Table 1 - Quality criteria for application per study design

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

Table 2 -Decision matrix e mandatory criteria and minimum score for study type to be included in review.

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| 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.