

Appendix 1 - BEME Coding Sheet

1 Administrative

Reference Number: _____ Reviewer: _____

Type: Book Guidelines Letter Report
 Comment Interview News Statistical data
 Conf. Paper/Proceedings Journal article Non-peer review article Test(s)
 Editorial Lecture Official publication Thesis

Citation Information:

Authors: _____

Title: _____

Publication: _____ Vol;Issue;Pages _____

Search Method:

Electronic search Hand search Grey literature Recommendation

2 Evaluation Methods

a Research design (tick all that apply)

Non-comparative studies

	Implied	Stated		Implied	Stated		Implied	Stated
Audit	<input type="checkbox"/>	<input type="checkbox"/>	Expert opinion	<input type="checkbox"/>	<input type="checkbox"/>	Narrative	<input type="checkbox"/>	<input type="checkbox"/>
Action-based	<input type="checkbox"/>	<input type="checkbox"/>	Focus group	<input type="checkbox"/>	<input type="checkbox"/>	Observation	<input type="checkbox"/>	<input type="checkbox"/>
Case series	<input type="checkbox"/>	<input type="checkbox"/>	Historical	<input type="checkbox"/>	<input type="checkbox"/>	Survey	<input type="checkbox"/>	<input type="checkbox"/>

If any of the above categories were checked, further define the approach used:

Cites evidence w/data Conceptual
 Descriptive Commentary

Comparative studies

	Implied	Stated		Implied	Stated		Implied	Stated
Cross sectional	<input type="checkbox"/>	<input type="checkbox"/>	Case control	<input type="checkbox"/>	<input type="checkbox"/>			
Single group studies			Cohort study	Implied	Stated	Trials	Implied	Stated
Before & after studies	<input type="checkbox"/>	<input type="checkbox"/>	Prospective	<input type="checkbox"/>	<input type="checkbox"/>	Non-randomized	<input type="checkbox"/>	<input type="checkbox"/>
Time series	<input type="checkbox"/>	<input type="checkbox"/>	Retrospective	<input type="checkbox"/>	<input type="checkbox"/>	Randomized	<input type="checkbox"/>	<input type="checkbox"/>

Review

Implied Stated

If any of the above categories were checked, further define the approach used:

Cites evidence w/data Conceptual
 Descriptive Commentary

Meta-analysis

b Data collection methods

Interview Observation Opinion MCQ exam
 Patient outcomes Questionnaire Data from simulator/simulation

3 Expected learning outcomes of intervention or approach (tick all that apply)

This section relates to the *intended* or *expected* learning outcomes for the educational intervention or educational approach described. This is different from the *impact* of the study (section 6).

	Implied	Stated		Implied	Stated
Clinical Skills	<input type="checkbox"/>	<input type="checkbox"/>	Understanding basic/clinical sciences	<input type="checkbox"/>	<input type="checkbox"/>
Practical procedures	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate attitudes	<input type="checkbox"/>	<input type="checkbox"/>
Patient investigation	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate decision making	<input type="checkbox"/>	<input type="checkbox"/>
Patient management	<input type="checkbox"/>	<input type="checkbox"/>	Role of health professional	<input type="checkbox"/>	<input type="checkbox"/>
Health promotion	<input type="checkbox"/>	<input type="checkbox"/>	Personal development	<input type="checkbox"/>	<input type="checkbox"/>
Communication	<input type="checkbox"/>	<input type="checkbox"/>	Patient safety/reducing errors	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate information skills	<input type="checkbox"/>	<input type="checkbox"/>			

Please indicate specific skill (i.e., cardiac exam, intubation, venipuncture, etc) _____

4 Context (Target Population), if applicable

Number of Subjects / Size of Group _____

Country / Location of study _____

Duration of exposure: <10 hours 10 – 100 hours 100+ hours Other

Frequency of exposure: <2X 2-5X 6-10X >10X
 (# of times/episodes simulator was used)

Level / stage:

- | | |
|--|---|
| <input type="checkbox"/> Pre-college | <input type="checkbox"/> CPD/CME |
| <input type="checkbox"/> Undergraduate college | <input type="checkbox"/> Higher general other than healthcare professional |
| <input type="checkbox"/> Medical school | <input type="checkbox"/> Undergraduate other than healthcare professional (early) |
| <input type="checkbox"/> Residency | <input type="checkbox"/> Undergraduate other than healthcare professional (later) |
| <input type="checkbox"/> Fellowship | <input type="checkbox"/> Pre-registration/basic professional education |

Profession:

- | | |
|---|--|
| <input type="checkbox"/> Health sciences | <input type="checkbox"/> Non-health sciences |
| <input type="checkbox"/> Primary care medicine (internal medicine, family medicine, pediatrics, Ob/Gyn) | |
| <input type="checkbox"/> Medicine sub-specialty (cardiology, GI, pulm) | |
| <input type="checkbox"/> Surgery | |
| <input type="checkbox"/> Anesthesia | |
| <input type="checkbox"/> Dentistry | |
| <input type="checkbox"/> Nursing | |
| <input type="checkbox"/> Professions allied to medicine | |
| <input type="checkbox"/> Veterinary | |

Please indicate specific skill (i.e., cardiology, emergency medicine, anesthesiology etc) _____

Certification:

- High stake (licensing, board certification), requirement for promotion to next level of training
- Low stake (requirement to pass course, components for all grade/evaluation, etc)
- Unclear / not applicable

5 Stated aim of study

Aim / objective of item

Implied

Stated

6 Impact of intervention studied

Code the level of impact being studied in the item and summarize any results of the intervention at the appropriate level. Note: include both predetermined and unintended outcomes.

Kirkpatrick hierarchy

Level 1 **Participation** - covers learners' views on the learning experience, its organization, presentation, content, teaching methods, and aspects of the instructional organization, materials, quality of instruction

Level 2a **Modification of attitudes/perceptions** - outcomes here relate to changes in the reciprocal attitudes or perceptions between participant groups toward intervention/simulation

Level 2b **Modification of knowledge/skills** - for *knowledge*, this relates to the acquisition of concepts, procedures and principles; for *skills* this relates to the acquisition of thinking/problem-solving, psychomotor and social skills

Level 3 **Behavioral change** - documents the transfer of learning to the workplace or willingness of learners to apply new knowledge & skills.

Level 4a **Change in organizational practice** - wider changes in the organizational delivery of care, attributable to an educational program

Level 4b **Benefits to patient / clients** - any improvement in the health & well being of patients/clients as a direct result of an educational program.

7 Rate evaluation methods

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1 Appropriateness of study/review design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Implementation of study/review design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Appropriateness of data analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Comment on evaluation methods, if applicable:	<hr/>				

8 Strength of findings

	Low 1	2	3	4	High 5
1 No clear conclusions can be drawn. Not significant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Results ambiguous, but there appears to be a trend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Conclusions can probably be based on the results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Results are clear and very likely to be true	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Results are unequivocal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9 Educational descriptors (tick all that apply)

To provide a conceptual context of study, please check the educational descriptors for each of the following categories:

Curriculum:	<input type="checkbox"/> Community oriented	<input type="checkbox"/> Integrated, horizontal	<input type="checkbox"/> Multiprofessional	<input type="checkbox"/> Outcome-based
	<input type="checkbox"/> Core	<input type="checkbox"/> Integrated, vertical	<input type="checkbox"/> Options/special study module	<input type="checkbox"/> Problem-based
Learning:	<input type="checkbox"/> Clinical	<input type="checkbox"/> Co-operative	<input type="checkbox"/> Lectures	<input type="checkbox"/> Small group
	<input type="checkbox"/> Computer	<input type="checkbox"/> Independent	<input type="checkbox"/> Simulation	<input type="checkbox"/> Work-based
Physical setting:	<input type="checkbox"/> Classroom	<input type="checkbox"/> Ambulatory care	<input type="checkbox"/> Training center	<input type="checkbox"/> Distance learning
	<input type="checkbox"/> Teaching hospital	<input type="checkbox"/> Laboratory	<input type="checkbox"/> Clinical experience	<input type="checkbox"/> Other _____
Assessment:	<input type="checkbox"/> Feedback	<input type="checkbox"/> Portfolio	<input type="checkbox"/> Practical	<input type="checkbox"/> Written

10 Educational features and uses of simulation (tick all that apply)

	Implied	Stated
Driven by valid curriculum-based educational need	<input type="checkbox"/>	<input type="checkbox"/>
Integrated into curriculum	<input type="checkbox"/>	<input type="checkbox"/>
Outcomes clearly defined to learner	<input type="checkbox"/>	<input type="checkbox"/>
Authenticity and realism (validity) of the simulation	<input type="checkbox"/>	<input type="checkbox"/>
Ability to control learning environment	<input type="checkbox"/>	<input type="checkbox"/>
User-friendly for learner	<input type="checkbox"/>	<input type="checkbox"/>
User-friendly for instructor	<input type="checkbox"/>	<input type="checkbox"/>
The presence of feedback	<input type="checkbox"/>	<input type="checkbox"/>
Allows independent learning	<input type="checkbox"/>	<input type="checkbox"/>
Opportunity to change level of difficulty	<input type="checkbox"/>	<input type="checkbox"/>
Allows instructor-based learning	<input type="checkbox"/>	<input type="checkbox"/>
High/low degree of maintenance	<input type="checkbox"/>	<input type="checkbox"/>
Need for support of faculty and other personnel	<input type="checkbox"/>	<input type="checkbox"/>
A method of documenting learner performance	<input type="checkbox"/>	<input type="checkbox"/>
Use at multiple learner levels	<input type="checkbox"/>	<input type="checkbox"/>
Use for multiple health-professional categories	<input type="checkbox"/>	<input type="checkbox"/>
Ability to provide variety of clinical conditions	<input type="checkbox"/>	<input type="checkbox"/>
Suitability for individual	<input type="checkbox"/>	<input type="checkbox"/>
Suitability for small-group	<input type="checkbox"/>	<input type="checkbox"/>
Suitability for large-group learning	<input type="checkbox"/>	<input type="checkbox"/>
Role of teacher clearly defined	<input type="checkbox"/>	<input type="checkbox"/>
Document participation	<input type="checkbox"/>	<input type="checkbox"/>
Document level of skill	<input type="checkbox"/>	<input type="checkbox"/>
Opportunity for repetitive practice	<input type="checkbox"/>	<input type="checkbox"/>
Additional feature/use (licensure/certification,etc)	_____	

11 Specific features of simulation

Indicate type / name of simulator _____

Indicate manufacturer / company of simulator _____

Specific capabilities of simulation / simulator (tick all that apply)

Simulates bedside findings (heart sounds, respiration)

Simulates procedure (endoscopy, intubation)

Responds and reacts to user (anesthesia induction, ACLS)

Other imbedded simulation capability _____

12 Documented improvement in learning/performance

If the article provided documentation for improvement in learning / performance, check the appropriate area:

Cognitive knowledge

Skills (demonstrated in): Simulation Real patient environment

Hands-on psychomotor skills

Management decision skills

High-level communication skills

Attitude, where appropriate

Other _____

13 Overall impression of article

Please make any additional comments regarding the overall *strengths* and *weaknesses* of the article.
