Guidance for providing effective feedback in clinical supervision in postgraduate medical education: a systematic review

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ABSTRACT

The primary aim was to systematically review the empirical evidence relating to models and guidance for providing effective feedback in clinical supervision occurring in postgraduate medical education contexts. A secondary aim was to identify the common and differentiating components of models and guidance for providing effective feedback in this context. A systematic review was conducted. Fifty-one records met the inclusion criteria, including 12 empirical studies. Empirical records meeting inclusion criteria were critically appraised. Qualitative content analysis was applied to the guidance on effective and ineffective feedback provision to identify key principles. A composite model was created synthesising the guidance identified for providing effective feedback. The evidence supporting specific models and guidance in postgraduate medical education was limited. However, there is evidence to support all of the commonly identified principles. In addition, a consensus about the principles of effective feedback in clinical supervision in postgraduate medical education was found.

INTRODUCTION

Clinical supervision is a fundamental part of postgraduate medical education.[1–3] Feedback from supervisors to supervisees about their performance is considered to be a critical component of effective clinical supervision[1 2] that facilitates supervisees' learning[4–6] and performance improvement.[4 7–9] Traditional conceptualisations of feedback referred to a one-way transmission of information from a supervisor to a supervisee about aspects of their performance.[10] However, there is a growing trend towards thinking about feedback as a conversation, with the supervisor facilitating joint reflection on the supervisee's performance and ways to improve it.[4 11 12] Critical to this contemporary conceptualisation is the goal of engaging the learner to enable feedback acceptance and use for improvement.[4 11 12]

Supervisors generally believe they provide adequate and frequent feedback to supervisees.[4 8 10 13 14] However, supervisees tend to view the feedback provided to them as inadequate in both quantity and quality.[4 7 8 10 13 14] Guidance for providing effective feedback is available in the literature, including specific models such as the Feedback Sandwich,[7 8] Pendleton's rules[6–8] and the ALOBA principles.[6] However, the extent to which such guidance is supported by empirical evidence

is not clear. In this study, we aimed to systematically and critically review the empirical evidence focusing on the provision of effective feedback in clinical supervision in postgraduate medical education. Our secondary aim was to identify the common and differentiating components of models and guidance relating to the provision of effective feedback in this context.

METHOD

We followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines[15] and registered the review protocol with PROSPERO.[16]

Eligibility criteria

We sought to identify empirical (qualitative and quantitative studies) and theoretical literature meeting the following criteria: 'Population' focus on medical practitioners receiving clinical supervision in postgraduate medical education contexts; 'Intervention' focus on models or guidance aiming to facilitate effective feedback; 'Outcome' focus was on whether feedback was 'effective', including improved supervisee behaviour, and the attitudes and beliefs of supervisors and supervisees. No 'Comparator' was defined as we anticipated that much of the available evidence would be uncontrolled. No exclusion criteria were defined, including the absence of language and year of publication restrictions.

Information sources

Following preliminary searches, JW conducted a formal search in the following databases: PubMed, EMBASE, PsycINFO, CINAHL and The Cochrane Library. The date of the final data extraction was 25 August 2019. We then identified additional sources including those arising from a review of the reference lists of the empirical articles assessed at the full-text level. The corresponding authors of all included empirical studies were contacted via email (where available) to identify additional and unpublished studies.

Search strategy

Details of the complete database search strategy are provided in online supplemental file 1. The final search string employed in the PubMed database illustrates the general approach: '(postgrad* OR trainee* OR doctor* OR physician* OR medical
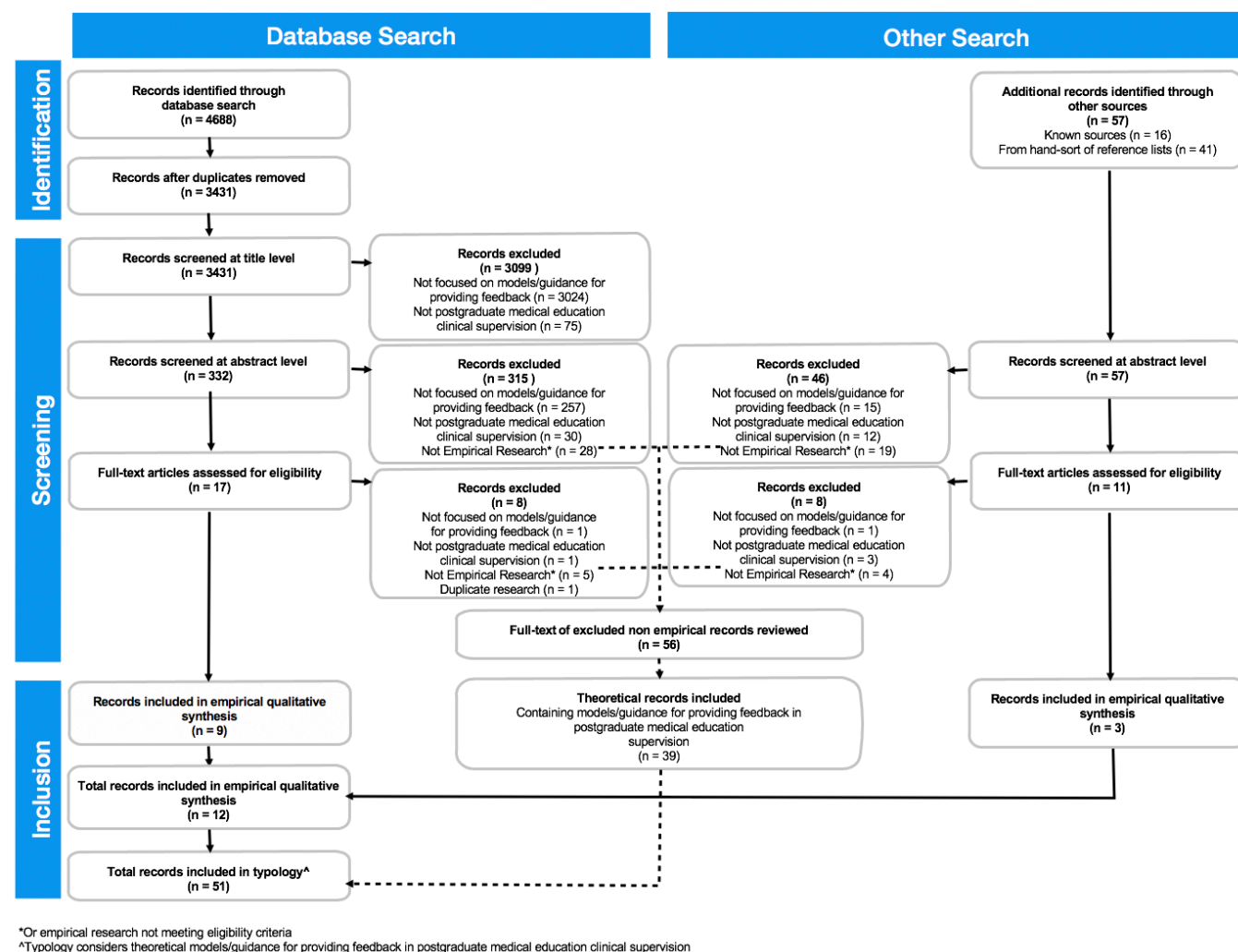
Figure 1 PRISMA flow diagram.

practitioner*) AND feedback AND (supervis* OR clinical teach*)'.

Study selection

The pathway for the identification, screening and inclusion of selected records is outlined in figure 1. JW sequentially imported all records into an EndNote X9 database, removed duplicate articles, and then screened the records at the Title and Abstract levels. The eligibility of all studies considered for inclusion at the Full-text level was completed independently by two authors (CR and JW), who resolved discrepancies by discussion to reach consensus.

Quality appraisal of empirical studies

Included empirical studies were assessed using the relevant Critical Appraisal Skills Program (CASP) checklist.[17] As no CASP checklist was available for studies employing a survey methodology, the relevant Center for Evidence-Based Management tool[18] was used for these studies. Two authors (CR and JW) independently completed checklists and subsequently applied a global quality rating of poor, fair or good. A third author (SP) reviewed these ratings, completed the checklists and ratings, and then resolved discrepancies by discussion with CR and JW to reach consensus. See online supplemental file 2 for the full completed checklists and ratings.

Data collection and synthesis

Empirical studies

Two authors (CR and JW) independently extracted data from the empirical papers; discrepancies were resolved by discussion with a third author (SP) to achieve consensus. Meta-analysis, statistical assessment of publication bias and sensitivity analysis were not appropriate given the lack of sufficient comparable studies.[19] We summarised data in tabular form, and narrative synthesis, with emphasis on the quality of included studies.

Feedback models and guidance

JW extracted data on models and guidance for effective and ineffective feedback from the theoretical and empirical papers. JW used qualitative content analysis[20 21] to identify key themes, principles, and components in the model and guidance descriptions relating to effective and ineffective feedback, and identified the available total sources recommending each and empirical support for these (see online supplemental file 3). CR then independently reviewed and verified this data extraction. We then synthesised principles of effective versus ineffective feedback into a summative table (see online supplemental file 4). JW reviewed models to identify the presence or absence of these effective components or principles (see online supplemental file 5). 'Core' components of models were defined as those represented in ≥50% of the included models, and 'common'

components were defined based on representation in ≥20% of the included models. We summarised common principles of effective versus ineffective feedback, defined as present in ≥20% of the literature, in tabular form. In addition, we drew together principles for providing effective feedback in the literature to create a feedback guidance figure.

RESULTS

Our search identified 4745 records, 51 of which were included in our review. Twelve of these presented empirical data. The PRISMA flow diagram presented in figure 1 summarises the identification, screening, exclusion and inclusion of records.

Empirical studies

Seven of the included empirical studies applied qualitative research methods, four were quantitative studies and one took a mixed-methods approach. See tables 1 and 2 for qualitative and quantitative studies, respectively. The mixed-methods study is subdivided between these tables. Only one randomised controlled trial (RCT) was identified. All other studies were uncontrolled, using methodologies rated as low on the hierarchy of evidence-based medicine.[22–24] Feedback effectiveness was predominantly measured by the perceptions of supervisees,[5 25–32] supervisors[29–32] and colleagues.[29] In one study, the assessment of feedback effectiveness was based the opinion of the authors.[33] Only one study directly explored the impact of feedback on supervisee performance.[34]

Qualitative studies

Of the eight qualitative studies (including the qualitative component of the mixed-methods study), half were assessed to be of 'poor' quality, three were of 'fair' quality and one was of 'good' quality. The 'poor' quality studies included two studies interviewing supervisees,[25 27] one narrative inquiry of supervisees regarding feedback events,[5] and an exploratory study of trainee and supervisor perspectives.[26] The 'fair' quality studies involved specific feedback models being applied and the authors analysing transcripts of feedback meetings and/or holding debriefing meetings with supervisors and supervisees.[30–32] The 'good' quality study analysed transcripts of feedback conversations, identifying the types of interactions occurring, including if these were one-way or two-way.[33]

Three studies examined specific feedback models. Two 'fair' quality qualitative studies examined the R2C2 model for feedback provision.[30 31] This model involves the following steps: (1) rapport and Relationship building, (2) exploring Reactions to feedback, (3) exploring understanding of feedback Content and (4) Coaching for performance change. Supervisors and supervisees described this approach as effective in facilitating supervisee engagement in feedback conversations,[30 31] and there was evidence of this feedback being used to plan performance improvement.[30] Supervisees also reported making progress relating to these performance plans.[30]

One 'fair' quality qualitative study examined the ECO (Emotions, Content, Outcome) model.[32] This approach involves initially addressing emotions, before clarifying content and then seeking outcomes. Positive overall perceptions of the model were described by both supervisors and supervisees. Supervisees reported acting on the identified areas for improvement. In addition, supervisors reported observing positive changes in supervisee practice.

The remaining five qualitative studies considered components or principles of effective feedback rather than comprehensive models for feedback provision. The components of effective feedback identified in these studies included creating a respectful friendly teaching climate, providing feedback regularly and in a timely manner, being specific, basing feedback on first-hand observations, being non-judgemental and developing an improvement plan. The majority of the evidence for principles in these studies was based on supervisee's perceptions, including the association of principles to feedback events perceived by recipients as helpful.

Quantitative studies

Of the five quantitative studies (including the quantitative component of the mixed-methods study), four were assessed to be of 'fair' quality and one was assessed as 'poor' quality'. The 'poor' quality study availability was limited to a conference abstract.[28] One of the 'fair' quality studies was a single-blinded RCT comparing metrics-based (ie, using a list of steps and errors) versus non-metrics feedback on performance in a specific ultrasound procedural task.[34] Participants receiving metrics-based feedback completed more steps and made fewer errors post-feedback than those in the non-metrics group.[34] One study reviewed the association between feedback and a documented action plan, which was limited by the analysis of forms rather than the complete interaction.[35] Another study examined multi-source feedback tools, finding general agreement that these are a good idea in principle, but also conflicting opinions between supervisors and supervisees about whether they lead to positive changes in behaviour and attitudes.[29] Another study compared feedback described by participants as 'helpful' and 'unhelpful', and involved participants identifying which specific techniques were present, on a rating scale.[5] Helpful feedback was associated with nine techniques including 'creating a respectful, friendly teaching climate' and 'being non-judgemental in approach'. Unhelpful feedback was associated with five techniques, namely, 'not eliciting participants thoughts/feelings before giving the feedback', 'offered no suggestions for improvement', 'not goal based', 'offering too much/too little feedback' and 'judgemental approach'.[5]

Feedback models in the literature

Twenty-one feedback models were identified, relating to effective feedback in clinical supervision (see online supplemental file 5). The 'core' components shared by most models (≥50%; ≥n = 10) were seeking the supervisee's self-assessment, commenting on area(s) for improvement, providing suggestions for improvement and developing an improvement plan. Other 'common' components shared by many models (≥20%–50%; ≥n=5) were establishing an educational alliance; reviewing supervisee objectives to guide focus; addressing the supervisee's self-assessment; content that is specific, behaviourally focused, refers to first-hand observations (wherever possible), and includes statements about what was done well; as well as exploring the supervisee's view of the feedback. No conflicting principles or components were identified between the models.

The feedback models were grouped into three types based on their emphases. Most models emphasised the structure of feedback (76%; n=16), for example, The Feedback Sandwich[7] and Pendleton's Rules.[36] Some models focused on content (33%; n=7), most of which overlapped with the structure-focused models (eg, The Chicago Model[7]) except one model (A Feedback model).[37] Some models were more supportive in focus (14%; n=3), for example, the R2C2 model[31] and COACH.[38] One model (Student/trainee-centred model[39]) was limited in

Table 1 Included qualitative empirical research studies

Study/timeframe*	Design/method	Question/focus	Context	Participants	Key findings/outcome	Quality†
Duitsman et al (2019)[33] 2015–2018	Qualitative: Conversation analysis of feedback meeting transcripts	Exploratory: ▲ Comparing unidirectional and dialogic feedback styles, including how often feedback conversations occurred 1-way or 2-way ▲ Goal of developing recommendations for improving feedback in resident training	The Netherlands ▲ General hospital ▲ University medical centre ▲ Multiple specialties (Internal medicine, Radiology, Surgery) ▲ Resident–programme director dyads	Supervisees: ▲ Residents, n=8, years 1–4 of specialist training Supervisors: ▲ Programme directors, n=8	▲ Uni-directional feedback (supervisor>supervisee) occurred most frequently, an approach that was viewed by authors as inconsistent with good feedback. Dialogic feedback occurred less often. With this approach, the supervisor invites the supervisee to introduce a topic, then seeks further elaboration, then engages the supervisee in a bi-directional conversation on the topic ▲ Mitigation of negative feedback evaluations or downplaying critical self-evaluations by supervisors and supervisees during feedback was pervasive	Good
Sargeant et al (2017)[31] ≤2017	Qualitative: Template analysis and content analysis of feedback meeting transcripts and debrief meetings	Exploratory: ▲ Explore experiences of the R2C2 (relationship, reaction, content, coaching) feedback model in real-world training ▲ Identify user perceptions of the benefits and limitations of this model	Canada ▲ Tertiary hospital (1 site) ▲ Internal Medicine and Paediatrics ▲ Resident–supervisor dyads engaged in ~7-day rotations	Supervisees: ▲ Residents, n=7 Supervisors: ▲ n=5, years of experience: <10 (n=2), 14 (n=2) and 26 (n=1)	▲ Supervisors and supervisees generally expressed support for the model, reporting it to be helpful in engaging residents with feedback. Participants identified the coaching phase as the most useful because it involved planning for specific action ▲ Residents appreciated the collaborative approach in working with supervisors ▲ Examples of supervisor language facilitating feedback were identified; these were generally open questions that invited the resident to reflect on their performance and seek their views on feedback given	Fair
Sargeant et al (2018)[30] 2014–2016	Qualitative: Supervisory dyads completed two feedback sessions 3–6 months apart. Semi-structured interviews were completed, and multiple qualitative analytic techniques‡ were applied to the transcripts	Exploratory: ▲ Explore perceptions of the effectiveness of the R2C2 feedback model in promoting engagement with and action for improvement in response to feedback ▲ Identify factors influencing the use and effectiveness of the model	International ▲ Canada, USA and the Netherlands ▲ 5 sites ▲ Family medicine, Psychiatry, Internal Medicine, Surgery and Anaesthetics ▲ Resident–supervisor dyads	Supervisees: ▲ Residents, n=45 Supervisors: ▲ n=21, <5–25 years' experience	▲ Most participants reported that the model facilitated supervisee engagement in reflective feedback conversations about assessment data, and the use of these data to plan improvement ▲ All participants valued the coaching phase; most participants reported the model's focus on 'getting better' facilitated collaboration in developing a valued action plan ▲ Half the participants did not review learning plan outcomes in the second feedback session, the half who did found this to be beneficial. Most of these residents reported progress related in their plan ▲ Key factors identified by authors as influencing the effective use of the model included a supportive resident–supervisor relationship and supervisor commitment	Fair

Continued

Table 1 Continued

Study/timeframe*	Design/method	Question/focus	Context	Participants	Key findings/outcome	Quality†
Saedon (2014) 2011[27]	Qualitative: Thematic analysis of semi-structured interview transcripts	Exploratory: ▲ Do trainees view supervisor feedback on their cataract surgeries as being provided, structured/formalised, and affecting their subsequent performance?	England ▲ Hospital (5 sites) ▲ Specialist training (Ophthalmology) Supervisors: 1 senior registrar and consultants ▲ Trainee–supervisor dyads	Supervisees: ▲ Trainees, n=12, years 1–7 of specialist training	▲ Most trainees (n=11/12) reported receiving feedback. All feedback recipients reported this affected their subsequent performance, with some descriptions of positive impact ▲ A key emerging theme relating to effective feedback was the importance of feedback specificity	Poor
Sargeant et al (2011) ≤2011[32]	Qualitative: Supervisors applied the ECO model with residents. Then thematic analysis of semi-structured interview transcripts was completed.	Exploratory: ▲ Examining trainee and trainer's perceptions of the acceptability, usefulness and impact of the ECO (Emotions, Content, Outcome) model for facilitating multi-source feedback	UK ▲ 2 sites ▲ General practice ▲ Trainee–supervisor dyads	Supervisees: ▲ Trainees, n=13, 3rd (final) year of training Supervisors: ▲ n=13, 3–24 years' experience	▲ Participants generally reported that the model was clear and easy to use. A few participants expressed concerns, noting that feedback that was general, only positive in nature or from a source with questionable authenticity had limited usefulness ▲ Participants valued exploring emotional reactions to feedback early in the session ▲ Most supervisees (9/13) reported acting on identified needs for learning and improvement. Generally, their supervisors reported observing changes in learning and practice ▲ Authors concluded that supervisees appreciated supervisor's openness, provision of opportunities to reflect and share their views, and that the most valuable learning experiences arose from feedback that surprised them (either positively or negatively)	Fair
Chur-Hansen et al (2006) ≤2006[26]	Qualitative: Analytical approach not specified	Exploratory: ▲ Explore trainee opinions of good vs poor supervisor ▲ Explore perspectives of supervisors on providing feedback	Australia ▲ Specialist training in Psychiatry, single training region ▲ Trainee–supervisor dyads	Supervisees: ▲ Trainees, n=15, across all year levels Supervisors: ▲ n=21	▲ Supervisee opinion: a recurrent, dominant theme was that an effective supervisor should provide regular, continuous feedback. Some trainees reported benefits of corrective feedback ▲ Supervisor opinion: concerns with providing feedback about damaging the relationship, confusion about role of supervisor, a lack of time and fear of legal action	Poor

Continued

Table 1 Continued

Study/timeframe*	Design/method	Question/focus	Context	Participants	Key findings/outcome	Quality†
Hewson et al (1998)§ ≤1998[5]	Qualitative: Narrative enquiry of written participant narratives of helpful and unhelpful feedback incidents occurring in a course setting	Exploratory: Identification of discrete feedback techniques associated with feedback perceived as helpful and unhelpful by the receiver	USA ▲ Continuing professional development for health professionals ▲ Course (1 site)¶ ▲ Feedback givers (n=25) were physicians and other** (health professionals and educators)	Supervisees: ▲ n=74, ~2/3 physicians+1/3 other** ▲ 74 'helpful' and 28 'unhelpful' feedback incidents	▲ Helpful feedback incidents were associated with techniques that conveyed support and care, were delivered gently and demonstrated concern to understand the receiver's position. Helpful feedback also included clear, accurate information about behaviour and specific suggestions for improvement ▲ A technique consistently associated with unhelpful feedback incidents involved not eliciting the receiver's ideas, feelings or goals. Other unhelpful techniques included feedback involving judgements, lectures or redundant information; delivery in an abusive/insulting manner or inappropriate (ie, public) place	Poor
Bing-You et al (1997) ≤1997[25]	Qualitative: Thematic analysis applied to semi-structured interview transcripts	Exploratory: ▲ Characterising resident's perspectives of what constitutes effective feedback ▲ Exploring resident's perceptions on sender characteristics that result in feedback being discounted	USA ▲ Hospital, single site ▲ Internal Medicine ▲ Resident-Sender (including attendings) dyads	Supervisees: ▲ Residents, n=12, postgraduate year 1–3	▲ Supervisees' perceptions of effective feedback included positive recognition, specificity, comparison with one's peers, developing an action plan, reliance on first-hand information, timely, non-judgemental, allowing a chance to respond, constructive, accompanied by explanations about the feedback given and delivered in private ▲ Feedback was discounted if the sender of feedback was perceived as untrustworthy or inexperienced, had poor interpersonal skills, had never observed them, seemed inattentive, and delivered feedback in a judgemental manner or group setting. Feedback was also tended to be discounted if its content focused on areas perceived as unimportant or did not coincide with a self-perceived 'known truth'	Poor

*Timeframe refers to the timeframe of data collection, when not specified this is listed as ≤ publication year.
†Full quality appraisal is available in online supplemental materials.
‡Content, thematic, template and cross-case analyses.
§Mixed-methods study (refer to table 2 for the quantitative component).
¶Short-course for improving teaching of the medical interview (included participants from ~60 medical institutions including 'a wide range of medical disciplines').
**Other=psychologists, social workers, nurses, public health specialists and educators.
††

Table 2 Included quantitative empirical research studies

Study/timeframe	Design/method	Question/focus	Context	Participants	Key findings/outcome	Quality†
Stevenson (2018)[28] ≤2018	Quantitative: Survey	Exploratory: ▲ Understanding trainees' opinions and perceptions of feedback experiences in training	UK ▲ 1 site ▲ Obstetrics and Gynaecology specialist training ▲ Trainee–supervisor dyads	Supervisees: ▲ Trainees, n=26, 64% ≥year 3 of training	▲ Most respondents reported feedback being delivered in an appropriate environment and described a preference for immediate feedback ▲ Less than half of respondents were happy with the amount of feedback they received; believed they received feedback regularly more than once per month; reported getting feedback consistently from the same supervisor; found structured workplace-based assessments to be a useful tool for feedback	Poor
Ahmed et al (2017)[34] ≤2017	Quantitative: RCT (single blind) comparing metrics-based and non-metrics-based feedback on the performance of an ultrasound task	Comparing metrics-based (list of steps and errors from an assessment tool) and non-metrics-based feedback on performance improvement (more steps and fewer errors) in an ultrasound task	Ireland ▲ Single hospital ▲ Anaesthetics specialist training (≤2 years) ▲ Resident–consultant dyads	Supervisees: ▲ Residents, n=12 Supervisors: ▲ Consultants, n=2	▲ Both groups demonstrated improvement following feedback provision ▲ Participants receiving metrics-based feedback completed more steps (median ($\tilde{x}$)=18.8 (IQR 18.5–20.0) vs $\tilde{x}$=14.3 (IQR 12.5–17.0), p=0.009) and made fewer errors ($\tilde{x}$=0.5 (IQR 0–1.0) vs $\tilde{x}$=1.5 (IQR 1.0–3.0), p=0.04) post-feedback than those in the non-metrics group ▲ No differences were present between the groups on scanning, procedure or feedback time	Fair
Pelgrim et al (2013)[35] 2009	Quantitative: Observational (cross-sectional) study of written supervisor feedback and supervisee reflection on adapted Mini-Clinical Examination (Mini-CEX) forms	Examining the hypotheses that documented specific trainer feedback and documented trainee reflection present a cumulative sequence, and that documented trainee reflection is associated with the documentation of an action plan	The Netherlands ▲ General Practice, community placement, assessments from multiple sites ▲ Trainee–supervisor dyads	Trainer–trainee pairs: ▲ n=400 forms from 50 trainer–trainee pairs ▲ Trainees were either in the 1st or 3rd year of GP training	▲ The following documented specific feedback/reflection patterns were present: no feedback/no reflection (32%); no feedback/specific reflection (2%); specific feedback/ no reflection (34%); specific feedback/specific reflection (32%) ▲ Forms with no feedback/no reflection had mean ($\bar{x}$)=0.25 action plan comments per form. Compared with this, forms with specific feedback (no reflections) had $\bar{x}$=0.33 (higher) action plan comments per form (effect size, ES=0.21) and pairs with both specific feedback and specific reflections had $\bar{x}$=1.02 (even higher) action plan comments per form (ES=1.71)	Fair
Burford et al (2010)[29] 2005–2006	Quantitative: Survey 5-point Likert scale ('strongly disagree' to 'strongly agree')	Compare perspectives of trainees and their feedback providers (colleagues and supervisors) of two Multi-Source Feedback (MSF) tools: the predominantly numerical mini-PAT (Mini-Peer Assessment Tool) and the mainly textual TAB (Team Assessment of Behaviour)	England ▲ 1–9 sites (unclear), 'different specialties' ▲ Resident–colleague–supervisor triad	Supervisees: ▲ Post-graduate year (PGY) 1 trainees, n=249 Colleagues: ▲ n=829 Supervisors: ▲ Clinical and non-clinical supervisors, n=161	▲ Participants in all groups for both forms responded positively to the statement that 'MSF is a good idea in principle' ▲ Colleagues generally viewed MSF using both tools as leading to positive changes in supervisees' behaviour and/ or attitudes ▲ Supervisors viewed MSF using the TAB tool as leading to positive changes in supervisees' behaviour and/or attitudes. However, supervisors did not agree that MSF using the mini-PAT tool led to change in supervisees and rated neutrally ▲ Supervisees disagreed that they changed/will change relationships with patients, colleagues or teaching/training skills after the feedback ▲ Supervisees, supervisors and colleagues viewed text comments as more useful for providing feedback than numerical ratings ($t_{(873)}$=10.88, p<0.001)	Fair

Continued

Table 2 Continued

Study/timeframe	Design/method	Question/focus	Context	Participants	Key findings/outcome	Quality†
Hewson et al (1998)‡ ≤1998[5]	Quantitative: Survey—self-rating of narratives of helpful/unhelpful feedback incidents using a semantic differential scale based on recommended feedback techniques	Are techniques for giving feedback recommended in the literature substantiated in a naturalistic setting?	USA ▲ Continuing professional development for health professionals ▲ Course (1 site)§ ▲ Feedback givers (n=25) were physicians and other¶ (health professionals and educators)	Supervisees: ▲ n=74, ~2/3 physicians and 1/3 other¶ ▲ Participants identified 74 'helpful' and 28 'unhelpful' feedback incidents	▲ Helpful feedback incidents were all variably associated with the 9 recommended feedback techniques. The highest rated technique was 'given based on observations', followed by 'creating a respectful, friendly teaching climate' and 'being non-judgemental in approach'. Other techniques were focusing on behaviours, basing on specifics, giving right amount, suggesting ideas for improvement, basing on well-defined negotiated goals and eliciting thoughts and feelings before giving feedback ▲ Unhelpful feedback incidents were associated with of 5/9 non-recommended techniques: 'not eliciting participants thoughts/feeling before giving the feedback', 'offered no suggestions for improvement', 'not goal based', 'offering too much/too little feedback' and 'judgemental approach'. Unhelpful incidents were associated with only 1/9 recommended techniques—'feedback based on observations'	Fair

*Timeframe refers to the timeframe of data collection, when not specified this is listed as ≤publication year.
†Appraisal is available in online supplemental materials.
‡Mixed-methods study (refer to table 1 for the qualitative component).
§Course for improving teaching of the medical interview (included participants from ~60 medical institutions including 'a wide range of medical disciplines').
¶Other=psychologists, social workers, nurses, public health specialists and educators.

Table 3 Common* principles of effective and ineffective feedback in clinical supervision

Effective feedback is…		Ineffective feedback is…
Given in the context of an educational alliance	↔	Delivered in a disrespectful or threatening climate
Provided in a timely manner after performance	↔	Provided in an untimely manner
Seeking the supervisee's self-assessment first	↔	Not eliciting the supervisee's self-assessment
Stating what was done well and areas for improvement	↔	Only focused on positive or negative aspects
Providing suggestions for improvement	↔	Not providing suggestions for improvement
Specific	↔	Making generalisations
Based on first-hand observations	↔	Focused on hearsay or inference
Focused on behaviour	↔	Focused on personality
Descriptive in language	↔	Judgemental or evaluative language
Provided as actionable amounts of information	↔	Excessive or scarce in the amount of information
Exploring the supervisee's view of feedback	↔	Assuming the supervisee's view of feedback
Developing an action plan for improvement	↔	Not linked to a plan for future action

*Principles identified in ≥20% of the identified literature sources (ie, ≥10/51) are included in this table.

detail and was unable to be classified into the aforementioned subgroups.

Only two (10%) of the feedback models had been subjected to and supported by empirical research: the R2C2 and the ECO models. The R2C2 and ECO models contained 75% (n=3) and 50% (n=2) of the core principles identified respectively. These models each contained 37.5% (n=3) of the remaining common features identified across the models.
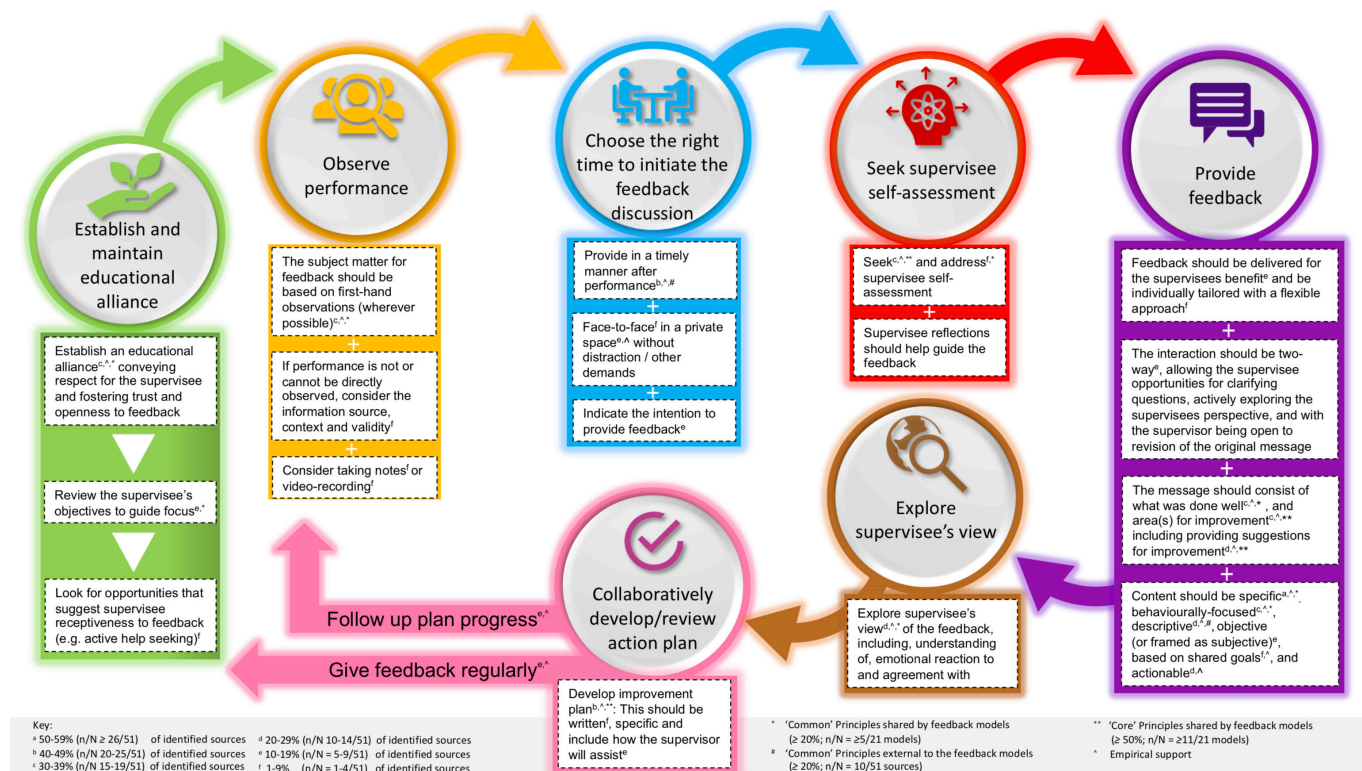
Principles of effective and ineffective feedback

A diverse array of principles of effective and ineffective feedback, in clinical supervision, were identified. The common principles of effective and ineffective feedback present in ≥20% (n=10) of the literature are summarised in table 3 (see also online supplemental digital content 4). Empirical support was available for each of these, the majority of which was from empirical studies that we assessed to be of fair quality. The most frequently cited principle of effective feedback was 'being specific'.

Most of the common principles of effective feedback were consistent with the core and common components of the models for providing feedback. However, two of the common principles of effective feedback did not emerge as common components of the feedback models, these being providing feedback in a timely manner and use of descriptive rather than judgemental language. Furthermore, two of the principles of effective feedback were not identified in any of the feedback models: giving feedback regularly and face-to-face.

Guidance and principles in the literature conflicted in relation to the importance of evaluative statements. Numerous sources emphasised the importance of the supervisor using non-evaluative language[6 7 36 37 40 41]; it has been suggested that this aims to reduce supervisee defensiveness, aiding learning and improvement.[41] However, two papers recommended linking feedback to performance standards[4 42] so supervisees can clearly identify any gaps.[4] One paper emphasised considering linking feedback to standards or grades if this will motivate the supervisee, but avoiding comparison with standards if it is likely to be disheartening (and to instead focus on striving for personal excellence).[10]

Establish and maintain educational alliance

Establish an educational alliance[c,^,*] conveying respect for the supervisee and fostering trust and openness to feedback

Review the supervisee's objectives to guide focus[e,^]

Look for opportunities that suggest supervisee receptiveness to feedback (e.g. active help seeking)[f]

Observe performance

The subject matter for feedback should be based on first-hand observations (wherever possible)[c,^,*]

If performance is not or cannot be directly observed, consider the information source, context and validity[f]

Consider taking notes[f] or video-recording[f]

Choose the right time to initiate the feedback discussion

Provide in a timely manner after performance[b,^,#]

Face-to-face[e,^] in a private space[e,^] without distraction / other demands

Indicate the intention to provide feedback[e]

Seek supervisee self-assessment

Seek[c,^,**] and address[f,*] supervisee self-assessment

Supervisee reflections[e] should help guide the feedback

Provide feedback

Feedback should be delivered for the supervisees benefit[e] and be individually tailored with a flexible approach[f]

The interaction should be two-way[e], allowing the supervisee opportunities for clarifying questions, actively exploring the supervisees perspective, and with the supervisor being open to revision of the original message

The message should consist of what was done well[c,^,*], and area(s) for improvement[c,^,**] including providing suggestions for improvement[d,^,**]

Content should be specific[a,^,*], behaviourally-focused[c,^,*], descriptive[d,^,#], objective (or framed as subjective)[e], based on shared goals[f,^], and actionable[d,^]

Explore supervisee's view

Explore supervisee's view[d,^] of the feedback, including, understanding of, emotional reaction to and agreement with

Collaboratively develop/review action plan

Develop improvement plan[b,^,*]: This should be written[f], specific and include how the supervisor will assist[e]

Follow up plan progress[e,^]

Give feedback regularly[e,^]

Key:
a 50-59% (n/N ≥ 26/51) of identified sources
b 40-49% (n/N 20-25/51) of identified sources
c 30-39% (n/N 15-19/51) of identified sources
d 20-29% (n/N 10-14/51) of identified sources
e 10-19% (n/N 5-9/51) of identified sources
f 1-9% (n/N 1-4/51) of identified sources

* 'Common' Principles shared by feedback models (≥ 20%; n/N ≥25/21 models)
\# 'Common' Principles external to the feedback models (≥ 20%; n/N = 10/51 sources)
** 'Core' Principles shared by feedback models (≥ 50%; n/N =≥11/21 models)
^ Empirical support

Figure 2 Composite guidance for supervisors providing feedback in clinical supervision.

Composite model for providing effective feedback

We created a composite model synthesising the guidance for providing effective feedback in clinical supervision identified in the literature (see figure 2). This model includes all core and common components and principles shared by the feedback models, as well as additional common principles of effective feedback external to the models. The composite model details the extent to which the included features are represented in the literature and those with empirical support identified. The collaborative nature of feedback is emphasised, with a focus on the importance of an educational alliance, seeking supervisee input at multiple stages and adapting the feedback accordingly. The model also highlights the importance of first-hand observations, being specific and developing an improvement plan. Our model is more comprehensive compared with existing models, with a broader focus encompassing structural, content-based and supportive aspects.

DISCUSSION

Many models for providing effective feedback in clinical supervision in postgraduate medical education are available. However, limited models (10%) have been subjected to empirical evaluation and there is no evidence relating to their comparative effectiveness. Reassuringly, there is a general consistency between the feedback models, which share a number of core and common components. In addition, alignment was identified between these components and the commonly described principles of effective feedback in the broader literature. All of the commonly identified feedback principles have some evidence, mostly from empirical studies that were assessed to be fair in quality. Through identifying the common components of feedback models and principles of effective feedback, we have generated a composite model for delivering effective feedback in clinical supervision. It is anticipated that this model will be of practical relevance to clinical supervisors and organisations responsible for implementing postgraduate training in medicine and other clinical disciplines.

A key aspect of delivering effective feedback in clinical supervision is the importance of the relationship between the supervisor and supervisee. Groundwork by the supervisor to establish an educational alliance, then individually tailoring and delivering feedback in a manner that maintains this alliance is critical. Taking a supportive and collaborative approach is expected to increase the likelihood of the supervisee viewing the feedback as valid and relevant, and acting on this information. Effective feedback is not about just delivering a message; it involves facilitating a conversation to collaboratively understand the supervisee's performance and find ways to enhance it.

Many papers reviewed did not clearly state whether the feedback guidance related to formal or informal feedback, nor if the purpose was formative or summative.[5 27 37 38] Some of the papers stated that the guidance related to both informal and formal feedback,[4 6 41] and others made reference to both formative and summative feedback.[13 30 42] A few papers specifically emphasised formative feedback,[7 26 35] and some had a focus on formal formative assessment.[36] While some papers referenced summative feedback, feedback itself was conceptualised by others as always being formative, differentiated from evaluation which was viewed as being the summative component.[40 43] In practice, there may be a continuum, rather than dichotomy, between informal and formal feedback, and formative and summative feedback, and their integration with assessment.[8 30] We believe that the principles and composite model in this review are likely applicable to all feedback interactions in clinical supervision generally, including brief informal formative feedback, formal formative feedback such as with workplace-based assessments, and with feedback accompanying summative assessments. As included in the composite model, a flexible approach is recommended,

tailoring feedback with emphasis of model elements dependent on the individual, the relationship and the context.

Limitations of the existing literature

Confidence in the guidance and principles of effective feedback in clinical supervision is impacted by limitations in the quantity and quality of the empirical evidence. A key consideration is how 'effective feedback' has been defined and measured. The most common approach to measuring 'effective' feedback is to evaluate the subjective views of supervisees and supervisors. While these perspectives are important, they do not directly measure the supervisee's professional development and performance improvement, which is the principal goal of feedback.[4 10] A more direct measure of feedback effectiveness may be a desired change in the supervisee's behaviour, attitudes or knowledge.

However, focusing primarily on change in behaviour as an outcome measure of effective feedback may be both challenging and problematic. If a supervisor does not explore the supervisee's perspectives, there is a risk of misidentifying the supervisee's learning needs.[44] In addition, focusing on feedback material or outcomes lacking relevance to the supervisee may diminish their confidence and trust in the supervision.[44] Feedback can be harmful to supervisees[4 8]; dissatisfaction can drive demotivation,[8] performance deterioration,[8 11] disengagement from learning and evaluation,[45] and reluctance to share self-assessments.[43] For these reasons, behaviour change may not be a sufficient measure in isolation to determine feedback effectiveness. Pragmatically, satisfaction with feedback may be easier to measure compared with other outcomes.[46]

Perceptions of supervisors and supervisees can greatly affect the extent to which feedback contributes to meaningful learning.[47] If a supervisee perceives feedback as relevant, they will more likely accept and act on it. Analogous to the importance of therapeutic alliance in determining treatment outcomes, the educational alliance from the supervisee's perspective may profoundly impact the effectiveness of a supervisor's feedback.[11] Effective feedback in clinical supervision needs to be individually tailored and delivered in a manner that maintains the educational alliance.

Future research should work to overcome the limitations in the existing literature. Optimal measurement of feedback effectiveness likely requires dual consideration of improvement (behaviour, attitudes and knowledge) and supervisee satisfaction. Another aspect of feedback worthy of further consideration is the impact of evaluative language on effective feedback, including whether this can be further subcategorised and studied, given the conflicting literature[4 6 7 36 37 40–42 44] and that it is challenging to avoid, given the dual evaluator role of many supervisors.[48 49] Literature on providing effective feedback in other contexts could be reviewed for comparison to review if any discrepancies or additions exist.

Broader considerations

The guidance for providing effective feedback identified in this review may be supplemented by consideration of broader supervision frameworks. A competency-based clinical supervision model was developed to enhance the effectiveness of supervision in the field of psychology.[50] This highlights the importance of a supervisor's development of and demonstration of competence in clinical supervision.[50] Psychometric tools can be used for supervisee's evaluation of the educational alliance[51] and of supervisory competence.[52] In addition, supervisors can undergo assessment of competence by peers or 'supervision experts' to supplement supervisee evaluation,[52] for example, by having video recordings of supervision sessions reviewed.[52] Supervisor competency-based frameworks may be valuable in achieving, maintaining, optimising and evaluating supervisor's competence in providing effective feedback in postgraduate medicine.

Guidance for providing feedback may be useful, alongside other frameworks. However, in order to provide effective feedback, many ultimately rely on a supervisor's attitudes, values, motivation and commitment to providing high-quality supervision.[50]

Limitations

Our systematic review was limited in scope to postgraduate medical education and clinically oriented databases. The review did not consider evidence about effective feedback in supervision from undergraduate medical education, non-medical clinical disciplines and non-clinical professions. Our specific focus on postgraduate medical education allows for a comprehensive understanding of the literature in this context; however, it also limits the generalisability of the findings and the ability to learn from evidence about supervision effectiveness in other settings.

The model components and feedback principles identified through the review emerged from qualitative content analysis across diverse sources. In organising these data, conceptual overlap was present across various headings; for example, the principle of 'providing suggestions for improvement' overlaps with 'commenting on area(s) for improvement' and 'developing an action plan for improvement'. We accepted such overlaps to avoid over-emphasising the support in the literature for select principles and to avoid oversimplifying feedback provision.

The review focuses on the actions of the supervisor within the supervisory dyad, and does not consider the supervisee's role in effective supervisory relationships[3] and receiving feedback.[48] Supervisee engagement, receptiveness and responsiveness to feedback may impact on the effectiveness of feedback. Likewise, cultural factors in hospitals and health services can impact on supervision feedback effectiveness.[3 43 48] In addition, in some postgraduate medical education settings, clinical supervisors occupy multiple additional conflicting roles, including being the supervisees line manager and assessor.[48 49] Such conflicting roles may add complexity and impact on the flexibility of the approach to supervision that can be undertaken and feedback effectiveness.[48] For instance, using non-evaluative language and avoiding links to performance standards may be challenging when supervisor has an appointed dual role as an evaluator. In addition, dual supervisory roles may lead to supervisees questioning whether feedback is being provided for their benefit or to satisfy other agendas.[11] When conflicting roles are unaddressed, it can lead to a rupture in the educational alliance

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Main messages

► The evidence supporting guidance for feedback provision was limited, with only 10% of feedback models subjected to empirical research and most studies low on the hierarchy of evidence-based medicine.

► There was evidence from studies assessed as 'fair' in quality to support all the common principles of effective feedback provision.

► There is general agreement about the principles of effective and ineffective feedback.

► A comprehensive model is presented synthesising the guidance for providing effective feedback in clinical supervision.

and limit a supervisee's openness to disclosing areas they would benefit from improvement in.[49]

CONCLUSION

There is limited empirical evidence available to support specific models and guidance for providing effective feedback in clinical supervision in postgraduate medical education. However, there is some evidence for all of the commonly identified principles for providing effective feedback. Further research in the multifaceted and complex field of effective feedback is needed, including exploring optimal measures of effective feedback that combine behavioural change with evaluation of the perspectives of supervisees. It is reassuring that there is general agreement in the literature about the principles of effective and ineffective feedback. We envisage that the principles outlined in our composite model emerging from this review will be of practical assistance to supervisors in working collaboratively with supervisees to deliver feedback effectively.

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Current research questions

► Higher quality studies measuring feedback effectiveness would be of benefit. Optimal measurement likely requires dual consideration of improvement (eg, behaviour) and supervisee satisfaction.
► The impact of evaluation on effective feedback is worthy of further consideration.
► It would be worthwhile reviewing the literature on providing effective feedback in other contexts for comparison, to explore if any discrepancies or additions exist.

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Self-assessment questions

True or False?
1. The most frequently cited principle for provision of effective feedback, in the literature reviewed, was being specific.
2. A component of effective feedback is exploring a supervisee's view of the feedback, including their understanding of, emotional reaction to and agreement with.
3. This review found evidence to support all the commonly identified principles of effective feedback provision.
4. There is evidence to support establishing an educational alliance with a supervisee in order to provide effective feedback.
5. Evidence was identified in this review that an action plan for improvement should be in a written format.

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Answers

1. True
2. True
3. True
4. True
5. False