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### **Student Perceptions of Educational Handovers**

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## **Summary**

### **Background**

Educational handovers can provide competency information about graduating medical students to residency program directors post-residency placement. Little is known about students' comfort with this novel communication.

### **Objective**

To examine graduated medical students' perceptions of educational handovers.

### **Methods**

The authors created and distributed an anonymous survey to 166 medical students at a single institution following graduation in the spring of 2018. Within this cohort, 40 students had an educational handover sent to their future program director. The survey explored comfort level with handovers (1=very uncomfortable; 5=very comfortable) and ideal content (e.g., student strengths, areas for improvement, goals, grades received after residency application). Respondents self-reported their performance in medical school and whether a handover was sent. Correlation analyses examined relationships between performance and other variables. *T*-tests examined differences between students who did and did not have a handover letter sent.

### **Results**

The survey response rate was 40.4% (67/166) — 47.8% of students felt comfortable with handovers, 19.4% were neutral, and 32.8% were uncomfortable. There was no correlation between self-reported medical school performance and comfort level. Respondents felt most strongly that strengths should be included, followed by goals. Those who had a handover letter sent expressed significantly higher comfort level ( $3.8 \pm 1.0$  vs.  $2.6 \pm 1.3$ ,  $p=0.003$ ) with this communication.

## **Conclusion**

Medical students reported varying levels of comfort with educational handovers; however, those who had handovers sent had more positive perceptions. In order to improve the education continuum, it is essential to engage students in the development of this handover communication.

## **Introduction**

The transition from medical school to residency is abrupt, with limited resources for residency programs in the United States to identify areas of strengths and weaknesses of incoming residents using the standard application materials (1, 2). This can negatively impact programs' abilities to aid in residents' professional development at the start of training and to possibly adjust educational opportunities as a result. Recently, there has been a call for increased transparency using an "educational handover" from medical schools to residency programs. This type of communication occurs after the students have been accepted into residency programs. The educational handover helps guide the transition into residency by providing medical school performance data and individualized learning plans (3, 4).

Despite medical students being key stakeholders in this process, very little is known about their perceptions of educational handovers. Most pilot programs of educational handovers have focused on perspectives of the recipient, the program directors (5–8), while one has included student input among other stakeholders (9). As there are increasing calls to standardize the educational handover on a national scale (3), we believe that incorporating student input about the contents of handovers is critical.

The objective of our study was to examine perceptions of recent medical school graduates about educational handovers, including comfort level with educational handovers to residencies and information that should be included in such handovers. We also sought to determine if participation in an educational handover influenced student perceptions.

## **Methods**

### *Description of Educational Handovers*

Students enrolled in elective fourth-year (M4 – final year) Residency Preparation Courses (RPC) within pediatrics, surgery, or obstetrics and gynecology (OB/GYN) during the 2017-2018 academic year had an opportunity to participate in a course-specific voluntary educational handover, which included competency information on residency-specific Accreditation Council for Graduate Medical Education (ACGME) level 1 milestones and narrative comments from RPC course directors (10). Competency assessment was determined using data from the student's M4 year, including RPC performance, sub-internship performance, and a clinical skills competency assessment. The pediatrics and OB/GYN RPC handovers also included students' goals for intern year. Students had the opportunity to review the letter and consent to its transmission to their future residency program director. Of the 166 graduating M4 students, 40 were enrolled in one of these RPCs and all 40 consented to participate in the handover.

#### *Survey instrument*

Medical students (n=166) from a public Midwestern U.S. medical school were surveyed in May 2018 just after medical school graduation.

We created an anonymous electronic survey using Qualtrics (Provo, UT). The survey asked about residency specialty, perceived importance of educational handovers, comfort level, perceived helpfulness to themselves and their programs, and what information should be included using a 5-point Likert scale (1=strongly disagree; 5=strongly agree). A dichotomous (yes/no) question was used to assess familiarity with ACGME milestones and core entrustable professional activities (EPAs). These are competency frameworks used in graduate and undergraduate medical education programs, respectively, and are intended to provide a uniform language to describe learners' level of competency in predefined areas. Those familiar were asked to rate these items based on appropriateness for inclusion. We also asked about self-reported performance in medical school and whether they had participated in an educational handover. Those who participated were asked further about their perceptions. The survey instrument is detailed in Appendix S1.

### *Statistical Analysis*

Descriptive statistics (mean  $\pm$  standard deviation, percent) were completed for each variable using JMP Pro 14.2.0 (SAS Institute Inc). Correlation analyses examined the relationships between self-reported performance during medical school and the variables comfort level, helpfulness for students, and helpfulness for residency programs. Differences between students who participated in an educational handover and those who did not were determined by *t*-tests (one-tailed).

Our institution's Institutional Review Board deemed the study exempt from full review, as it involved anonymous survey data about an existing educational tool and represented no more than minimal risk to participating subjects.

### **Results**

The survey response rate was 81/166; however, only those with complete data were included in the analysis (67/166). Students matched into 14 specialties. Thirty percent agreed or strongly agreed that educational handovers were important, while 40.3% felt neutral, and 29.9% disagreed or strongly disagreed. Forty-eight percent felt comfortable or very comfortable with this type of communication, 19.4% were neutral, and 32.8% were uncomfortable or very uncomfortable. Students were fairly neutral on the perceived helpfulness of the handover for medical students ( $2.8 \pm 1.1$ ) and for residencies ( $3.2 \pm 1.1$ ). There was no significant correlation between self-reported performance during medical school and comfort level or perceived helpfulness of a handover.

Regarding content, students felt most strongly that strengths should be included in the handover ( $3.9 \pm 1.2$ ), followed by goals ( $3.7 \pm 1.2$ ). They were least favorable to including grades received after residency application ( $2.6 \pm 1.1$ , Table 1). Five students were familiar with EPAs and 43 were familiar with ACGME milestones; they rated inclusion of these competencies favorably ( $4.4 \pm 0.5$  and  $3.3 \pm 1.1$ , respectively).

Seventeen students reported participating in an educational handover, 19 reported not participating, and 31 were unsure. Those who had participated were more likely to be comfortable with such communication compared with those who did not ( $3.8 \pm 1.0$  vs.  $2.6 \pm 1.3$ ,  $p=0.003$ ; Figure 1); agree it was important ( $3.4 \pm 0.9$  vs.  $2.4 \pm 1.0$ ,  $p=0.001$ ; Figure

2); agree it was helpful for students ( $3.7 \pm 0.9$  vs.  $2.4 \pm 1.2$ ,  $p < 0.001$ ); and agree it was helpful for residency programs ( $3.8 \pm 1.2$  vs.  $2.8 \pm 1.0$ ,  $p = 0.006$ ). They felt it accurately represented their strengths ( $4.3 \pm 0.7$ ), areas of improvement ( $3.8 \pm 1.0$ ), and goals ( $3.7 \pm 1.3$ ), and that it would be slightly beneficial for them ( $3.4 \pm 1.1$ ) and their future residency program ( $3.7 \pm 0.9$ ).

## **Discussion**

In this study, graduating medical students had diverse opinions about educational handovers from medical schools to residency programs; however, those who participated in a handover were more likely to have positive perceptions. Surprisingly, self-perceived medical school performance did not affect perceptions. Furthermore, we established the information students would like conveyed to residency programs, including student strengths and goals.

The desire from students to include information such as student strengths, goals, areas for improvement, and narrative faculty comments indicates the preference for a handover to focus on qualitative characteristics rather than normative data. This aligns with existing research indicating that learner ownership — specifically, individualized learning plans — should be an important part of the educational handover (3). In this context, it is worth emphasizing that educational handovers are meant to help students at all performance levels, including those who excel, by allowing training experiences to be modified within the constraints of residency requirements (6).

It is noteworthy that students who participated in an educational handover were more likely to have positive perceptions. This could be because students had the opportunity to read and approve the letter, thereby realizing that these letters were largely for their benefit, including communication of their strengths and goals. Alternatively, it is possible that students who elected RPC courses may have been more open to educational handovers. Conversely, students who did not participate may have presumed that the handovers were primarily intended to show weaknesses. This suggests that familiarizing students with the purpose and content of handovers may demystify the process and provide transparency, thereby increasing comfort.

Limitations include that this was a single-center study with a suboptimal response rate; we suspect the response rate was low due to the fact that many graduated students do not check their medical school email regularly after graduation. Additionally, a small number of students had a handover letter sent, which may limit generalizability. Lastly, given that the survey was anonymous, we were unable to correlate actual medical school performance with perceptions.

We plan to continue educational handovers from our institution. Future areas of study include expanding the survey to students from more institutions to gain broader national representation and gauging resident input on educational handovers, especially from those who participated in an educational handover prior to residency.

### **Conclusion**

Communication of learners' performance level in the form of educational handovers should arguably be considered during any transition that involves an increase in patient care responsibility, and is not only limited to medical student learners. Learners represent crucial stakeholders for deciding what information is most critical to include in educational handovers. Until a widely accepted standardized assessment is created, we recommend consenting learners prior to handing over their information, and including information that focuses on characteristics (such as strengths and areas for improvement) and individualized goals. Transparency and exposure increase student acceptance of educational handovers.

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**Table 1. Medical Student Perceptions of Which Components Should Be Included in an Educational Handover Based on 67 Participants, 2018**

<b>Component</b>	<b>Strength of Agreement<sup>a</sup></b>
Student's strengths	3.9 ± 1.2
Student's goals	3.7 ± 1.2
Student's areas for improvement	3.4 ± 1.3
Narrative comments from faculty member who knows the student well	3.4 ± 1.2
Comment on technical/procedural skills	3.2 ± 1.2
Academic struggles (with student permission)	3.0 ± 1.2
Personal struggles (with student permission)	2.8 ± 1.2
Grades received after residency application submitted	2.6 ± 1.1

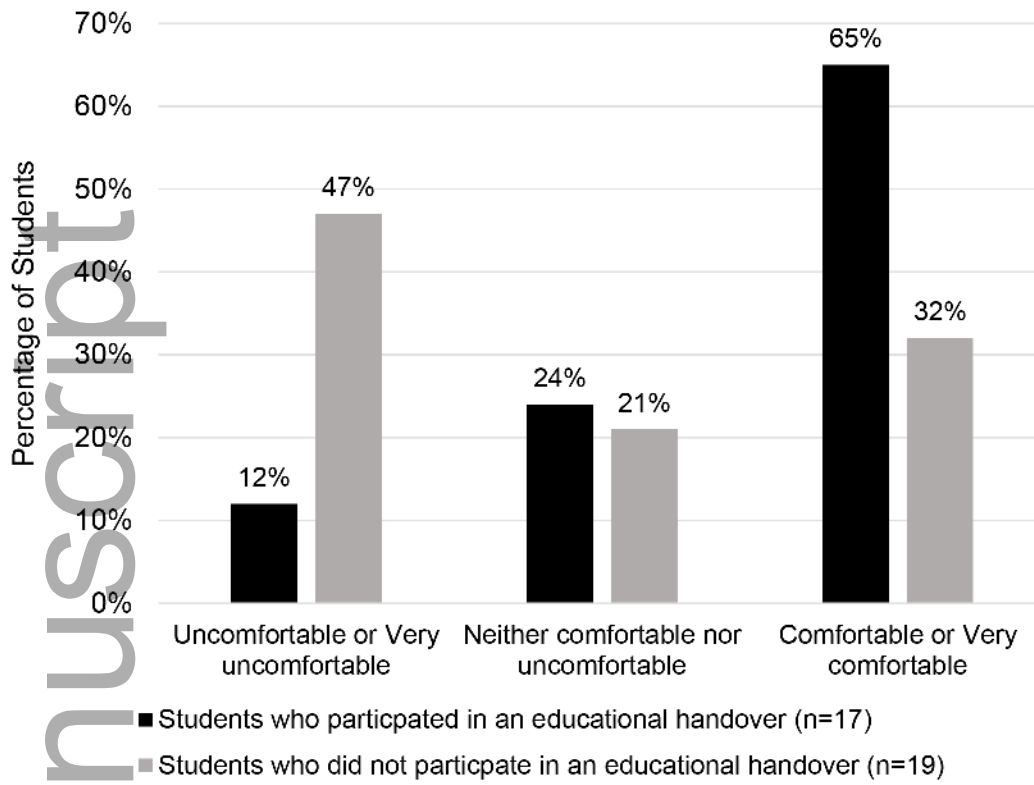
Data presented as Mean ± SD

<sup>a</sup>Based on 5-point scale (1=Definitely should not be included, 5= Definitely should be included)

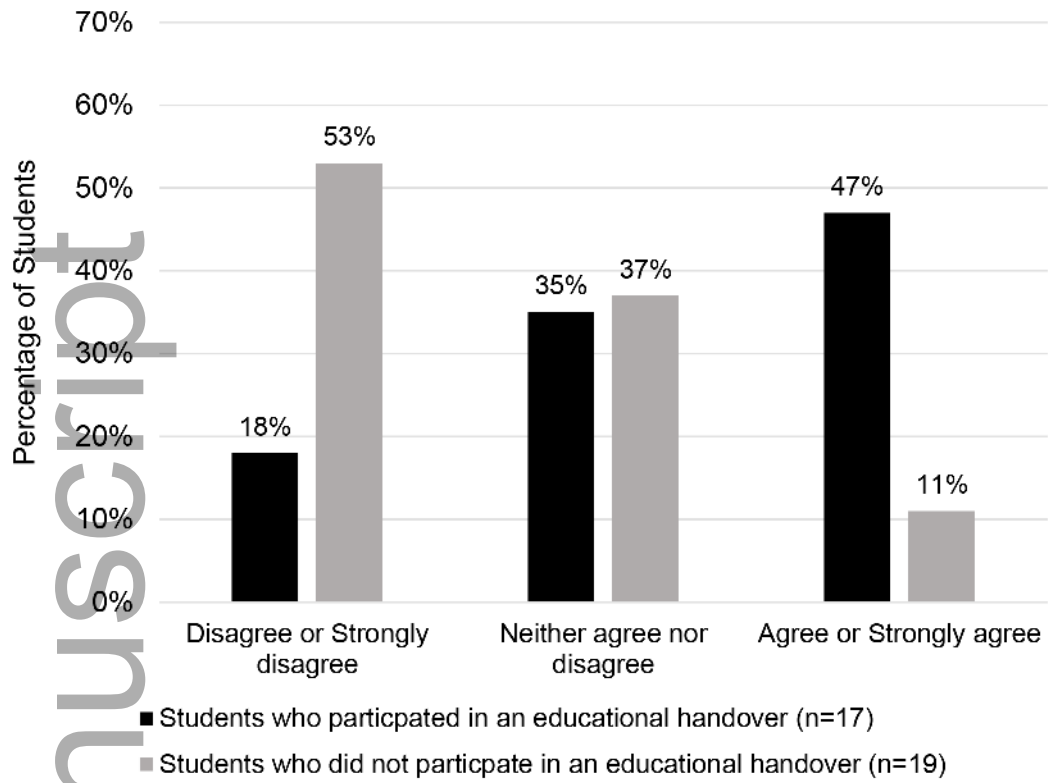
### **Figure Legend**

**Figure 1. Graduated Medical Students' Comfort Level with the Post-Match Educational Handover. Students who had participated in an educational handover were more likely to be comfortable, p=0.003.**

**Figure 2. Graduated Medical Students' Level of Agreement that Educational Handovers are Important. Students who had participated in an educational handover were more likely to perceive this as important, p=0.001.**



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