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Perceptions of Surgical Scrub Training Needs Among UCI School of Medicine Students

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Purpose / Objective

Early clinical exposure is key to medical students' learning experiences, yet institutions differ vastly in the types of opportunities that they offer to students. UC Irvine School of Medicine (UCISOM) does not offer a surgical scrub training program for the preclinical years (MS1-MS2), which may limit students to passive shadowing in the operating room (OR). UCI students may be less prepared for their surgical rotations compared to students at other institutions who have earlier, hands-on exposure. Early scrub training opportunities may increase students' performances in their third-year rotations, helping to make them stronger candidates for residency.

The purpose of this study was to gauge the attitudes and experiences of medical students at UCISOM surrounding surgery scrub training. Our team hopes to learn more about how UCISOM students are scrub trained and their perceptions toward OR etiquette, which in turn impacts their education in the operating room and experiences with other medical staff. This study will help inform how and when medical students at UCISOM should be scrub trained.

Introduction

Scrubbing in, alongside other aspects of OR etiquette, are critical skills for all medical students to learn. The process of scrubbing in ensures the sterility of those operating on a patient and involves the attending physician, residents, nursing staff, and medical students. Varying models for surgical scrub training can affect students' preparation for OR rotations. Beyond technical skills, differences in preclinical preparation can impact students' experiences with OR culture and overall learning environment³. Prior studies at other medical schools demonstrated the benefits of an earlier, low-stakes introduction to OR etiquette, culture, and surgical skills during the preclinical years, leading to this investigation into UCISOM's current OR educational model^{1,2,7}.

All UCI medical students are trained with an OR orientation/scrub training before the start of their third-year rotations. Per UCI policy (Medical Students Participating in Procedural Areas), students in their preclinical years (MS1-MS2) are not permitted to scrub into OR procedures but can only observe with the surgeon preceptor present⁸. However, it is unclear if and how this policy is being enforced across all hospital settings. It is also unclear whether medical students who are scrub-trained before their third-year rotations can be taught informally or must be trained in a formal environment with official documentation.

While overcrowding of the operating room is a risk, allowing MS1s and MS2s to scrub in when appropriate may enhance their educational experience during shadowing. Offering preclinical scrub training may help prepare MS1s/MS2s for their third-year rotations more holistically — improving both their OR technical skills and confidence levels — as well as setting interested students up for success in surgical specialties.

Materials / Methodology

A survey was created on Qualtrics which was disseminated via email and class Discord servers to all four classes of medical students at UCISOM (MS1, MS2, MS3, MS4). The survey period extended from 2/23/24 to 4/1/24. Submissions were anonymous in an attempt to ensure student privacy when disclosing personal information about experiences shadowing in the OR or with medical personnel during their surgery rotations. This study met UCI's Institutional Review Board (IRB) requirements for exempt research.

Multiple "tracks" were created based on student class year, prior scrub training experience, and level of exposure to the operating room. All tracks shared a question that gauged students' interest in a formal, but not mandatory, surgical scrub training program to be offered by UCISOM during the preclinical years.

Results

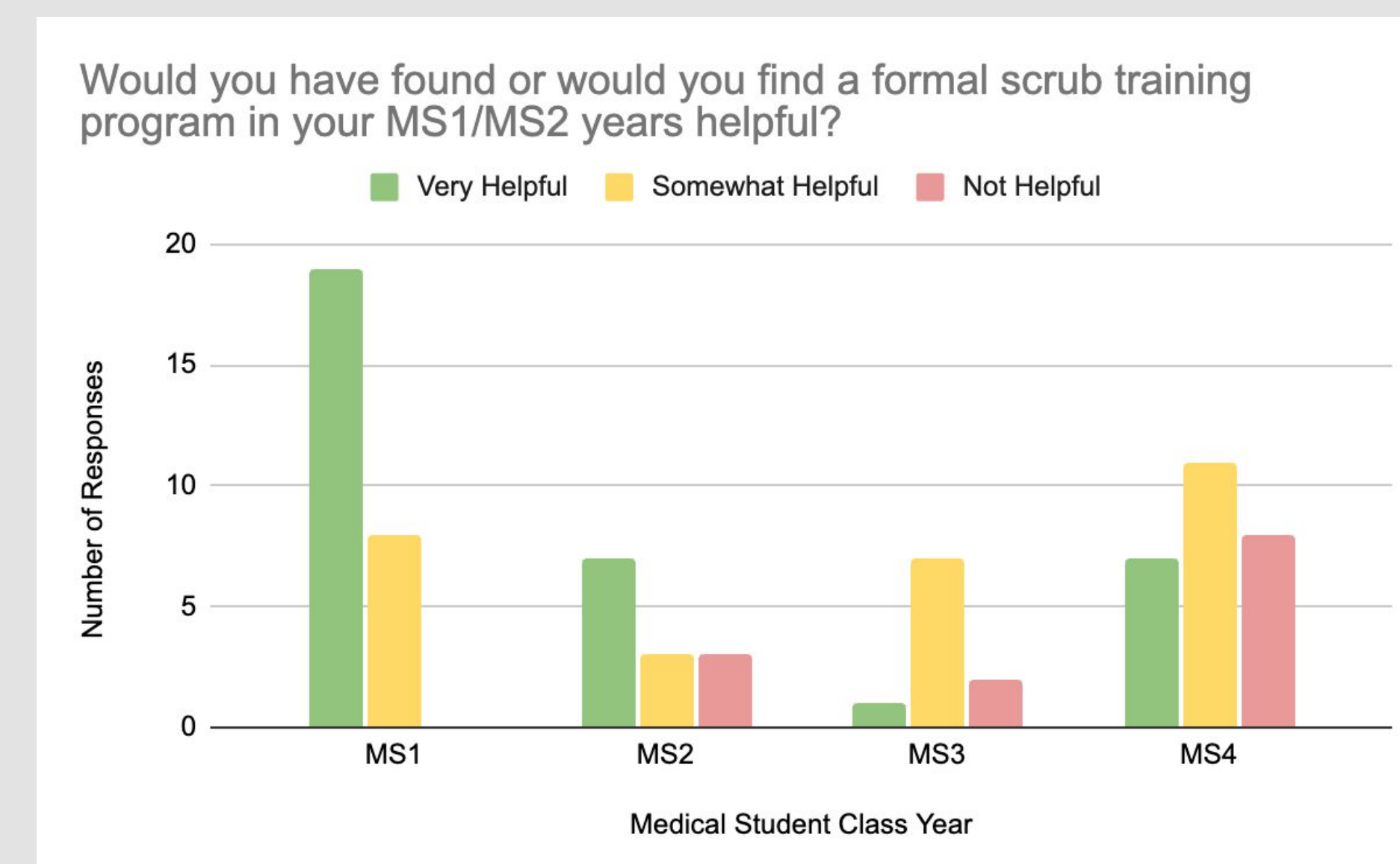


Figure 1. Student responses regarding the helpfulness of a preclinical formal scrub training program.

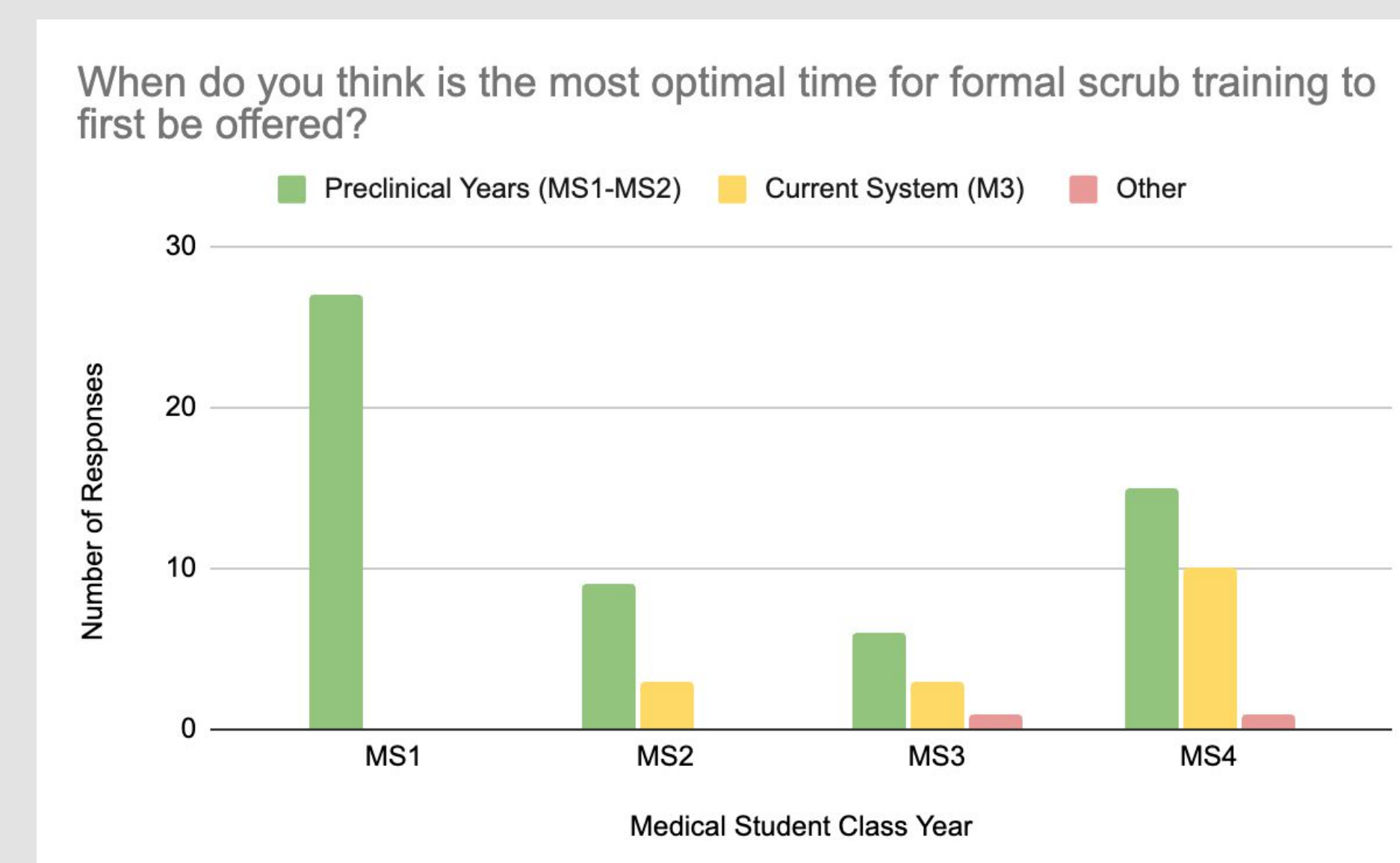


Figure 2. Student responses regarding the optimal timing of formal scrub training to first be offered.

Results

From the survey period of 2/23/24 to 4/1/24, the survey received 81 responses with the following breakdown: 30 MS1s (37%), 13 MS2s (16%), 10 MS3s (12%), and 28 MS4s (35%).

MS1/MS2 Data:

23% of MS1s and 38% of MS2s have shadowed and scrubbed into the OR, 47% of MS1s and 46% of MS2s have shadowed in the OR but not scrubbed in, and 30% of MS1s and 15% of MS2s have never shadowed in the OR. 100% of the MS1 and MS2 students who have shadowed and scrubbed in reported that they do not have formal documentation of their scrub training.

In regards to perceptions about the utility of a formal, preclinical scrub training program, among MS1s, 70% stated it would be very helpful, 30% stated somewhat helpful, and 0% stated unhelpful. Among MS2s, 54% stated very helpful, 23% stated somewhat helpful, and 23% stated unhelpful. When surveying which time period would be optimal to first offer a formal scrub training program, 100% of MS1s and 75% of MS2s reported that within the preclinical years would be an optimal time, while the remaining 25% of MS2s vouched for the current system.

MS3/MS4 Data:

When asked whether a preclinical scrub training program would have been helpful for their surgical rotations, among MS3s: 10% stated very helpful, 70% stated somewhat helpful, and 20% stated not helpful. Among MS4s: 27% stated very helpful, 42% stated somewhat helpful, and 31% stated not helpful. When asked whether earlier formal scrub training would have encouraged OR shadowing in the preclinical years, among MS3s: 30% stated yes, 50% stated no, and 20% stated unsure. Among MS4s: 38% stated yes, 38% stated no, and 23% stated unsure. When surveying which time period would be optimal to first offer a formal scrub training session, among MS3s, 60% preferred training during the preclinical years and 30% chose the current system, with 10% being ambiguous free text responses. Among MS4s, 58% vouched for the preclinical years and 38% chose the current system, with 4% being ambiguous free text responses.

Regarding Challenges: Among MS1s/MS2s, the most commonly reported or anticipated challenges that make scrubbing in more difficult included lack of training/certification beforehand and OR staff lacking the time to scrub train students. Across MS2s-MS4s, a commonly reported challenge was perceived negative OR staff perceptions toward medical students (reported by 70% of MS2s, 70% of MS3s, and 61% of MS4s).

Future Directions

This study is significant in the realm of medical education and assessing how medical programs can support their preclinical students in the pursuit of hands-on learning environments. Beyond the local setting of UCISOM, these survey results can serve as a sample population from which other medical programs can gauge students' interest in earlier scrub training.

In addition, this survey has become a starting point from which to identify limitations in UCISOM's preclinical operating room exposure. Our team will be working closely with Student Affairs and our Clinical Foundations Team to integrate formal, optional scrub training into the MS1 curriculum.

Conclusion

Across all the class levels, the majority of students reported that an optimal time for optional surgery scrub training to be offered would be during the preclinical or MS1/MS2 years. Notably, 100% of MS1 students preferred a preclinical option. All the MS1 and MS2 students who scrubbed in did not have formal documentation of their scrub training, indicating a need for more structured training and transparency around scrub protocols to equalize access to the OR learning environment. Students reported challenges around OR protocol that extended beyond technical matters to include concerns about OR staff's attitudes toward students, notably among MS3s and MS4s who have had formal rotations. This suggests a need to further investigate how OR culture affects students' performances and access to surgical shadowing, particularly for MS1s/MS2s who have to self-drive their shadowing.

Another important consideration is the role that third-year rotations play in enabling students to determine their specialty of interest, cultivate relationships with faculty, and develop technical skills required in many practices. Away rotations are critical for many medical students — especially for those applying to competitive specialties — in building relationships with external programs and showcasing competence. Earlier scrub and OR etiquette training may improve students' confidence and overall performances as they enter their clinical rotations. This formal curricular change may also help level the playing field for away rotations, as currently, UCISOM students may be performing alongside students from other institutions that offer greater preclinical OR opportunities.

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