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Preparing Senior Medical Students for Surgical Internship: the Value of a Half-day Intervention

Several factors have contributed to the notion that a pure Halstedian Preceptorship whereby the “operating room is the surgeon’s classroom” is all but gone. These include limitations on resident work hours, public sentiment regarding the use of humans as training models, and economic pressures to use operating room time more efficiently.^{1,2} This has consequently led to the adoption of nontraditional methods for medical student and resident education as well as fourth-year medical students who are increasingly less prepared for surgical internships.^{2,3} We propose and examine the impact of a single, half-day, low-resource intervention intended for senior medical students preparing to enter a surgical residency.

Eleven third- and fourth-year medical students at a Liaison Committee on Medical Education-accredited medical school attended a half-day faculty-led workshop that was organized by the school’s surgery interest group and advertised as “Surgery Bootcamp.” Students completed a preworkshop questionnaire that solicited basic demographic information and asked participants to assess their comfort level on simple suturing and knot tying, basic surgical floor and intensive care unit (ICU) management, surgical note writing, oral case presentation, and surgical anatomy using a 5-point Likert scale.

Participants subsequently rotated through the six 45-minute workshops led by surgical faculty. Surgical documentation familiarized students with preoperative, postoperative, and daily follow-up notation strategies. The oral presentation skills workshop sought to affirm student confidence in situations requiring presentation to attending physicians. Formal presentations by the volunteer faculty refreshed students’ surgical anatomy repertoire. A fourth workshop reviewed the basic principles guiding management of the surgical patient in the floor and ICU setting. The “knot shop” gave participants an opportunity to rehearse their knot-tying techniques under expert guidance. Finally, participants rotated through the “sew and close” workshop where they were supervised placing interrupted and running cuticular sutures on pig’s feet.

Afterward, participants were asked to fill out a postworkshop questionnaire on whether the Bootcamp led to a connection with a potential mentor and to what degree the day’s experiences changed their interest in surgery. Additionally, participants were asked to reassess their comfort level with the aforementioned knowledge and skill areas after participation in the workshops. Five of the 11 attendees, nearing completion of their intern year, were available to complete a 1-year follow-up questionnaire asking whether they would recommend the Bootcamp to students pursuing a career in surgery. Analysis of the pre- and postworkshop surveys was conducted using the paired samples *t* test. A *P* value < 0.05 was considered significant. Statistical analysis was performed with SPSS Version 18.0 for Windows (SPSS, Chicago, IL).

Eleven third- and fourth-year medical students (27.3% [three of 11] female and 72.7% [eight of 11] male) attended surgery Bootcamp. The 11 attendees consisted of one third-year (9%), six fourth-year medical students (55%), and four nontraditional students pursuing a second degree (36%). Five surgical faculty members volunteered to lead the workshops along with a senior general surgery resident and a senior surgery laboratory manager. Participants unanimously agreed that the surgery Bootcamp met their

expectations and for most, the workshop increased their interest in surgery. No students felt as if they made a connection with a potential mentor. Responses to items graded on a Likert scale are summarized in Figure 1. Students reported an increase in their comfort level with all skill and knowledge areas except suturing and knot tying. Overall, attendees reported that Surgery Bootcamp was moderate to very helpful in increasing their preparedness before beginning a surgical internship. Five fourth-year medical students who attended surgery Bootcamp completed a 1-year follow-up survey in which they unanimously recommended the half-day event to students pursuing a career in surgery.

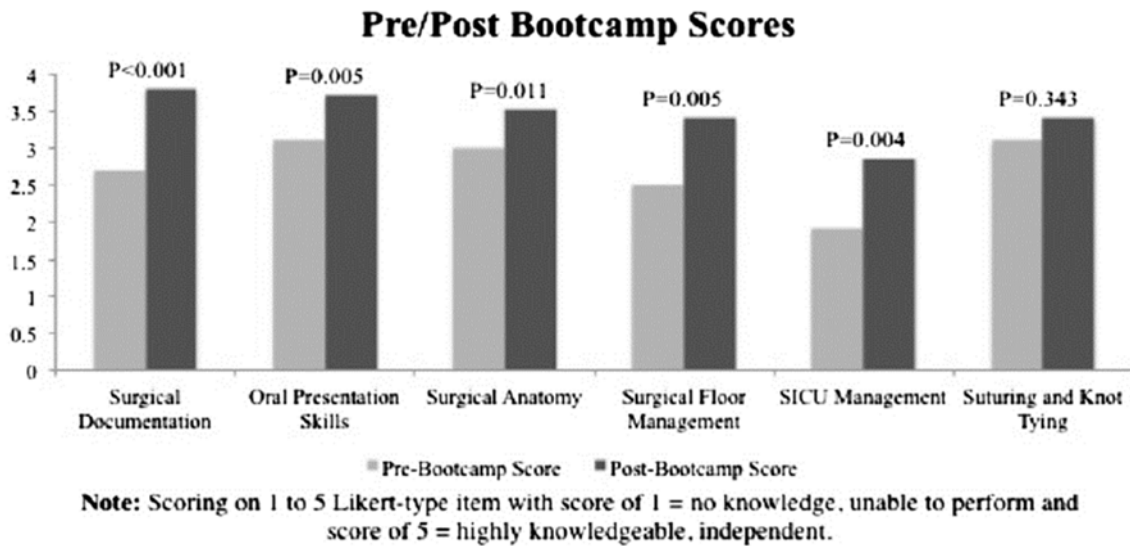


FIG. 1. The self-perceived change in comfort level with respect to the indicated knowledge or skill.

Surgery Bootcamp represents a feasible intervention aimed at filling the educational gap in surgical training during the fourth year of medical school. Donated faculty time is minimized by the compact nature of the event as is classroom space and cost. Surgery Bootcamp increased students' perceived preparedness for the surgical intern year and their perceived level of comfort in all of the covered skill and knowledge areas with the exception of suturing and knot tying. One possible explanation for this is that students overestimated their competence in performing these skills before the workshop. Consequently, discordance between perceived and actual skill improvement occurred, disrupting the analysis and interpretation of these data. Most significantly, however, five of 11 prior participants unanimously recommended Surgery Bootcamp to future classes of senior medical students, affirming its relevance to preparing preintern classes for the rigors ahead.

The overarching mission of Surgery Bootcamp is to provide a low-resource, replicable intervention aimed at shrinking the educational gap that consistently plagues surgical intern classes. Ideally, objective measures of knowledge and skill acquisition would be simultaneously tabulated and juxtaposed with the subjective, perceived changes such that the value of our current evaluative technique could be validated. This will be the focus of further studies conducted during future Bootcamp events. In addition, a control group for future comparison is an improvement under current consideration.

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