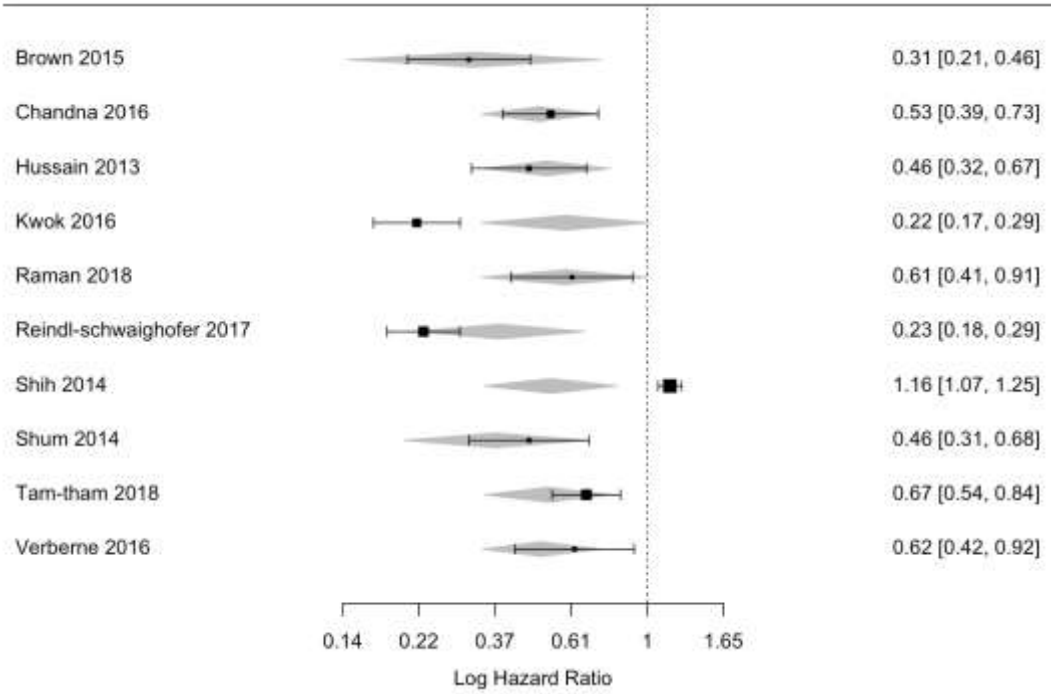
By study entry: stage 5 CKD diagnosis; eGFR < 10 ml/min/1.73m^2 (I^2=97% and 98%; P = 0.7)



Meta-regression patient age and sex for studies that only included adults aged 65 or above

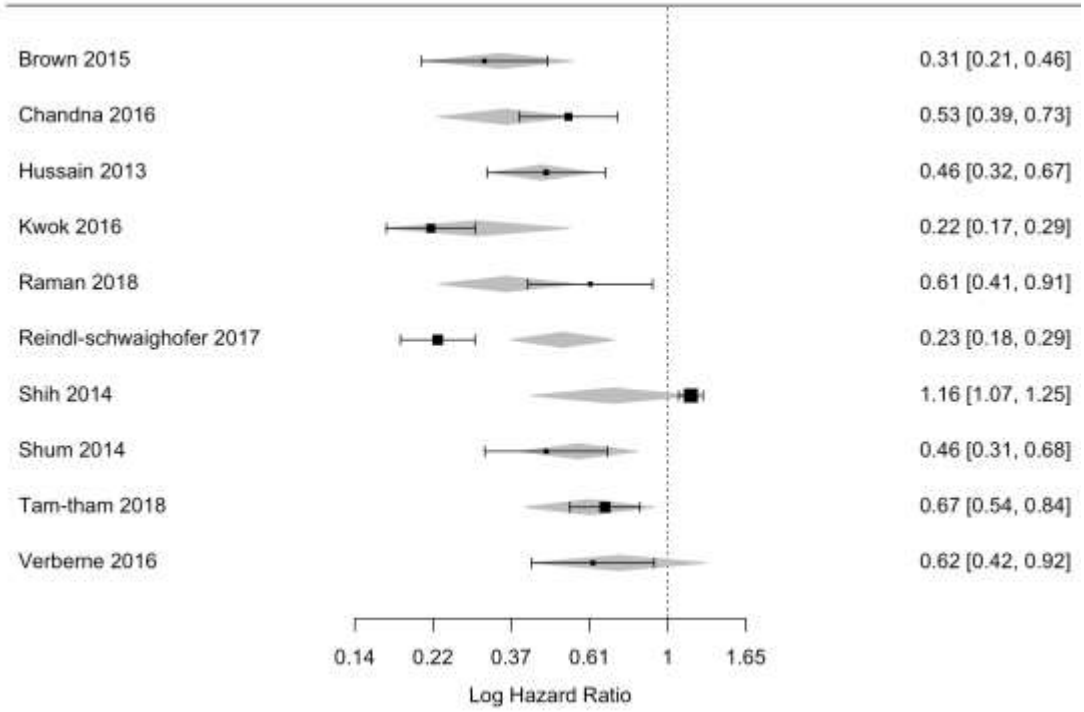
By patient age at study entry

Meta-regression coefficient estimate = 0.07 (95% CI -0.06-0.19; *P* = 0.26)
Heterogeneity accounted by age = 5%



By sex (percentage of females) in the study cohort

Meta-regression coefficient estimate = 3.86 (95% CI -0.19-7.91; *P* = 0.06)
Heterogeneity accounted by sex = 32%



Item S6. Results of analysis on outcomes beyond mortality

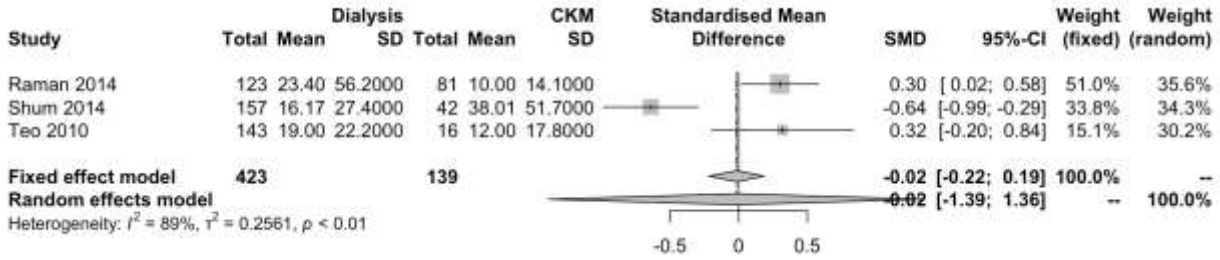
Duration of hospitalization (3 studies)

Sources	**Dialysis** Median days (IQR)	**Conservative Management** Median days (IQR)
Teo (2010)	HD: 19 (11-44) PD: 19 (8-29)	12 (7-31)
Shum (2014)	PD: 16.17 (6.29-43.32)	38.01 (6.75-76.56)
Raman (2018)	23.4 (10-85.9)	10 (5.2-24.2)

In order to pool median and IQR estimates, we assumed the assumption of normality and approximated mean = median and standard deviation (SD) = IQR/1.35. In Teo et al., hospital days were reported separately for HD and PD recipients; hence, we pooled the two estimates using the Cochrane formulae for combing groups to form an overall estimate for the dialysis group. These procedures yielded the following mean and SD inputs ready for the meta-analysis:

Sources	**Dialysis** Estimated mean days (estimated SD)	**Conservative Management** Estimated mean days (estimated SD)
Teo (2010)	19 (22.2)	12 (17.8)
Shum (2014)	16.17 (27.4)	38.01 (51.7)
Raman (2018)	23.4 (56.2)	10 (14.1)

We pooled these estimates using a random-effects meta-analysis model and summarized results in the following forest plot:



The random-effects meta-analysis found the mean annual hospital days did not differ between dialysis recipients and those managed conservatively (pooled standardized mean difference [SMD] = -0.02, 95% CI = -1.39 to 1.36). Heterogeneity is high (89%), mainly due to the small number of studies and the large standard deviation estimates in each individual study (a result of approximation using the IQR).

Quality of life assessed by the SF-36 physical composite score (2 studies)

Sources	Definition of effects	Dialysis	Conservative Management	P-value
Brown (2015)	Change of group membership based on change of score over 12 months (stable/improved/worse)	Stable: 2(4%) Improved: 20 (41%) Worse: 27 (55%)	Stable: 3 (16%) Improved: 4 (21%) Worse: 12 (63%)	0.12 (t-test)
Da Silva-Gane (2012)	Monthly change of score due to dialysis initiation estimated in a fixed-effects growth model	Coefficient = 0.49 (SD=1.7)	- Reference group	>0.05 (Wald test)

Quality of life assessed by the SF-36 mental composite score (2 studies)

Sources	Definition of effects	Dialysis	Conservative Management	P-value
Brown (2015)	Change of group membership based on change of score over 12 months (stable/improved/worse)	Stable: 1 (2%) Improved: 26 (53.1%) Worse: 22 (44.9%)	Stable: 1 (5%) Improved: 10 (53%) Worse: 8 (42%)	0.78 (t-test)
Da Silva-Gane (2012)	Monthly change of score due to dialysis initiation estimated in a fixed-effects growth model	Coefficient = -0.69 (SD=5.8)	- Reference group	>0.05 (Wald test)

Table S1 Description of conservative management programs in each study

Source	Country	Conservative kidney management program
Brown 2015	Australia	Patients receive usual nephrology care in addition to services provided by dietician, palliative care specialist, renal/palliative nurse and social worker with a focus on symptom control and advanced care planning. Home visits and phone calls are conducted by nurses to support patients and families away from the clinic.
Chandna 2016	UK	Full medical treatment and ongoing support by a multidisciplinary care team in liaison with community, primary care and hospice services.
Da Silva-Gane 2012	UK	Ongoing medical treatment and services provided by a multidisciplinary care team including nephrologists, specialist nurses, renal counselors, social workers, dietitians and providers of community and hospice services.
Hussain 2013	UK	Supportive care under the care of a palliative medicine consultant
Kwok 2016	China	Services provided by a multidisciplinary care team including physicians, specialist nurses, social workers, dietitians, occupational therapists and physiotherapists. Focus is on medical and sociopsychological management of renal disease and symptom control. Access to a telephone hotline is also provided.
Raman 2018	UK	Not specified
Reindl-Schwaighofer 2017	Austria	Not specified
Shih 2014	Taiwan	Not specified
Shum 2014	China	Same level of medical care as recipients of peritoneal dialysis except no dialysis, including regular follow-ups with nurses, anemia treatment by erythropoietin, fluid and electrolyte balance, management of uremic symptoms and access to a telephone hotline
Tam-Tham 2018	Canada	Not specified
Teo 2010	Singapore	Not specified
Verberne 2016	Netherlands	Full medical treatment and services provided by a multidisciplinary care team including specialist nurses, dieticians and social workers were offered to patients