Relationship of Preceptor Ad-hoc Entrustment Decisions to Students’ Clinical Skills Performance [version 1]

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Abstract
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Using a workplace evaluation instrument that included clinical skills evaluation and supervisory EPA scale, this study provided empirical evidence of the relationship between preceptor evaluation of student clinical ability and their entrustment decisions at the medical student level, and advanced the understanding of general conditions that ad-hoc entrustment decision are based upon. A total of 4217 evaluations from 353 third-year medical students were included in the study. The analyses focused on entrustment decisions for seven EPAs (EPA1, 2, 3, 5, 6, 7, and 9) and the relationship with related clinical skill (e.g. history taking) performance. Pearson’s correlations showed statistically significant and positive correlations within clerkships (r= 0.43-0.75) and across clerkships (r= 0.70-0.77). Analyses of individual entrustment level and skill rating also revealed that the lowest level of entrustment was predominantly associated with the rating of developing on corresponding skills, whereas the highest level of entrustment with the rating of approaching advanced/advanced; the link between the three middle entrustment levels and particular skill ratings were less salient. Overall, these patterns of association between individual entrustment level and skill rating varied by EPAs as well as level of entrustment. Limitations of the current study were also discussed.

Keywords
Entrustable professional activities, Undergraduate medical education, Clinical skills, Competencies, workplace-based assessment
Introduction

Outcome-based assessment in the clinical setting is an important ingredient of competency-based medical education and is required to meaningfully evaluate a learner’s progression to competence (Frank et al., 2010; Hawkins et al., 2015). The optimized context and method of assessing such competencies is in an authentic workplace setting where experienced clinicians make judgments about a learner’s performance (Gruppen et al., 2018). Workplace-based assessment (WBA) is known to provide effective insight on a learner’s true ability, but can also reflect preceptor bias (Yates et al., 2013) or inconsistencies in ratings despite general agreement among raters on trainee performance (Crosley et al., 2011). The subjectivity of clinical ratings is a challenge that has been difficult to overcome despite efforts to create more objective measures (Hodges, 2013) and precise rating scales (Driessen and Scheele, 2013).

In recent years, entrustment scales, defined as “behaviorally anchored ordinal scales based upon progression to competence” (Rekman et al., 2016a, p. 186), were introduced as more clinically meaningful and useful for assessors in the practice setting (Rekman et al., 2016a). The act of entrustment is inherent in medical training where supervisors make day-to-day decisions to allow learners to perform professional activities with or without supervision (ten Cate, Snell and Carraccio, 2010; Gingerich, 2015). Entrustment decisions blend the typical assessment of clinical performance with the right to perform clinical tasks independently (ten Cate, 2016). As such, preceptor observations and “subjective” judgments of a trainee’s ability provide a critical foundation for making trust decisions. In a study of decision variables in the entrustment process, the two highest ranked decision variables related to a learner’s demonstrated ability (Duijn et al., 2018). According to Hauer et al. (2014), the building of a trust relationship is dependent upon the individuals, their shared relationship, the specific task being performed and the context for performance. The act of entrustment is inherent in medical training where supervisors entrust the learner with the ability to provide a critical foundation for making trust decisions. In a study of decision variables in the entrustment process, the two highest ranked decision variables related to a learner’s demonstrated ability (Duijn et al., 2018). According to Hauer et al. (2014), the building of a trust relationship is dependent upon the individuals, their shared relationship, the specific task being performed and the context for performance. ten Cate (2016) subsequently developed a framework for trust and suggested that for a supervisor to be willing to assume the risk associated with entrustment, four conditions must be met. First, the supervisor must determine that the trainee has the ability or competence to perform the task. Secondly, the supervisor must trust that the trainee will act with integrity and honesty. Thirdly, the trainee must be seen as reliable and conscientious in performing work duties and finally the trainee must act with humility and show a willingness to ask for help when needed. Our understanding of the contributions of each of these four conditions to ad-hoc entrustment decisions remains unclear, however, all four elements are seen as important in decisions about readiness for indirect or unsupervised practice and promotion (ten Cate 2016).

The concept of entrustable professional activities (EPAs) was more recently introduced to link competencies to clinical practice (Rekman et al., 2016a; ten Cate, 2005; ten Cate, Snell and Carraccio, 2010) and trust decisions to workplace-based assessments that can better predict physicians’ actual performance (Crossley and Jolly, 2012). Defined as tasks essential to professional practice, EPAs overcome the limitations of evaluating expected physician competencies in favor of a more direct approach of assessing what physicians actually do in daily practice (ten Cate, Snell and Carraccio, 2010; ten Cate, 2013, Crossley and Jolly, 2012). As EPAs were expanded across specialties and subsequently adapted for undergraduate medical education (UME) to assess a student’s readiness for residency (American Association of Colleges of Osteopathic Medicine or AACOM, 2016; Association of American Medical Colleges or AAMC, 2014; Basehore et al., 2017; Lomis et al., 2016), they became a unifying strategy for linking competencies to clinical practice at every level of medical training (ten Cate, Snell and Carraccio, 2010; ten Cate 2013a). As such, the need for workplace-based assessments appropriate for capturing ad-hoc entrustment decisions for different levels of learners became paramount. Standard supervisory and co-activity EPA rating scales were established and later expanded to include levels of entrustment appropriate for medical students (Chen, van den Broek and ten Cate, 2015; Chen et al., 2016, Rekman et al., 2016b). The various scales now offer a standardized approach for measuring the entrustment of clinical duties to learners who are largely limited to practice under supervision.

The assessment of EPAs requires ad-hoc entrustment decisions by multiple raters who observe trainees in various contexts to produce reliable and generalizable data on which summative decisions about a learner’s overall readiness for unsupervised practice can be made (Gruppen et al., 2018; Peters et al., 2017). For medical students, core clerkships provide an important opportunity to examine EPA ad-hoc entrustment decisions across a range of clinical contexts by multiple preceptors over time, and at the same time these clinical experiences provide the opportunity to explore the relationship between a student’s clinical ability, one of ten Cate’s (2016) four key conditions of trust, and the level of entrustment offered by the supervisor.

Research questions

Ad-hoc entrustment decision relies, in part, on two factors: a) the trainees’ ability, in the case of this study, third-year medical students’ workplace-based performance on clerkships (ten Cate, 2016), and b) the characteristics of specific clinical contexts, in the case of this study, the various clinical settings and patient encounters on different clerkships (Hauer et al., 2014). The purpose of this study was to advance our understanding of the relationship between preceptors’ evaluation of students’ clinical ability, and ad-hoc entrustment decisions across a range of clinical contexts at the UME level. The specific research questions were:
Given the varied clinical contexts of each clerkship, how is the entrustment decision for each EPA correlated with preceptor rating of a trainee's ability on related clinical skills by clerkship?

How is a specific entrustment level for an EPA linked to a specific preceptor rating of related clinical skills?

For the first research question, it was hypothesized that the level of entrustment would be positively correlated with the clinical performance ratings and that these correlations would vary by clinical contexts (clerkships). For the second research question, it was hypothesized that there would be consistency between preceptors’ level of entrustment and their ratings of clinical skills performance on clerkships. The outcomes of this study were intended to provide insight into the understanding of preceptors’ entrustment of students, and serve as a foundation for refining expected levels of performance by medical students across various clinical contexts.

**Methods**

**Study Cohort**

A retrospective study was conducted using a non-experimental design to assess the relationship between medical student clinical skills performance and preceptor entrustment decision. A total of 353 third-year medical students (Mean age=23.6, 45% female, 15% underrepresented minority) who completed their core clerkships between June 2017 and June 2019 were included in the study.

**Instrumentation**

Preceptor evaluation of clinical skills and their EPA entrustment decisions were collected using a workplace-based evaluation form during each of the seven core clerkships including Family Medicine, Internal Medicine, Pediatrics, Geriatrics, Psychiatry, Obstetrics/Gynecology (OB/GYN), and Surgery. This workplace evaluation form combined two existing instruments: 1) a workplace clinical skills evaluation scale, and 2) Chen’s supervisory scale for EPA entrustment (Chen et al. 2016, Table 2).

**Clinical Skills Evaluation Scale**

The workplace-based clinical skills evaluation scale was used to determine clerkship preceptor grades and was designed to assess specific knowledge, behaviors and skills within the six competency domains (medical knowledge, patient care, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice), at a level appropriate for third-year medical students. The instrument included 15 items, each rated on a six-point scale (1=Unacceptable, 2=Developing, 3=Approaching competent, 4=Competent, 5=Approaching advanced, and 6=Advanced), with behavior anchors specific to each clinical skill at four of the six points (Approaching competent and Competent shared one behavioral anchor, as well as Approaching advanced and Advanced).

The current study linked specific clinical skills and underlying competencies on the evaluation form with EPAs, similar to the way in which an EPA supervisory scale has been used to align with competency milestone assessment (ten Cate, 2016). Among the 15 items on the WBA, eight represented clinical behaviors or skills that were directly related to seven EPAs (Table 1). The behavioral anchors for these eight skill items were likewise aligned with the specific functions described for each corresponding EPA (AACOM, 2016; AAMC, 2014). These eight skill items and the seven EPAs were used to evaluate the research questions in this study.

**Supervisory (EPA entrustment) Scale**

The Chen, van den Broek and ten Cate (2015) entrustment scale (Table 2) and 13 EPAs were added to the end of the existing workplace based evaluation form as a formative assessment that did not contribute to the student grade. The entrustment scale was scored from level 1 (not trusted to perform at all) to level 5 (trusted to perform unsupervised), with an option to select Unable to Evaluate which was scored as a missing value. Preceptors were required to answer two questions before completing the entrustment scale: 1) did they directly observe the student in patient care duties (Y/N) and 2) did they have meaningful interaction with the student and feel comfortable making entrustment decisions (Y/N). The preceptor completed the level of entrustment for each EPA, as appropriate, based upon the following question, Based upon your direct observation of the student, at what level would you entrust the student to perform the following skills during their next patient encounter. The addition of the entrustment scale and EPAs to the preceptor form was reviewed and approved by the Clerkship Curriculum Committee.

**Data collection**

The clinical contexts of these core clerkships include both inpatient and outpatient settings, at different clinical sites. The workplace evaluation form was sent out to preceptors by the clerkship office through an online platform. Preceptors could
opt to access and complete the form on a computer or mobile device. A student could be evaluated by multiple preceptors on a given clerkship, however only data from preceptors who had direct observations of and meaningful interactions with the students were included in the analysis. A total of 4217 forms were collected for 353 students, for an average of 12 (SD= 4) forms per student, an average of 602 forms (SD= 241) per clerkship, and 3373 forms (SD= 558) per EPA.

Results/Analysis

The analyses focused on the seven EPAs (EPA 1, 2, 3, 5, 6, 7, and 9) and the eight corresponding clinical skills (Table 1). For the first research question, a series of bivariate correlations between the pairs of EPA and clinical skills by clerkship were conducted. Because students received multiple preceptor evaluations within one clerkship, the ratings of their clinical skills and granted entrustment levels were averaged over multiple preceptors to obtain an aggregated score within each clerkship and across all clerkships. Then, Pearson’s correlations between average levels of entrustment in each of the seven EPAs and the average ratings of their linked clinical skills were examined across and within clerkships (Table 3).

With bonferroni adjustment ($\alpha = 0.05/64= 0.00078$), all the correlations between the seven EPAs and their related clinical skills were statistically significant and positive across and within clerkships (Table 3). In an analysis of data across all clerkships, there was a strong, positive correlations ($r= 0.70-0.77$) between entrustment of EPAs and the clinical performance rating for that skill. The strongest relationships were found between EPA2 entrustment and differential diagnosis skills performance rating ($r= 0.77$), followed by EPA1 with physical exam performance ($r= 0.76$), and EPA6 with oral presentation skills performance (r= 0.76).

Table 3 also showed varied correlations between entrustment levels and clinical skills ratings by clerkships. The strongest correlations were found among Family Medicine ($r= 0.63-0.75$), Surgery ($r= 0.61-0.74$) and Geriatrics ($r= 0.55-0.70$). Although statistically significant, Obstetrics and Gynecology ($r= 0.39-0.51$) and Psychiatry ($r= 0.43-0.55$), by contrast, reflected consistently weaker relationships across all EPAs and clinical skills. Overall, the relationship between clinical performance and entrustment level ranged from moderate to strong, and varied by EPAs and clerkships. In addition, these positive correlations indicate that the stronger a student performed on a specific skill in the workplace (higher skill ratings), the higher was their level of entrustment for that same skill.

The second research question explored the relationship between the level of entrustment for each EPA and the specific preceptor rating for the related clinical skill. Unlike the first research question, the unit of analysis for this research

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**Table 1. Seven EPAs and Their Related Clinical Skills Items on the Workplace Evaluation Form**

| EPAs (5-level supervisory scale) | Related Clinical Skills Items (6-point rating scale) |
|----------------------------------|-----------------------------------------------------|
| EPA1. Gather a history and perform a physical examination | Q2. Takes an effective history |
| EPA2. Prioritize a differential diagnosis following a clinical encounter | Q4. Generates a differential diagnosis that reflects clinical reasoning |
| EPA3. Recommend and interpret common diagnostic and screening tests | Q5. Recommends and interprets screening and diagnostic tests |
| EPA5. Document a clinical encounter in the patient record | Q9. Effective written documentation |
| EPA6. Provide an oral presentation of a clinical encounter | Q10. Effective oral presentation skills |
| EPA7. Form clinical questions and retrieve evidence to advance patient care | Q7. Demonstrates skills in evidence-based medicine |
| EPA9. Collaborate as a member of an inter-professional team | Q11. Teamwork skills |

**Table 2. Entrustment (Supervisory) Scale**

| Level | Supervision Required to Perform EPA |
|-------|-------------------------------------|
| 1     | Not trusted to perform at all |
| 2     | Trusted to perform with direct (in-room) supervision only |
| 3     | Trusted to perform with indirect supervision and all findings double checked |
| 4     | Trusted to perform with indirect supervision and only key findings double checked |
| 5     | Trusted to perform unsupervised |
| Clerkship          | Weeks | History Taking | Physical Exam | Differential Diagnosis | Screening and Diagnostic Tests | Documentation | Oral Presentation | Evidence-based Medicine | Teamwork |
|--------------------|-------|----------------|---------------|------------------------|--------------------------------|---------------|-------------------|---------------------------|----------|
| Across Clerkships  | 0.75* | 0.76*          | 0.77*         | 0.75*                  | 0.70*                          | 0.76*         | 0.72*             | 0.75*                      |          |
| Family Medicine    | 8     | 0.63*          | 0.63*         | 0.69*                  | 0.75*                          | 0.66*         | 0.65*             | 0.71*                      | 0.66*    |
| Geriatrics         | 4     | 0.67*          | 0.69*         | 0.61*                  | 0.55*                          | 0.61*         | 0.67*             | 0.70*                      | 0.66*    |
| Internal Medicine  | 6     | 0.54*          | 0.58*         | 0.67*                  | 0.59*                          | 0.50*         | 0.60*             | 0.56*                      | 0.59*    |
| OB/GYN             | 4     | 0.46*          | 0.51*         | 0.40*                  | 0.49*                          | 0.39*         | 0.44*             | 0.40*                      | 0.50*    |
| Pediatrics         | 4     | 0.61*          | 0.60*         | 0.61*                  | 0.59*                          | 0.50*         | 0.56*             | 0.47*                      | 0.58*    |
| Psychiatry         | 4     | 0.47*          | 0.53*         | 0.51*                  | 0.55*                          | 0.46*         | 0.46*             | 0.43*                      | 0.53*    |
| Surgery            | 6     | 0.66*          | 0.67*         | 0.61*                  | 0.63*                          | 0.63*         | 0.63*             | 0.64*                      | 0.74*    |

* indicates significant at p< 0.00078, after bonferroni adjustment
question was each evaluation instead of each student, therefore the raw levels and raw ratings were used, instead of averages. Simple crosstabs of the seven EPAs and their corresponding clinical skills were used to examine the patterns of entrustment. Since the ratings of approaching competent and competent shared a common behavior anchor, the two ratings were collapsed into one category for the purpose of this analysis, as was approaching advanced and advanced. Figure 1 depicts the distribution in the levels of entrustment by EPA (bar charts) and the corresponding clinical skill performance rating level on the preceptor rating scale (stacked table). For example, for EPA 1a (history taking), the level 1 entrustment (not trusted to perform at all) was consistently associated with a preceptor rating of developing in the evaluation of clinical performance for that related skill. That is to say, for students granted with level 1 entrustment on EPA 1a, 100% of them were rated by their preceptor as developing in terms of their demonstrated history taking skill.

| Entmt Level | Clinical Skills Rating |
|-------------|------------------------|
| Unacceptable | Developing | Approaching Competent | Approaching Advanced |
| L1          | 100.0%                 |                        |                      |
| L2          | 0.3%                   | 14.3%                  | 65.3%                | 19.4%               |
| L3          | 4.2%                   | 64.0%                  | 31.8%                |                      |
| L4          | 0.5%                   | 31.6%                  | 67.9%                |                      |
| L5          | 8.6%                   | 91.4%                  |                      |                      |

Figure 1. The distribution of entrustment level by each EPA (the left bar charts), and the distribution of corresponding clinical skills ratings by each entrustment level (the right stacked table)
The distribution in the levels of entrustment for each of the seven EPAs showed that preceptors most frequently granted level 3 (trusted to perform with indirect supervision and all findings double checked) and level 4 (trusted to perform with indirect supervision and only key findings double checked) entrustment. The percentage of all entrustment decisions at level 3 or 4 ranged from 67.7% -73.5% across EPAs. Level 1 entrustment (not trusted to perform at all) was consistently linked with a clinical skill performance rating of developing (from 62.5% in EPA3 to 100% in EPA1) for all EPA except EPA 5 (written documentation), while the highest level of entrustment (trusted to perform unsupervised) was primarily linked with a clinical skill performance rating of approaching advanced/advanced (from 83.1% in EPA7 to 93.6% in EPA5). However, for the three levels of entrustment in the middle (levels 2-4), the link between individual entrustment level and a particular clinical skill performance rating was less salient. Clinical skill performance ratings associated with these three levels of entrustment varied, particularly for entrustment levels 3 and 4. For example, among those granted level 3 entrustment on EPA5, a small majority (55.5%) were rated approaching competent/competent. These three levels of entrustment varied, particularly for entrustment levels 3 and 4. For example, among those granted level 3 entrustment on EPA5, a small majority (55.5%) were rated approaching competent/competent on their documentation skills, while a substantial percentage (41.4%) were also rated approaching advanced/advanced. Similar patterns of skill ratings were seen for entrustment level 4 for EPA7 and level 3 for EPA9.

Overall, Figure 1 indicated that the pattern of association between individual entrustment level and skill rating varied by EPAs as well as level of entrustment. Regarding the difference in level of entrustment, there was less ambiguity at the lowest and highest levels of entrustment across all seven EPAs, primarily linked with the clinical skill ratings of Developing and Approaching advanced/Advanced, respectively. There were likewise differences across EPAs. The pattern of association for EPAs 1 and 2 was more salient than that for EPAs 5, 7 and 9.

Discussion
There are many factors that can influence the trust a preceptor places in a trainee, not the least of which is the student’s prior years of training and experience. Medical students work under supervision often with limited autonomy to perform clinical skills given regulatory constraints and concern for patient safety. As such, differing levels of entrustment have been proposed for different stages of medical training. Chen’s supervisory scale used in this study offers more gradations of supervision to allow for more gradual development of autonomy among medical students. Trusted to perform with indirect supervision and key findings double checked, has been suggested as the appropriate level for transition from student to resident (Chen, van den Broek and ten Cate, 2015). Still others (Hodges, 2013) have suggested a simpler dichotomous determination of those not ready for indirect supervision (pre-entrustable) and those who are (entrustable), although one study on the use of clinic EPA assessment cards on a surgical clerkship found the binary scale not useful (Curran et al., 2018). Given that the supervisory scale provides greater detail about the level of supervision required to entrust EPAs to medical students, it serves as an appropriate scale to explore the research questions in the current study.

The findings of this study added empirical evidence to our understanding of ad-hoc entrustment decisions across varied clerkship contexts and the relationship of these decisions to a trainee’s ability, one of ten Cate’s (2016) general conditions of trust. Previous literature that explored the relationship of students’ clinical ability and entrustment has been limited to the context of clinical simulations or objective structured clinical exams (OSCEs) (Eliasz et al., 2018; Holzhause, et al., 2019). This current study filled the gap by providing insights into the conditions of trust in real clinical workplace. The moderate to strong positive correlations between the seven undergraduate EPAs and their performance ratings on the workplace based evaluation showed that trust in the clinical setting was to some extent dependent on the trainees’ demonstration of their clinical skills or competencies. Also, the positive correlations confirmed ten Cate’s assumption (2016) that the specific level of supervision decreases (higher levels of entrustment), as students increase in their competence and clinical skills.

The expected level of entrustment is often dependent on the clinical context and the specific EPA skill, and can also be influenced by the subjective nature of rater decisions (ten Cate, 2013a). Results of this study showed the relationship between entrustment and clinical skill performance varied by EPAs as well as by clerkship, consistent with the suggestion that context impacts the establishment of trust and therefore entrustment decisions (Hauer et al., 2014). The continuity in clinical training experiences and mentorship are two characteristics known to be conducive for developing trust relationships (Hirsh, Holmboe and ten Cate, 2014). Consistent with these findings, this study documented its strongest correlation between performance and entrustment on the Family Medicine clerkship. This 8-week clerkship is our longest and one in which the students worked in the outpatient setting with close supervision by just a few preceptors, unlike most other clerkships such as psychiatry, obstetrics/gynecology and pediatrics, where students worked in the hospital setting with rotating preceptors for a much shorter period of time. Thus, in the other clerkships, there were lower associations between EPA entrustment and student clinical performance. For the three disciplines, students were also less likely to be trusted with common tasks such as data gathering (history taking and physical examination) and documentation. This finding likely reflects the unique skills required to care for these specific patient populations and the additional supervised training required during clerkship.
Some of the differences in EPA entrustment were consistent across clerkships. For example, the correlation between EPA entrustment and clinical performance was more modest for EPA 5 (written documentation) and EPA 6 (formulating clinical question and retrieving evidence) across clerkships. Both skills were less likely to be directly observed and therefore more likely to be inferred from student oral presentations leading to the potential for a misalignment between performance rating and entrustment. The use of proxy data over direct observation to assess clinical skills is less likely to generate reliable ratings of clinical performance and is not supported by the evidence (Kogan et al., 2017). History and physical examination skills and oral presentation skills by contrast had stronger associations between performance ratings and entrustment for most clerkships. These skills are introduced early in student training and practiced extensively in simulation and case-based learning activities throughout the pre-clerkship years. Given this early exposure, students generally demonstrate greater ability and independence in performing these skills, have more of an opportunity to demonstrate the skill on rotation and therefore are more likely to be trusted to function with more limited supervision.

The current study further advanced our understanding of the relationship between entrustment decisions and a trainee’s clinical ability by exploring the patterns between specific entrustment level and clinical performance ratings on related skills. Results in Figure 1 showed overall students were most frequently trusted with indirect supervision when they demonstrated approaching competent to competent level performance, and without supervision when they demonstrated approaching advanced to advanced level of performance across EPAs. But, such patterns also varied by EPA. For EPAs that students had more of an opportunity to practice (e.g. EPA1 or 2), the connections are more salient (a specific entrustment level was predominantly associated with a specific skill rating, e.g. level 1 entrustment on history taking and physical examination (EPA1) was 100% linked with a performance rating of developing. This could be due to having more reliable evaluations for these commonly demonstrated skills on rotation (e.g. 4002 evaluations for EPA2 versus 3209 evaluations for EPA5), or that preceptors were more likely to have established expectations for frequently observed skills and greater consistency in relating entrustment decision to specific rating of trainees’ clinical skills for these EPAs. The patterns observed between the levels of entrustment and specific skill ratings provided important insight about preceptors’ expectations of student performance across various clinical contexts. The findings from this study can help guide undergraduate medical educators better prepare students to become resident ready as they advance in training.

A limitation of the present study is that it provided evidence on only one of the four conditions suggested to influence trust decisions, the relationship between ad-hoc entrustment decisions and clinical skill performance or ability. In practice, other factors such as integrity, reliability and humility, may be needed for responsible decisions of students’ readiness for higher levels (indirect or unsupervised) of supervision (ten Cate, 2016). Additionally, the ad-hoc entrustment decisions were captured as part of an end-of-clerkship assessment and therefore did not capture specific differences in individual experiences such as patient complexity. Given the evidence of varied relationships between different EPAs and their related clinical skills, it may suggest the need to use discrete supervisory scales for each EPA to capture context details important to entrustment decisions unique to each EPA. The more granular approach to capturing the contexts for entrustment decisions will better support summative decisions about a student’s readiness for residency and unsupervised practice, as well as support faculty development on entrustment decisions.

**Conclusion**

The study explored the relationship between a medical student’s clinical ability and the ad-hoc entrustment offered by preceptors in clinical settings across a range of contexts on third year clerkships. The findings support the relationship between students’ performance and entrustment decisions. Stronger clinical performance elicited greater entrustment from preceptors, although the level of performance associated with specific levels of entrustment varied by clerkship and EPA. Clerkships provide an effective environment for capturing performance across a range of patient care contexts, although discrete forms to collect more granular information about individual ad-hoc entrustment decisions such as patient care complexity, as well as learner characteristics (e.g. integrity, humility) may prove to be more effective than end-of-rotation assessments.

**Take Home Messages**

- There is need for more empirical research on the relationship between a learner’s clinical ability as a general condition of trust and ad-hoc entrustment decisions.

- Clerkships can be used to capture ad-hoc entrustment decisions across a range of clinical contexts and examine the relationship between student performance and the level of entrustment for EPA skills. Longer clerkships with more individualized mentorship provide important opportunities for preceptors to meaningfully build trust and make EPA entrustment decisions.
• Stronger clinical performance elicited greater entrustment from preceptors, although the level of performance associated with specific levels of entrustment varied by clerkship and EPA.

• Discrete entrustment tools designed to collect more detailed information about context, such as patient care complexity, as well as learner characteristics (integrity, humility) may prove to be more effective than end-of-clerkship assessments at capturing ad-hoc entrustments that support summative assessment of a learner’s readiness for unsupervised practice.

Notes On Contributors
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Declarations
The author has declared that there are no conflicts of interest.

Ethics Statement
The study was approved on 17th January 2018 by Rowan University School of Osteopathic Medicine Institutional Review Board, approval no. Pro2017002108.

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Sultan Qaboos University

This review has been migrated. The reviewer awarded 3 stars out of 5

An interesting study on the relationship of preceptor ad-hoc entrustment decisions to students’ clinical skills performance. Overall, a strong piece of research, bearing in mind the queries and limitations mentioned by the other reviewers. The researchers have laid out the needs and aims clearly, and have presented the results in a manner that is easy to read.

Two points regarding the sample's demographics:

• On reporting demographics of the sample, such as gender and minority, it is best to report on all statistics, in order to reduce the risk of accusations of prejudice or inappropriate assumptions (or lead to incorrect assumptions by your readers). In the case of a minority, as this will differ vastly from country to country, and MedEdPublish is an international journal, it would be best to more specifically identify or define the classification.

• Related to this, the significance of determining the demographics is not clear. The information is gathered, presented, and then not mentioned again. If these variables were never to be tested against the other data, then, (apart from a general description) the reason for gathering them in the first place is unclear. Given that there were variations across the findings, an exploration in relation to the demographics may assist in clarity (and, if there are no significant relationships, then, at least, that would allow one to exclude those as influencing factors). I look forward to a Version 2 of the paper in which these and the other reviewers' points are addressed.

Competing Interests: No conflicts of interest were disclosed.
This review has been migrated. The reviewer awarded 4 stars out of 5

This research paper investigates what a reader may think is an intuitive link between strong clinical skills and an increased likelihood of an entrustment decision being made. The researchers lay out a strong background of literature in the introduction, which is one of the paper's strongest points, setting the stage for the data to be collected. Another of the paper's strength is the quantity of data collected, which does support the intuitive link between clinical skills and entrustment decisions. There was some information missing from the methods. For example, who did the ratings, and when? Later in the discussion it is revealed that the entrustment ratings were made at the end of each rotation, but the reader is never told who is doing the ratings, or whether it is even always the same person (i.e. is pediatrics always scored by the same rater?) The results point out that the link is weakest in the OB/gyn and psychiatry services, and the researchers partially explain this by these rotations being shorter in duration and less accepting of students performing even common tasks such as data gathering and documentation. Since the issue of duration of rotation was brought up, I would have liked to have seen that data presented in the results section. How long was each rotation, and how did that impact the correlation coefficient, numerically speaking? I would also have liked to have seen a more complete discussion of study limitations, including natural variability in raters, use of a single institution and cohort, etc.

**Competing Interests:** No conflicts of interest were disclosed.

[Reviewer Report 03 April 2020](https://doi.org/10.21956/mep.20031.r30604)
the concepts of research paper, the abstract discussed the complete design of the paper. The abstract designates what to study and how to study. The introductory part evaluated the key conceptions of the paper which defended with reasonable, updated references. The literature reviews makes this paper strong in its assumption. The delineation of research questions and hypothesis clarified the objective of the paper.

Methodology: The methodology is detailed in expression which tends to be reliable and generally adoptable. Analysis and Discussion: The analysis presented data with tables. Few more graphs would have been acceptable to have the data more visibility and transparent. The long all informative graph could have been divided with parts along with its analysis. The discussion is well articulated and has made a comparative study with the previously cited references; this claims praise. It needs to be suggested that the limitation should have taken a different sub-title for better readability; along with the limitation, delimiting process may be addressed though not mandatory for this paper.

Concluding remarks: The culminating part is whole in its scope and quality. This is well deliberated thought and study presented by the authors. This paper is to be praised for its content and construction.

Competing Interests: No conflicts of interest were disclosed.

Reviewer Report 02 April 2020

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Felix Silwimba
University of Lusaka

This review has been migrated. The reviewer awarded 5 stars out of 5

informative and educational report on competence evaluation of medical students.

Competing Interests: No conflicts of interest were disclosed.