

Supplemental material 1

Search strategies for all databases

Ovid search strategy used for Embase, MEDLINE, PsycINFO and HMIC

This search strategy was devised from a pilot search on the Embase database. The four databases named above (Embase, MEDLINE, PsycINFO and HMIC) will be searched together via the OVID interface using this search strategy which incorporates subject headings that are common to all the individual databases. Where subject headings do not overlap across the four OVID databases, the extensive list of keywords in the search strategy will enable all the pertinent studies to be captured. No filters will be used, and no limits will be placed on publication date nor on language.

1. resident/
2. exp physician/
3. medical education/
4. postgraduate education/
5. doctor*.ti,ab.
6. physician*.ti,ab.
7. trainee*.ti,ab.
8. resident.ti,ab.
9. residents.ti,ab.
10. residency.ti,ab.
11. medical graduate*.ti,ab.
12. medical officer*.ti,ab.
13. houseman.ti,ab.
14. SHO.ti,ab.
15. SHOs.ti,ab.
16. PRHO.ti,ab.
17. PRHOs.ti,ab.
18. house officer*.ti,ab.
19. FY1.ti,ab.
20. FY1s.ti,ab.
21. FY2.ti,ab.
22. FY2s.ti,ab.
23. fellow*.ti,ab.
24. foundation doctor*.ti,ab.

25. foundation train*.ti,ab.
26. registrar*.ti,ab.
27. consultant*.ti,ab.
28. specialist*.ti,ab.
29. general practitioner*.ti,ab.
30. GP.ti,ab.
31. GPs.ti,ab.
32. intern.ti,ab.
33. interns.ti,ab.
34. internist*.ti,ab.
35. internship.ti,ab.
36. clinician*.ti,ab.
37. medical practitioner*.ti,ab.
38. staff grade*.ti,ab.
39. hospitalist*.ti,ab.
40. postgraduate*.ti,ab.
41. core train*.ti,ab.
42. specialty train*.ti,ab.
43. family medicine.ti,ab.
44. or/1-43
45. parttime employment/
46. full time employment/
47. work schedule/
48. part time.ti,ab.
49. (flexib* adj5 hour*).ti,ab.
50. (flexib* adj5 employ*).ti,ab.
51. (flexib* adj5 work*).ti,ab.
52. (flexib* adj5 dut*).ti,ab.
53. (flexib* adj5 sched*).ti,ab.
54. (flexib* adj5 job*).ti,ab.
55. (flexib* adj5 post*).ti,ab.

56. (flexib* adj5 train*).ti,ab.
57. (flexib* adj5 practi*).ti,ab.
58. (flexib* adj5 appoint*).ti,ab.
59. less than full time.ti,ab.
60. LTFT.ti,ab.
61. or/45-60
62. health service/
63. health care delivery/
64. health care quality/
65. productivity/
66. patient safety/
67. clinical outcome/
68. patient satisfaction/
69. medical error/
70. mortality/
71. health workforce/
72. specialisation/
73. career planning/
74. career mobility/
75. professional development/
76. job performance/
77. work-life balance/
78. wellbeing/
79. (patient adj5 outcome*).ti,ab.
80. (patient adj5 safety*).ti,ab.
81. (patient adj5 mortality*).ti,ab.
82. error*.ti,ab.
83. mistake*.ti,ab.
84. (quality adj5 care).ti,ab.
85. perform*.ti,ab.
86. recruitment.ti,ab.

87. retention.ti,ab.
88. attrition.ti,ab.
89. progress*.ti,ab.
90. profession*.ti,ab.
91. education.ti,ab.
92. train*.ti,ab.
93. satisfaction.ti,ab.
94. opinion*.ti,ab.
95. perspective*.ti,ab.
96. perception*.ti,ab.
97. experience*.ti,ab.
98. (quality adj5 life).ti,ab.
99. wellbeing.ti,ab.
100. work life balance.ti,ab.
101. burnout.ti,ab.
102. stress.ti,ab.
103. wellness.ti,ab.
104. or/62-103
105. 44 and 61 and 104

[ProQuest search strategy used for ASSIA, Healthcare Administration Database and ProQuest Dissertations & Theses Global](#)

ProQuest search (3 databases)

The three databases named above (ASSIA, Healthcare Administration Database and ProQuest Dissertations & Theses Global) will be searched together via the ProQuest interface using this search strategy which aligns with the ProQuest search parameters and thesaurus terms. No limits will be placed on date or language, but a filter will be applied to the ProQuest Dissertations & Theses Global database to exclude theses from Business, Science & Technology, Literature & Languages, The Arts, and History because these subjects are not relevant to review topic.

Searched for:((AB("Physicians") OR AB("Medical residencies") OR AB("Medical education") OR AB(doctor* OR physician* OR trainee* OR resident OR residents OR residency OR medical graduate* OR medical officer* OR houseman OR SHO OR SHOs OR PRHO OR PRHOs OR house officer* OR FY1 OR FY1s OR FY2 OR FY2s OR fellow* OR foundation doctor* OR foundation train* OR registrar* OR consultant* OR specialist* OR General practitioner* OR GP OR GPs OR intern OR interns OR internist* OR internship OR clinician* OR medical practitioner* OR staff grade* OR hospitalist* OR

postgraduate* OR core train* OR specialty train* OR family medicine)) AND (AB("Part time employment") OR AB("Working hours") OR AB("{part time}" OR flexib* NEAR/5 hour* OR flexib* NEAR/5 employ* OR flexib* NEAR/5 work* OR flexib* NEAR/5 dut* OR flexib* NEAR/5 sched* OR flexib* NEAR/5 job* OR flexib* NEAR/5 post* OR flexib* NEAR/5 train* OR flexib* NEAR/5 practi* OR flexib* NEAR/5 appoint* OR "{Less than full time}" OR LTFT)) AND (AB("Specialization") OR AB("Patient safety") OR AB("Health care delivery") OR AB("Patient satisfaction") OR AB("Work life balance") OR AB("Productivity") OR AB("Career development planning") OR AB("Workforce") OR AB("Professional development") OR AB("Health services") OR AB("Health care") OR AB("Clinical outcomes") OR AB("Mortality") OR AB("Career advancement") OR AB("Medical errors") OR AB("Quality of care") OR AB(patient NEAR/5 outcome* OR patient NEAR/5 safety* OR patient NEAR/5 mortality* OR error* OR mistake* OR quality NEAR/5 care OR perform* OR recruitment OR retention OR attrition OR progress* OR profession* OR education OR train* OR satisfaction OR opinion* OR perspective* OR perception* OR experience* OR quality NEAR/5 life OR wellbeing OR "{work life balance}" OR burnout OR stress OR wellness))) NOT bdl(1008748 1008752 1008751 1008747 1008750)

Databases:

Applied Social Sciences Index & Abstracts (ASSIA)

Healthcare Administration Database

ProQuest Dissertations & Theses Global

These databases are searched for part of your query.

[Web of Science search strategy](#)

This database will be searched individually using this search strategy with no limits or filters.

TS=("doctor*" OR "physician*" OR "trainee*" OR "resident" OR "residents" OR "residency" OR "medical graduate*" OR "medical officer*" OR "houseman" OR "SHO" OR "SHOs" OR "PRHO" OR "PRHOs" OR "house officer*" OR "FY1" OR "FY1s" OR "FY2" OR "FY2s" OR "fellow*" OR "foundation doctor*" OR "foundation train*" OR "registrar*" OR "consultant*" OR "specialist*" OR "General practitioner*" OR "GP" OR "GPs" OR "intern" OR "interns" OR "internist*" OR "internship" OR "clinician*" OR "medical practitioner*" OR "staff grade*" OR "hospitalist*" OR "postgraduate*" OR "core train*" OR "specialty train*" OR "family medicine") AND TS=("part time" OR "flexib* NEAR/5 hour*" OR "flexib* NEAR/5 employ*" OR "flexib* NEAR/5 work*" OR "flexib* NEAR/5 dut*" OR "flexib* NEAR/5 sched*" OR "flexib* NEAR/5 job*" OR "flexib* NEAR/5 post*" OR "flexib* NEAR/5 train*" OR "flexib* NEAR/5 practi*" OR "flexib* NEAR/5 appoint*" OR "Less than full time" OR "LTFT") AND TS=("patient NEAR/5 outcome*" OR "patient NEAR/5 safety*" OR "patient NEAR/5 mortality*" OR "error*" OR "mistake*" OR "quality NEAR/5 care" OR "perform*" OR "recruitment" OR "retention" OR "attrition" OR "progress*" OR "profession*" OR "education" OR "train*" OR "satisfaction" OR "opinion*" OR "perspective*" OR "perception*" OR "experience*" OR "quality NEAR/5 life" OR "wellbeing" OR "work life balance" OR "burnout" OR "stress" OR "wellness")

[Cochrane search strategy](#)

This database will be searched individually using this search strategy with no limits or filters.

- ID Search
- #1 MeSH descriptor: [Physicians] explode all trees
- #2 MeSH descriptor: [Education, Medical] explode all trees
- #3 #1 OR #2
- #4 (doctor* OR physician* OR trainee* OR resident OR residents OR residency OR "medical graduate*" OR "medical officer*" OR houseman OR SHO OR SHOs OR PRHO OR PRHOs OR "house officer*" OR FY1 OR FY1s OR FY2 OR FY2s OR fellow* OR "foundation doctor*" OR "foundation train*" OR registrar* OR consultant* OR specialist* OR "General practitioner*" OR GP OR GPs OR intern OR interns OR internist* OR internship OR clinician* OR "medical practitioner*" OR "staff grade*" OR hospitalist* OR postgraduate* OR "core train*" OR "specialty train*" OR "family medicine"):ti,ab,kw (Word variations have been searched)
- #5 #3 OR #4
- #6 #1 OR #2 OR #4
- #7 MeSH descriptor: [Personnel Staffing and Scheduling] explode all trees
- #8 ("part time" OR flexib* NEXT hour* OR flexib* NEXT employ* OR flexib* NEXT work* OR flexib* NEXT dut* OR flexib* NEXT sched* OR flexib* NEXT job* OR flexib* NEXT post* OR flexib* NEXT train* OR flexib* NEXT practi* OR flexib* NEXT appoint* OR "Less than full time" OR LTFT):ti,ab,kw
- #9 #7 OR #8
- #10 MeSH descriptor: [Health Services] explode all trees
- #11 MeSH descriptor: [Delivery of Health Care] explode all trees
- #12 MeSH descriptor: [Quality of Health Care] explode all trees
- #13 MeSH descriptor: [Efficiency] explode all trees
- #14 MeSH descriptor: [Patient Safety] explode all trees
- #15 MeSH descriptor: [Treatment Outcome] explode all trees
- #16 MeSH descriptor: [Patient Satisfaction] explode all trees
- #17 MeSH descriptor: [Medical Errors] explode all trees
- #18 MeSH descriptor: [Mortality] explode all trees
- #19 MeSH descriptor: [Health Workforce] explode all trees
- #20 MeSH descriptor: [Specialization] explode all trees
- #21 MeSH descriptor: [Career Mobility] explode all trees
- #22 MeSH descriptor: [Career Choice] explode all trees
- #23 MeSH descriptor: [Work Performance] explode all trees
- #24 MeSH descriptor: [Work-Life Balance] explode all trees

#25 #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24

#26 (patient NEXT outcome* OR patient NEXT safety* OR patient NEXT mortality* OR error* OR mistake* OR quality NEXT care OR perform* OR recruitment OR retention OR attrition OR progress* OR profession* OR education OR train* OR satisfaction OR opinion* OR perspective* OR perception* OR experience* OR quality NEXT life OR wellbeing OR "work life balance" OR burnout OR stress OR wellness):ti,ab,kw

#27 #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 OR #26

#28 #25 OR #26

#29 #6 AND #9 AND #28

[EThos search strategy](#)

This database will be searched individually using this search strategy with no limits or filters.

Advanced search

less than full time (Any word)

OR

LTFT (Any word)

OR


part time (Any word)

Supplemental material 2

Adapted BEME Coding Sheet

1 Administrative			
Reference Number:			
Date:			
Reviewer:			
Citation Type:	<input type="checkbox"/> Journal article <input type="checkbox"/> Non-peer review article <input type="checkbox"/> Official publication <input type="checkbox"/> Thesis/Dissertation <input type="checkbox"/> Other		
Citation information			
Author(s):			
Title:			
Publication			
Year	Volume	Issue	Pages
Search Method:	<input type="checkbox"/> Electronic search <input type="checkbox"/> Hand search <input type="checkbox"/> Bibliography search <input type="checkbox"/> Citation search <input type="checkbox"/> Grey literature <input type="checkbox"/> Contacting author <input type="checkbox"/> Other		
2 Evaluation Methods			
Research design (tick all that apply)	Non-comparative studies		
	<input type="checkbox"/> Audit <input type="checkbox"/> Action-based <input type="checkbox"/> Case series <input type="checkbox"/> Expert Opinion <input type="checkbox"/> Focus group <input type="checkbox"/> Historical <input type="checkbox"/> Report <input type="checkbox"/> Observation <input type="checkbox"/> Survey		
	Comparative studies		
	<input type="checkbox"/> Cross sectional <input type="checkbox"/> Single group before & after studies <input type="checkbox"/> Single group time series <input type="checkbox"/> Case control <input type="checkbox"/> Prospective cohort study <input type="checkbox"/> Retrospective cohort study		

<p>Data collection methods (tick all that apply)</p>	<input type="checkbox"/> Non-randomised trials <input type="checkbox"/> Randomised trials <input type="checkbox"/> Questionnaire <input type="checkbox"/> Interview <input type="checkbox"/> Focus group <input type="checkbox"/> Observation <input type="checkbox"/> Opinion <input type="checkbox"/> Document analysis <input type="checkbox"/> Other
<p>3 Context (Target Population)</p> <p>Number of participants:</p> <p>Response rate:</p> <p>Country/location of study:</p> <p>Type of setting (e.g. hospital; community, university, if stated):</p> <p>Level/stage of doctors' career:</p> <p>Age of participants <input type="checkbox"/> Stated Details: <input type="checkbox"/> Not stated</p> <p>Sex of participants: <input type="checkbox"/> Female only <input type="checkbox"/> Male only <input type="checkbox"/> Mixed (both female and male participants) <input type="checkbox"/> Not specified</p> <p>Specialty: <input type="checkbox"/> Anaesthesia <input type="checkbox"/> Emergency Medicine <input type="checkbox"/> General Practice <input type="checkbox"/> Medicine <input type="checkbox"/> Obstetrics & Gynaecology <input type="checkbox"/> Occupational Medicine <input type="checkbox"/> Ophthalmology <input type="checkbox"/> Paediatrics <input type="checkbox"/> Pathology <input type="checkbox"/> Psychiatry <input type="checkbox"/> Public Health <input type="checkbox"/> Radiology <input type="checkbox"/> Oncology <input type="checkbox"/> Sports medicine <input type="checkbox"/> Surgery <input type="checkbox"/> Other:</p>	
<p>4 Aim of Study</p> <p>Objective/purpose of the study <input type="checkbox"/> Stated Details:</p>	

<p>Tied to theoretical/conceptual framework</p> <p>Based on relevant literature</p>	<p><input type="checkbox"/> Not available</p> <p><input type="checkbox"/> Stated Theoretical/conceptual framework used:</p> <p><input type="checkbox"/> Not available</p> <p><input type="checkbox"/> Stated Specify whether author demonstrated awareness of the literature:</p> <p><input type="checkbox"/> Not available</p>
5 Outcome studied	<p><input type="checkbox"/> Characteristics and factors which influence LTFT working</p> <p><input type="checkbox"/> Patient outcomes</p> <p><input type="checkbox"/> Workforce/health service outcomes</p> <p><input type="checkbox"/> Doctor outcomes</p> <p>Details:</p>
6 Authors' key findings:	
7 Strength of findings:	
<p>Low</p>  <p>High</p> <p>Comments:</p>	<p><input type="checkbox"/> No clear results can be drawn. Not significant</p> <p><input type="checkbox"/> Results ambiguous but there appears to be a trend</p> <p><input type="checkbox"/> Conclusions can probably be based on the results</p> <p><input type="checkbox"/> Results are clear and very likely to be true</p> <p><input type="checkbox"/> Results are unequivocal</p>
8 Rate Evaluation Methods	
	<p>Strongly disagree Disagree Uncertain Agree Strongly agree</p>
i. Appropriate study/review/design	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
ii. Well implemented study/review design	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
iii. Appropriate data analysis	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
iv. Comment on evaluation methods, if applicable:	

<p>Overall quality of study: Low Quality  High Quality</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/></p>
<p>9 Further details</p> <p>Strengths and weaknesses of the article:</p> <p>New insights/implications:</p> <p>Avenues for further research:</p>
<p>Overall impression of article:</p>

Supplemental material 3

Mixed Methods Appraisal Tool Version 2018

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions?				
	S2. Do the collected data allow to address the research questions?				
	<i>Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.</i>				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5. Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
	4.1. Is the sampling strategy relevant to address the research question?				

4. Quantitative descriptive	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

From: Hong QN, Pluye P, Fàbregues S, Bartlett G, Boardman F, Cargo M, Dagenais P, Gagnon M-P, Griffiths F, Nicolau B, O’Cathain A, Rousseau M-C, Vedel I. Mixed Methods Appraisal Tool (MMAT), version 2018. Registration of Copyright (#1148552), Canadian Intellectual Property Office, Industry Canada.

Supplemental material 4

AACODS checklist (authority, accuracy, coverage, objectivity, date, significance)

AACODS		Yes	No	?	Comments
Authority	Identifying who is responsible for the intellectual content. Individual author: <ul style="list-style-type: none"> • Associated with a reputable organisation? • Professional qualifications or considerable experience? • Produced/published other work (grey/black) in the field? • Recognised expert, identified in other sources? • Cited by others? (use Google Scholar as a quick check) • Higher degree student under “expert” supervision? Organisation or group: <ul style="list-style-type: none"> • Is the organisation reputable? (e.g. W.H.O) • Is the organisation an authority in the field? In all cases: <ul style="list-style-type: none"> • Does the item have a detailed reference list or bibliography? 				
Accuracy	<ul style="list-style-type: none"> • Does the item have a clearly stated aim or brief? • Is so, is this met? • Does it have a stated methodology? • If so, is it adhered to? • Has it been peer-reviewed? • Has it been edited by a reputable authority? 				

	<ul style="list-style-type: none"> Supported by authoritative, documented references or credible sources? Is it representative of work in the field? If No, is it a valid counterbalance? Is any data collection explicit and appropriate for the research? If item is secondary material (e.g. a policy brief of a technical report) refer to the original. Is it an accurate, unbiased interpretation or analysis? 				
Coverage	<p>All items have parameters which define their content coverage. These limits might mean that a work refers to a particular population group, or that it excluded certain types of publication. A report could be designed to answer a particular question, or be based on statistics from a particular survey.</p> <ul style="list-style-type: none"> Are any limits clearly stated? 				
Objectivity	<p>It is important to identify bias, particularly if it is unstated or unacknowledged.</p> <ul style="list-style-type: none"> Opinion, expert or otherwise, is still opinion: is the author's standpoint clear? Does the work seem to be balanced in presentation? 				
Date	<p>For the item to inform your research, it needs to have a date that confirms relevance</p>				

	<ul style="list-style-type: none"> • Does the item have a clearly stated date related to content? No easily discernible date is a strong concern. • If no date is given, but can be closely ascertained, is there a valid reason for its absence? • Check the bibliography: have key contemporary material been included? 				
Significance	<p>This is a value judgment of the item, in the context of the relevant research area</p> <ul style="list-style-type: none"> • Is the item meaningful? (this incorporates feasibility, utility and relevance) • Does it add context? • Does it enrich or add something unique to the research? • Does it strengthen or refute a current position? • Would the research area be lesser without it? • Is it integral, representative, typical? • Does it have impact? (in the sense of influencing the work or behaviour of others) 				

