Appendix 1 - 2019 CAEP Academic Symposium - Outcomes

CAEP Competency Based Medical Education Consensus Conference - Outcome Survey

Thank you for taking part in our Consensus Conference activity. Our group comprises of Drs. Teresa Chan, Brent Thoma, Quinten Paterson, Andrew Hall, Fareen Zaver, Alexandra Stefan, Rob Woods, and Stan Hamstra. For our consensus conference track, we have been charged with identifying how learning analytics can bridge the gap between education and emergency care.

In our track, we will be focusing on determining what EDUCATIONAL or CLINICAL outcomes may be useful to measure as we enter into the era of competency-based medical education. Specifically, we would like your help to develop recommendations on linking educational outcomes and clinical practice.

WHY WE NEED YOUR HELP
We are specifically focused on developing recommendations for linking education outcomes and clinical practice and we know your input as a (medical educator, quality improvement expert, EM leader, or resident physician) will be of great value to this process.

WHAT WE WANT YOU TO DO
We plan to do this by asking you to read 3 vignettes that we have developed and stating any learning or clinical outcomes that come to mind. No outcome is too big or too small. They can range from "Number of EPAs achieved" to "Decreased College Complaints from graduates in their careers post graduation".

You will note that the reason why we are asking you to be part of this is that we do not know the RIGHT OUTCOMES for us to measure for evaluating the outcomes of CBME, and that is actually why we are asking you to participate. In the following few pages, we will begin by describing common scenario, and we invite you to help us brainstorm to come up with some outcomes that come to mind.

We will ask you to name some clinical and education outcomes. For clarity:

1. EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

2. CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Thank you for working on this with us on this! We feel that the outcomes from this will be informative to our specialty as we go forward.

MAKE SURE TO CLICK TO THE END AND SUBMIT, or else your answers will not be entered. You will be able to edit your answer after, so just click submit if you want to save a partial response.

* Required

1. **Do you understand and agree to participate as one of our key informants?**
   Mark only one oval.

   ◯ Yes (you will be able to ask to be acknowledged for your contributions at the end of the survey)

   ◯ No *Stop filling out this form.*

Initial thoughts

If you have some thoughts on outcomes we could measure, please share them below. If not, click on to see the vignettes that might help you think through the outcomes. Don't worry, you will have ample opportunity to give us free-form answers near the end of this survey.

2. **OPTIONAL - Before we use the vignettes to prompt you, we would like you to tell us what you think is/are the most important EDUCATIONAL OUTCOME(S) that we should measure in the age of competency-based medical education (CBME).**
   Please name NO MORE THAN 3 outcomes. Examples of educational outcomes might include things like exam pass rates, rotations repeated, number of EPAs achieved, etc..

3. **OPTIONAL - Also, we would like you to tell us what you think is/are the most important CLINICAL OUTCOME(S) that we should measure in the age of competency-based medical education (CBME).**
   Please name NO MORE THAN 3 outcomes. Examples of educational outcomes might include things like patient complaints received, rate of ROSC for out of hospital cardiac arrest.

Vignettes: An Introduction

You will encounter a series of vignettes that will come up in 3 sections.

Micro - where the story will start out centring on a specific resident and his/her situation.
Meso - where the story expands beyond a single resident.
Macro - where the story expands to consider the larger healthcare and education systems.

After each part of the vignette, you will be asked to name clinical or education outcomes that you think of when you review each part of the case.

Again, for reference:

1. EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

2. CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

You will be able to travel back and forth between the Vignettes if the 2nd or 3rd story inspires you to think of other relevant outcomes.

Vignette 1

Michael is an EM trainee who has trouble on his 4-week Obstetrics rotation.

Part 1 - Micro

Michael does this rotation in late PGY1. He knows he is a bit shy around new people, and finds that new rotations often make it difficult for him to find his voice and ask for EPAs to be completed for him.

Unfortunately, by the end of 4-weeks, he only completed three observed deliveries which is less than the expected five deliveries with competency.

He was jokingly told by his Ob/Gyne attending one night that he seemed to always draw patients who ended up with C-sections…. and Michael reflects on how being at a high risk obstetrics rotation may have contributed to that. It was a phenomenal learning experience, however, as he dealt with multiple pre-eclamptic cases including one patient with full eclampsia who developed magnesium toxicity! But he only half-delivered 3 babies, and because of the presence of junior PGY2 Ob/Gyne learners, did not do any of his own vaginal repairs or manage retained products.

Moreover, due to the unit culture, Michael perceives that there may be some gender bias as he notes other female EM residents being able to achieve more deliveries. He even overheard one nurse encourage the patient to request a female trainee since she was “available.”

As ED deliveries are an uncommon event, it is important that he attain competence in this skill in a controlled setting to ensure future ED deliveries are well done. He is worried that he won’t be competent to help with ED deliveries should they occur.

4. **1.1.1 Based on the above story, what are possible EDUCATIONAL outcomes that come to mind that would be worth measuring?**
   EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

5. **1.1.2 Based on the above story, what are possible CLINICAL outcomes that come to mind that would be worth measuring?**
   CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 2 - Meso

Given the above, Michael's Competency Committee plans for him to gain additional Obstetrical experiences. They assign him to do this in and around his “Core” period in PGY2.

Scheduling Michael to complete an additional Obstetrical rotation becomes difficult, as the service becomes overbooked, and there are so many trainees that the other first year residents start to worry that they may find themselves in Michael’s situation. Regional sites are available, though this comes at a cost and inconvenience to Michael as this means either a 1.5 hour commute each way, or renting two apartments for a rotation. Michael worries that he does not have the resources to do this.

The EM program director and the Obs/Gyne program director are trying to find solutions, but their relationship is becoming strained under the weight of needing “sign offs” on EM trainee EPAs. The postgraduate dean has become involved to mediate this situation.

When asked to plan his senior elective rotations, he is asked to use one of his electives to essentially “re do” his Obs/Gyne rotation. As such, he is drawn away from other elective opportunities and he seems to be failing to progress through “Core” (more senior) EPAs.

6. **1.2.1 What other possible EDUCATIONAL outcomes should we measure?**
   EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

7. **1.2.2 What other possible CLINICAL outcomes should we measure?**
   CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 3 - Macro

Due in part to these difficulties, Michael’s residency completion will be delayed by 1-2 months. His experience does not seem atypical across the country with multiple trainees having similar experiences due to decreasing delivery numbers at many centres.

The extra time away during his senior years resulted in some trouble re-entering to EM, and Michael missed out on an extra block of electives when he was planning to explore ICU fellowship opportunities. He also feels like he is not as “ready” as his peers to enter the final Transition to Practice phase and supervise trainees in the years below. Some of them were even on rotation with him when he did his second obstetrics rotation, and as such, he feels like they are more his peers. He becomes uncomfortable functioning as a senior when they overlap shifts.

This results in delays in his fellowship application cycle. He is fearful he may not be able to attain a fellowship position in critical care, since it is highly competitive, and he worries that the repeated obstetrics experience reads like a remediation block. He is worried that fellowship selection committees will find his

electives concerning or confusing.

Additionally, the repeated rotation disrupts his Transition to Practice year where he had been hoping to spend more time completing some ED Quality Improvement projects.

8. **1.3.1 What other possible EDUCATIONAL outcomes should we measure?**
   EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

9. **1.3.2 What other possible CLINICAL outcomes should we measure?**
   CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

10. **Would you like to save your progress and submit for now and return later?** *
    Mark only one oval.

    ◯ SAVE & RETURN - I want to save, and come back later. (YOU MUST SUBMIT THE FORM and follow instructions to do this) *Stop filling out this form.*

    ◯ PROCEED - I would like to proceed on to next section.

Vignette 2

Fatima, a PGY-3 EM resident on senior cardiology rotation, is an IMG who did her medical training in Australia and worked as a senior registrar for 2 years. She moved to Canada for family reasons.

Part 1 - Micro

Fatima is an outstanding resident. She found the EM rotations up to this point fairly easy. She is open minded and a keen learner. Despite having a lot of practice experience she always feels she has a lot to learn from her supervising staff. She has been achieving her EPAs without difficulty.

On her cardiology rotation the staff and fellow have noticed Fatima is very capable in managing patients on her own so they often give her more independence. At times Fatima worries that she is getting less supervision than other trainees and wonders if this is a missed learning opportunity. She was quite keen on improving her echo skills but since the fellow always goes home early when she is on she has not had many opportunities to be observed.

Patients seem to really like her. One of the families of an elderly patient who needed a pacemaker

commented on her excellent care and made a donation to the hospital. Additionally, she seems to see more patients quicker than the rest of her cohort.

11. **2.1.1 Based on the above story, what are possible EDUCATIONAL outcomes that come to mind that would be worth measuring?**

    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

12. **2.1.2 Based on the above story, what are possible CLINICAL outcomes that come to mind that would be worth measuring?**

    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 2 - Meso

Despite concerns that she is collecting less EPAs than others in her cohort, her Competency Committee has reviewed her glowing assessments and she has been progressing quickly through residency. Little time is spent on her file and Fatima does not feel like she is receiving helpful feedback on what she should be focusing on.

She is interested in developing subspecialty expertise in the area of international health and wonders if, since she is doing so well, she might be able to have additional elective rotations devoted to this.

Her Competency Committee is supportive of this plan. However, her local PGME office and the academic emergency departments are concerned that this will leave them short on some of her senior rotations. In addition to disrupting service delivery, they are concerned that the junior residents will not benefit from a senior resident to teach them.

13. **2.2.1 What other possible EDUCATIONAL outcomes should we measure?**
    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

14. **2.2.2 What other possible CLINICAL outcomes should we measure?**
    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 3 - Macro

Nationally, there are concerns that residents spending more time on elective rotations than their core rotations due to their rapid progress through the CBD program, service needs are being impacted and junior residents are not benefiting from teaching from their seniors.

At the same time, the Specialty Committee has noted a decrease in the number of residents pursuing formal subspecialty training following their emergency medicine residencies. There are concerns that the progress that emergency medicine had been making in these areas may be impacted due to a lack of subspecialists to push these areas forward.

15. **2.3.1 What other possible EDUCATION outcomes should we measure?**
    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

16. **2.3.2 What other possible CLINICAL outcomes should we measure?**
    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

17. **Would you like to save your progress and submit for now and return later?** *
    Mark only one oval.

    - SAVE & RETURN - I want to save, and come back later. (YOU MUST SUBMIT THE FORM and follow instructions to do this) *Stop filling out this form.*
    - PROCEED - I would like to proceed on to next section.
    - TAKE ME BACK TO VIGNETTE 1 *Skip to question 4.*

Feel free to jump back to vignette 1 if you were inspired by this story to think of new ideas for outcomes for the case in the previous story (Mike the PGY1).

Vignette 3

Jenn is a senior resident who trained in a regional (rural) program and did most of her EM training in a community hospital setting.

Part 1 - Micro

After residency, Jenn accepted a job in a large tertiary care academic hospital. Jenn's rural/regional program did not frequently have medical students and the senior residents did not often get to teach junior residents. While she received some teaching on how to teach students, she acquired little experience managing multiple learners in a busy clinical environment.

Despite winning an award for her clinical skills as a resident, Jenn is intimidated to transitioning to a larger hospital, and the thought of adding multiple learners to her workload makes her feel even more nervous.

18. **3.1.1 Based on the above story, what are possible EDUCATIONAL outcomes that come to mind that would be worth measuring?**
    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

19. **3.1.2 Based on the above story, what are possible CLINICAL outcomes that come to mind that would be worth measuring?**
    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 2 - Meso

Multiple residents within Jenn's program have brought similar concerns to their program director.

The program director recognizes both the advantages and the limitations of their rural training program, but has struggled to find solutions. Historically it has been difficult for the program to acquire rotations at academic centres that would allow for increased experience supervising junior learners.

The program director recognizes that the program has not prioritized “teaching and managing learners” as an expected competency. She is able to integrate lectures on residents as teachers into the academic day to teach the skills necessary to supervise and balance a busy clinical environment with teaching learners.

20. **3.2.1 What other possible EDUCATIONAL outcomes should we measure?**
    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

21. **3.2.2 What other possible CLINICAL outcomes should we measure?**
    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

Part 3 - Macro

The Program Director recognizes that they cannot tackle all of this on their own and brings up these concerns at the specialty committee meeting. The committee chair wonders if the residency competencies are aligned with the skills required at all ultimate practice locations and settings.

The specialty committee sets out to define the competencies of graduating trainees from a variety of settings to understand if the graduate's competencies represent the needs of the potential populations and practicing environments served.

22. **3.3.1 What other possible EDUCATIONAL outcomes should we measure?**
    EDUCATIONAL OUTCOME: would be something that impacts on the trainee or the learning environment of that trainee (e.g. there is an accumulation of senior residents who have not passed the PGY4 exams, or there will be increased use of simulation and therefore decreased budget for other things). Again, this can be measured NOW or LATER.

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23. **3.3.2 What other possible CLINICAL outcomes should we measure?**
    CLINICAL OUTCOME: would be an outcome that directly impacts on patient care (e.g. rate of ROSC for out of hospital cardiac arrest, or decreased complaints about physician communication) and can be either measured NOW or LATER.

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24. **Would you like to save your progress and submit for now and return later?** *
    Mark only one oval.

    - ◯ SAVE & RETURN - I want to save, and come back later. *Stop filling out this form.*
    - ◯ CONTINUE - I have 5 min to finish the survey
    - ◯ TAKE ME BACK TO VIGNETTE 1 *Skip to question 4.*
    - ◯ TAKE ME BACK TO VIGNETTE 2 *Skip to question 11.*

Feel free to jump back to vignette 1 or 2 if you were inspired by this story to think of new ideas for outcomes for the case in the previous story (Mike the PGY1; Fatima the PGY3).

4. Other outcomes

25. **4.1 Are there any other educational outcomes that you think we should include that you have not already listed?**

26. **4.1 Are there any other clinical outcomes that you think we should include that you have not already listed?**

27. **4.2 Are there any considerations you think we should bear in mind that might modify the outcomes of a trainee? (e.g. prior training, etc..)**

28. **Would you like to save your progress and submit for now and return later?** *
    Mark only one oval.
    - SAVE & RETURN - I want to save, and come back later. *Stop filling out this form.*
    - PROCEED - I would like to proceed on to next section.

5. Demographics

Tell us a bit about yourself so we can describe who participated in this activity for our consensus conference attendees.

29. **5.1a Country/Region of Present Practice**
    Mark only one oval.
    - Canada
    - USA
    - UK
    - Australasia (NZ, Australia, Asia)
    - Europe
    - Other

30. **5.1b If you indicated your country of origin was "Other", please write your country below:**

_____

31. **5.2 Do you hold one or more of the following roles?** *

Please check all that apply.
Check all that apply.

- [ ] CAEP Symposium Panel Member
- [ ] Program Director
- [ ] Associate/Assistant Program Director
- [ ] Competency Committee Chair
- [ ] Competency-based medical education lead
- [ ] Faculty Development lead/director
- [ ] Other: _____

32. **5.3 What certification(s) do you hold?** *

Please check all that apply.
Check all that apply.

- [ ] CCFP-EM trainee
- [ ] FRCPC Emerg Med Trainee
- [ ] CCFP or General Practice license
- [ ] CCFP-EM
- [ ] FRCPC (Emerg Med)
- [ ] FRCPC (Peds Medicine)
- [ ] Additional clinical fellowships (e.g. ICU)
- [ ] AFC diploma (DRCPSC, e.g. Clinician Educator)
- [ ] Masters of Education (MEd or MHPE or MSc in education or health professions education)
- [ ] PhD in clinical research or sciences
- [ ] PhD in education or PhD currently working in health professions educator
- [ ] Other: _____

33. **5.4 How many years have you been a medical educator?** *

Please check all that apply.
Mark only one oval.

- ◯ I am still a trainee
- ◯ < 5 years
- ◯ 5-10 year
- ◯ 10-15 years
- ◯ >15 years

34. **5.5 Which of the following traditional measures of performance should we continue to measure as we move forward in the age of CBME?** *

Please check all that apply.
Check all that apply.

- [ ] None
- [ ] Certification Exam Pass Rates (e.g. Royal College or CCFP-EM exam pass rates)
- [ ] Other licensing exam pass rates (e.g. LMCC1/2, etc..)
- [ ] In-training exams - Short answer format (e.g. CITE)
- [ ] In-training exams - Multiple choice format (e.g. ABEM)
- [ ] Mock oral exam performance
- [ ] Workplace-based assessments (e.g. Daily encounter cards or Entrustable Professional Activities)
- [ ] Feedback from patients (including formal compliments or complaints)
- [ ] End of Rotation reports & In-Training Evaluations/Assessments of Training (ITERs/ITARs)
- [ ] Other: _____

35. **If you would like to be acknowledged for your contributions to this symposium, please put your name, affiliation, and email below.**

e.g. Teresa M. Chan, McMaster University, teresa.chan@medportal. ca

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