Electronic Supplement File

Shankar-Hari M et al. Rate and risk factors for rehospitalisation: systematic review

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable-1: Literature search strategy

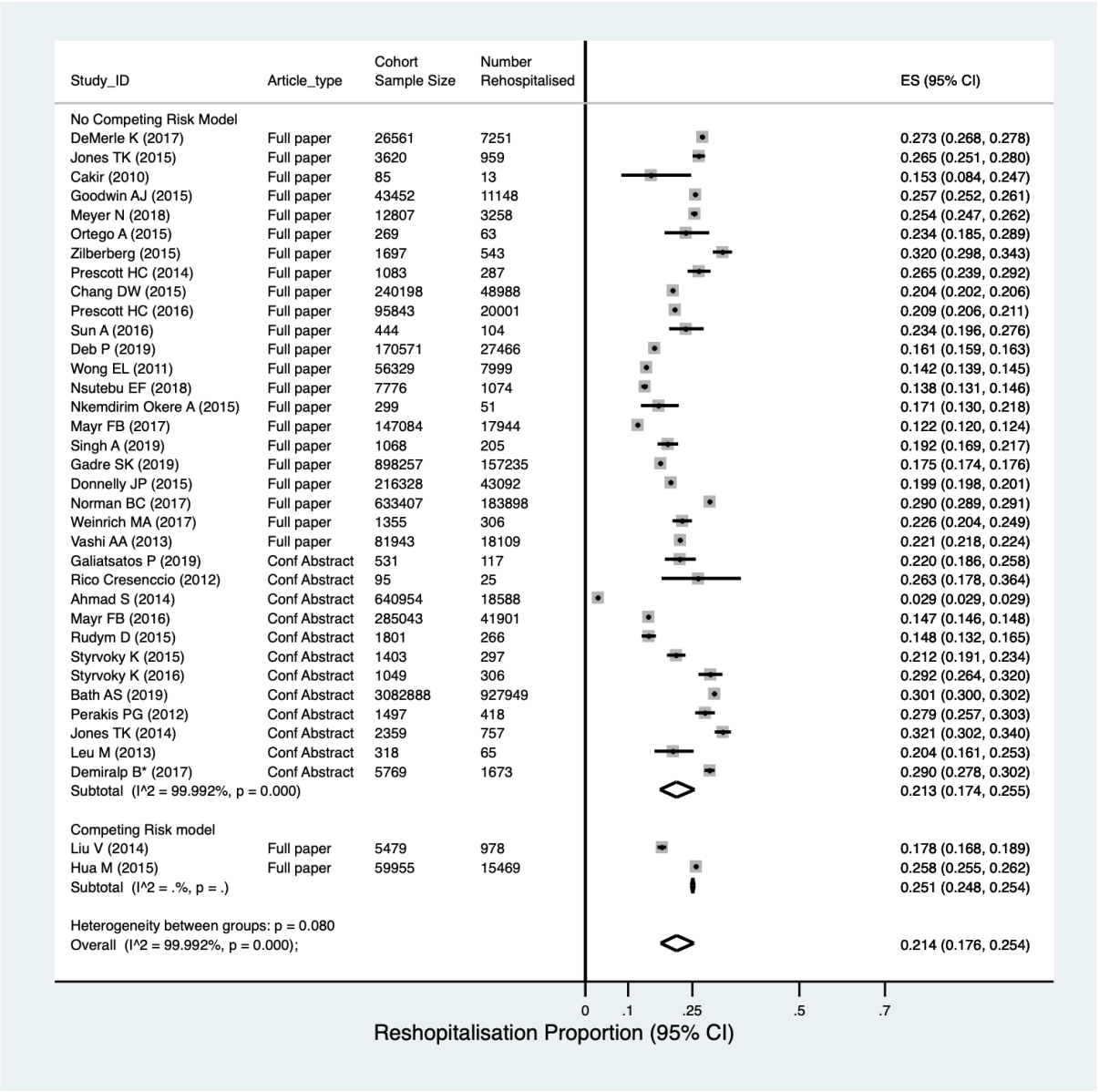
ID	Query
#13	Search ((((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) OR ((((((((sepsis[MeSH Terms]) OR sepsis[MeSH Major Topic]) OR sepsis[Title/Abstract])) OR septicaemia[MeSH Terms]) OR septic*[Title/Abstract])) AND (((((readmission, hospital[MeSH Terms]) OR readmission, patient[MeSH Terms])) OR readmission*[Title/Abstract]) OR discharge[MeSH Terms])) Filters: Publication date from 1992/01/01; Humans; Adult: 19+ years
#12	Search ((((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) OR ((((((((sepsis[MeSH Terms]) OR sepsis[MeSH Major Topic]) OR sepsis[Title/Abstract])) OR septicaemia[MeSH Terms]) OR septic*[Title/Abstract])) AND (((((readmission, hospital[MeSH Terms]) OR readmission, patient[MeSH Terms])) OR readmission*[Title/Abstract]) OR discharge[MeSH Terms])) Filters: Humans; Adult: 19+ years
#11	Search ((((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) OR ((((((((sepsis[MeSH Terms]) OR sepsis[MeSH Major Topic]) OR sepsis[Title/Abstract])) OR septicaemia[MeSH Terms]) OR septic*[Title/Abstract])) AND (((((readmission, hospital[MeSH Terms]) OR readmission, patient[MeSH Terms])) OR readmission*[Title/Abstract]) OR discharge[MeSH Terms])) Filters: Adult: 19+ years
#10	Search ((((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH])) OR ((((((((sepsis[MeSH Terms]) OR sepsis[MeSH Major Topic]) OR sepsis[Title/Abstract])) OR septicaemia[MeSH Terms]) OR septic*[Title/Abstract])) AND (((((readmission, hospital[MeSH Terms]) OR readmission, patient[MeSH Terms])) OR readmission*[Title/Abstract]) OR discharge[MeSH Terms]))
#9	Search (((((((sepsis[MeSH Terms]) OR sepsis[MeSH Major Topic]) OR sepsis[Title/Abstract])) OR septicaemia[MeSH Terms]) OR septic*[Title/Abstract])) AND (((((readmission, hospital[MeSH Terms]) OR readmission, patient[MeSH Terms])) OR readmission*[Title/Abstract]) OR discharge[MeSH Terms])
#8	Search (((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH]) Filters: Publication date from 1992/01/01 to 2016/12/31; Adult: 19+ years
#7	Search (((((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms])) AND ("1992/01/01"[PDat] : "3000/12/31"[PDat]) AND Humans[Mesh] AND adult[MeSH])) AND ((((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms])

	OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract]))) AND ("1992/01/01"[PDat] : "2016/12/31"[PDat]) AND adult[MeSH]) Filters: Publication date from 1992/01/01 to 2016/12/31; Adult: 19+ years
#6	Search ((((((((("sepsis"[MeSH Terms]) OR sepsis, severe[MeSH Terms]) OR sepsis syndrome[MeSH Terms]) OR sepsis syndromes[MeSH Terms]) OR septicaemia[Title/Abstract]) OR septicemia[Title/Abstract]) OR sepsis[Title/Abstract]) OR septic*[Title/Abstract])) Filters: Publication date from 1992/01/01 to 2016/12/31; Adult: 19+ years
#5	Search ((((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms])) OR ((((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms]) Filters: Publication date from 1992/01/01; Humans; Adult: 19+ years
#4	Search "infection"[MeSH Terms] Filters: Publication date from 1992/01/01; Humans; Adult: 19+ years
#3	Search (((discharge planning[MeSH Terms]) OR discharge plannings[MeSH Terms]) OR discharge[Title/Abstract]) OR national hospital discharge survey[MeSH Terms]
#2	Search ((((readmissions, patient[MeSH Terms]) OR patient readmissions[MeSH Terms]) OR hospital readmissions[MeSH Terms]) OR readmissions[Title/Abstract]) OR readmissions, hospital[MeSH Terms]

eTable 2 Egger's test for small study effects at 7-, 30-, 90-, 180- and 365-days proportions

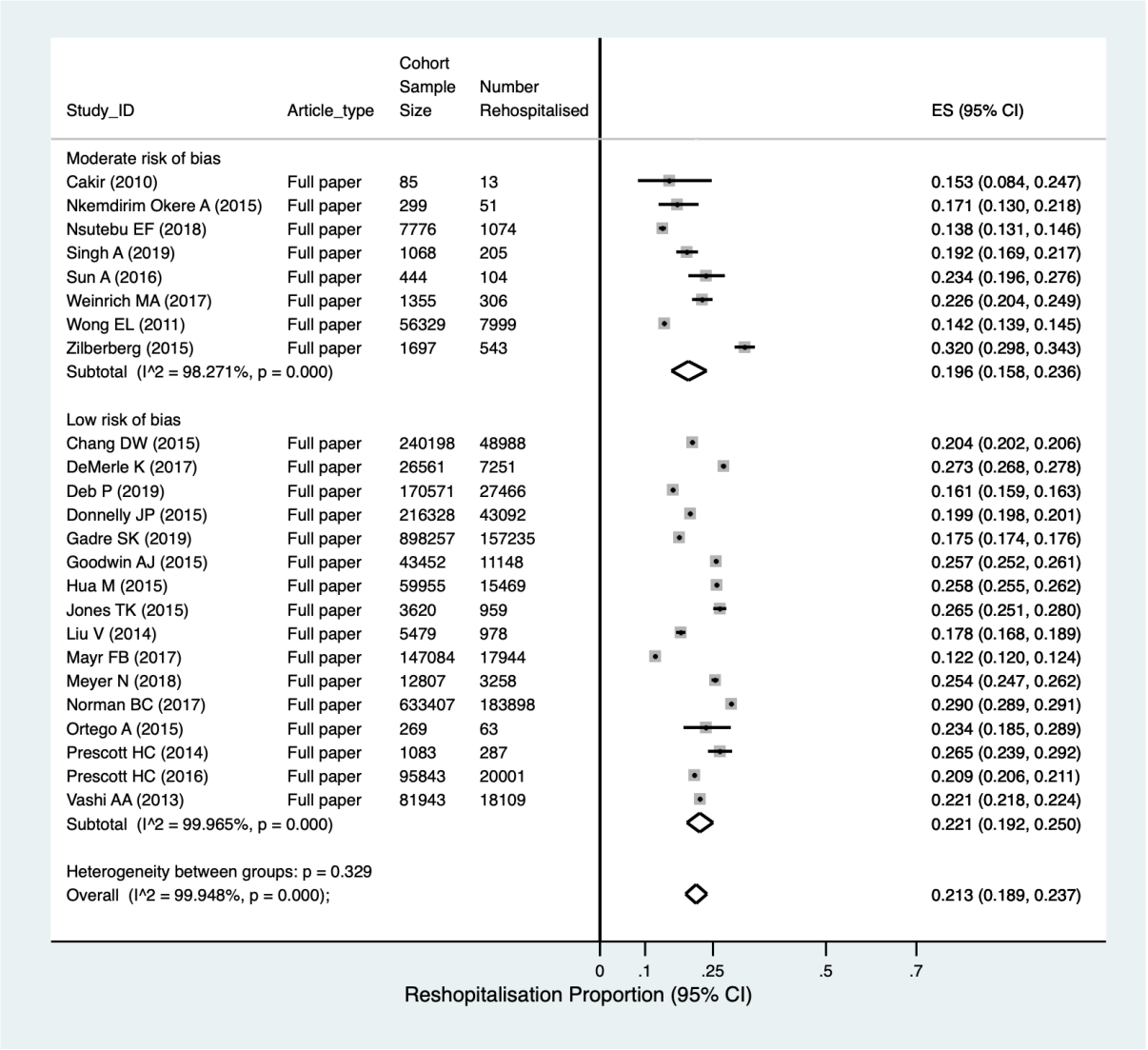
Rehospitalisation interval	Number of studies	Root Mean Square Error	P value for Test of H0: no small study effects
0 to 7 days	5	-	-
0 to 30 days	36	38.5	0.29
0 to 90 days	15	8.10	0.13
0 to 180 days	8	-	-
0 to 365 days	5	-	-

eFIgure-1: Random effect meta-analysis of 30-day rehospitalisation proportions by studies reporting competing risk analysis



The interaction p-value for difference between two proportions was not significant (p=0.08).

eFigure-2: Random effect meta-analysis of 30-day rehospitalisation proportions by risk of bias assessments in studies published as full research papers



The interaction p-value for difference between two proportions was not significant (p=0.33).

eMethods 1: Summary list of *included* studies and the list of *excluded* studies after full text review with reasons for exclusions

Included studies

- **Full manuscripts (N=36)**
  References [1-35]
- **Conference abstracts (N=20)**
  References [36-55]

Excluded studies with reasons

- **Full manuscripts [56-98]**
  Not explicitly reported as sepsis cohort (n=24)
  No sepsis survivor rehospitalisation data (n=8)
  Qualitative study (n=3)
  Cost analysis (n=2)
  Older adults only (n=2)
  Patients with seizures as comorbidity (n=1)
  Single gene defect (n=1)
  In-hospital ICU readmission (n=2)
  Letter to editor on a full manuscript (n=2)

- **Conference abstracts [99-108]**

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MOOSE Checklist

Reporting ITEM	Manuscript section	Page-Number
Reporting of background should include		
• Problem definition	Introduction	4
• Hypothesis statement	Introduction	4
• Description of study outcome(s)	Introduction	4, 5
• Type of exposure or intervention used Type of study designs used	Method	6
• Study population	Method	7
Reporting of search strategy should include		
• Qualifications of searchers (eg, librarians and investigators)	Title Page	1
• Search strategy, including time period included in the synthesis and keywords	Methods	6-7
• Effort to include all available studies, including contact with authors	Methods	6-7
• Databases and registries searched	Methods	6-7
• Search software used, name and version, including special features used (eg, explosion)	Methods	6-7
• Use of hand searching (eg, reference lists of obtained articles)	Methods	6-7
• List of citations located and those excluded, including justification	Results	7-9 and ESM
• Method of addressing articles published in languages other than English	Methods	6-7
• Method of handling abstracts and unpublished studies	Results	7-10
• Description of any contact with authors	N/A	
Reporting of methods should include		
• Description of appropriateness of studies assembled for assessing the hypothesis	Results	7, 8
• Rationale for the selection and coding of data	Statistics	7
• Documentation of how data were classified and coded	Statistics	7
• Assessment of confounding	Introduction	4, 5
• Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results	Results	8
• Assessment of heterogeneity	Results	8, 9
• Description of statistical methods (eg, complete description of fixed or random effects models justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	Statistics	7-8
• Provision of appropriate tables and graphics	Results	All
Reporting of results should include		
• Graphic summarizing individual study estimates and overall estimate	Figure-3	
• Table giving descriptive information for each study included	Table-1 Table-2	
	N/A	
• Results of sensitivity testing (eg, subgroup analysis)	Figure-3	
• Indication of statistical uncertainty of findings		
Reporting of discussion should include		
• Quantitative assessment of bias (eg, publication bias)	Egger's test	eTable2
• Justification for exclusion (eg, exclusion of non–English-language citations)	Discussion	11, 12
• Assessment of quality of included studies	Discussion	11
Reporting of conclusions should include	Discussion and Conclusion	14
• Consideration of alternative explanations for observed results		
• Appropriate for the data presented and within the domain of the literature review)		
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