Predicting Board Certification Examination Scores using Milestone Ratings in a Longitudinal Dataset

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ABSTRACT

Background: A positive correlation of high-stakes certification examination (CE) with medical knowledge (MK) milestones may provide validity evidence for the milestone approach to assessment. Similarly, weaker associations between non-MK milestones and CE would indicate discriminant validity for milestones assessment. This study determined whether (a) an MK subcompetency judgment in physical medicine and rehabilitation (PMR) correlated with CE scores and (b) if non-MK subcompetencies were related less strongly to the same CE.

Summary of Work: We examined longitudinal national milestones data for 207 residents (88.8% of residents eligible for the CE) (2014-16 cohort). They received four milestone assessments by graduation in June 2016. They subsequently took the Part I CE of the American Board of PMR in 2016 or 2017; this exam has item reliability of 0.99 and tests a single MK construct. At each milestone review occasion, Part I scaled score (200-800 points) was regressed on each subcompetency (levels 0-5) using a Generalized Estimating Equation model to account for nesting within program. Bonferroni corrections were used to adjust for 19 subcompetency comparisons.

Summary of Results: The MK subcompetency was positively correlated with Part I for all four milestone review occasions (all p-values < 0.003). The MK subcompetency regression slopes indicated a one-level difference in milestone rating equated to 38- to 60-point differences on Part I score performance. One practice-based learning and improvement (self-directed learning and teaching) and two patient care subcompetencies (history, diagnostic evaluation) were less strongly correlated with the Part I score over three different occasions. The remaining 15 subcompetencies were not statistically significantly related to Part I at any review occasion.

Discussion and Conclusions: The PMR MK subcompetency demonstrated consistent and educationally meaningful association with another valid knowledge assessment measure. Weaker correlations (three subcompetencies) or non-significant correlations (15 subcompetencies) among the non-MK competencies support discriminant validity for the PMR milestones assessment.

Take-home Messages: This study provides validity evidence for the PMR MK Milestone assessment. This finding may be helpful in identifying struggling residents and help programs to intervene early with struggling residents. It also appears that the other milestone assessments are targeting competencies other than medical knowledge.
Trainee mistrust of the E-portfolio & Workplace Based Assessment Process

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ABSTRACT

Background: Electronic-portfolios (ePortfolios) have played a significant role in postgraduate medical training in the United Kingdom for many years, having been designed to facilitate and support lifelong learning. The ePortfolio's use is multifaceted in supporting development - they are used both formatively and summatively in the assessment process, support the quality assurance process and promote self-reflection in order to enhance future performance. A recent high profile medical negligence case in the United Kingdom created uncertainty in the medical community regarding the security of recorded information on the ePortfolio and prompted the development of a Reflective Practice Toolkit (Academy of Medical Royal Colleges & COPMED, 2018). Trainees' trust in the ePortfolio process are yet to be established.

Summary of Work: As part of a study into trainees' perceptions of workplace based assessments, higher specialty trainees (n=14) attended two focus groups to discuss their perceptions of the ePortfolio process. Grounded theory methods were applied.

Summary of Results: Participants reported a general heightened mistrust of the assessment process. Key themes were identified: - Concerns regarding permanency of ePortfolio documentation and potential negative implication on their own, and other trainees' training progression. These concerns impaired the provision of honest feedback in trainees' roles as assessors for other colleagues. - Assessment process mistrust. Experiences of confidentiality breeches and the negative implications this can create on working relationships when completing seemingly anonymised assessments for other colleagues - Self-editing of documentation to ensure only positive comments are captured on the ePortfolio

Discussion and Conclusions: Trainees identify a number of factors that impair their trust of the ePortfolio process. Suggestions for improvement include the introduction of clearer guidelines and processes.

Take-home Messages: - Several factors appear to impact trainees' trust of the ePortfolio process including concerns regarding the anonymity of certain assessments (assessment process mistrust) and negative repercussions of the permanent recording of suboptimal performance; - Improved guidance and processes may help maximise the ePortfolio use in supporting lifelong learning and development.
Competency assessment of postgraduate year 1: a preliminary report for implementing national-level graduate competency assessment

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ABSTRACT

Background: Competency of newly graduate doctor may be insufficient for independent practice. Over 40 years, a one-year internship is compulsory for all Thai medical graduates. However, their competencies had been assessed only once by global rating. The objective of the study was to report a preliminary analysis of graduate competency assessment.

Summary of Work: Three assessment tools were selected including case-based discussion (CbD), mini-CEX, and direct observation of procedural skill (DOPS). These tools cover 4 areas of competency: critical thinking, problem-solving, communication skill and procedural skill. All new graduate doctors training in a tertiary care hospital were assessed by attending physicians during their internship. One year internship included 9 months rotating in the tertiary care hospital and 3 months in a community hospital. The data was collected for 2 years from 2017 to 2018.

Summary of Results: One hundred and twenty-two interns were assessed 268 times while rotating in Medicine, Pediatrics, Surgery, and Obstetrics-Gynecology Departments. These assessments included 109 CbD (41%), 80 mini-CEX (30%) and 79 DOPS (29%). Their global rating competencies were met expectations and beyond 100%, 98%, and 96% using CbD, mini-CEX, and DOPS respectively. The competency in critical thinking, problem-solving, and communication skill were met expectations and beyond (98%). The most frequent assessed procedural skill was lumbar puncture and ultrasound. The competency in procedural skill was also met expectations and beyond (96%). However, their dexterity in performing manual skill needed some improvement.

Discussion and Conclusions: This was the first attempt to systematically assessed medical graduate competency during their internship in Thailand. These assessment tools had advantages over the previous global rating including more detailed and more specific competencies were being assessed, easily identified training needs and more specific feedback can be done by assessors. In conclusion, overall competencies in critical thinking, problem-solving, communication skills and procedural skills of the interns have met expectations, although more training was needed to master their procedural skills.

Take-home Messages: This assessment should be implemented at the national level to ensure that new graduate doctors are properly trained and assessed during their internship.
Enforcing a completion of basic checklists for different level learners: exploring the unplanned outcomes

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ABSTRACT

Background: The designing of a curricula should be based on the needs of the learners. It is not uncommon for programs to adopt a 'one size fits all approach' for pragmatic reasons, despite having learners with varying degree of knowledge and needs. In a program where a standardized approach of completing a series of checklists to ensure basic competence was achieved by everyone, we examined the unplanned outcomes of this approach.

Summary of Work: The basic competences in respiratory care were assessed in 26 trainees with varying degree of expertise (0 to 5 years) by a number of standardized checklists. Respiratory therapists (RT) were in charge of the assessment. Upon completion of this program, all trainees were interviewed to explore the usefulness of participating in these series of assessment to prove competence.

Summary of Results: Least experienced learners felt safe to complete the assessments since they were not 'singled out' as the only ones who needed to prove basic knowledge. Most experienced learners, when forced to participate, found 'work arounds' to make the activity useful to them. They use the encounter as an opportunity to learn about the RT role, the culture of the place and the roles and responsibilities of each other. The assessment was seen as irrelevant and filled out to simply complete the mandatory requirement. For all, the mandatory checklist acted as an introduction to each other and improved inter-professional relations.

Discussion and Conclusions: The same learning activity resulted in different outcomes with different learners. The learners can modify the activity to adjust to their needs. Being able to capture this process, not only informed the program of the unplanned outcomes but also of the unperceived learners needs. While less experienced trainees followed the mandatory path, the more experienced trainees modified the activity to benefit their needs.

Take-home Messages: Mandatory assessments enforce encounters amongst teachers and learners. Both adapt to these encounters and transform them to benefit their own contexts. These findings might be useful in a CBME era when there is doubt about the usefulness of mandatory assessments.
Using electronic health record data to assess trainees’ independent and interdependent performance: A prototype trainee report card in Emergency Medicine

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ABSTRACT

Background: Competency-based medical education (CBME) requires that trainees receive timely assessments and effective feedback about their clinical performance. While data from the electronic health record (EHR) hold promise for assessment in the clinical workplace, few examples exist of how to create EHR-based assessment tools. A number of complications have been identified, including the ability to attribute EHR data points to individuals in a collaborative work environment where trainees work under supervision. In this study, we partnered with a single clinical division (Emergency Medicine, EM) and hospital decision-support staff with the goal of creating a trainee report card that captures relevant EHR data and represents both independent and interdependent clinical performances in a training context.

Summary of Work: Individual semi-structured interviews were conducted with 10 faculty and 11 trainees across postgraduate years. Participants were presented with the current list of EM faculty performance indicators and asked to comment on how valuable each would be in assessing trainee performance, and the extent to which each indicator captured independent or interdependent performance. Based on interview results, and in collaboration with hospital decision support, a prototype trainee report card of clinical performance indicators was created for a senior EM trainee. Faculty and trainee interviews to explore the face validity of the prototype report card are underway.

Summary of Results: Participants refined and eliminated faculty performance indicators and created new indicators specific to trainees. We present our catalogue of clinical performance indicators from the EHR database at the study site, organized on a spectrum of independent and interdependent EM trainee performance. For instance, independent indicators include number of patients seen and interdependent indicators include length of stay.

Discussion and Conclusions: Our findings document a process for developing trainee report cards that incorporates the perspectives of clinical faculty and trainees. This work has important implications for capturing trainees’ contributions to clinical performances, by distinguishing between independent and interdependent indicators in this collaborative work setting.

Take-home Messages: Using a multi-stage, collaborative process combining empirical research and tool development, it is possible to create a prototype trainee report card that meaningfully represents independent and interdependent performance of EM trainees.
Inter-professional assessment of junior doctors

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ABSTRACT

Background: Inter-professional teamwork is widespread at the Emergency department at Aarhus University Hospital. Acute admissions are managed in a teamwork consisting of both doctors and nurses. Often, a junior resident and a nurse are the primary care providers in the admission of stable patients. Patient admission conducted by junior doctors are regularly supervised and assessed with seven questions according to a national assessment form. We hypothesize that nurses have the ability to assess junior doctors and thereby contribute to strengthen the inter-professional teamwork and support the development of an inter-professional culture.

Summary of Work: A pilot project showed that a nurse and a doctor assessed doctors similarly when using the assessment form. In our study, eight junior doctors were assessed by a nurse or a senior doctor multiple times using the form. We performed focus group interviews with the junior doctors and nurses after the assessment. The groups were asked to identify promoting and obstructing factors in the assessment. The interviews were then analyzed using a phenomenological hermeneutic approach.

Summary of Results: The study showed that nurses had more emphasis on and appreciated the opportunity to give systematic feedback on communication and teamwork skills. The nurses, however, found it difficult to assess medical expert domains. The junior doctors appreciated feedback on communicative skills, and felt that the assessment contributed positively to their inter-professional development. The use of the assessment form eliminated some of the obstacles experienced by nurses in the feedback process.

Discussion and Conclusions: Systematic feedback supports inter-professional communication and teamwork. Systematic assessment supports the common goal of teamwork and enlightens the focus on junior doctors communication skills and teamwork.

Take-home Messages: Systematic inter-professional feedback to junior doctors by nurses, improves teamwork and supports inter-professional development.
A comparison of formative and summative assessment methods in Qatar’s FM Residency Program: A retrospective study to evaluate the impact on residents’ performance, career satisfaction & teaching involvement

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ABSTRACT

Background: Summative Assessment (SA) is used as a tool to measure the achievement of preset learning’s objectives while Formative Assessment (FA) is used to provide a more structured and continuous feedback. The Family Medicine Residency Training Program in Qatar, after obtaining accreditation from Accreditation Council for Graduate Medical Education–International (ACGME-I) in 2013, replaced the method of evaluating residents from SA to FA which is based on the six ACGME-I competencies.

Summary of Work: Data was collected using both quantitative and qualitative methods for all residents who completed the third and fourth year of residency in 2012 and 2013 (pre-ACGME-I accreditation group PGY3-G1/PGY4-G1) and 2015 and 2016 (post-ACGME-I accreditation group PGY3-G2/PGY4-G2). Quantitative data was collected from residents’ performance portfolios. This included scores from in-training exams, departmental MCQs and OSCE. Qualitative data was collected by administering a survey and conducting interviews to determine residents’ outcomes. The collected data for both groups was analyzed to determine the residents’ performance, careers-satisfaction and teaching-involvement.

Summary of Results:

A-Residants’ Portfolio Results:
1-In training Mean-Score;
- PGY4-G1 (2013)=430(MIAS=454)///PGY4-G2 (2016)=525(MIAS=456)

2-MCQs Mean-Score;
- PGY4-G1 (2013)=68///PGY4-G2 (2016)=79

B-Residents’ Survey and Interview Results:
1-Career Satisfaction;
- PGY4-G1 (2012)=77%///PGY4-G2 (2016)=100%

2-Teaching Involvement;
- PGY4-G1 (2012)=0%///PGY4-G2 (2016)=60%

Key:
- PGY=Post Graduate Year
- G1=Group1-(one-year Pre-accreditation and one-year Post-accreditation): PGY3-G1/PGY4-G1
- G2=Group2-(Post-accreditation): PGY3-G2/PGY4-G2
- MIAS=Mean International Average Score for American Board of Family Medicine in-training Exam
- MCQs=Multiple Choice Questions
- OSCE=Objective Structured Clinical Examinations

Discussion and Conclusions: Above in-training exams’ international average passing score of the G2 was so obvious in both years explaining the influence-power of the FA which was also very clear within the G1 (pre-ACGME-I accreditation group).
and post) implementation (transitional-period) despite its below average international scores in both years.

Improvement in performance-scores as well as career-satisfaction levels and involvement in teaching in G2 compared to G1 suggests implementation of ACGME-I CBFA that helps in improving residents’ learning-process including behavior and ways of thinking. This will definitely lead to more comprehensive and well-structured residents training program that can be the benchmark for the recently introduced Milestone Competency-Based Assessment-system (MSCBA).

**Take-home Messages:** It is highly recommended to continue using ACGME-I CBFA that is associated with more competent and career-satisfied graduates who are interested in teaching. MSCBA is the new challenge for future implementation.