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Competency-structured case discussion in the morning meeting: enhancing CanMEDS integration in daily practice

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Abstract: Outcome-focused, competency-based educational curricula have become the norm in residency training programs. The Canadian Medical Education Directives for Specialists (CanMEDS) framework is one example of such a curriculum. However, models for incorporating all the competencies in everyday clinical practice have been difficult to accomplish. In this manuscript, a CanMEDS, competency-structured, acute case discussion in a regular morning meeting was undertaken. All the diagnostic and therapeutic interventions were explicitly organized and discussed under their respective CanMEDS competency headings. Post exercise, the majority of residents felt that they were more competent in all the competencies and indicated their willingness to continue having similarly structured acute case discussions in the future.

Keywords: CanMEDS roles, residents, morning meeting

Introduction

Outcome-based educational curricula in postgraduate medical training have emphasized the necessity for specific competencies that are indispensable for a highly skilled, patient-, society-, and population-responsive medical practitioner.^{1,2} The Canadian Medical Education Directives for Specialists (CanMEDS) framework (Table 1) is an excellent example of such a program.^{1,2} It explicitly states that for a practicing physician to be fully competent, he/she must be proficient in seven domains of knowledge and skill. These so-called meta-competencies include competencies as a medical expert, communicator, collaborator, scholar, advocate, manager, and professional. However, details of generic models to allow for a flawless incorporation of all of these competencies in a physician's practice everyday are not always explicitly outlined. Novel, friendly strategies to train staff in all these competencies are very much needed.

In this manuscript, the authors propose a model for incorporating all the above competencies in a discussion of a classic, morning meeting, internal medicine, acute case scenario. The CanMEDS competencies are used as headings for organizing and structuring the discussion with the trainees. The authors hope that with frequent similar presentations and discussions, the trainees would seamlessly incorporate these competencies in their thought process and management outputs. Unlike several other attempts in practical CanMEDS training, all rather than single competencies/roles are emphasized at the same time, thereby providing a more holistic approach to their practical, one-patient implementation.³⁻⁵

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Table 1 The CanMEDS competencies

CanMEDS role	Description
Medical expert	"Demonstrate diagnostic and therapeutic skills for ethical and effective patient care, access and apply relevant information to clinical practice and demonstrate effective consultation services with respect to patient care, education and legal opinions"
Communicator	"Obtain and synthesize relevant history from patients/families/communities, listen effectively and discuss appropriate information with patients/families and the health care team"
Collaborator	"The physician must consult effectively with other physicians and health care professionals and contribute effectively to other interdisciplinary activities"
Scholar	"Develop, implement and monitor and professional continuing education strategy, critically appraise sources of medical information, facilitate learning of patients, house staff/students and other health professionals and contribute to the development of new knowledge"
Advocate	"Identify the important determinants of health affecting patients, contribute effectively to improved health of patients and communities and recognize and respond to those issues where advocacy is appropriate"
Manager	"Utilize resources effectively to balance patient care, learning needs and outside activities, allocate finite health care resources wisely, work effectively and efficiently in a health care organization and utilize information technology to optimize patient care, life-long learning and other activities"
Professional	"Deliver the highest quality of care with integrity, honesty and compassion, exhibit appropriate personal and interpersonal professional behaviors and practice medicine ethically consistent with obligations of a physician"

Abbreviation: CanMEDS, Canadian Medical Education Directives for Specialists.

Materials and methods

The setting

The Medicine Residency Training Program in our institution is the largest of its kind in the Kingdom of Saudi Arabia. The program has officially endorsed and is actively engaged in implementing the CanMEDS framework as its theoretical basis in drafting a competency-based, outcome-focused educational curriculum. In addition to a competency-based morning meeting discussion format (presented in this paper), other activities include regular CanMEDS competency awareness talks, CanMEDS Resident's champions program, CanMEDS-structured topic presentations, and CanMEDS-structured ward rounds.⁶

The exercise

A true case scenario (a patient with an exacerbation of chronic obstructive airways disease, COPD) was presented to the residents in their morning meeting. Prior to the

meeting, the moderator (the primary author with input from the other authors) prepared in a written document the issues for discussion from evidence-based resources (such as the GOLD Guidelines for COPD Care and the institute's integrated Care Clinical Pathway for COPD exacerbations) and grouped them under the CanMEDS headings.^{7,8} Points pertinent to the diagnosis and treatment relevant to the CanMEDS headings are explicitly highlighted as such during the discussion. Similarly, immediate management steps and details of all future care inputs related to the case are thereafter discussed under their CanMEDS headings. Care inputs that encompass multiple competency-inputs/headings are collectively emphasized as such. During the exercise, residents were asked to suggest specific actions related to a particular competency or alternatively were requested to specify the competency category to which an action belongs.

Assessment tool

A short Likert-scale-based questionnaire was delivered to the residents immediately post exercise (Table 2). Its objectives were to gauge the residents' understanding of the competencies as well as their acceptance of this new method of case discussion and their willingness to continue having similar exercises in the future.

The case scenario

A 78-year-old female known to suffer from obesity, diabetes, hypertension, and heart failure with preserved ejection fraction and COPD on home oxygen was admitted overnight with increasing breathlessness and orthopnea. She had four admissions over the last 12 months for COPD exacerbation with one intensive care unit admission without intubation. Her daily activity is limited to moving from bed to her couch and to the bathroom because of shortness of breath. There was no change in the character of her sputum although she felt that she is coughing more and is bringing up a larger amount of a viscid, white sputum. She denied any history of fever and increased lower limb swelling, chest pain, or palpitation. Systemic review was unremarkable. The patient is compliant to medication and home nebulizers. She is an ex-smoker. She had never received any influenza or pneumococcal vaccination.

On physical examination, she had a temperature of 37.7°C; pulse rate 103; regular, blood pressure 103/58; O₂ saturation of 98% on Venturi mask; FiO₂ 40%; and respiratory rate 29/minute. No lymphadenopathy, no thyroid mass, and no throat congestion were observed, and jugular venous pressure was

Table 2 Post-CanMEDS-structured morning meeting questionnaire

Last 4 digits of mobile no:

Grade: R1 ☐ R2 ☐ R3 ☐ R4 ☐

Compared to your understanding of the CanMEDS roles on a patient with COPD exacerbation prior to this session:

Question	Agree	Neither agree or disagree/neutral	Disagree
1. You previously had a good idea on how to apply <u>all</u> the CanMEDS competencies in such a patient			
2. You previously had a good idea on how to apply <u>some</u> of the CanMEDS competencies in such a patient			
3. You are now more competent in the Medical Expert Role			
4. Mention one new interesting knowledge on the Medical Expert role:.....			
5. You are now more competent in the Collaborator Role			
Mention one new interesting knowledge on the Collaborator role:.....			
6. You are now more competent in the Scholar Role			
7. Mention one new interesting knowledge on the Scholar role:.....			
8. You are now more competent in the Health Advocate Role			
9. Mention one new interesting knowledge on the Advocate role:.....			
10. You are now more competent in the Manager Role			
11. Mention one new interesting knowledge on the Manager role:.....			
12. You are now more competent in the Communicator Role			
13. Mention one new interesting knowledge on the Communicator role:.....			
14. You are now more competent in the Professional Role			
15. Mention one new interesting knowledge on the Professional role:.....			
A CanMEDS-structured case discussion improves my skills in caring for my patients			
This method of case presentation should be continued			

Abbreviations: CanMEDS, Canadian Medical Education Directives for Specialists; COPD, chronic obstructive airways disease; R, year of residence.

not raised. Chest examination showed a barrel chest with decreased breath sounds bilaterally and coarse crackles over the bases with wheezes. Lower limbs edema was present.

CanMEDS-guided approach to manage a patient with a COPD exacerbation

Examples of some issues that were discussed during the exercise were brought to the attention of the residents (Table 3).

Statistics

Descriptive statistics of the demographic data was generated. In addition, the percentage of respondents who agree, are neutral, or disagree was calculated for each question.

Results

Twenty residents (8 R1; 4 R2; R3, R4 each) took part in the CanMEDS-structured morning meeting case discussion (Table 4).

Only 45% of residents indicated that they had a good idea of all the CanMEDS competencies and 65% indicated that they had at least a partial understanding of these skills prior to this meeting. Seventy to ninety percent of residents indicated that the exercise improved their knowledge in these competencies: A total of 70% of residents felt that they became more competent in the manager role, 75% felt in the collaborator and professional roles, 80% felt in the medical expert role, 85% felt in the scholar role, and 90% felt in the advocate and communicator roles. Eighty percent were agreeable that this method of case discussion may help them give better care to their patients. Eighty-five percent indicated that this format of case discussion in the morning meeting should continue. An example of each competency was documented by residents as follows: professional role 13 residents (65%), medical expert role 14 residents (70%), communicator and advocacy roles 15 residents (75%), collaborator and manager roles 16 residents (80%), and scholar role 17 residents (85%). Examples given by residents on

Table 3 Examples of CanMEDS-guided approach to manage a patient with a COPD exacerbation

CanMEDS role	Examples
Medical expert	<ul style="list-style-type: none"> • This patient has multiple comorbidities. As a medical expert how would you guarantee a holistic approach to her care? • What are the criteria for diagnosing an exacerbation in patients with COPD? • How may one classify the causes of COPD exacerbations? • How may a physician assess an exacerbation to determine severity and site of care? • What investigations are necessary in the hospital? • How would you decide that a particular patient needs to be on controlled-oxygen therapy? • What are the limitations of using pulse oximetry in assessing oxygenation in patients with relatively advanced COPD and smokers? • How is a COPD acute exacerbation managed? • What is the prognosis for patients with an exacerbation? • How may one assess the risk for re-hospitalization in a patient with COPD?
Communicator	<ul style="list-style-type: none"> • Proper/comprehensive H&P and develop rapport and trust • Consultation skills • Breaking bad-news • Living will/end-of-life care
Collaborator	<ul style="list-style-type: none"> • Respiratory physicians • Pulmonary educators • Physiotherapists/respiratory therapists • Social worker • COPD specialist nurse • Smoking cessation service • Dietitian
Scholar	<ul style="list-style-type: none"> • How do you access the guidelines for COPD/stay-up-to-date? • What are the sensitivity, specificity, and likelihood ratios for symptoms, signs, and tests used to differentiate between left ventricular failure (pulmonary edema) and COPD exacerbation in such a patient? • What is the number needed to treat (NNT) for LTOT? • What is the prognostic magnitude of smoking cessation in COPD?
Advocate	<ul style="list-style-type: none"> • Patient education: disease, treatment, inhaler devices skills, trigger avoidance, travel, etc • Deep venous thrombosis prophylaxis • Smoking cessation • Social, psychological, occupational, and financial support • Influenza and pneumococcal vaccination • Self-management plan, when to seek medical care • COPD alert card (for patients with previous episode of CO₂ narcosis) • Screening for osteoporosis • Screening for obstructive sleep apnea • Screening for depression • Membership of patient societies • Consideration of home oxygen • Arranging for follow-up • Referral to pulmonary rehabilitation service • Local and national campaigns: educational, antismoking, etc.
Manager	<ul style="list-style-type: none"> • How do you streamline and improve the quality of care for patients with COPD exacerbation? • How do you expedite the discharge process for patients with COPD? • How do you reduce readmission rates for this patient? • Quality indicators/audit of COPD care • Economic comparisons of various interventions
Professional	<p>Ethical issues:</p> <ul style="list-style-type: none"> • Intubation or not • Patient using unorthodox treatments • Refusing steroid therapy • Requesting therapy that is not recommended, eg, alpha-1 antitrypsin replacement therapy

Abbreviations: CanMEDS, Canadian Medical Education Directives for Specialists; COPD, chronic obstructive airways disease; H&P, history and physical examination; NNT, number need to treat; LTOT, long-term oxygen therapy; CO₂, carbon dioxide.

Table 4 Results of post-exercise questionnaire

	Agree (%)	Neutral (%)	Disagree (%)
Good prior understanding of all CanMEDS roles	9 (45)	Nil	11 (55)
Good prior understanding of some CanMEDS roles	13 (65)	3 (15)	4 (20)
Post-exercise improved competency of medical expert role	16 (80)	2 (10)	2 (10)
Post-exercise improved competency of communicator role	18 (90)	2 (10)	Nil
Post-exercise improved competency of scholar role	17 (85)	2 (10)	1 (5)
Post-exercise improved competency of advocate role	18 (90)	2 (10)	Nil
Post-exercise improved competency of collaborator role	15 (75)	4 (20)	1 (5)
Post-exercise improved competency of professional role	15 (75)	2 (10)	3 (15)
Post-exercise improved competency of manager role	14 (70)	4 (20)	2 (10)
CanMEDS-structured case discussion improves my skills in caring for my patients	16 (80)	4 (20)	Nil
This method of case presentation should be continued	17 (85)	2 (10)	1 (5)

Abbreviation: CanMEDS, Canadian Medical Education Directives for Specialists.

two competencies (scholar and advocate roles) are shown in Table 5.

Discussion

Training on all the CanMEDS competencies has always been a challenge to clinical training programs.^{10,11} It may not be practical or feasible, eg, because of time constraints, that the above competency and subcompetency issues related to COPD are all fully discussed in one morning meeting session,

eg, how to teach or critically appraise an article on COPD. In our exercise, the morning meeting lasted around 60 minutes compared to our usual meeting of around 45 minutes. Touching on all the competencies, however, is essential for comprehensive competency training. It is hoped that this format of case discussion will complement other activities essential for outcome-based training such as our regular journal club exercises, communication and ethical dilemmas case discussions, competency-structured topic presentations, residents' committee membership, etc. Our initial residents' feedback on this structured presentation along the CanMEDS competencies was positive. The majority of the residents indicated that their understanding of each competency was better after the exercise. This was confirmed by their ability to correctly quote specific interventions related to these competencies. The fact that they managed to appropriately quote interventions related to the advocacy role, a competency recognized to be difficult to train on was a further proof of the effectiveness of the exercise. We are currently preparing for a formal study to more scientifically gauge residents' benefit (in vivo) from such presentations. Additionally, and in collaboration with the institute's CanMEDS office, specific assessment tools for all the competencies are being introduced to test residents' individual understanding and application of these concepts. In conclusion, one is able to confirm that the CanMEDS framework for competency-based training is a powerful tool for an outcome-focused clinical residents' education. Novel models for explicitly and flawlessly incorporating all the CanMEDS competencies in the routine thought process and practice of trainees are needed. Structuring acute case presentations in the morning meeting along the CanMEDS competency headings as we have shown may assist in realizing the above goal.

Table 5 Residents' input on the scholar and advocate roles

Scholar role	Number	%	Advocate role	Number	%
Staying up-to-date	5	29.4	Referral to home health care	2	13.3
Evidence-based medicine in COPD	1	5.9	Providing home oxygen	1	6.7
Educating residents	1	5.9	Referral to pulmonary service	2	13.3
Educating patients on COPD	1	5.9	Referral to pulmonary rehabilitation	1	6.7
Educating patients on how to use medications	1	5.9	Screening for systemic complications (depression)	2	13.3
New evidence in treatment	1	5.9	Providing a self-management plan	2	13.3
Likelihood ratio	1	5.9	Advice on smoking cessation	1	6.7
NNT	2	11.6	Dealing with social needs	1	6.7
NNT for home oxygen therapy	2	11.6	Vaccination	2	13.3
Role of azithromycin	1	5.9	Vaccination and social services	1	6.7
Searching for COPD treatment guidelines	1	5.9			
Total number answering	17	85	Total number answering	15	75

Abbreviations: COPD, chronic obstructive airways disease; NNT, number need to treat.

Disclosure

IS Hassan is a consultant internist/pulmonologist and chairman of the CanMEDS Syllabus Review Subcommittee; H Krury and L Al Ansari are R3 and R1 residents, respectively; A Al-Khathami is a consultant neurologist and chairman of the Medicine Residency Training Program; M Al Qahtani is a consultant internist, head of Division of Internal Medicine, and deputy chairman of the Medicine Residency Training Program; H Al Jahdali is a consultant pulmonologist, head of Pulmonary Division, and deputy chairman of the Department of Medicine; T Al Anazi is a consultant internist and member of the CanMEDS Syllabus Review Subcommittee; M Farooqui is a consultant nephrologist and member of the CanMEDS Syllabus Review Subcommittee.

All authors are members of the Department of Medicine, King Abdulaziz Medical City, Riyadh, Kingdom of Saudi Arabia. The authors report no other conflicts of interest.

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