

Evaluation of a tool to improve the quality of preceptor written feedback for family medicine residents: training and use of a CanMEDS-MF competency-based criterion guide

Améliorer la qualité de la rétroaction écrite des précepteurs pour les résidents en médecine familiale : Évaluation de formations et utilisation d'un guide critérié basé sur les compétences CanMEDS-Médecine Familiale

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Abstract

Background: Written feedback is essential in resident teaching, but preceptors are not always well equipped to provide relevant feedback. The purpose of this study was to evaluate the effectiveness of multi-episodic training and the use of a criterion-referenced guide for written feedback for family medicine preceptors in a French-language academic hospital.

Method: Twenty-three (23) preceptors participated in the training and used the criterion-referenced guide to guide them during the written evaluation in an evaluation sheet named "Field Notes." The content of these Field Notes was analyzed according to completion, the rate of specific feedback, and the rate of feedback by CanMEDS-MF role before and after the training over a three-month period.

Results: Based on the analysis of the Field Notes ($n = 70$ pre-test; $n = 138$ post-test), an increase in the percentage of completion (50% vs. 92%, $z = 2.97$, $p = 0.0030$) and specific feedback (59% vs. 92%, $z = 2.47$, $p = 0.0137$) was noted. There was no significant increase in feedback by CanMEDS-MF role.

Conclusions: The development of multi-episodic training and a criterion-referenced guide, created according to the CanMEDS-MF repository, suggests an improvement in comprehensive and specific written feedback in family medicine education.

Résumé

Contexte : La rétroaction écrite est primordiale dans l'enseignement aux résidents, mais les précepteurs ne sont pas toujours outillés pour offrir une rétroaction pertinente. Cette étude visait à évaluer l'efficacité de formations multiépisodiques et l'utilisation d'un guide critérié pour les rétroactions écrites des précepteurs en médecine familiale d'un centre hospitalier académique francophone.

Méthode : Vingt-trois (23) précepteurs ont participé aux formations et ont utilisé le guide critérié pour les guider lors de l'évaluation écrite dans une fiche évaluative nommée « feuille de route ». Le contenu de ces feuilles de route a été analysé selon la complétion, le taux de rétroactions spécifiques et le taux de rétroactions par rôle CanMEDS-MF avant et après les formations sur une période de trois mois.

Résultats : Selon l'analyse des feuilles de route ($n=70$ prétest ; $n=138$ posttest), une augmentation du pourcentage de complétion (40% vs 92%, $z=3.51$, $p=0.0005$) et de rétroactions spécifiques (59% vs 92%, $z=2.47$, $p=0.0137$) fut notée. Il n'y avait aucune augmentation significative quant aux rétroactions par rôle CanMEDS-MF.

Conclusions : L'élaboration de formations multiépisodiques et d'un guide critérié, créés selon le référentiel CanMEDS-MF, suggère une amélioration de rétroactions écrites complètes et spécifiques en éducation de la médecine familiale.

Introduction

Written feedback is an essential element in teaching residents, but preceptors are not always equipped to provide relevant feedback.¹ Family medicine residency programs are aligned with a CanMEDS-Family Medicine (CanMEDS-FM) 2017 seven-competency framework to address patient needs, developed by the College of Family Physicians of Canada.² Its integration is based on a formative evaluation that promotes residents' professional development³, but also depends on quality feedback, which remains a challenge for preceptors.^{4,1}

In the Montfort unit of the University of Ottawa, we have observed a lack of quality feedback, which is often absent or non-specific. Yet relevant feedback allows for the development of competent and independent clinicians^{1,5-7} by: clarifying expected performance; providing specific information on progress; encouraging the learner with constructive comments; identifying and explaining difficulties; offering solutions to achieve expected performance.⁸⁻¹¹ However, the literature remains limited on the tools available to support preceptors in this function.¹²

To address these gaps, we hypothesized that preceptors need tools developed according to the CanMEDS-FM competencies, including preconstructed sentences to facilitate writing. We developed a criterion-referenced guide, then trained preceptors to focus their comments according to this guide using an evaluation sheet (field note). This study evaluates the effectiveness of multi-episodic training and the use of the criterion-referenced guide for written feedback among family medicine preceptors. The goal is to expand the use of this model to all the department's units if it is valid.

Method

This article was written according to the standards and guidelines of *Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0)*¹³ and *Standards for Quality Improvement Reporting Excellence in Education (SQUIRE-EDU)*.¹⁴

REB submission and review

The project was submitted to the Montfort Hospital Research Ethics Board (August 13, 2020). Ethics approval was not deemed necessary (File No. 20-21-06-016). During the team meetings, interested participants reviewed the project details and their involvement based on written informed consent.

Study design

The target population, made up of 32 preceptors in the Montfort unit of the University of Ottawa Family Medicine Residency Program, was invited by email and at team meetings. Data collection was carried out for three months from June 1 to September 30, 2020 (pre-test), then three months after the intervention (post-test) from January 1 to March 31, 2021.

Volunteer preceptors, from novice to highly experienced, participated in a series of four monthly one-hour training sessions (October 2020 to January 2021), for which they received compensation of \$150. The trainings were organized in discussion groups and followed an initial presentation of the tool by a moderator, also an experienced preceptor in the Montfort unit, who had participated in designing the educational tool.

The training sessions focused on understanding the CanMEDS-FM² framework and relevant feedback according to the educational tool, a criterion-referenced guide previously developed by the research team (Appendix A, Table 3). Preceptors were put in the situation of writing quality feedback based on their own evaluations noted in the previous month. Then, their feedback was recorded on new interactions over the next few months using a field note (Appendix A, Image 1) for the roles of Communicator, Collaborator, Expert, Professional, Health Advocate, Scholar and Leader based on in-office observations made during patient/resident encounters. The content of these field notes was extracted for analysis. This field note has been in use throughout the department since 2013. We note that previous trainings took place in 2013-2014 when field notes were introduced and primarily described the CanMEDS-FM roles and not how to write feedback.

Sample size

The required sample size was not calculated a priori. The convenience sample included 23 preceptors who had participated in training. However, it was not possible to get more than 16 of the 23 participants to perform the pre-test. We explain this discrepancy by the fact that many are not diligent in completing the field notes in a timely manner and some new preceptors had not yet been exposed to this function. We also believe that our trainings motivated people to complete the field notes, but it is impossible to subtract the data of the 7 additional post-test participants because the data were anonymised as per the consent to participate. The analysis was continued with this limitation in mind.

Outcome measures

Analysis of the field notes content, carried out by a member of the research team and reviewed for consensus by a second, was based on the primary outcome measures describing their completion and the quality of feedback. The field notes were classified according to complete and adequate use including a performance level evaluation and additional written feedback on the observable roles; incomplete use with no feedback for the observable roles; inadequate use not corresponding to the educational tool. The quality of feedback was classified as specific (personalized to the resident's performance with examples or constructive criticism), non-specific (not personalized and using, for example, a CanMEDS-FM framework citation with no preceptor feedback) or absent. The feedback rate was then recorded by CanMEDS-FM role as a secondary outcome measure.

Data analysis

An independent repeated measures analysis was carried out between the pre-test and post-test using the two proportion Z-test with Excel software (Excel 2018, Microsoft Corporation) following an accounting of rates by percentage.

Results

We collected 70 pre-test field notes from 16 preceptors and 138 post-test field notes from 23 preceptors. The primary outcome measures (Table 1) and secondary outcome measure (Table 2) are analyzed using the p value as a significant difference ($p < 0.05$).

Table 1. Comparison of field notes completion and feedback rates

Field notes completion (%)					
	Pre (n = 70)	Post (n = 138)	Difference	Z Score	P Value
Adequate and completed field notes	40%	92%	52.00%	3.51	0.0005
Incomplete field notes	32%	6%	-26.00%	-2.14	0.0321
Inadequate field notes	28%	2%	-26.00%	-2.40	0.0163
Field notes with specific written feedback	59%	92%	33.00%	2.47	0.0137
Field notes with non-specific written feedback	28%	3%	-25.00%	-2.26	0.0235
Field notes with no written feedback	13%	5%	-8.00%	-0.89	0.3726

Table 2. Comparison of written feedback by CanMEDS-FM role according to number of comments (n).

Written feedback from completed field notes by CanMEDS-FM role (%)					
	Pre (n = 214)	Post (n = 268)	Difference	Z score	P value
Communicator	25.2%	36.6%	11.40%	0.75	0.4525
Collaborator	11.7%	4.9%	-6.80%	-0.78	0.4330
Expert	33.2%	37.3%	4.10%	0.26	0.7925
Health advocate	9.8%	6.3%	-3.50%	-0.40	0.6874
Leader	2.8%	1.5%	-1.30%	-0.28	0.7772
Professional	12.6%	10.4%	-2.20%	-0.21	0.8310
Scholar	4.7%	3%	-1.70%	-0.28	0.7820

Discussion

This study supports the hypothesis that preceptors need tools to improve feedback given in written form.¹⁵ Evidence shows that a clear understanding and elaboration of competencies facilitates specific and concise written feedback^{9,10,15} which we observe by the increase in complete field notes (40% vs 92%, $z = 3.51$, $p = 0.0005$) and specific feedback (59% vs 92%, $z = 2.47$, $p = 0.0137$). Preceptors expressed an active commitment for a tool allowing them to better focus their comments in the absence of training since 2015. Despite lower participation ($n = 23$) than a minimum sample ($n = 30$) for a confidence interval, we are certain that the results would be similar with higher participation considering the level of engagement observed. We also believe, from their enthusiasm, that compensation is not essential and that the tool would find takers without specific remuneration.

In contrast, we note a variability in feedback rates by CanMEDS-FM role during the study with greater popularity for communication and expertise. This variability is observed in other comparable studies where communication often sees the most improvement.^{16,17} It is argued that the variability is partly due to the recent operationalization of certain concepts in medical education including collaboration, leadership and professionalism.¹⁶ Some roles, including professionalism, are difficult to implement, as educational tools are influenced by a limited and dated curriculum for the teaching of professional commitment.¹⁸

In the context of this study, we add that it is difficult to evaluate collaboration, leadership, and scholarship in a practice setting. Communication and expertise are more applicable to numerous contexts during the residency program. However, despite the fact that equal use of the

competencies is questionable¹⁶, all CanMEDS-FM roles are essential to patient needs.^{16,17} The analysis of the field notes makes it possible to identify educational gaps¹⁸ and the ongoing need for training¹⁷, as well as the need to expand the tool's applicability to different clinical settings to reach a greater number of these roles.

Limitations

This study has certain limitations including its implementation during the pandemic. With preceptor burnout and health restrictions, the number of pre-test participants was lower and less than 30 for a confidence interval, impacting the validity of the results over a short period. We can only hypothesize that educational tools lead to an improvement. However, it is also possible that gradual preceptor burnout minimized the impact of the intervention on certain outcomes by discouraging their participation. And, the results do not include the residents' perspective, creating a bias in perceived improvement.

Further study of educational tools has the potential for better understanding in the use of the CanMEDS-FM framework. There is an opportunity to validate the tools with preceptors and residents in order to implement their use in medical education in a longitudinal study in all units of the department.

Conclusion

The development of multi-episodic training and a criterion-referenced guide, created according to the CanMEDS-FM framework, suggests an improvement in complete and specific written feedback by preceptors. Further studies are needed to validate these tools in family medicine and medical education.

Conflicts of Interest: No conflicts of interest to declare.

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Appendix A

Table 3. Extract from the criterion-referenced guide and example of the Communicator role, listening ability.

Not independent	Partially independent	Independent
Requires constant supervision	Requires moderate supervision	Requires minimal supervision
You demonstrate inattention to the information provided by the patient, because:	You inconsistently demonstrate the ability to pay adequate attention to the patient, because:	You spontaneously demonstrate the ability to pay adequate attention to the patient, because:
You do not focus on the information the patient gives you.	You adequately listen to the patient's responses and pick up on non-verbal cues, but you do not adapt your assessment to this new information.	You actively listen to the patient, and you pick up on their non-verbal cues in order to adapt your assessment.
You do not pick up on the patient's non-verbal cues.		

Image 1. Overview of an evaluation roadmap sheet

Unité postnatale

81 et plus

Date de l'entretien clinique :
2017/10/23

Superviseur - Description de l'interaction pédagogique (p. ex., problème du patient, PAS de nom) :

L'annonce d'une mauvaise nouvelle, soit la trouvaille de lésions hépatiques tout vraisemblablement des métastases d'un néo du sein en rémission depuis 6 ans. Gérer les émotions de la patiente et du conjoint.

Domaine du programme d'études :

- Soins à la mère et au nouveau-né [+/-]
- Soins aux enfants et adolescents
- Soins aux adultes
 - Santé de la femme [+/-]
 - Soins aux personnes âgées
 - Soins Palliatifs [+/-]
 - Médecine comportementale et santé mentale
 - Habiletés techniques [+/-]

Autre domaine :

- Médecine factuelle
- Éthique
- Critères [+/-]
- Phases de la rencontre clinique [+/-]
- 99 sujets prioritaires [+/-]

[+/-] 2. Type d'observation

Échange verbal (aucune observation)
 Observation directe
 Observation d'un examen complet
 Observation d'une habileté technique complète
 Réalisation d'un accouchement complet

[+/-] 3. Commentaires du résident/superviseur

Superviseur - Ce qui a été bien fait :

A bien pris le temps de bien expliquer les trouvailles. A rassuré la Pte et son conjoint que le suivi approprié est en cours, a bien expliqué les différentes étapes qui viendront sous peu. A bien vérifié la compréhension de la Pte et de son conjoint.

CanMEDS-MF :

- Communicateur
- Collaborateur
- Expert en MF
- Promoteur de la santé
- Gestionnaire
- Professionnel
- Érudit

Dimensions de la compétence :

- Aptitude au raisonnement clinique
- Compétences en communication
- Approche centrée sur le patient
- Professionnalisme
- Habiletés techniques
- Sélectivité

Superviseur - Ce qui aurait pu se faire autrement (point à travailler) :

Ne pas avoir peur des silences, encourager capte, qui parlait peu, à verbaliser ses émotions.

CanMEDS-MF :

- Communicateur
- Collaborateur

Dimensions de la compétence :

- Aptitude au raisonnement clinique
- Compétences en communication