

Supplemental Digital Appendix 1

Search Syntax for PubMed

((doctor[tiab] OR doctors[tiab] OR physician[tiab] OR physicians[tiab] OR MD[tiab] OR MDs[tiab] OR practitioner[tiab] OR practitioners[tiab] OR clinician[tiab] OR clinicians[tiab] OR health professional[tiab] OR health professionals[tiab] OR residency[tiab] OR resident[tiab] OR residents[tiab] OR registrar[tiab] OR registrars[tiab] OR physicians' assistant[tiab] OR physicians' assistants[tiab] OR medical specialist[tiab] OR medical specialty[tiab] OR medical staff[tiab] OR medical discipline[tiab] OR medical disciplines[tiab] OR clinical discipline[tiab] OR clinical disciplines[tiab] OR consultant[tiab] OR consultants[tiab] OR house officer[tiab] OR house officers[tiab] OR attending[tiab] OR attendings[tiab] OR attending physician[tiab] OR attending physicians[tiab] OR intern[tiab] OR interns[tiab] OR internship[tiab] OR internships[tiab] OR trainee[tiab] OR trainees[tiab] OR medical student[tiab] OR medical students[tiab] OR GP[tiab] OR GPs[tiab] OR general practitioner[tiab] OR general practitioners[tiab] OR general practice[tiab] OR family doctor[tiab] OR family doctors[tiab] OR anaesthetist[tiab] OR anaesthetists[tiab] OR anesthesiologist[tiab] OR anesthesiologists[tiab] OR anesthetist[tiab] OR anesthetists[tiab] OR cardiologist[tiab] OR cardiologists[tiab] OR heart specialist[tiab] OR heart specialists[tiab] OR dermatologist[tiab] OR dermatologists[tiab] OR surgeon[tiab] OR surgeons[tiab] OR internist[tiab] OR internists[tiab] OR internal medicine[tiab] OR otorhinolaryngologist[tiab] OR otorhinolaryngologists[tiab] OR rhinolaryngologist[tiab] OR rhinolaryngologists[tiab] OR otolaryngologist[tiab] OR otolaryngologists[tiab] OR ENT specialist[tiab] OR ENT specialists[tiab] OR paediatrician[tiab] OR paediatricians[tiab] OR paediatrist[tiab] OR paediatrists[tiab] OR pediatrician[tiab] OR pediatricians[tiab] OR clinical

geriatrician[tiab]OR clinical geriatricians[tiab] OR pulmonologist[tiab] OR
pulmonologists[tiab] OR gastroenterologist[tiab] OR gastroenterologists[tiab] OR medical
microbiologist[tiab] OR medical microbiologists[tiab] OR neurologist[tiab] OR
neurologists[tiab] OR gynaecologist[tiab] OR gynaecologists[tiab] OR gynecologist[tiab] OR
gynecologists[tiab] OR ophtalmologist[tiab] OR ophtalmologists[tiab] OR oculist[tiab] OR
oculists[tiab] OR orthopedist[tiab] OR orthopedists[tiab] OR orthopaedist[tiab] OR
orthopaedists[tiab] OR pathologist[tiab] OR pathologists[tiab] OR psychiatrist[tiab] OR
psychiatrists[tiab] OR radiologist[tiab] OR radiologists[tiab] OR radiotherapist[tiab] OR
radiotherapists[tiab] OR rheumatologist[tiab] OR rheumatologists[tiab] OR urologist[tiab] OR
urologists[tiab] OR obstetrician[tiab] OR obstetricians[tiab])

AND

(EBM[tiab] OR EBP[tiab] OR evidence-based practice[tiab] OR evidence-based
medicine[tiab] OR evidence based medicine[tiab] OR ("evidence-based practice"[MeSH
Terms] OR ("evidence-based"[All Fields] AND "practice"[All Fields]) OR "evidence-based
practice"[All Fields] OR ("evidence"[All Fields] AND "based"[All Fields] AND
"practice"[All Fields]) OR "evidence based practice"[All Fields]) OR evidence-informed
practice[tiab] OR evidence informed practice[tiab] OR evidence informed decision
making[tiab] OR evidence-informed decision making[tiab] OR evidence-informed decision-
making[tiab] OR implementation research[tiab] OR implementation science[tiab] OR
knowledge-translation[tiab] OR knowledge translation[tiab] OR knowledge-transfer[tiab] OR
knowledge transfer[tiab])

AND

(qualitative study[tiab] OR qualitative research[tiab] OR interview[tiab] OR interviews[tiab]
OR focus group[tiab] OR focus groups[tiab] OR observation[tiab] OR observations[tiab])

Supplemental digital content for Swennen MHJ, van der Heijden GJMG, Boeije HR, et al. Doctors' use and perceptions of evidence-based medicine: A systematic review and thematic synthesis of qualitative studies. Acad Med. 2013 (9).

AND

English[lang]))

Supplemental Digital Table 1

Criteria for Quality of Reporting

Research Team: Background and Reflexivity		
1	Interviewer, facilitator or observer identified	Are the interviewer(s), facilitator(s) and/or observer(s) identifiable?
2	Credentials	Are the credentials of the researcher(s) provided? (e.g., MD, PhD)
3	Occupation	Is the occupation of the researcher(s) (e.g., physician, PhD fellow) provided?
4	Training and experience	Are the researcher(s) trained in or do they have experience with qualitative research?
5	Relationship researcher and participant	Was there a relationship established between the researcher(s) and participant(s) before the start of the study (e.g., tutor and student)?
6	Personal opinions	How does the researcher(s) relate to (aspects of) EBM?
Study Design		
7	Overall qualitative methodology (input for quality condition 1 and 3)	What overall qualitative research method is chosen to guide the study? In case of mixed methods, the qualitative overall methodology also, has to be specified (<i>if described, we used abbreviations; grounded theory (GT), phenomenology (Ph), ethnography (Et), participatory research (PR), action research (AR), case study (CS), other (Ot), mixed methods (MM)</i>)
8	Sampling method (input for quality condition 2)	What sampling method is chosen for selecting participants? (<i>if described, we used abbreviations; theoretical (TS), purposive (PS), snowball (SS), convenience (CS), random (RS), other (Ot)</i>)
9	In- and exclusion criteria	Is there a good description of the sample and of doctors excluded?
10	Non-participation and drop-out	How many people did decline to participate after they were approached by the researcher(s) (i.e., non-participation) and/or how many participants did withdraw during the study (i.e., drop-out)? (<i>if mentioned, we provided the numbers</i>)
Data Collection		
11	Technique data collection (input for quality condition 1)	What technique(s) for data collection is used? (<i>if mentioned, we used abbreviations; individual interviews (II), group interviews (GI), unobtrusive observations (UO), participant observations (PO), document review (DR)</i>)
12	Triangulation (input for quality condition 1)	Are two or more methods used for double (or triple) checking the results? (e.g., combining study methodologies, combining techniques for data collection, repeating measurements in time)

13	Saturation	Is data collection continued until the researcher(s) is no longer hearing or seeing new information? (i.e., no more new themes emerged from the data)
a. Quality of Interviews, if performed		
14	Interview guide and/or observation schedule	Are the interview questions and/or observation schedule provided to enhance transparency and reproducibility of the data collection?
15	Duration	What is the (average) duration of the interviews and/or observations? (<i>if mentioned, we provided time in minutes</i>)
16	Recording	Were interviews and/or observations recorded? (e.g., audio, video)
17	Transcription	Were interviews and/or observations transcribed verbatim?
18	Field notes	Did the researcher(s) make notes of his/her experiences during interviews and/or observations?
19	Transcripts returned	Were the verbatim transcripts returned to the participants for feedback on content?
b. Quality of Observations, if performed		
20	Interview guide and/or observation schedule	Are the interview questions and/or observation schedule provided to enhance transparency and reproducibility of the data collection?
21	Duration	What is the (average) duration of the interviews and/or observations? (<i>if mentioned, we provided time in minutes</i>)
22	Recording	Were interviews and/or observations recorded? (e.g., audio, video)
23	Transcription	Were interviews and/or observations transcribed verbatim?
24	Field notes	Did the researcher(s) make notes of his/her experiences during interviews and/or observations?
25	Transcripts returned	Were the verbatim transcripts returned to the participants for feedback on content?
26	Reactive effects (only applies to observations)	Did the researcher(s) allow for participants to become accustomed to the observer's presence for participant behavior to be natural?
c. Quality of Document Review, if performed		
27	Source, credibility and comprehensiveness	Is the source mentioned and its credibility accounted for? Are the provided documents comprehensive or prone to selection bias?
28	Authenticity	Is each document original and complete to prevent the use of biased documents due to editing, error, loss or falsification?
Data Analysis		
29	Number of data coders	How many researchers each coded all transcripts independently? Note: if other researchers also coded a sub sample, then we provided '>' to the number of researchers that coded all transcripts

30	Coding tree	Did the researcher(s) describe the process of assigning codes to the data, and of arranging the codes in a (hierarchical) frame or list?
31	Deriving themes from data (input for quality condition 3)	How did the researcher(s) arrive at the themes; through inductive analysis (i.e., themes emerged from the data) or deductive analysis (i.e., themes were derived from a priori framework)? <i>(if mentioned, we used abbreviations; inductive analysis (IA), framework analysis (FA))</i>
32	Inter-rater reliability	What was the degree of agreement among the researchers that coded the transcripts? <i>(if mentioned, we provided the numerical measure)</i>
33	Software	Did the researcher(s) use specific software for qualitative data analysis?
34	Participant checking	Did the researcher(s) request their study participants for critical analysis of and comments on the accuracy and completeness of their interpretations of the data?
35	Accounts of negative or deviant cases	Did the researcher(s) search for and discuss elements of the data that do not support or appear to contradict patterns or explanations that emerged from data analysis?
Reporting of Findings		
36	Quotations	Did the researcher(s) include verbatim quotations from study participants to report the findings?
37	Identification of themes	Did the researcher(s) structure their findings according to the identified themes?
38	Limitations and generalizability	Did the researcher(s) account for any study limitations and the finite scope of the findings?

Supplemental Digital Table 2

Data Robustness of Descriptive Themes and Their Rearrangement into Analytical Themes

Descriptive themes	Identification of information need	Perceptions of EBM	Familiarity with EBM	Attitude towards EBM	Culture towards EBM	Change potential	Attitude towards change	Culture towards change	EBM competencies	Knowledge and skills EBM	EBM education and clinical role models	Information seeking behavior	Information filtering behavior	Critical appraisal of information	Translation of information to individual patient	Interaction between doctor and management	Interaction between doctor and patient
Content																	
No of coded text fragments	174	335	5	270	60	62	44	18	130	107	23	474	526	156	370	234	121
No of studies	25	27	3	27	15	18	16	7	20	16	11	25	27	26	25	25	20
References of studies	16;18-21;24-39;41-44	16;18-40;42-44	20;29;42	16;18-40;42-44	19;21;23-26;29-31;34;36-38;43;44	17;19-23;26;29-31;34;36;38-40;42;44;45	19-22;26;29-31;34;36;38-40;42;44;45	17;21;23-29-31;44	19-24;26-31;34;36-38;42-45	22;24;27-29;31;34;37-45	20-24;26;29-31;36;42	16;17;19-22;24-31;33;34;36-39;41-45	16;18-22;24-40;42-45	16;18-22;24-39;42-45	16;18-22;24-40;42;44;45	17;18;20-40;43;44	16-18;21-24;26;28-34;37;39;40;42;45
Outcome - No of studies																	
<i>Barriers</i>	20	23	2	23	10	13	13	4	15	15	1	23	27	25	23	23	18
<i>Facilitators</i>	20	22	3	21	7	11	9	5	13	8	11	23	22	13	18	23	17
<i>Undecided</i>	2	7	0	6	1	0	0	0	3	2	1	13	9	3	8	5	3
Context – No of studies																	
<i>Career stage</i>																	
In training	3	3	1	3	3	2	2	2	3	3	1	3	3	3	3	3	2
Certified	12	14	1	14	4	9	8	1	8	7	3	12	15	14	15	12	13
Mixed	10	10	1	10	8	7	6	4	9	6	7	10	9	9	7	10	5
Context – No of studies																	
<i>Medical discipline</i>																	
Obstetrics	2	3	0	3	3	3	2	2	3	1	3	2	2	2	2	3	2

Surgery	2	2	1	2	1	1	1	1	1	1	1	2	2	2	2	2
Internal Medicine	2	2	0	2	2	1	1	1	2	2	0	2	2	2	2	1
Psychiatry	1	1	0	1	1	1	1	0	1	1	0	1	1	1	0	0
General practice*	9	10	1	10	2	6	5	1	6	5	3	10	10	9	9	10
Public health	2	2	0	2	2	1	1	1	2	2	1	2	2	2	1	2
Occupational health	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Mixed	6	6	1	6	3	4	4	0	4	3	2	6	7	7	7	5
<i>Practice setting – clinical</i>																
Hospital	8	9	1	9	8	6	5	4	7	4	5	7	8	8	8	9
General practice†	10	10	1	10	3	6	5	1	6	5	2	10	10	9	9	10
Public health	2	2	0	2	2	1	1	1	2	2	1	2	2	2	1	2
Occupational health	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Mixed	4	5	1	5	1	4	4	0	4	4	2	5	6	6	6	3
Context – No of studies																
<i>Practice setting – country</i>																
United Kingdom	8	9	0	9	3	4	4	0	4	4	1	7	9	8	8	8
Netherlands	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Germany	1	1	0	1	0	0	0	0	0	0	0	1	1	1	1	0
Norway	2	2	0	2	2	1	1	1	2	2	1	2	2	2	1	2
United States	7	7	1	7	3	3	3	1	4	4	1	5	7	7	7	5
Canada	3	2	1	2	2	4	3	2	3	2	2	5	3	3	3	3
Australia	3	3	1	3	1	1	1	0	2	2	1	3	3	3	3	2
China	0	1	0	1	1	1	0	1	1	0	1	0	0	0	0	1
Thailand	2	2	0	2	2	2	2	1	2	0	2	2	2	2	2	2
Israel	0	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1
<i>Range of publication year of studies</i>																
1999	1999	1999	1999	2001	1999	1999	2003	1999	1999	1999	1999	1999	1999	1999	1999	1999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	2010	2008	2010	2010	2011	2011	2010	2011	2011	2011	2008	2011	2011	2011	2011	2011
Rearrangements of descriptive themes into analytical themes†																
A. Individual mindset	+	+	+		+	+										

B. Professional group norms	+		+		+		+										
C. EBM competencies							+		+								
D. Balance between confidence and critical reflection	+																
E. Managerial collaboration										+		+		+		+	

*General practice also includes primary care practice and family practice.

† A ‘+’ indicates which descriptive themes contributed to each of the analytical themes A-E.

Supplemental Digital Table 3

Results of Selection on Three Quality Criteria

Three quality criteria	Relevant studies	Included studies
1 - Using theoretical or purposive sampling*		
TS	0	0
TS & CS	1	1
TS & PS	3	1
TS & PS & CS	1	0
PS	71	27
PS & SS	3	1
PS & CS	4	0
PS & CS & RS	1	0
PS & RS	2	0
SS	2	0
SS & CS	1	0
CS	35	0
CS & RS	1	0
RS	8	0
Total	133	30
Total No of studies satisfying criterion 1 (%)	86 (65)	30 (100)
Total No of studies failing criterion 1 (%)	47 (35)	0 (0)
2 - Describing approach to deriving themes from data		
Inductive analysis	108	21
Framework analysis	8	3
Inductive & Framework analysis	15	6
No description	2	0
Total	133	30
Total No of studies satisfying criterion 2 (%)	131 (98)	30 (100)
Total No of studies failing criterion 2 (%)	2 (2)	0 (0)
3 - Using methodological triangulation		
Triangulation with mixed methods	23	13
Triangulation of qualitative data collection techniques	24	16
Triangulation in time	1	0
Combination of triangulation approaches	4	1
No triangulation	81	0
Total	133	30
Total No of studies satisfying criterion 3 (%)	52 (39)	30 (100)
Total No of studies failing criterion 3 (%)	81 (61)	0 (0)

* For sampling methods: TS – theoretical sampling, PS – purposive sampling, CS – convenience sampling, SS – snowball sampling, RS – random sampling

Supplemental Digital Table 4

Assessment of Completeness of Reporting for the Included 30 Studies

Reporting criteria	No. (%)	References of studies reporting each criterion
Domain 1: Research team - background & reflexivity	(n=30)	
1. Interviewer / facilitator / observer identified	21 (70)	21-27;29-31;33-40;42-44
2. Credentials	13 (43)	17-22;26;29;31;32;40;43;45
3. Occupation	12 (40)	20;26;29-31;33;35;37-40;43
4. Training and experience qualitative research	11 (37)	18;19;24;25;29;31;35;37;42;45
5. Relationship researcher and participant	5 (17)	29-31;37;38
6. Researcher's characteristics related to research topic	3 (10)	29;31;37
Domain 2: Study design	(n=30)	
7. Overall qualitative methodology	7 (23)	16;26;27;29;33;42;44
8. Sampling method*	30 (100)	16-45
9. Inclusion and exclusion criteria	8 (27)	16;19;24;31;36;39;44;45
10. Non-participation and drop out	12 (40)	18;19;24;29;30;32;34;35;37;40;43;45
Domain 3: Data Collection†	(n=30)	
11. Techniques data collection	30 (100)	16-45
12. Triangulation*	30 (100)	16-45
13. Saturation of data	13 (43)	18;21;22;26;28;29;31;33;34;37;42-44
3a. Quality of Interviews	(n=29)	
14. Interview questions	14 (48)	16;20-22;24;30;31;34;37;39-41;43;44
15. Duration of interview	21 (72)	18-25;28;30-33;35;37;40-45
16. Recording of interview	24 (83)	16;17;19;21;23-25;27-30;32-37;39-45
17. Transcription of interview	26 (90)	16-25;27;29-32;34-37;39-45
18. Field notes of interview	5 (17)	18;25;27;37;43
19. Transcripts returned of interview	1 (3)	37
3b. Quality of Observations	(n=6)	
20. Observation schedule	1 (17)	38
21. Duration of observation	4 (67)	26;27;38;43
22. Recording of observation	2 (33)	40;43
23. Transcription of observation	1 (17)	43
24. Field notes of observation	4 (67)	27;38;43;44
25. Transcripts returned of observation	0 (0)	-
26. Reactive effects	2 (33)	26;27
3c. Quality of Document review	(n=3)	
27. Source, credibility and comprehensiveness	3 (100)	26;27;44
28. Authenticity	1 (33)	44
Domain 4: Data analysis	(n=30)	
29. Number of data coders	23 (77)	16;18;19;21-25;27-29;31-35;37;39-42;44;45
30. Coding tree	26 (87)	16;17;19-25;27-29;31-35;37-45
31. Deriving themes from data*	30 (100)	16-45
32. Inter-rater reliability	2 (7)	22;32
33. Software	11 (37)	16;17;20;21;23;25;30;33;36;40;45
34. Participant checking	8 (27)	24;26;27;29;32;33;37;42
35. Accounts of 'negative' or 'deviant' cases	4 (13)	29;31;37;43
Domain 5: Reporting of findings	(n=30)	

36. Quotations	25 (83)	16;17;19-24;26;28-37;39-44
37. Identification of themes	30 (100)	16-45
38. Limitations and generalizability	24 (80)	16;18;22-35;37-40;42-45

* These three methodological criteria were used for selecting studies on their quality of methods. This explains why all included studies meet these three criteria.

† The total number of reporting criteria per study depended on the type(s) of data collection used.