

Supplementary File 2:

Table: Overview of Assessment Tool

QI-MQCS ¹ QI domains (n=16) and health economic evaluation domain (n=1)	Evaluation detail from QI-MQCS domain descriptors and health economic evaluation	Type of Variable	Assessment/Recording options
First author (year); title; journal name	Not applicable	Free text	
1. Organizational motivation	Score	Multiple choice	Met; Partially met; Not met; Not applicable
2. Intervention Rationale	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	*If	Free text	e.g. 'if intervention X was implemented'...
	*Then	Free text	e.g. '...then outcome Y would improve...'
	*So that ²	Free text	e.g. '...so that mortality decreases'
	Notes	Free text	
3. Intervention Description	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	*Safe	Binary	Yes/No
	*Timely	Binary	Yes/No
	*Effective	Binary	Yes/No
	*Efficient	Binary	Yes/No
	*Equitable	Binary	Yes/No
	*Person-centred	Binary	Yes/No
	*Staff well-being	Binary	Yes/No
	*Value for money/cost	Binary	Yes/No
4. Organizational characteristics	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	Type of care	Free text	e.g. acute care
	Size of the organization	Free text	e.g. bed capacity
	Private/public	Multiple choice	Private; Public; Mixed; Not stated
5. Implementation	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	Method	Multiple choice	PDSA (Plan-Do-Study-Act); IHI Model for improvement; Micro-systems; Six sigma; Lean; Lean Six sigma, Lean Define-Measure-Analyse-Improve-Control (DMAIC); HSE

			change model; Kotter model; Senior and Swailes change model; Action research; Not applicable; None
	2nd method	Multiple choice	<i>Same as previous row</i>
6. Study design	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	Study design	Multiple choice	Post-only; Pre-post; randomized groups; Parallel control group; Time series; Not applicable; Parallel control group + pre-post; Parallel control group + time series
7. Comparator	Score	Multiple choice	Met; Partially met; Not met; Not applicable
8. Data source	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	Data source	Free text	e.g. routine hospital data
	Data collection method	Free text	e.g. hospital audit
	Outcome of interest	Free text	e.g. pain score
9. Timing	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	Total duration	Free text	Number of months
	Year(s) of intervention	Free text	Year(s)
10. Adherence/fidelity	Score	Multiple choice	Met; Partially met; Not met; Not applicable
11. Health outcomes	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	<i>Patient outcome</i>	Binary	Yes/No
	<i>Provider outcome</i>	Binary	Yes/No
12. Organisational readiness	Score	Multiple choice	Met; Partially met; Not met; Not applicable
13. Penetration/reach	Score	Multiple choice	Met; Partially met; Not met; Not applicable
14. Sustainability	Score	Multiple choice	Met; Partially met; Not met; Not applicable
	<i>Policy changes needed or implemented</i>	Binary	Yes/No
	<i>Evidence of enduring change or extended duration of intervention</i>	Binary	Yes/No
* Reported resource use & cost: have costs been discussed or quantified?	<i>Sensitivity analysis to account for uncertainties of values in the future?</i>	Binary	Yes/No
	<i>Staff costs</i>	Free text	Running cost/time
	<i>Overhead costs</i>	Free text	Equipment, electricity, heating, consumables, cleaning service, other overhead costs
	<i>Capital costs</i>	Free text	e.g. once-off purchases
	<i>Direct costs to healthcare user</i>	Free text	e.g. over-the-counter drugs, deductibles

	<i>Indirect healthcare costs</i>	Free text	e.g. absenteeism, career prospects, economic gains/losses, transport costs, time and opportunities missed
	<i>Perspective</i>	Multiple choice	Societal ; Healthcare services; Public healthcare; Not applicable
	<i>Costing</i>	Multiple choice	Top-down; Bottom-up; Not applicable
	<i>Incremental analysis of cost and outcomes</i>	Multiple choice	Cost-effectiveness (ICER); Cost-utility (ICUR); Not applicable
	<i>Discounting of future costs and outcomes</i>	Free text	Discount rate
15. Spread	Score	Multiple choice	Met; Partially met; Not met; Not applicable
16. Limitations	Score	Multiple choice	Met; Partially met; Not met; Not applicable
*Has the QI initiative achieved its aims?	<i>Achieved QI Aims?</i>	Multiple choice	Yes; Partially; No
	Safe	Binary	Yes/No
	Timely	Binary	Yes/No
	Effective	Binary	Yes/No
	Efficient	Binary	Yes/No
	Equitable	Binary	Yes/No
	Person-Centred	Binary	Yes/No
	Staff well-being	Binary	Yes/No
	value for money/cost	Binary	Yes/No
	Patient experience	Binary	Yes/No
Provider experience	Binary	Yes/No	
System performance	Binary	Yes/No	
Notes	<i>Not applicable</i>	Free text	

Note: This tool was embedded in excel and was collated using the *Quality Improvement Minimum Quality Criteria Set* (QI-MQCS)¹ and basic principles of health economic evaluation. *denotes measures added by the Research Team that do not form part of the description of QI-MQCS domains.

Sources: 1. Hempel S, Shekelle PG, Liu JL, et al. Development of the Quality Improvement Minimum Quality Criteria Set (QI-MQCS): a tool for critical appraisal of quality improvement intervention publications. *BMJ Qual Saf* 2015;24:796-804. doi: 10.1136/bmjqs-2014-003151

2. Davidoff F, Dixon-Woods M, Leviton L, et al. Demystifying theory and its use in improvement. *BMJ Qual Saf* 2015, 24(3), 228-238. Doi: 10.1136/bmjqs-2014-003627