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Supplemental Digital Appendix 3 is available at http://links.lww.com/ACADMED/A591.

Supplemental Digital Appendix 1

Strategies for Searches in MEDLINE (Ovid), Embase (Ovid), and ERIC (Ovid) for a Systematic Review on Educational Intervention Descriptions in Postgraduate Medical Education

Search date: March 22, 2016

Period: 2014 – search date (March 22, 2016). Search language: English.

Not Doubled: 2,255 hits; MEDLINE 853; Embase 1,223; ERIC 179.

Doubled: 1,826 hits; MEDLINE 839; Embase 817; ERIC 170.

Database(s): **Ovid MEDLINE In-Process & Other Non-Indexed Citations and Ovid MEDLINE** 1946 to Present
Search Strategy:

#	Searches	Results
1	"Internship and Residency"/ or (resident* or trainee* or residency or postgraduate or internship or interns or (group adj learning) or (professional practice and medical education)).tw.	178,406
2	Teaching/ or *Problem-Based Learning/mt or ((lecture adj4 group*) or didactic lecture* or (lecture adj1 based) or (ground* adj1 lecture*) or lecture style* or lecture material* or (interactive adj7 lecture*) or (residency program* or training program* or tutorial or teaching or training intervention* or learning program* or internship program* or simulation based training or web-based training or residency training or evidence based training or evidence based education) or ((online adj2 education) or (program ad2 training or (teach* adj1 system*) or (intervention adj6 education*) or (examination adj technique*) or (education* adj2 strateg*))) or ((course adj7 curriculum) or (course adj5 residen*) or (course adj3 material*) or (course adj2 physician*) or (course adj1 learning) or (course adj1 intervention*) or (course adj2 lecture*)	204,859

#	Searches	Results
	or (course adj1 skill*) or (course adj2 internet) or (course adj6 doctor*) or (course adj2 attend*) or (course adj1 training) or critical appraisal skill*) or education program or ((training adj1 residen*) or postgraduate training or (simulat* adj1 training)) or (residen* adj2 problem-based learning) or (residen* adj4 video) or (residen* adj1 educational program*) or (interactive workshop* or (workshop* adj1 based) or (skill* adj2 workshop*) or (workshop* adj1 ebm)) or (clinical training adj2 evidence-based) or interactive curriculum).tw.	
3	((education* or train*) adj (program* or intervention* or meeting* or session* or strateg* or workshop* or lecture* or symposi* or course*)).ti,ab,kw.	89,378
4	2 or 3	237,523
5	(effect* or efficacy or qualit* or outcome* or knowledge or improve* or evaluat* or enhance* or competenc* or satisfaction or superior* or optimal or increase*).tw.	10,568,452
6	(learning or training or knowledge or teaching or education* or curriculum or strateg*).ti.	442,603
7	(education or learning or teaching or curriculum).af.	1,209,777
8	(medicine or medical).af.	7,869,589
9	1 and 4 and 5 and 6 and 7 and 8	10,034
10	exp education, dental/ or education, predental/ or exp education, nursing/ or exp education, pharmacy/ or Education, Professional, Retraining/ or Nurse's Role/ or Nurse-Patient Relations/ or education, veterinary/ or exp dentistry/ or exp nursing/ or exp pharmacy/ or exp veterinary medicine/ or (dental* or dentist* or pharmac* or nurs* or midwif* or parent* or music* or veterinar*).ti,ab,kw.	1,917,919
11	9 not 10	8,948
12	Animals/ not (Animals/ and Humans/)	4,171,365
13	11 not 12	8,922
14	(Education, Medical, Undergraduate/ or undergraduat*.ti,ab,kw.) not ((Education, Medical, Undergraduate/ or undergraduat*.tw.) and (Education, Medical, Graduate/ or graduate*.ti,ab,kw.))	37,345

#	Searches	Results
15	13 not 14	8,311
16	comment/ or editorial/ or letter/ or exp Correspondence as Topic/ or newspaper article/ or (letter* or comment* or abstracts).ti.	1,569,605
17	15 not 16	8,201
18	((residen* or interns or internship* or trainee*) and (medical or medicine) and (educat* or teaching or learning or training)).ti,ab,kw.	22,857
19	17 and 18	4,851
20	limit 19 to yr="2014 -Current"	882
21	limit 20 to English language	853

Database(s): **Embase Classic+Embase** 1947 to 2016 March 21
Search Strategy:

#	Searches	Results
1	resident/ or (resident* or residency or residencies or trainee* or postgraduate* or post-graduate* or interns or internship).ti,ab,kw.	224,631
2	((group adj3 learning) or (professional practice and medical education)).ti,ab,kw.	2,513
3	medical student/ and (residency education/ or *web based teaching/ or intervention study/)	2,627
4	1 or 2 or 3	227,883
5	exp teaching/ or *education/ or continuing education/ or curriculum/ or curriculum development/ or education program/ or educational model/ or learning environment/ or exp medical education/ or postgraduate education/ or problem based learning/	453,553
6	((lecture adj4 group*) or didactic lecture* or (lecture adj1 based) or (ground* adj1 lecture*) or lecture style* or lecture material* or (interactive adj7 lecture*) or (residency program* or training program* or tutorial or teaching or training intervention* or learning program* or internship program* or simulation based training or web-based training or residency training or evidence based training or evidence based education) or ((online adj2	237,440

#	Searches	Results
	education) or (program ad2 training or (teach* adj1 system*) or (intervention adj6 education*) or (examination adj technique*) or (education* adj2 strateg*))) or ((course adj7 curriculum) or (course adj5 residen*) or (course adj3 material*) or (course adj2 physician*) or (course adj1 learning) or (course adj1 intervention*) or (course adj2 lecture*) or (course adj1 skill*) or (course adj2 internet) or (course adj6 doctor*) or (course adj2 attend*) or (course adj1 training) or critical appraisal skill*) or education program or ((training adj1 residen*) or postgraduate training or (simulat* adj1 training)) or (residen* adj2 problem-based learning) or (residen* adj4 video) or (residen* adj1 educational program*) or (interactive workshop* or (workshop* adj1 based) or (skill* adj2 workshop*) or (workshop* adj1 ebm)) or (clinical training adj2 evidence-based) or interactive curriculum).tw.	
7	((education* or train*) adj (program* or intervention* or meeting* or session* or strateg* or workshop* or lecture* or symposi* or course*)).ti,ab,kw.	118,164
8	5 or 6 or 7	617,953
9	(effect* or efficacy or qualit* or outcome* or knowledge or improve* or evaluat* or enhance* or competenc* or satisfaction or superior* or optimal or increase*).tw.	13,899,291
10	(medicine or medical).af.	9,824,923
11	(education or learning or teaching or curriculum).af.	1,605,852
12	(learning or training or knowledge or teaching or education* or curriculum or strateg*).ti.	539,959
13	4 and 8 and 9 and 10 and 11 and 12	18,528
14	dental education/ or exp nursing education/ or exp paramedical student/ or nurse attitude/ or nurse patient relationship/ or (dental or dentist* or pharmac* or nurs* or midwife* or parent* or music or veterinar*).ti,ab,kw.	2,027,890
15	13 not 14	15,955
16	(undergraduate* not (undergraduate* and graduate*)).ti,ab,kw.	29,509
17	15 not 16	15,106
18	animal/ not (animal/ and human/)	1,297,466

#	Searches	Results
19	17 not 18	15,099
20	letter/ or publication/ or (letter* or comment* or abstracts).ti.	1,163,648
21	19 not 20	14,862
22	(residen* or interns or internship* or trainee*).ti,ab,kw. and (medical education/ or medical school/) and (educat* or teaching or learning or training).ti,ab,kw.	20,855
23	21 and 22	7,095
24	limit 23 to yr="2014 -Current"	1,274
25	limit 24 to English language	1,223

Database(s): **ERIC** 1965 to February 2016
Search Strategy:

#	Searches	Results
1	medical education/ or graduate medical education/ or medical students/ or college graduates/ or graduate students/ or graduate study/ or trainees/ or apprenticeships/ or doctoral programs/ or graduates/	46,320
2	(resident* or residency or residencies or trainee* or postgraduate* or post-graduate* or interns or internship).ti,ab,id.	33,192
3	1 or 2	73,907
4	"clinical teaching (health professions)"/ or teaching methods/ or exp learning/ or educational environment/ or instruction/ or knowledge level/ or learning activities/ or learning experience/ or learning modules/ or learning motivation/ or learning processes/ or learning strategies/	336,851
5	((education* or train*) adj3 (program* or intervention* or meeting* or session* or strateg* or workshop* or lecture* or symposi* or course*)).ti,ab,id.	127,518
6	(lecture* or course* or workshop* or program* or tutorial*).ti,ab,id.	505,728
7	4 or 5 or 6	728,059

#	Searches	Results
8	(medicine or medical).af.	36,911
9	(learn* or train* or knowledge* or teach* or educat* or curricul* or strateg*).ti.	542,203
10	nursing education/ or nurses/ or nursing/ or nursing students/ or pharmaceutical education/ or pharmacy/ or dental schools/ or dentistry/ or (dental* or dentist* or pharmac* or nurs* or midwif* or parent* or music* or veterinar*).ti,ab.	145,131
11	undergraduate students/ or premedical students/ or undergraduate study/ or undergraduate*.ti,ab,id.	50,979
12	(undergraduate students/ or premedical students/ or undergraduate study/ or undergraduate*.ti,ab,id.) and graduate*.ti,ab,id.	8,947
13	11 not 12	42,032
14	"letters (correspondence)"/	1,513
15	(3 and 7 and 8 and 9) not 10 not 13 not 14	3,173
16	limit 15 to yr="2014 -Current"	179
17	limit 16 to English language	179

Supplemental Digital Appendix 2

Characteristics of the Included Studies, Systematic Review of Educational Intervention Descriptions in Postgraduate Medical Education, Published January 2014–March 2016

	Characteristic	No. (% of 105)
Journal[a]	*Journal of Graduate Medical Education*	9 (8.6)
	Academic Psychiatry	7 (6.7)
	Journal of Clinical Anesthesia	4 (3.8)
	BMC Medical Education, Substance Abuse, Western Journal of Emergency Medicine, Journal of Surgical Education, Family Medicine, Annals of the American Thoracic Society, The Southern Medical Journal (each)	3 (2.9)
	Postgraduate Medical Journal, Perspectives on Medical Education, Anesthesiology, Patient Education and Counseling (each)	2 (1.9)
Study design	One group post-test only	16 (15.2)
	One group pre-test and post-test	51 (48.6)
	Two groups nonrandomized	21 (20.0)
	Randomized controlled trial	17 (16.2)
Country of origin[a]	United States	64 (61.0)
	Canada	7 (6.7)
	United Kingdom	6 (5.7)
	The Netherlands	5 (4.8)
	Iran	4 (3.8)
	Israel, Ireland, India, France (each)	3 (2.9)
Specialty of study participants[a]	Internal medicine	15 (14.3)
	Family medicine/General practice/primary care	13 (12.4)

Characteristic	No. (% of 105)
Emergency medicine, Anesthesiology (each)	11 (10.5)
Psychiatry	10 (9.5)
Mixed	6 (5.7)
Unclear/unknown	14 (13.3)

[a]Only the most frequent journals, countries, and specialties are reported.

Supplemental Digital Appendix 4

Illustration of Good Practices for Each Criterion of the Checklist for Thorough Descriptions of Educational Interventions in Medical Education From Three Articles With High Scores, Systematic Review of Educational Intervention Descriptions in Postgraduate Medical Education

Criteria by stage	Articles	Excerpts illustrating a score of 2
Preparation		
Learning needs	Dreyer et al[39]	"In Africa surgical trainees (residents) are often 'at the coalface' in managing surgical emergencies (participants). A practical course on management of surgical emergencies was developed, as requested and guided by the learning needs of surgical trainees in East/Central Africa. Numerous requests for developing and delivering a course on managing surgical emergencies have been made to senior members of the Surgical Foundation of the ASGBI during visits to COSECSA countries by senior surgeons within COSECSA."
Intervention development process	Dreyer et al[39]	"The Association of Surgeons of Great Britain and Ireland (ASGBI) has been undertaking surgical training courses in sub-Saharan Africa. A team of enthusiastic tutors who had all previously taught in sub-Saharan Africa was brought together by the senior author of this paper. The aim of the project was to develop a course to teach essential principles in the management of surgical emergencies. At a series of meetings it was agreed to include teaching in managing the critically ill surgical patient and in surgical emergencies that a general surgeon in a district general hospital would most likely encounter in general surgery, orthopedics, urology and obstetrics. For each specialty a lead tutor was designated to develop the curriculum within that specialty. The first author was also asked to develop an assessment framework for the whole course. This whole process took 15 months."

Criteria by stage	Articles	Excerpts illustrating a score of 2
Intervention		
Theory	Kan et al[65]	"Book groups have become a popular format to facilitate collaborative learning in adult education. For example, a reading group on the undergraduate social work programme at University of Central Lancashire (UK) uses fiction to support learning (Scourfield & Taylor 2014) and has since grown into a national project (Taylor 2014). Studies have also suggested that active involvement in discussion is more likely to encourage deeper leaning and to facilitate the use of higher level critical thinking skills (Garside 1996). Seminal texts in psychiatry are excellent resources for providing contrasting, but often equally valid, interpretations of the same theoretical concept. They can, however, be challenging to understand without the academic background to contextualize the psychological, psychoanalytical, or philosophical ideas being proposed."
Learning objectives	Kan et al[65]	"… to support and consolidate clinical knowledge and development within the existing education structure through a shared experience. The main intended learning outcomes of the book group are (i) to create an environment where trainees can acquire a deeper understanding of complex theoretical concepts relevant to psychiatry and (ii) to help trainees develop new perspectives relevant to their daily clinical practice."
Content/subject	Kan et al[65]	"Each meeting is ninety minutes in duration and begins with members describing their initial impression of the book. If a guest discussant is present, he/she will provide an overview of the book with a psychological emphasis. This is then followed by an in-depth discussion of the book's content and its relevance to psychiatry/clinical practice. Members lead the discussion, with minor prompting from facilitators. The meeting concludes with a members' vote on the next book up for discussion. The first meeting took place on 11th March 2011 with 'The Divided Self' by R. D. Laing. Subsequent meetings and books discussed are summarized in Table 1."

Criteria by stage	Articles	Excerpts illustrating a score of 2
Participants	Berkenbosch et al[24]	"… 14 intervention and 24 in control group, 6 dropped-out in the control group. **Characteristics** Fourteen residents (2 from ObGyn, 5 from Internal Medicine, 5 from Orthopaedic Surgery and 2 from Paediatrics) participated in our final training. The control group consisted of 24 medical residents (3 Orthopaedic Surgery, 5 Paediatrics, 9 Internal Medicine, 7 ObGyn). The fourteen residents who participated in the course completed all sections of training and evaluation. Of the 24 residents in the control group six were lost to follow-up (3 ObGyn, 3 Orthopedic Surgery) and did not complete the post-test. There were no reasons given for not completing the post-test. The group of medical specialists consisted of 6 paediatricians, 5 Internists and 4 Gynaecologists. The participating residents had on average 5.6 years of work experience. The residents from the control group had on average 4.8 years of experience, while the medical specialists had an average of 20.3 years experience. Of the participating residents, one resident had previous management training while two residents had previous management experience. In the control group two residents had previous management experience and two residents had previous management training. Five of the 15 medical specialists had previous management training and 8 specialists had previous management experience."
Context and settings	Kan et al[65]	"The Maudsley Hospital and Institute of Psychiatry. The first meeting took place on 11th March 2011 with a group of psychiatric trainees from across all six years of the training programme."
Schedule	Kan et al[65]	"Meetings are scheduled bimonthly and advertised directly to trainees through email, a dedicated website. Trainees are strongly encouraged to read the book prior to attending the book group but it is not a compulsory requirement for attendance. Program schedule: Each meeting is ninety minutes: begins with members describing their initial impression of the book, followed by an in-depth discussion of the book's content and its relevance to

Criteria by stage	Articles	Excerpts illustrating a score of 2
		psychiatry/clinical practice. The meeting concludes with a members' vote on the next book up for discussion."
Materials	Berkenbosch et al[24]	"Both sessions used a PowerPoint presentation and a Homework assignment"
Educational strategies	Berkenbosch et al[24]	"Lectures and literature were provided to support the residents in their two homework assignments. The session was concluded with a simulated staff meeting."
Incentives	Dreyer et al[39]	"As long as no significant concerns were raised in the formative assessment process, a participant would then pass this pilot course and be awarded a certificate of successful completion."
Instructors/ teachers	Berkenbosch et al[24]	"3 Teachers/Instructors are physicians as well as content experts. Instructors are members of the board of directors from each hospital and One of the divisional directors of the Atrium Medical Centre is instructor. Instructors were approached to participate in the course as teachers. No training."
Delivery	Berkenbosch et al[24]	"Lectures in group (face-to-face), homework assignment individually. Group size: maximal 15 participants in each group one teacher."
Environment	Dreyer et al[39]	"A number of travelling faculty had previously visited UTH for teaching and were familiar with the environment. Critical care was delivered in a large room for lectures and two smaller rooms for breakout sessions. On the following days a previous laboratory was used for general surgery."
Assessment[a]	Dreyer et al[39]	"Formative and summative assessment scores. The first author was also asked to develop an assessment framework for the whole course. It was decided that all course participants would be assessed regularly and continuously throughout the course. Assessment tools were designed to test performance in three domains: knowledge, technical skills and non-technical skills."

Criteria by stage	Articles	Excerpts illustrating a score of 2
Evaluation		
Planned and unplanned changes	Berkenbosch et al[24]	"… the teachers did not complete their PowerPoint presentations. The residents received the PowerPoint presentations by email."
Satisfaction	Kan et al[65]	"Book group members were invited to participate at a feedback meeting. Committee members (CK, SH, BR, AB and LC) met to construct and prepare systematic open-ended questions to elicit positive and negative feedback from members. Extensive verbal feedback was obtained from eight members at a single setting on 10th September 2013. Responses to the book group were overwhelmingly positive, with all members confirming that their involvement with the book group had a positive impact on their training."

[a] This criterion was not scored in the systematic review; see Method section for explanation. Descriptions and scoring for each criterion are provided in Table 1.