A systematic review of supervisory relationships in general practitioner training

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Appendix 1: MEDLINE SEARCH

Date first run: 1st July 2016. 2407 titles, Date updated: 30th January 2018. 578 titles

1. ("General practice" or "family practice" or "primary care" or "primary health care").mp. [mp=tx, bt, ti, ab, ct, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, px, rx, an, ui, id, cc, tc, tm, pt]

2. limit 1 to english language

3. limit 2 to human

4. limit 3 to yr="2011 -Current"

5. limit 4 to humans

6. limit 5 to english language

7. limit 6 to human

8. limit 7 to yr="2011 -Current"

9. limit 8 to humans

10. (Supervis* or train* or registrar or intern* or teach* or educat* or residen*).mp. [mp=tx, bt, ti, ab, ct, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, px, rx, an, ui, id, cc, tc, tm, pt]

11. limit 10 to english language

12. limit 11 to human

13. limit 12 to yr="2011 -Current"

14. limit 13 to humans

15. 9 and 14

16. (attribut* or characteristic* or qualit* or trait* or feature* or aspect*).mp. [mp=tx, bt, ti, ab, ct, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, px, rx, an, ui, id, cc, tc, tm, pt]

17. limit 16 to english language

18. limit 17 to human

19. limit 18 to yr="2011 -Current"

20. limit 19 to humans

21. 15 and 20

22. ("General practice" or "family practice" or "primary care" or "primary health care").m_titl.

23. limit 22 to english language

24. limit 23 to human

25. limit 24 to yr="2011 -Current"

26. limit 25 to humans

27. 21 and 26

28. limit 27 to (learning resource or practice example or practice guidance or research or "research review" or statistical publication or "systematic review")

29. limit 28 to (female or humans or male)

30. limit 29 to english language

31. limit 30 to (adult <18 to 64 years> or aged <65+ years>)

32. limit 31 to humans

33. limit 32 to (fringe to psychology: questionable or general public or psychology: professional & research)

34. limit 33 to health professions

35. limit 34 to English

36. limit 35 to (human or male or female)

37. limit 36 to yr="2011 -Current"

38. limit 37 to (education or evidence-based medicine or family medicine or health or medical education or medical research or "primary care/family medicine/general practice" or sociology)

39. limit 38 to humans

Appendix 2: Paper Quality Assessment

Research question:
What are the attributes of the supervisory relationship in General Practice?

Aims

1. To better understand the interaction between GP trainee and GP trainer within the GP postgraduate supervisory relationship
2. To describe the facilitators and barriers to the interaction of GP trainee and GP trainer within the GP postgraduate supervisory relationship
3. To develop a narrative account and model to explain key elements of the interaction in postgraduate GP supervision

1.Study Details

Study Details *(surname of first author and year first full report of study was published)*

Title of paper
Other papers relating to this study *(e.g. duplicate publications, follow-up studies)*
Remaining citation details *(Journal, volume, issue, pages)*

2. General Information

Date form completed *(dd/mm/yyyy)*	
Name/ID of person extracting data	
Country of origin *(specify)*	
Publication type *(e.g. full report, abstract, letter)*	
Study funding source *(including role of funders)*	
Possible conflicts of interest *(for study authors)*	

3.Eligibility

	Type of study	**Yes/ No / Unclear**	**Location in text** *(pg & ¶/fig/table)*
	Observation of supervision in action	**…**	
	Video-observation	**…**	
	Survey	**…**	
	Interviews	**…**	
	Focus groups	**…**	
	Mixed methods	**…**	
	Case reports	**…**	
	Personal opinion (IN THIS INSTANCE, PLEASE GO TO SECTION 8 FOR SUMAMRY OF PAPER)	**…**	
	Magazine articles, literature review, institutional guidance documents, newspaper articles *(exclusion criteria)*	**…**	
	Other design (specify):	**…**	
Participants		**…**	
Types of intervention *(if applicable)*		**…**	
Types of outcome measures (if intervention) *(if applicable)*		**…**	

4.Population and setting

	Description *Include comparative information for each group (i.e. intervention and controls) if available*	**Location in text** *(pg & ¶/fig/table)*
Population description *(from which study participants are drawn)*		
Setting *(including location and social context)*		
Inclusion criteria		
Exclusion criteria		
Method/s of recruitment of participants		
Sampling of participants		
Notes:		

5. Methods

	Descriptions as stated in report/paper	**Location in text***(pg & ¶/fig/table)*
Aim of study		
Design		
Start date		
End date		
Duration of participation *(recruitment to last follow-up)*		

6. Area(s) of supervision addressed

Domain	Yes/No/ Unclear	Support for judgement	Location in text *(pg & ¶/fig/table)*	What is the key domain of interest in this paper? (choose one)
Clinical supervision *(relating to patient safety/ gatekeeping)*	…			…
Educational supervision *(related to educational development of the trainee(s)*	…			…
Support in supervision *(personal /professional support)*	…			…
Assessment in supervision	…			…
Structural issues in supervision:local *(practice context)*	…			…
Structural issues in supervision:institutional *(wider structure, governing bodies)*	…			…
Doctors in difficulty (trainees)	…			…
International medical graduates (trainees)	…			…
Variable experience (novice – expert) (trainees)	…			…
Highly performing (trainees)	…			…
Remote supervisors	…			…
Variable experience (novice-expert) (supervisors)	…			…
Other (please specify)				
Notes:				

7.Participants

Provide overall data and, if available, comparative data for each intervention or comparison group.

	Description as stated in report/paper	**Location in text** (pg & ¶/fig/table)
Total no. participants *(if applicable, no. of people per group)*		
Baseline imbalances		
Withdrawals and exclusions		
Age		
Sex		
Race/Ethnicity		
Other relevant sociodemographics		
Subgroups measured		
Subgroups reported		
Notes:		

8. Results – summary of main findings.

PLEASE USE THIS SECTION FOR A SUMMARY OF NON-RESEARCH ARTICLES

Where qualitative work has resulted in themes or similar, please outline the main themes and findings:

	Description as stated in report/paper		**Location in text** *(pg & ¶/fig/table)*
Findings relevant to this review (brief summary)			
Person measuring/ reporting			
If qualitative, method of qualitative analysis e.g. thematic, using software etc.			
Is outcome/tool validated? *(specify how)*	... *Yes/No/Unclear*		

References to other relevant studies	
Correspondence required for further study information *(what and from whom – if applicable)*	
Further study information requested *(from whom, what and when)*	
Correspondence received *(from whom, what and when)*	
Notes:	

IF THE PAPER IS NOT RESEARCH, PLEASE PROCEED TO SECTION 12: OVERALL CONFIDENCE IN THE STUDY FINDINGS

9.Quality assessment of quantitative/survey research (if applicable)

	Response to question:	Rationale for response given where "no" or "unclear"
Did the study address a clearly focused question / issue?	... *Yes/No/Unclear*	
Is the research method (study design) appropriate for *answering the research question?*	... *Yes/No/Unclear*	
Is the method of selection of the subjects (employees, teams, *divisions, organizations) clearly described?*	... *Yes/No/Unclear*	
Could the way the sample was obtained introduce *(selection)bias?*	... *Yes/No/Unclear*	
Was the sample of subjects representative with regard to the *population to which the findings will be referred?*	... *Yes/No/Unclear*	
Was the sample size based on pre-study considerations of *statistical power?*	... *Yes/No/Unclear*	
Was a satisfactory response rate achieved?	... *Yes/No/Unclear*	
Are the measurements (questionnaires) likely to be valid and *reliable?*	... *Yes/No/Unclear*	
Was the statistical significance assessed?	... *Yes/No/Unclear*	
Are confidence intervals given for the main results?	... *Yes/No/Unclear*	
Could there be confounding factors that haven't been *accounted for?*	... *Yes/No/Unclear*	
Was the survey tool validated? *If so, how?*	... *Yes/No/Unclear*	
Did they account for missing data?	... *Yes/No/Unclear*	
Notes:		

10.Quality assessment of qualitative research (if applicable)

	Yes/No/Unclear	If “no”, “unclear”, please specify
Was there a clear statement of the aims of the research? *HINT: Consider* *What was the goal of the research?* *Why it was thought important?* *Its relevance*	... *Yes/No/Unclear*	
Is a qualitative methodology appropriate? *HINT: Consider* *If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants* *Is qualitative research the right methodology for addressing the research goal?*	... *Yes/No/Unclear*	
Was the recruitment strategy appropriate to the aims of the research? *HINT:Consider* *If the researcher has explained how the participants were selected* *If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study* *If there are any discussions around recruitment (e.g. why some people chose not to take part)*	... *Yes/No/Unclear*	
Was the research design appropriate to address the aims of the research? *HINT: Consider* *If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)?*	... *Yes/No/Unclear*	
Was the data collected in a way that addressed the research issue? *HINT: Consider* *If the setting for data collection was justified* *If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)* *If the researcher has justified the methods chosen* *If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, or did they use a topic guide)?* *If methods were modified during the study. If so, has the researcher explained how and why?* *If the form of data is clear (e.g. tape recordings, video material, notes etc)* *If the researcher has discussed saturation of data*	... *Yes/No/Unclear*	
Has the relationship between researcher and participants been adequately considered? *HINT: Consider*	... *Yes/No/Unclear*	

If the researcher critically examined their own role, potential bias and influence during *(a) Formulation of the research questions* *(b) Data collection, including sample recruitment and choice of location* *How the researcher responded to events during the study and whether they considered the implications of any changes in the research design*		
Have ethical issues been taken into consideration? *HINT: Consider* *If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained* *If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)* *If approval has been sought from the ethics committee*	... *Yes/No/Unclear*	
Was the data analysis sufficiently rigorous? *HINT: Consider* *If there is an in-depth description of the analysis process* *If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?* *Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process* *If sufficient data are presented to support the findings* *To what extent contradictory data are taken into account* *Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation* *To what extent others are involved in the analysis*	... *Yes/No/Unclear*	
Is there a clear statement of findings? *HINT: Consider* *If the findings are explicit* *If there is adequate discussion of the evidence both for and against the researchers arguments* *If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)* *If the findings are discussed in relation to the original research question*	... *Yes/No/Unclear*	
Notes:		

11.Applicability

Have important populations been excluded from the study? *(consider disadvantaged populations, and possible differences in the intervention effect)*	... *Yes/No/Unclear*	
Is the intervention likely to be aimed at disadvantaged groups? *(e.g. lower socioeconomic groups)*	... *Yes/No/Unclear*	
Does the study directly address the review question? *(any issues of partial or indirect applicability)*	... *Yes/No/Unclear*	
Is the research valuable? *HINT: Consider* *If the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy?, or relevant research-based literature?* *If they identify new areas where research is necessary* *If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used*	... *Yes/No/Unclear*	WHY: (please explain rationale for yes, no and unclear responses)
Notes:		

12. Overall confidence in study's findings

	Please select one	Please expand on why this choice has been made
Empirical research 1 *Research article, confident appraisal of trustworthiness*	... *Yes*	
Empirical research 2 *Research article. Some elements found to be lacking in terms of design, description or relevance; but an overall suggestion of trustworthiness*	... *Yes*	
Empirical research 3 *Research article. Elements of study found to be lacking, which cause significant doubt about the trustworthiness*	... *Yes*	
Opinion piece 1 *Confident appraisal of trustworthiness: informed through a breadth and depth of their observed or personal experiences, and clarity in relation to our research aim*	... *Yes*	
Opinion piece 2 *Elements of the opinion presented cause significant doubt about the trustworthiness: lacking breadth, depth or clarity regarding source material/relevance to our research aim*	... *Yes*	
Notes:		

1. Effective Practice and Organisation of Care (EPOC). (2013) Data collection form. EPOC Resources for review authors. Oslo: Norwegian Knowledge Centre for the Health Services. Retrieved (3rd April, 2017) from: http://epoc.cochrane.org/epoc-specific-resources-review-authors
2. Center for Evidence Based Management (July, 2014), Critical Appraisal Checklist for Cross-Sectional Study. Retrieved (30th March, 2017) from https://www.cebma.org
3. Critical Appraisal Skills Programme (CASP) (May, 2013), Qualitative Research Checklist. Retrieved (1st September, 2016) http://www.casp-uk.net/checklists

Appendix 3: Summary of E1, E2 and O1 papers

KEY:

Code	Participant	Code	Country of Origin
AD	*Area Director*	AU	*Australia*
GPR	*GP registrars/trainees*	CA	*Canada*
GPS	*GP supervisors*	NL	*The Netherlands*
IMG	*International Medical Graduate*	CH	*Switzerland*
TPD	*Training Programme Director*	UK	*United Kingdom*
Y1, Y2	*Year 1, Year 2*	US	*United States*

E1

PAPER	GEOGRAPHICAL LOCATION, SETTING	AREA(S) OF SUPERVISION	PARTICIPANTS	STUDY DESIGN	THEORETICAL PROPOSITONS
E1 Papers providing evidence/observation of supervision					
Clement et al. (2016)	AU, 1 practice	clinical, educational supervsion and assessment	5 training pairs (GPS and GPR), focuses on a single training pair	secondary analysis (analytic expansion) of audio-recorded ad hoc encounters, reflections, interviews	Applying Wenger's social theory of learning to a supervisory interaction
Junod Perron et al. (2013)	CH. 1 hospital, 2 settings (inpatient medicine, outpatient primary care)	educational supervision	GPSs, hospital Ss (n=51) (intervention group n=28, control group n=20)	intervention (6m training programme on feedback) and control. Outcome measures: survey and objective assessment of feedback	Learner-centred design
Morgan, Wearne, Tapley et al. (2015)	AU, 4 training regions	educational supervision, clinical supervision	GPRs (n=645): 84723 consultations, 131583 problems.	Caseload, trainee diaries (cross sectional and simple/multiple regression analysis of data)	
Pelgrim et al. (2014)	NL, 3 training institutes	support in supervision	GPS/GPR training pairs (n=62)	survey (bivariate and multiple regression analysis)	
Sagasser et al. (2017)	NL, 7 general practices	educational supervision	GPS/GPR training pairs (n=7)	Observation, interviews (phenomenological analytic method)	Situated learning, legitimate participation, self-regulated learning

E2

PAPER	GEOGRAPHICAL LOCATION, SETTING	AREA(S) OF SUPERVISION	PARTICIPANTS	STUDY DESIGN	THEORETICAL PROPOSITONS
E2 Papers providing evidence/observation of supervision					
Ahern et al. (2013)	AU, 1 region	vertical learning	GPSs, GPRs, med students, practice managers (n=33), across 9 practices	interviews (thematic analysis)	
Allan et al. (2012)	CA, 1 training programe, 5 teaching centres	educational supervision	Y1 and Y2 trainees (n=38) Addressing 25 questions over 114 clinical half-day session (420 patient contacts)	observer observation of questions. Descriptive analysis, unpaired *t* tests between groups	
Ferguson et al. (2014)	Scotland, UK	structural issues in supervision:institutional	ADs (n=6), TPDs (n=19), GPSs (n=93), across 11 focus groups	interviews, focus groups (thematic anaylsis)	
Foulkes et al. (2013)	UK, 1 training region	assessment in supervision, workload of supervision	GPSs (n=212) (70% response rate)	survey (descriptive analysis)	
Garth et al. (2016)	AU, 3 Regions (urban,remote)	educational supervision	GPRs n=35, GPSs (n=16), med educators (n=17), NQGP's (n=12).	interviews, focus groups, review of trainee learning plans (template analysis)	Situated learning, Socio-material approach
Giroldi et al. (2017)	NL, 1 training institute	educational supervision	GPSs (n=25, n=11), GPRs (n=11, n=5)	interviews, focus groups, observtion of training sessions (thematic analysis)	
Ingham et al. (2014)	AU, 1 training region (urban,remote)	educational supervision	GPSs (n=84) (90% response rate)	survey (descriptive and Chi-square analysis)	
Ingham, Fry, O'Meara et al. (2015)	AU, 1 training region, (remote)	remote supervision, educational supervision	GPSs, rural (n=20)	interviews (framework analysis)	Adult learning theory, situated learning
Ingham, Morgan, Kinsman et al. (2015)	AU, 1 training region (urban,remote)	clinical supervision	GPSs (n=91) (91 - 97.8% response rate)	survey (Pearson correlation, ANOVA, t-test)	
Jochemsen-van der Leeuw et al. (2014)	NL, 4 training institutes	clinical trainer as a role model	Y1 and Y3 GPRs (n=279)	survey (descriptive analysis, principal component analysis)	
Longman and Temple-Smith (2013)	AU, 1 training region	educational supervision	GPRs (n=8) and GPSs(n=8)	interviews (thematic analysis)	adult learning theory (and challenges of implementation)
McLaren et al. (2013)	UK, 1 training region	doctors in difficulty (emphasis on trainers)	GPSs (n=11)	interviews (thematic analysis)	
Meijer et al. (2016)	NL, 1 training region	educational supervision (role models)	GPRs (n=6), STs (n=6)	interviews (thematic analysis)	
Morgan, Ingham, Kinsman et al. (2015)	AU, 1 training region	clinical supervision,educational supervision	GPSs (n=66)	evaluation (pre- and post workshop survey) (descriptive statistics, one sample t-test)	
Morgan et al. (2016)	AU, 1 training region	clinical supervision	GPSs (n=54)	evaluation (pre- and post workshop survey) (descriptive statistics)	
Oerlemans et al. (2017)	NL, 1 training programme	educational supervision	GPSs (n=18)	interviews (Constant Comparative Method)	
Patterson et al. (2013)	UK, 1 training region	educational supervision	GPSs (n=12), training support staff (n=8). GPRs (n=32)	interviews and focus groups (content analysis)	
Sagasser et al. (2012)	NL, 2 training institutes	educational supervision	GPRs (n=21)	interviews (phenomenological analytic method)	Self-regulated learning
Sagasser et al. (2015)	NL, 2 training institutes	educational supervision	GPSs (n=20)	interviews (phenomenological analytic method)	Self-regulated learning, sociocognitive perspective, situated learning
Saucier et al. (2012)	CA, 1 training institution, French-speaking	educational supervision	GPSs (n=11), GPRs (n=6)	Observation, survey, focus groups (thematic analysis)	Cognitive apprenticeship
Stolper et al (2015)	NL, all 8 training institutes	clinical supervision	GPS/GPR training pairs (n=16), tutorial dialogues (n=17)	video-observation (content and coding analysis)	
Triscott et al. (2016)	CA, 2 training institutes	IMG's	GPs (n=10), 'home' GPRs (n=2), IMGs (n=2), AHPs (n=13)	interviews, focus groups (thematic anaylsis)	
Walters et al. (2015)	Au, 1 rural training pathway, 3 training regions	support in supervision	GPRs (n=18)	interviews (thematic analysis)	
Warwick (2014)	UK, 1 training region	IMG's	IMGs (n=12)	Focus groups (framework analysis)	Legitimate peripheral participation
Wearne et al. (2015)	AU, multiple training regions. CA, 1 rural training program	remote supervision	GPSs, remote (n=16)	interviews (template analysis, constant comparative method)	
Wiener-Ogilvie et al. (2014)	Scotland, UK	educational supervision	NQGP's (n=15) GPRs (n=12)	interviews (Constant Comparative Method)	Situated learning
Zwart et al. (2011)	NL, 1 training institute	clinical supervision	Y1 and Y3 GPRs (n=79)	mixed methods- interviews, doc analysis (root cause analysis)	

O1

PAPER	GEOGRAPHICAL LOCATION, SETTING	AREA(S) OF SUPERVISION	PARTICIPANTS	STUDY DESIGN	THEORETICAL PROPOSITONS
O1 Papers providing opinion/commentary on supervision					
Bowen et al. (2015)	US, multiple regions. 7 authors	educational supervision		opinion	
Ingham (2012)	AU, 1 author	clinical supervision		opinion	
Morgan, Ingham, Wearne et al. (2015)	AU, 6 authors across 4 training areas	training of trainers		opinion	Educational alliance
Wearne and Brown (2014)	AU, 2 authors	assessment in supervision		opinion	