嘉義基督教醫院
實證醫學文獻查證競賽 (B 組)

Emergent dialysis- To do PD or HD

Urgent-start peritoneal dialysis versus haemodialysis for people with chronic kidney disease (Review)

組員：
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臨床情境 Clinical scenario

林女士55歲有**高血壓**、**第二型糖尿病**，雖然藥物控制但成效差，已至**末期腎臟病變**，最近 **eGFR 15 ml/min/1.73m2**，醫師已告知可能要做透析治療準備，其因要工作一直無法接受以後要過每週透析三次之生活。近日不適噁心、嘔吐、四肢腫脹，今天呼吸喘，漸漸嗜睡，由家屬送至急診，檢查結果醫師建議要緊急做透析治療。其在唸醫學院三年級的兒子很憂心問醫師：「現在要**緊急透析**一定要用**血液透析**（HD）嗎？不可以用**腹膜透析**（PD）嗎？」、「如果可以用腹膜透析，是否預防性給予抗生素可以減少腹膜炎發生？」、「透析要用抗凝血劑，是否發生中風之風險較高？血液透析與腹膜透析發生中風的風險有何不同？」、「我媽媽還年輕若考量長期做血液透析，動靜脈瘻管很重要，我去實習時有看到病人用遠紅外線照射，此處置是否可以維持血液透析病人動靜脈瘻管的通暢性？」，您如何在實證證據、病人家屬之者量、成本、風險、效果等層面向家屬說明其所提問之問題以盡快做決策與處置。

背景知識 Background

- Definition of CKD

  - presence of kidney damage or decreased kidney function for three or more months, irrespective of the cause

  - persistence of damage or decreased function for at least three months is necessary to distinguish CKD from acute kidney disease.

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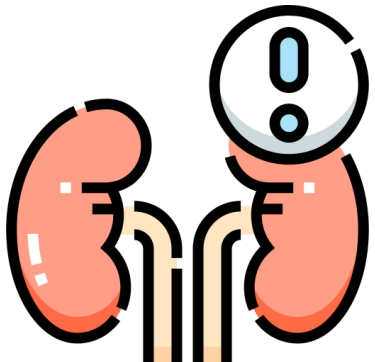


背景知識 Background

Prognosis of CKD by GFR and albuminuria categories: KDIGO 2012

GFR categories (ml/min/1.73 m²) Description and range				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				< 30 mg/g < 3 mg/mmol	30–300 mg/g 3–30 mg/mmol	> 300 mg/g > 30 mg/mmol
	G1	Normal or high	≥ 90			
	G2	Mildly decreased	60–89			
	G3a	Mildly to moderately decreased	45–59			
	G3b	Moderately to severely decreased	30–44			
	G4	Severely decreased	15–29			
	G5	Kidney failure	< 15			

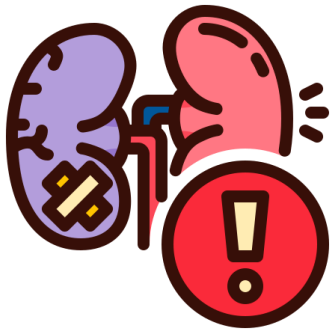
背景知識 Background

- Selection of dialysis modality

  - **hemodialysis**, or **peritoneal dialysis**

  - selection influenced by availability and convenience, comorbid conditions, socioeconomic and dialysis-center factors, patient's home situation, method of clinician reimbursement, ability to tolerate volume shifts

  - some patients may be optimal to utilize both hemodialysis and peritoneal dialysis over the course of treatment.



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背景知識 Background

血液透析與腹膜透析比較表

特性	血液透析	腹膜透析
透析管路	動靜脈瘻管	腹膜透析導管
透析場所	醫院或透析診所	家中、車上或任何乾淨密閉場所
治療執行者	醫護人員	自己或家屬
治療時間	每週 3 次、每次 4 小時	每日換液 4 次或夜間使用自動腹膜透析機，24 小時持續透析
水分、血壓、血中生化值變動	短時間移除大量水分及毒素，對心臟負荷、血壓及生化值影響較大 	緩慢移除水分及毒素，心臟負荷較小、血壓及生化值變動較平穩 
飲食限制	限高鉀（青菜燙過再炒，避免高鉀水果）、限高磷，水分控制較嚴格，鼓勵高蛋白飲食	限高磷，不限鉀（青菜水果），水分適量控制，鼓勵高蛋白飲食
失血程度	血液直接在體外透析，流失機會較大	無血液流失
其他	需忍受扎針之苦，透析中較易發生肌肉痙攣、高/低血壓等不適症狀	無需扎針，穩定移除水分及毒素，較無不適症狀

Reference: 台大健康電子報；嘸講你毋知，講乎你了解～血液透析與腹膜透析之差異

臨床問題 PICO -1

	PICO/關鍵字	MeSH同義詞	中文關鍵字
P	● Renal failure with hemodialysis	● Kidney Disease with hemodialysis ● End-Stage Kidney Diseas with hemodialysis ● End-Stage Renal Failure with hemodialysis ● Chronic Renal Failure with hemodialysis ● Uremia with hemodialysis	● 腎臟病合併血液透析 ● 末期腎病合併血液透析 ● 末期腎衰竭合併血液透析 ● 慢性腎衰竭合併血液透析 ● 尿毒症合併血液透析
I	● Heparin	● Low-Molecular-Weight Heparin	● 肝素 ● 低分子肝素
C	● Non-heparin	● Free heparin	● 非肝素 ● 游離肝素
O	● Stroke	● Cerebrovascular Accident ● Brain Hemorrhage	● 腦血管意外 ● 腦出血

臨床問題 PICO -1

	PICO/關鍵字	MeSH同義詞	中文關鍵字
P	• Renal failure	• Kidney Disease • End-Stage Kidney Diseas • End-Stage Renal Failure • Chronic Renal Failure • Uremia	• 腎臟病 • 末期腎病 • 末期腎衰竭 • 慢性腎衰竭 • 尿毒症
I	• Peritoneal dialysis	• Continuous Ambulatory	• 腹膜透析 • 連續腹膜透析
C	• Hemodialysis	• Dialysis • Haemodiafiltration	• 血液透析 • 透析 • 血液透析過濾
O	• Result effect	• Consequent • Gain	• 結果效應 • 效果 • 獲得

□治療型　傷害型　診斷型　篩檢型　預後型

文獻搜尋 Acquire

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or *n*-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, *n*-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

*** Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.**

**** As always, a systematic review is generally better than an individual study.**

文獻搜尋 Acquire

History and Search Details

Download Delete

Search	Actions	Details	Query	Results	Time
#5	•••	›	Search: **(((chronic kidney disease[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]))) AND (haemodialysis[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter])))) AND (peritoneal dialysis[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]))) AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]))) AND (outcome)** Filters: **Free full text, Meta-Analysis, Systematic Review, in the last 5 years**	26	21:38:46
#4	•••	›	Search: **((chronic kidney disease[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]))) AND (haemodialysis[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter])))) AND (peritoneal dialysis[MeSH Terms] AND ((y_5[Filter]) AND (ffrft[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]))) Filters: Free full text, Meta-Analysis, Systematic Review, in the last 5 years**	39	21:34:31
#3	•••	›	Search: **peritoneal dialysis[MeSH Terms]** Filters: **Free full text, Meta-Analysis, Systematic Review, in the last 5 years**	60	21:34:19
#2	•••	›	Search: **haemodialysis[MeSH Terms]** Filters: **Free full text, Meta-Analysis, Systematic Review, in the last 5 years**	330	21:33:25
#1	•••	›	Search: **chronic kidney disease[MeSH Terms]** Filters: **Free full text, Meta-Analysis, Systematic Review, in the last 5 years**	618	21:33:06

PICO

PIC

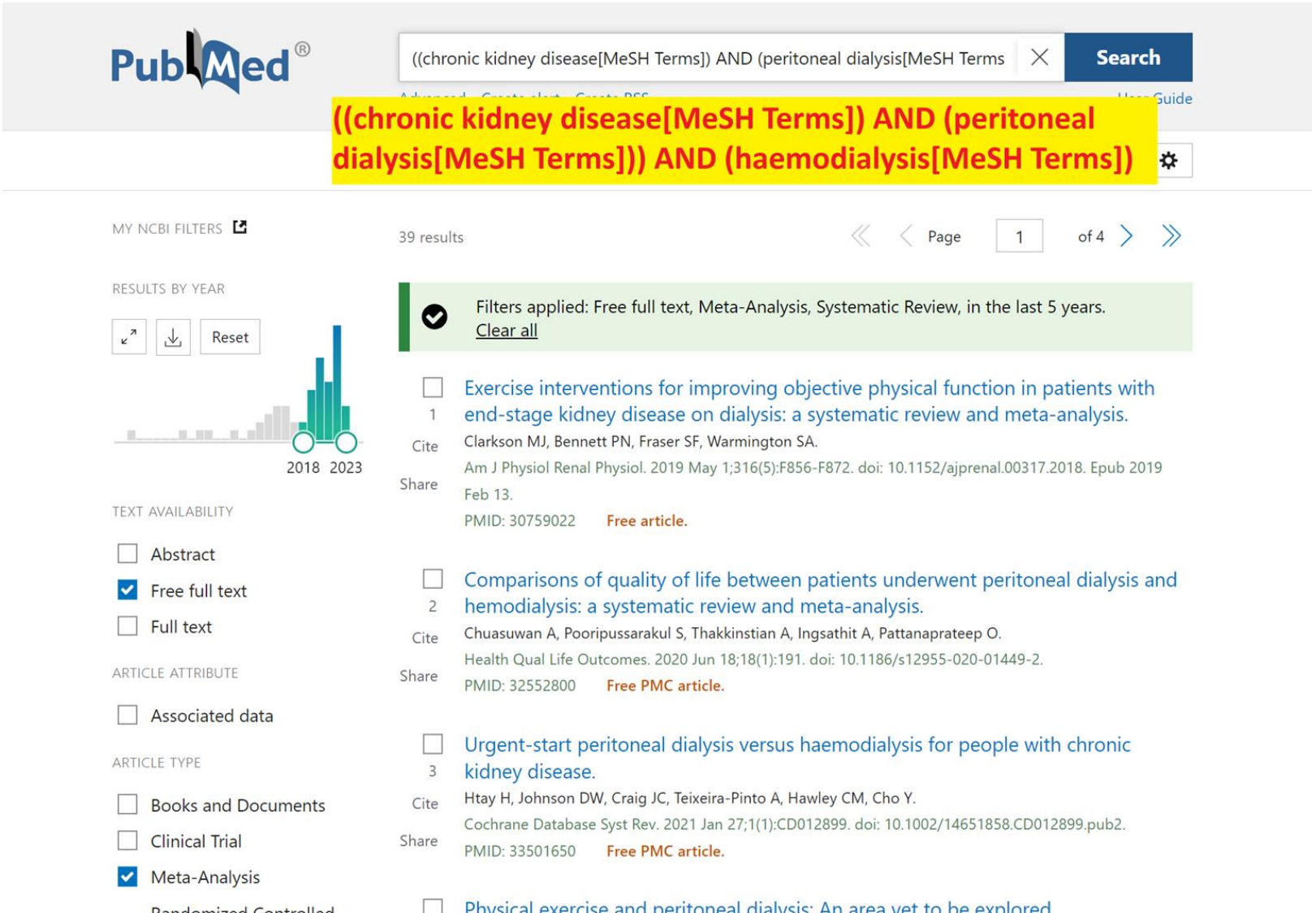
I

C

P

Showing 1 to 5 of 5 entries

文獻搜尋 Acquire



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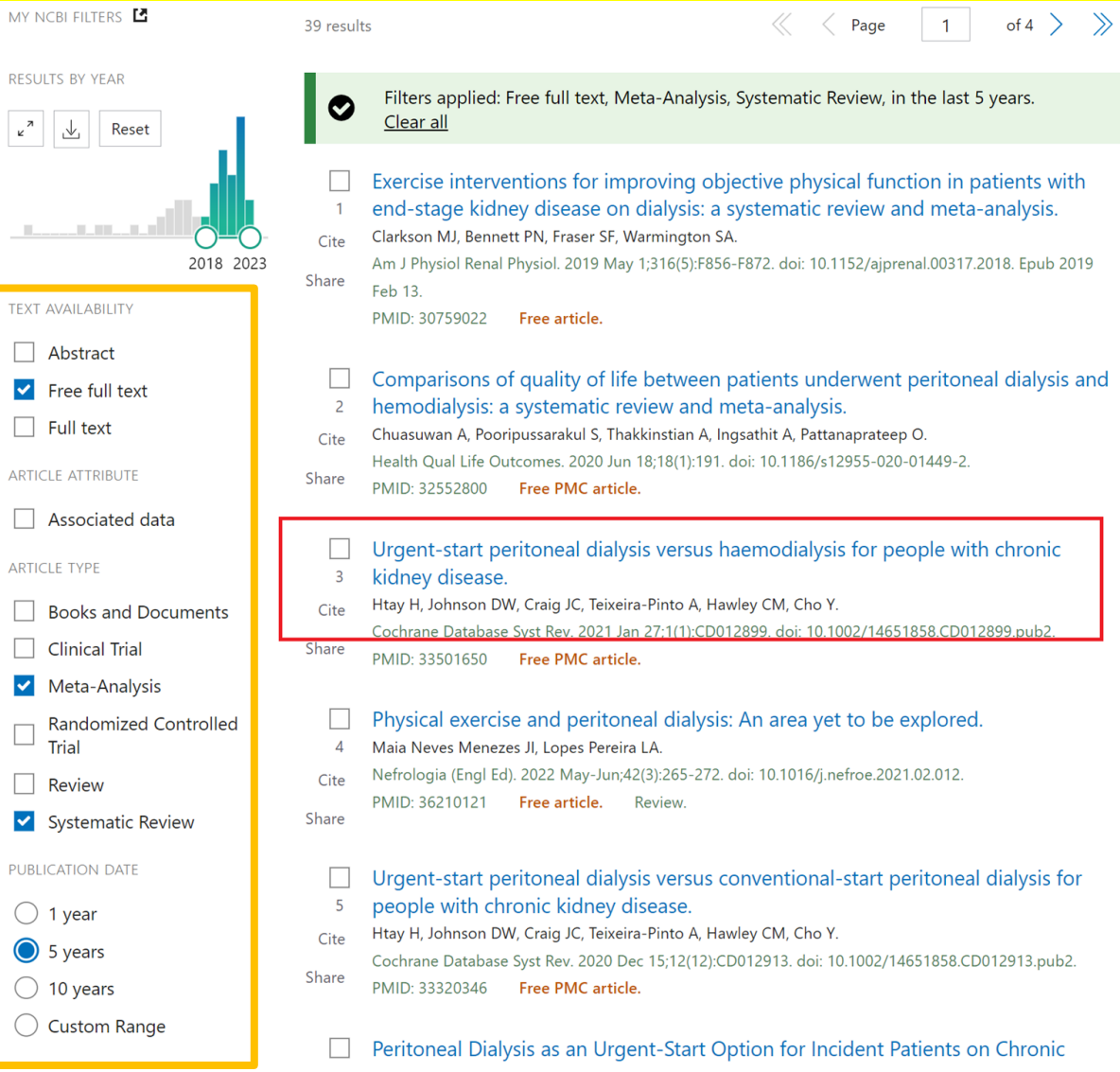

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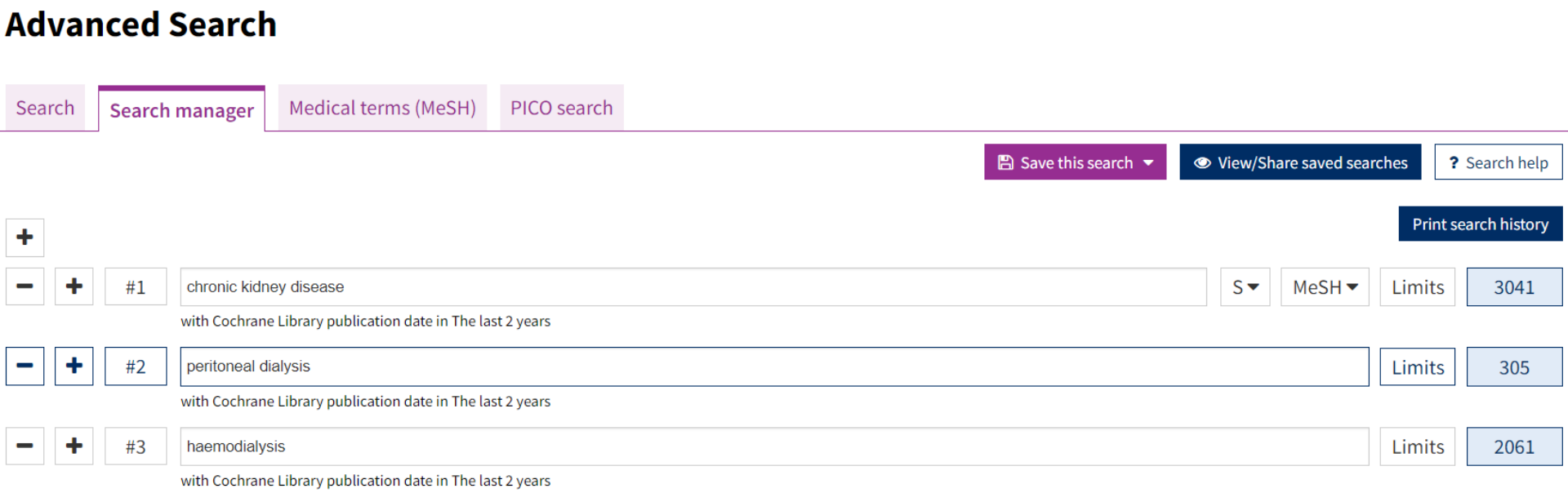

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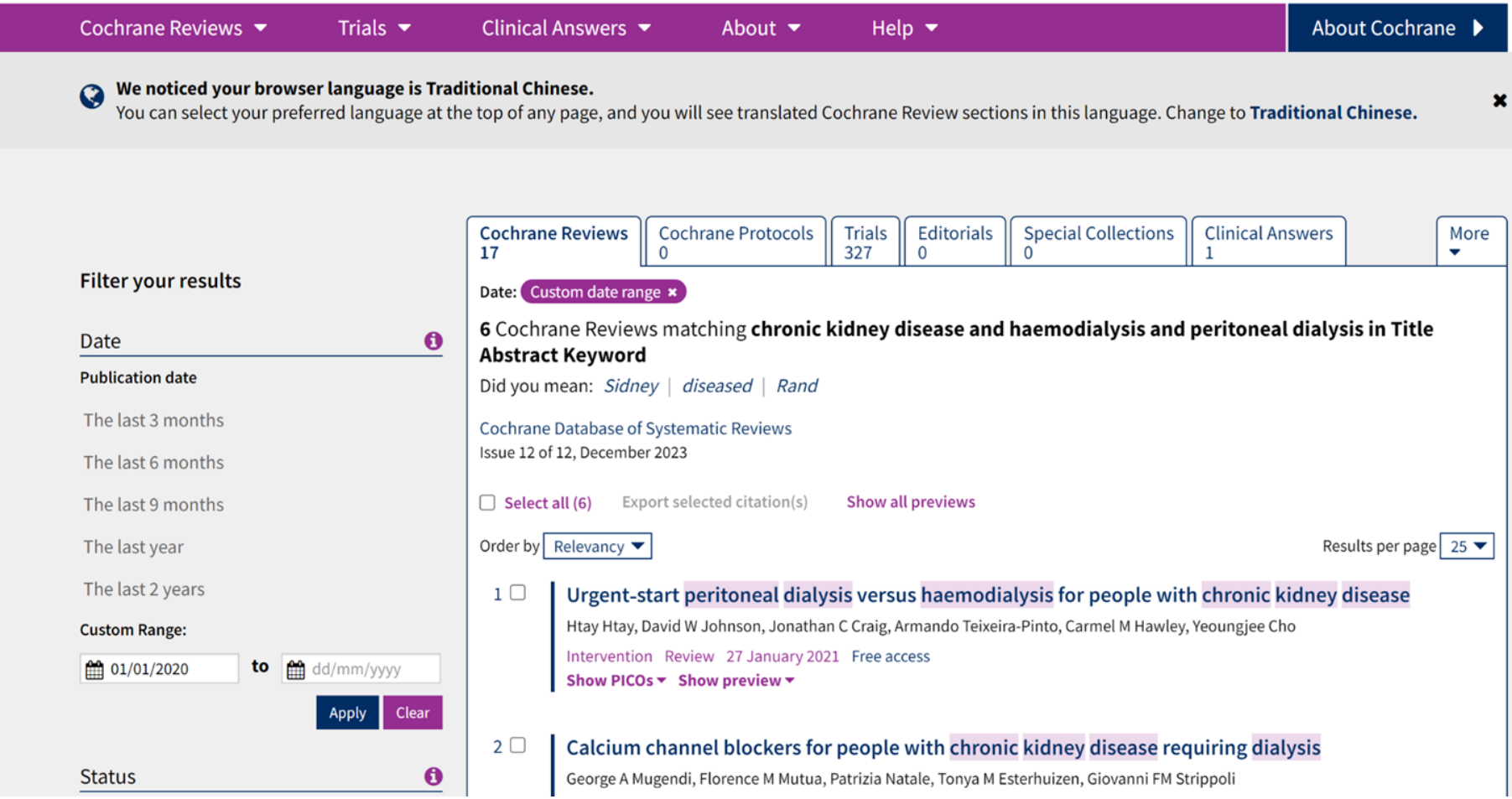


文獻搜尋 Acquire

Cochrane Library

Cochrane Database of Systematic Reviews

Urgent-start peritoneal dialysis versus haemodialysis for people with chronic kidney disease (Review)

Htay H, Johnson DW, Craig JC, Teixeira-Pinto A, Hawley CM, Cho Y

選擇理由

1.符合PICO
2.2021發表
3.為SR of RCT

文獻評讀 Appraise

Validity (可信性)

Importance (重要性)

Practice (適用性)

文獻評讀 Appraise

1. 此篇系統性文獻回顧是否問了一個清楚、明確的問題?
2. 作者是否尋找適當研究型態的文獻?
3. 你認為所有重要且相關的研究都被納入?
4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質?
5. 如果作者將研究結果進行合併，這樣的合併是否合理?

CASP
Critical Appraisal Skills Programme

文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何？
7. 結果精準嗎？
8. 此研究結果是否可應用到當地的族群？
9. 是否所有重要的臨床結果都有被考量到？
10. 付出的傷害和花費換得介入措施所產生的益處是否值得？

CASP
Critical Appraisal Skills Programme

文獻評讀 Appraise

1. 此篇系統性文獻回顧是否問了一個清楚、明確的問題?

I C P O

Urgent-start peritoneal dialysis versus haemodialysis for people with chronic kidney disease

Htay Htay, David W Johnson, Jonathan C Crai… Fernando Teixeira-Pinto, Carmel M Hawley, Yeoungjee Cho
Authors' declarations of interest

Version published: 27 January 2021 Version history
https://doi.org/10.1002/14651858.CD012899.pub2

Objectives

This review aimed to examine the benefits and harms of urgent-start PD compared to HD initiated using a CVC in adults and children with CKD requiring long-term kidney replacement therapy.

☑ Yes ☐ No ☐ Can't tell

C 文獻評讀 Appraise

2. 作者是否尋找適當研究型態的文獻?

Types of studies

All randomised controlled trials (RCTs), quasi-RCTs (RCTs in which allocation to treatment was obtained by alternation, use of alternate medical records, date of birth or other predictable methods), and non-RCTs comparing urgent-start PD to HD treatments via CVC.

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

3. 你認為所有重要且相關的研究都被納入?

Electronic searches

We searched the Cochrane Kidney and Transplant Register of Studies up to 25 May 2020 through contact with the Information Specialist using search terms relevant to this review. The Register contains studies identified from the following sources.

1. Monthly searches of the Cochrane Central Register of Controlled Trials (CENTRAL)
2. Weekly searches of MEDLINE OVID SP
3. Hand searching of kidney-related journals and the proceedings of major kidney conferences
4. Searching of the current year of EMBASE OVID SP
5. Weekly current awareness alerts for selected kidney and transplant journals
6. Searches of the International Clinical Trials Register (ICTRP) Search Portal and ClinicalTrials.gov.

Studies contained in the Register are identified through search strategies for CENTRAL, MEDLINE, and EMBASE based on the scope of Cochrane Kidney and Transplant. Details of these strategies, as well as a list of hand searched journals, conference proceedings and current awareness alerts, are available in the Specialised Register section of information about Cochrane Kidney and Transplant.

See Appendix 1 for search terms used in strategies for this review.

For non-RCTs, MEDLINE (OVID) (1946 - 11 February 2020) and EMBASE (OVID) (1980 - 11 February 2020), Clinical Trials Register (ICTRP) Search Portal and ClinicalTrials.gov (up to 14 February 2019) were searched.

本篇文獻有使用:
1.電子資料庫
2.手動查找文獻

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質?

NEWCASTLE - OTTAWA Quality Assessment Scale

Table 2. Assessment of quality of studies

Study	Selection				Compara-bility	Outcome			Evidence of quality
	Representa-tiveness of exposed co-hort	Selection of non-exposed cohort	Ascertain-ment of expo-sure	Outcomes not present at start		Assess-ment of outcome	Length of follow-up	Adequa-cy of fol-low-up	
Bhalla 2017	*	*	*	*	*	*	*	--	7
Brabo 2018	--	--	*	*	--	--	*	*	4
Ghaffari 2015	*	*	--	*	-	--	*	*	5
Jin 2016	*	*	*	*	*	*	*	--	7
Koch 2012	*	*	*	*	*	*	*	--	7
Lobbedez 2008	*	*	*	*	*	*	*	--	7
Wang 2017	--	--	*	*	--	--	*	--	3

☑ Yes ☐ No ☐ Can't tell

C 文獻評讀 Appraise

5. 如果作者將研究結果進行合併，這樣的合併是否合理？

Subgroup analysis and investigation of heterogeneity

Subgroup analysis was used to explore possible sources of heterogeneity (e.g. participants, interventions and study quality including method of PD catheter insertion). Heterogeneity among participants could have been related to age and renal pathology (e.g. children versus adults). Heterogeneity in treatments could have been related to prior agent(s) used and the agent, dose, and duration of therapy (e.g. initial fill volume). Therefore, subgroup analysis was conducted to evaluate the source of heterogeneity according to:

- Participants
  - Adult versus paediatric patients
  - Incident versus prevalent patients
- Setting
  - Single-centre versus multi-centre
- Type of treatment utilised
  - According to initial fill volume
  - Days to PD commencement (e.g. within 24 hours versus 7 days)
- Methodological quality

Adverse effects were tabulated and assessed with descriptive techniques, as they were likely to be different for the various agents used. Where possible, the risk difference with 95% CI was calculated for each adverse effect, either compared to no treatment or to another agent.

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

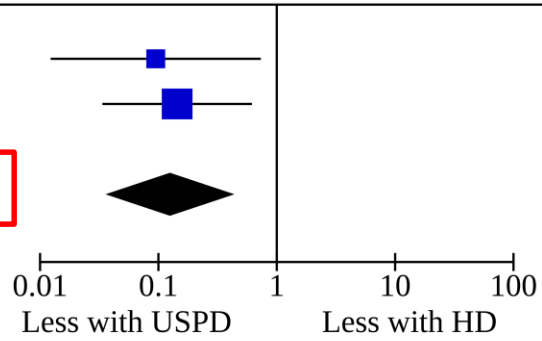
Analysis 1.1. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 1: Bacteraemia

Study or Subgroup	Urgent-start PD Events	Total	Urgent-start HD Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Jin 2016	1	96	9	82	33.6%	0.09 [0.01 , 0.73]
Koch 2012	2	66	12	57	66.4%	0.14 [0.03 , 0.62]
Total (95% CI)		**162**		**139**	**100.0%**	**0.13 [0.04 , 0.41]**
Total events:	3		21			

Heterogeneity: Tau² = 0.00; Chi² = 0.11, df = 1 (P = 0.74); I² = 0%

Test for overall effect: Z = 3.44 (P = 0.0006)

Test for subgroup differences: Not applicable



NNT：8

C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

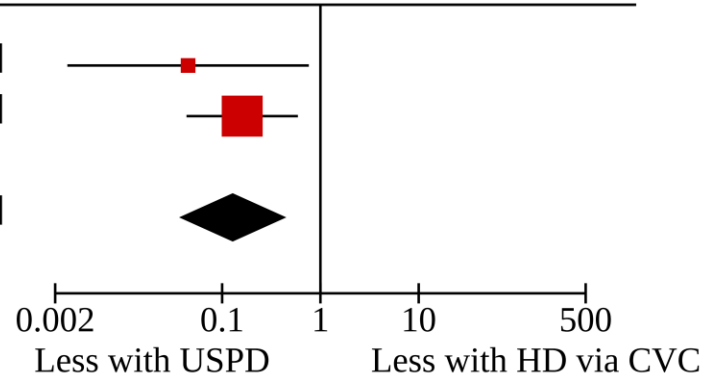
Analysis 1.2. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 2: Bacteraemia (adjusted data)

Study or Subgroup	log[RR]	SE	Weight	Risk Ratio IV, Random, 95% CI
Jin 2016	-3.1003	1.4432	17.5%	0.05 [0.00 , 0.76]
Koch 2012	-1.8326	0.6658	82.5%	0.16 [0.04 , 0.59]
Total (95% CI)			**100.0%**	**0.13 [0.04 , 0.42]**

Heterogeneity: Tau² = 0.00; Chi² = 0.64, df = 1 (P = 0.43); I² = 0%

Test for overall effect: Z = 3.40 (P = 0.0007)

Test for subgroup differences: Not applicable



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

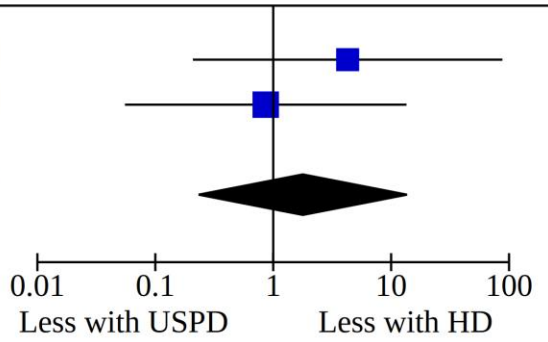
Analysis 1.3. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 3: Peritonitis

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Jin 2016	2	96	0	82	45.3%	4.28 [0.21 , 87.86]
Koch 2012	1	66	1	57	54.7%	0.86 [0.06 , 13.50]
Total (95% CI)		**162**		**139**	**100.0%**	**1.78 [0.23 , 13.62]**
Total events:	3		1			

Heterogeneity: Tau² = 0.00; Chi² = 0.60, df = 1 (P = 0.44); I² = 0%

Test for overall effect: Z = 0.56 (P = 0.58)

Test for subgroup differences: Not applicable

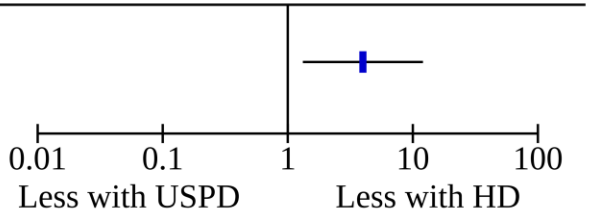


C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

Analysis 1.4. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 4: Exit-site or tunnel infection

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Risk Ratio M-H, Random, 95% CI
Bhalla 2017	6	84	6	335	3.99 [1.32 , 12.05]

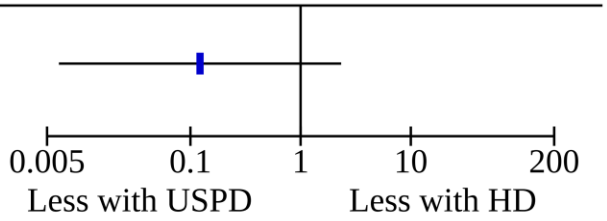


C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

Analysis 1.5. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 5: Exit-site bleeding

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Risk Ratio M-H, Random, 95% CI
Jin 2016	0	96	3	82	0.12 [0.01 , 2.33]



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

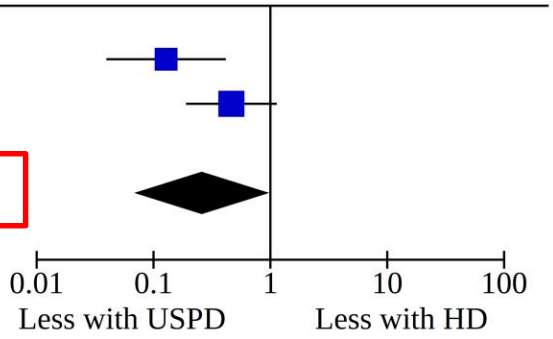
Analysis 1.6. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 6: Catheter malfunction

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Jin 2016	3	96	20	82	45.4%	0.13 [0.04 , 0.42]
Bhalla 2017	5	84	43	335	54.6%	0.46 [0.19 , 1.13]
Total (95% CI)		**180**		**417**	**100.0%**	**0.26 [0.07 , 0.91]**
Total events:	8		63			

Heterogeneity: Tau² = 0.55; Chi² = 2.92, df = 1 (P = 0.09); I² = 66%

Test for overall effect: Z = 2.11 (P = 0.04)

Test for subgroup differences: Not applicable



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

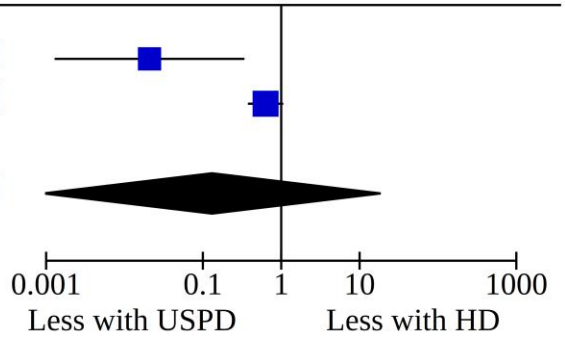
Analysis 1.7. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 7: Catheter readjustment

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Jin 2016	0	96	20	82	46.2%	0.02 [0.00 , 0.34]
Wang 2017	9	19	21	28	53.8%	0.63 [0.38 , 1.06]
Total (95% CI)		**115**		**110**	**100.0%**	**0.13 [0.00 , 18.61]**
Total events:	9		41			

Heterogeneity: Tau² = 11.83; Chi² = 12.28, df = 1 (P = 0.0005); I² = 92%

Test for overall effect: Z = 0.80 (P = 0.42)

Test for subgroup differences: Not applicable

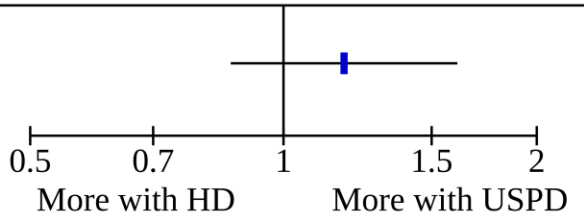


C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

Analysis 1.8. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 8: Technique survival

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Risk Ratio M-H, Random, 95% CI
Koch 2012	41	66	30	57	1.18 [0.87 , 1.61]



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

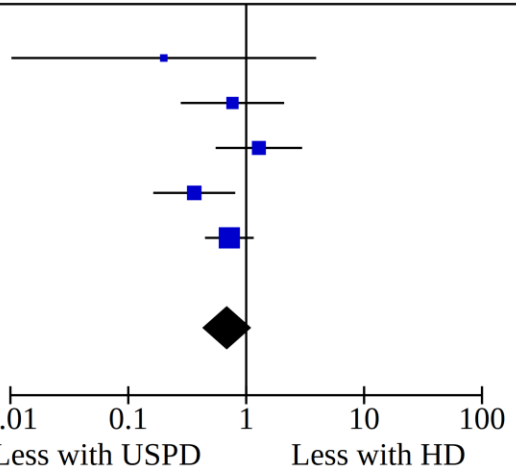
Analysis 1.9. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 9: Death (any cause)

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Brabo 2018	0	20	2	20	2.2%	0.20 [0.01 , 3.92]
Lobbedez 2008	6	34	6	26	15.4%	0.76 [0.28 , 2.10]
Jin 2016	12	96	8	82	20.3%	1.28 [0.55 , 2.98]
Bhalla 2017	6	84	66	335	21.9%	0.36 [0.16 , 0.81]
Koch 2012	20	66	24	57	40.3%	0.72 [0.45 , 1.16]
Total (95% CI)		**300**		**520**	**100.0%**	**0.68 [0.44 , 1.07]**
Total events:	44		106			

Heterogeneity: Tau² = 0.07; Chi² = 5.47, df = 4 (P = 0.24); I² = 27%

Test for overall effect: Z = 1.67 (P = 0.09)

Test for subgroup differences: Not applicable



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

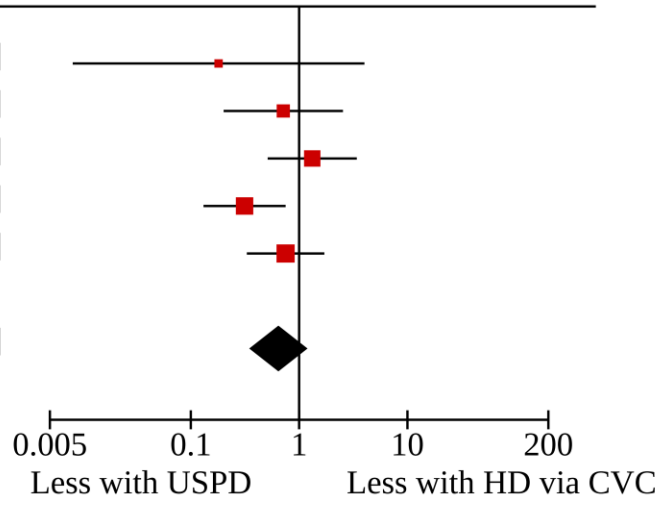
Analysis 1.10. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 10: Death (any cause): adjusted data

Study or Subgroup	log[OR]	SE	Weight	Odds Ratio IV, Random, 95% CI
Brabo 2018	-1.7121	1.582	3.3%	0.18 [0.01 , 4.01]
Lobbedez 2008	-0.3365	0.6473	16.1%	0.71 [0.20 , 2.54]
Jin 2016	0.2787	0.4835	24.4%	1.32 [0.51 , 3.41]
Bhalla 2017	-1.1599	0.4454	27.1%	0.31 [0.13 , 0.75]
Koch 2012	-0.2877	0.4205	29.1%	0.75 [0.33 , 1.71]
Total (95% CI)			**100.0%**	**0.64 [0.36 , 1.15]**

Heterogeneity: $Tau^2 = 0.12$; $Chi^2 = 5.63$, df = 4 (P = 0.23); $I^2 = 29\%$

Test for overall effect: Z = 1.49 (P = 0.14)

Test for subgroup differences: Not applicable



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

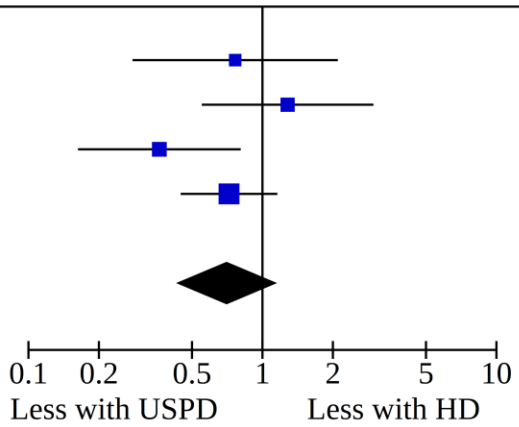
Analysis 1.11. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 11: Death (any cause): studies with low risk of bias

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Lobbedez 2008	6	34	6	26	16.3%	0.76 [0.28 , 2.10]
Jin 2016	12	96	8	82	21.1%	1.28 [0.55 , 2.98]
Bhalla 2017	6	84	66	335	22.7%	0.36 [0.16 , 0.81]
Koch 2012	20	66	24	57	39.8%	0.72 [0.45 , 1.16]
Total (95% CI)		**280**		**500**	**100.0%**	**0.70 [0.44 , 1.12]**
Total events:	44		104			

Heterogeneity: Tau² = 0.08; Chi² = 4.75, df = 3 (P = 0.19); I² = 37%

Test for overall effect: Z = 1.48 (P = 0.14)

Test for subgroup differences: Not applicable



C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

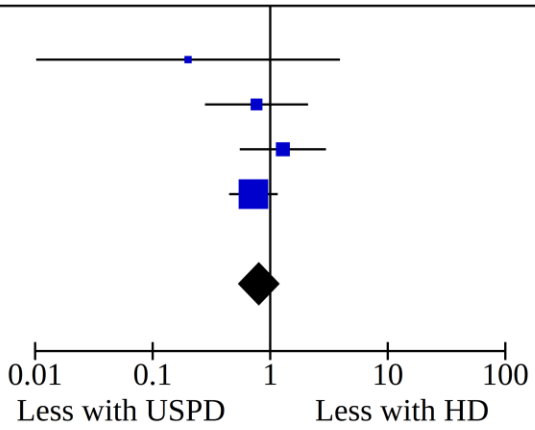
Analysis 1.12. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 12: Death (any cause): sensitivity analysis (excluding large studies)

Study or Subgroup	Urgent-start PD Events	Total	Urgent-start HD Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Brabo 2018	0	20	2	20	1.6%	0.20 [0.01 , 3.92]
Lobbedez 2008	6	34	6	26	14.2%	0.76 [0.28 , 2.10]
Jin 2016	12	96	8	82	20.3%	1.28 [0.55 , 2.98]
Koch 2012	20	66	24	57	63.9%	0.72 [0.45 , 1.16]
Total (95% CI)		**216**		**185**	**100.0%**	**0.80 [0.55 , 1.17]**
Total events:	38		40			

Heterogeneity: Tau² = 0.00; Chi² = 2.23, df = 3 (P = 0.53); I² = 0%

Test for overall effect: Z = 1.16 (P = 0.25)

Test for subgroup differences: Not applicable

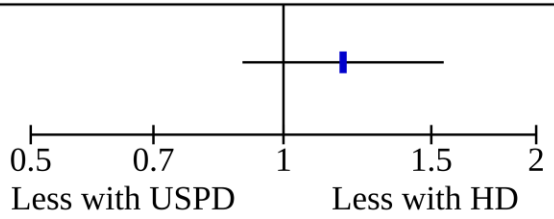


C 文獻評讀 Appraise

6. 這篇系統性文獻回顧的整體結果為何?

Analysis 1.13. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 13: Hospitalisation

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Risk Ratio M-H, Random, 95% CI
Koch 2012	45	66	33	57	1.18 [0.89 , 1.55]



C 文獻評讀 Appraise

7. 結果精準嗎？

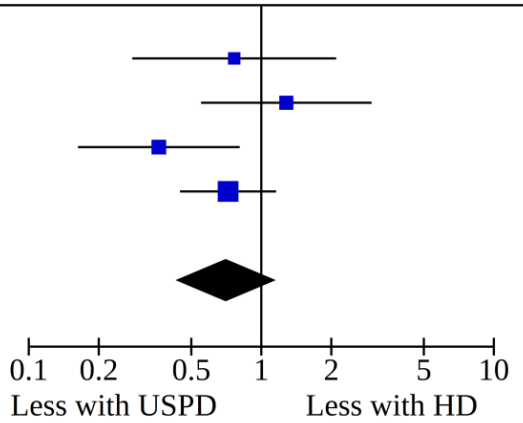
Analysis 1.11. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 11: Death (any cause): studies with low risk of bias

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Lobbedez 2008	6	34	6	26	16.3%	0.76 [0.28 , 2.10]
Jin 2016	12	96	8	82	21.1%	1.28 [0.55 , 2.98]
Bhalla 2017	6	84	66	335	22.7%	0.36 [0.16 , 0.81]
Koch 2012	20	66	24	57	39.8%	0.72 [0.45 , 1.16]
Total (95% CI)		**280**		**500**	**100.0%**	**0.70 [0.44 , 1.12]**
Total events:	44		104			

Heterogeneity: $Tau^2 = 0.08$; $Chi^2 = 4.75$, df = 3 (P = 0.19); $I^2 = 37\%$

Test for overall effect: Z = 1.48 (P = 0.14)

Test for subgroup differences: Not applicable



☐ Yes ☐ No ☑ Can't tell

C 文獻評讀 Appraise

7. 結果精準嗎？

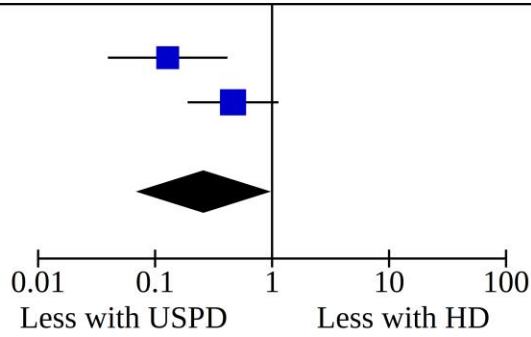
Analysis 1.6. Comparison 1: Urgent-start PD versus urgent-start HD, Outcome 6: Catheter malfunction

Study or Subgroup	Urgent-start PD Events	Urgent-start PD Total	Urgent-start HD Events	Urgent-start HD Total	Weight	Risk Ratio M-H, Random, 95% CI
Jin 2016	3	96	20	82	45.4%	0.13 [0.04 , 0.42]
Bhalla 2017	5	84	43	335	54.6%	0.46 [0.19 , 1.13]
Total (95% CI)		**180**		**417**	**100.0%**	**0.26 [0.07 , 0.91]**
Total events:	8		63			

Heterogeneity: Tau² = 0.55; Chi² = 2.92, df = 1 (P = 0.09); I² = 66%

Test for overall effect: Z = 2.11 (P = 0.04)

Test for subgroup differences: Not applicable



☐ Yes ☐ No ☑ Can't tell

C 文獻評讀 Appraise

8. 此研究結果是否可應用到當地的族群？

Inclusion criteria

Participants included in this review were both adults and children with CKD, who require dialysis treatment. Participants had a PD catheter inserted to undergo PD or a CVC for HD.

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

9. 是否所有重要的臨床結果都有被考量到？

Types of outcome measures

Primary outcomes

- Catheter-related infectious complications occurring within 30 days (early complication) and 90 days (late complication)
  - Bacteraemia (defined as blood culture positive for bacteria) after commencement of dialysis (proportion of patients developing bacteraemia)
  - Peritonitis as defined by the ISPD guidelines (Li 2010) after commencement of dialysis (proportion of patients developing peritonitis)
  - Exit site or tunnel tract infection in PD patients was defined by the ISPD guidelines (Li 2010) after commencement of dialysis and CVC exit-site infection was defined as presence of erythema, induration, and/or tenderness within 2 cm of the catheter exit site; may be associated with fever or purulent drainage from the exit site, with or without concomitant bloodstream infection (Mermel 2009) and tunnel infection, defined as tenderness, erythema, and/or induration > 2 cm from the catheter exit site, along the subcutaneous tract of a tunnelled catheter, with or without concomitant bloodstream infection (Mermel 2009). (proportion of patients developing exit site or tunnel tract infections)
- Catheter-related non-infectious complications occurring within 30 days (early complication) and 90 days (late complication)
  - Exit site bleeding requiring intervention (e.g. additional application of suture) after commencement of dialysis (proportion of patients developing exit site bleeding)
  - Catheter malfunction, defined as catheter flow problems requiring intervention (medical (e.g. urokinase) or surgical (e.g. catheter replacement)) or malposition after commencement of dialysis (proportion of patients developing catheter malfunction)
  - Catheter re-adjustment, defined as catheter malfunction requiring intervention to re-adjust or replace the catheter (proportion of patients requiring catheter re-adjustment procedure)
- Home dialysis (proportion of patients on home dialysis (e.g. PD or home HD)).

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

9. 是否所有重要的臨床結果都有被考量到？

Secondary outcomes

- Technique survival (number of patients remaining on the initial mode of KRT at the end of study)
- Death (any cause)
- Hospitalisation (average days spent in hospital, episodes of hospitalisation, or number requiring hospitalisation)
- Pain/discomfort related to dialysis therapy
- Adverse effects

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

9. 是否所有重要的臨床結果都有被考量到？

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)
	Risk with USHD	Risk with USPD			
Bacteraemia up to 6 months	**151 per 1,000**	**20 per 1,000** (6 to 62)	**RR 0.13** (0.04 to 0.41)	301 (2)	⊕⊕⊖⊖ LOW[1]
Peritonitis up to 6 months	**7 per 1,000**	**13 per 1,000** (2 to 98)	**RR 1.78** (0.23 to 13.62)	301 (2)	⊕⊖⊖⊖ VERY LOW[2]
Exit-site or tunnel infection	**18 per 1,000**	**71 per 1,000** (24 to 216)	**RR 3.99** (1.32 to 12.05)	419 (1)	⊕⊖⊖⊖ VERY LOW[2]
Exit-site bleeding	**37 per 1,000**	**4 per 1,000** (0 to 85)	**RR 0.12** (0.01 to 2.33)	178 (1)	⊕⊖⊖⊖ VERY LOW[2]
Catheter malfunction	**151 per 1,000**	**39 per 1,000** (11 to 137)	**RR 0.26** (0.07 to 0.91)	597 (2)	⊕⊖⊖⊖ VERY LOW[3]
Catheter re-adjustment up to 60 months	**373 per 1,000**	**48 per 1,000** (0 to 1,000)	**RR 0.13** (0.00 to 18.61)	225 (2)	⊕⊖⊖⊖ VERY LOW[3]
Technique survival up to 6 months	**526 per 1,000**	**621 per 1,000** (458 to 847)	**RR 1.18** (0.87 to 1.61)	123 (1)	⊕⊖⊖⊖ VERY LOW[2]

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

10. 付出的傷害和花費換得介入措施所產生的益處是否值得？

Table 3. Cost of urgent dialysis

Study	Variables	USPD	USHD
Brabo 2018	Direct cost/patient over 6 months (US$)	6092 ± 1289	6209 ± 1600
	Dialysis access	3.7%	9.3%
	Dialysis service	80.3%	75.2%
	Hospitalisation	0%	2.1%
	Laboratory tests	1.7%	1.6%
	Treatment cost for infectious complications	1.1%	2.5%
	Medication	9.6%	12.3%

☑ **Yes** ☐ No ☐ Can't tell

C 文獻評讀 Appraise

10. 付出的傷害和花費換得介入措施所產生的益處是否值得？

Conclusions

Patients on PD may have a lower risk of blood stream infection compared with those on HD using a catheter. However, it is unclear whether there are any differences in other infection-related or catheter-related complications, ability to remain on the same type of dialysis treatment, and patient survival between urgent PD and HD using a catheter.

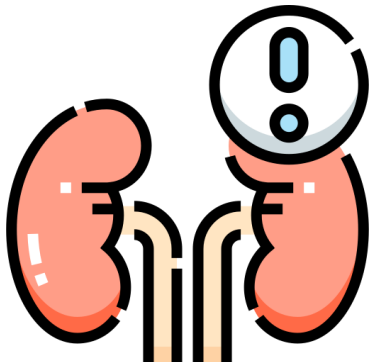
☑ **Yes** ☐ No ☐ Can't tell

No	Examination	Yes/No
1	此篇系統性文獻回顧是否問了一個清楚、明確的問題?	Yes
2	作者是否尋找適當研究型態的文獻?	Yes
3	你認為所有重要且相關的研究都被納入?	Yes
4	系統性文獻回顧的作者是否評估所納入研究文獻的品質?	Yes
5	如果作者將研究結果進行合併，這樣的合併是否合理?	Yes
6	這篇系統性文獻回顧的整體結果為何？	Yes
7	結果精準嗎？	Can't tell
8	此研究結果是否可應用到當地的族群？	Yes
9	是否所有重要的臨床結果都有被考量到？	Yes
10	付出的傷害和花費換得介入措施所產生的益處是否值得？	Yes

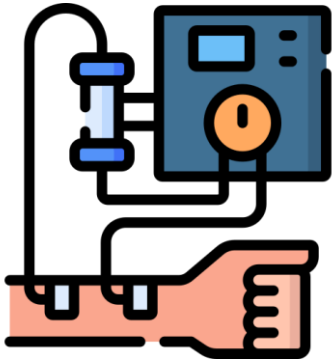
D 臨床應用 Apply

Inclusion criteria

Participants included in this review were both adults and children with CKD, who require dialysis treatment. Participants had a PD catheter inserted to undergo PD or a CVC for HD.



D 臨床應用 Apply



HD

- 緊急透析：4100 點 (3690 元)
- 菌血症(元/天)：72500 元

PD

NNT：8

- 透析(一次)：2112 點 (1900 元)
  4 次/天(7600元/天)

→相差41200 元/天

預防一次費用(COPE)

PD

NNT × NNT時間 × 治療所需日費用
=60800 元

共享決策

醫療現況(實證醫學)	病人的治療偏好
證據等級：CEBM(Level 1)	希望使用緊急腹膜透析
利弊平衡	**費用資源**
使用緊急腹膜透析可降低菌血症風險 對於其他透析合併症及病人存活率仍無定論	一天腹膜透析的錢約為7600元，但每8個用腹膜透析的人相較於血液透析的就有一個可以避免掉菌血症的可能性，仍是利大於弊，

應用 Apply

Share Decision Making

林先生您好， 針對您母親因為末期腎臟病變，原已告知可能要做透析治療準備，因為今天因症狀不適送至急診，檢查結果建議要緊急做透析治療。在我們查詢文獻告知發現不管是成本、風險、效果，我們強力建議推薦您使用腹膜透析做治療。