Supplemental Tables

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Supplemental Table S1: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	4
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	4

Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	5
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	5-6
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6

Section/topic	**#**	**Checklist item**	**Reported on page #**
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	5
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7-8

Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	9-11
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	9
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	11-14
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	11、13
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	17
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	15-17
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	18-21
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	21
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	21-22
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	22

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097. For more information, visit: **www.prisma-statement.org**.

Supplemental Table S2: Details of search strategy

Database	Search Period	Search Terms
PubMed	January 1st, 2000 to January 1st, 2018	1. sepsis[MeSH Terms] 2. sepsis[Title/Abstract] 3. neonatal sepsis[MeSH Terms] 4. neonatal sepsis[Title/Abstract] 5. septici[Title/Abstract] 6. septicemia[Title/Abstract] 7. risk factors[Title/Abstract] 8. retinopathy of prematurity[MeSH Terms] 9. retinopathy of prematurity[Title/Abstract] 10. ROP[Title/Abstract] 11. 1 or 2 or 3 or 4 or 5 or 6 or 7 12. 8 or 9 or 10 13. 11 and 12
The Cochrane Library	January 1st, 2000 to January 1st, 2018,	1. (sepsis):ti,ab,kw 2. (neonatal sepsis):ti,ab,kw 3. (septici):ti,ab,kw 4. (septicemia):ti,ab,kw 5. (risk factors):ti,ab,kw 6. (retinopathy of prematurity):ti,ab,kw 7. (ROP):ti,ab,kw

		8. 1or 2 or 3 or 4 or 5 9. 6 or 7 10. 8 and 9
Embase	January 1st, 2000 to January 1st, 2018,	1. 'sepsis'.ti 2. 'sepsis'.ab 3. 'neonatal sepsis'.ti 4. 'neonatal sepsis'.ab 5. 'septici'.ti 6. 'septici'.ab 7. 'septicemia'.ti 8. 'septicemia'.ab 9. 'risk factors'.ti 10. 'risk factors'.ab 11. 'retinopathy of prematurity'.ti 12. 'retinopathy of prematurity'.ab 13. 'ROP'.ti 14. 'ROP'.ab 15. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or10 16. 11 or 12 or 13 or 14 17. 15 and 16

Supplemental Table S3: The Newcastle-Ottawa scale score of included studies

Author	Selection of exposed	Selection of non-exposed	Assess of exposure	Outcome	Comparability factor1	Comparability factor2	Assess of outcome	Long enough of follow up	Adequacy of follow up	Total score
Kim et al	1	1	1	0	1	1	0	0	1	6
Rao et al	1	1	1	1	1	1	1	1	0	8
Abdel et al	1	1	1	0	1	0	0	1	0	5
Al-Essa et al	1	1	1	1	1	1	1	1	1	9
Reyes et al	1	1	1	0	1	1	1	1	0	7
Lundgren et al	1	1	1	0	1	1	1	1	1	8
Goncalves et al	1	1	1	1	1	1	0	1	1	8
Mohamed et al	1	1	1	1	1	1	0	1	0	7
Hadi et al	1	1	1	1	1	1	1	1	1	9
Chen et al	1	1	1	0	1	1	1	0	1	7
Ebrahim et al	1	1	1	0	1	1	0	0	1	6
Van et al	1	1	1	1	1	1	1	1	1	9
Huang et al	1	1	1	1	1	1	1	1	0	8
Wani et al	1	1	1	0	1	1	1	1	0	7
Aydemir et al	1	1	1	1	1	1	1	1	1	9
Port et al	1	1	1	0	1	1	1	1	0	7

Study quality assessment was based on the nine-star NOS using pre-defined criteria namely. Selection of exposed: the exposure queue can basically represent the community population; Selection of non-exposed: non-exposed queues and exposure queues come from the same community; Assess of exposure: determine exposure through strict records; Outcome: at the beginning of the study, there were no diseases occurred in the subjects; Comparability factor1: control (gestational age) was selected and analyzed according to the most important factors; Comparability factor2: select and analyze the comparison according to other important factors; Assess of outcome: independent, blind evaluation and identification of outcome events; Long enough of follow up: in order to observe the occurrence of the disease, whether the follow-up is sufficient; Adequacy of follow up: complete follow-up (loss rate < 10%). A total score of 6 or above is considered high quality.

Supplemental Table S4: GRADE assessment of evidence quality

Quality assessment								No of patients		Effect	Overall quality of evidence
No of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Publication bias**	**Other considerations**	**With ROP**	**Without ROP**	**Absolute (95% CI)**	
Sepsis and any stage of ROP											
11	observational studies	not serious	serious [a]	not serious	not serious	not detected	Very strong association [b]	1669	3719	OR 1.57 (1.31 1.89)	⊕⊕◯◯ LOW
Sepsis and severe stage of ROP											
6	observational studies	not serious	serious [c]	not serious	not serious	not detected [d]	Very strong association [e]	873	6787	OR 2.33 (1.21 4.51)	⊕⊕◯◯ LOW

ROP: retinopathy of prematurity. OR: odds ratio. CI: confidence interval.

All outcomes were initially graded as low-quality evidence, since all the studies were observational studies. The Risk of Bias score would be downgraded if most included studies failed to match for prognostic factors or make adjustments in statistical analysis or if they reported incomplete follow-up. The Inconsistency score would be downgraded if $P<0.1$ (Cochran's Q test) or $I^2 \geq 50\%$ (I^2 statistic). The Indirectness score would be downgraded if there were related factors limiting the generality of the results. The Imprecision score would be downgraded if the lower and upper boundaries of the 95% CI might lead to different recommendations. The Publication Bias score would be downgraded if there was significant asymmetry in the funnel plot and if Egger's test showed $P<0.05$. The evidence would be upgraded if any of the following conditions was met: a) the magnitude of the treatment effect was large (RR>2 or RR<0.5) or very large (RR>5 or RR<0.2); b) there was evidence of a dose-response relation; or c) all plausible biases would decrease the magnitude of an apparent treatment effect.

a: The score was downgraded because moderate heterogeneity between studies was detected ($I^2=56.3\%$, $P=0.011$) and could not be fully explained.

b: The score was upgraded because all plausible biases would decrease the magnitude of an apparent treatment effect.

c: The score was downgraded because substantial heterogeneity between studies was detected ($I^2=81.8\%$, $P< 0.001$) and could not be explained.

d: The score was downgraded for publication bias, as publication bias could not be assessed due to insufficient test power (<10 studies included).

e: The score was upgraded because the magnitude of the effect was large (OR>2 based on consistent evidence from at least two studies, with no plausible confounders).