Annex 1-Quality criteria for application per study design- Integrated quality criteria for review of multiple study designs (ICROMS)

Quality criteria			Study design [b]						
Dimension		Specific criteria [a]	RCT	CBA	CITS	NCITS	NCBA	CS	QUAL
1.	Clear aims and justification	a. Clear statement of the aims of research?	++	++	++	++	++	++	++
		b. Rationale for number of pre-and post-intervention points or adequate baseline measurement	x	x	+	++	++	x	x
		c. Explanation for lack of control group	x	x	x	+	+	x	x
		d. Appropriateness of qualitative methodology	x	x	x	x	x	x	+
		e. Appropriate study design	x	x	x	x	x	x	++
2.	Managing bias in sampling or between groups	a. Sequence generation	++	x	x	x	x	x	x
		b. Allocation concealment	++	x	x	x	x	x	x
		c. Justification for sample choice	x	x	x	++	++	x	x
		d. Intervention and control group selection designed to protect against systematic difference/selection bias	x	++	x	x	x	x	x
		e. Comparability of groups	x	x	x	x	x	++	x
		f. Sampling and recruitment	x	x	x	x	x	x	++
3.	Managing bias in outcome measurements and blinding	a. Blinding	++	x	x	x	x	x	x
		b. Baseline measurement- protection against selection bias	x	++	x	x	x	x	x
		c. Protection against contamination	x	++	x	x	x	x	x
		d. Protection against secular changes	x	x	++	x	x	x	x
		e. Protection against detection bias: blinded assessment of primary outcome measures	+	+	+	+	+	+	x
		f. Reliable primary outcome measures	+	+	+	+	+	+	+
		g. Comparability of outcomes	x	x	x	x	x	++	x
4.	Managing bias in follow-up	a. Follow-up of subjects (protection against exclusion bias)	+	x	x	x	x	x	x
		b. Follow-up of patients of episodes of care	+	x	x	x	x	x	x
		c. Incomplete outcome data addressed	+	+	+	+	+	++	+
5.	Managing bias in other study aspects	a. Protection against detection bias: intervention unlikely to affect data collection	+	+	+	+	+	x	x
		b. Protection against information bias	x	x	x	x	x	+	x
		c. Data collection appropriate to address research aims	x	x	x	x	x	x	+
		d. Attempts to mitigate effects of no control	x	x	x	++	++	x	x
6.	Analytical rigour	a. Sufficient data points to enable reliable statistical inference	x	x	++	x	x	x	x
		b. Shaping of intervention effect specified	x	x	+	x	x	x	x
		c. Analysis sufficiently rigorous/free from bias	+	+	+	+	+	+	+
7.	Managing bias in reporting/ethical considerations	a. Free of selective outcome reporting	+	+	+	+	+	+	+
		b. Limitations addressed	+	+	+	+	+	+	+
		c. Conclusions clear and justified	+	+	+	+	+	+	+
		d. Free of other bias	+	+	+	+	+	+	+
		e. Ethics issues addressed	+	+	+	+	+	+	+

[a] Applicability of quality criteria to each study design: + Criteria to be included in quality assessment for study design; ++ Mandatory criteria to be met quality assessment; x Criteria not to be applied in quality assessment for study design.

[b] Study designs: RCT =randomised controlled trial; CBA =controlled before-after; CITS ¼ controlled interrupted time series; CS = cohort study; NCITS =non-controlled interrupted time series; NCBA =non-controlled before-after; QUAL = qualitative.

Annex 2 -Decision matrix including mandatory criteria and minimum score for study type to be analysed in review.

Study Design [a]	Mandatory criteria [b]	Minimum score
RCT, cRCT	1A, 2A, 2B, and 3A	22
CBA	1A, 2D, 3B and 3C	18
CITS	1A, 3D and 6A	18
NCITS	1A, 1B, 2C and 5D	22
NCBA	1A, 1B, 2C and 5D	22
Cohort	1A, 2E, 3G and 4C	18
Qualitative	1A, 1E and 2F	16

[a] Study Designs: RCT = randomised controlled trial; CBA =controlled before-after; CITS = controlled interrupted time series; cRCT =cluster-randomized controlled trial; NCITS = noncontrolled interrupted time series; NCBA =non-controlled before-after.

[b] Scores applicable to each criteria: Yes (criterion met) =2 points; Unclear (unclear whether or not the criterion is met) =1 point; No (criterion not met) = 0 points.

Adapted from Zingg W et al. Innovative tools for quality assessment: integrated quality criteria for review of multiple study designs (ICROMS). Public Health 2016;133:19-37.

Annex 3- Score attributed to selected articles. Effectiveness of antimicrobial stewardship programmes in neonatology. A systematic review

Reference	Study design	Minimum score required	Article Score
Chiu, 2011	NCITS	22	32
Ting, 2019	NCBA	22	31
Nzegwu, 2017	NCITS	22	30
Lee, 2016	NCITS	22	30
Mc Carthy, 2018	NCBA	22	22
Cantey 2016	NCITS	22	28

NCITS: noncontrolled interrupted time series; NCBA : non-controlled before-after.