

**Non-technical skills of surgery residents: does experiential learning lead to competence?**

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**INTRODUCTION:** Non-technical skills (NTS) play a key role in the delivery of safe patient care in the operating room (OR). As a result, regulatory bodies for accreditation and certification have included interpersonal and communication skills in the program requirements for graduate medical education in general surgery. However, controversy exists as to whether NTS are developed through experiential learning during residency. Thus, the purpose of the present study was to evaluate residents' NTS at different levels of training.

**METHODS:** General surgery residents of postgraduate years (PGY) 1, 3 and 5 without previous structured training in NTS participated in high fidelity hybrid-simulations that required management of standardized intraoperative crisis scenarios. Simulations were video recorded and reviewed by two trained observers who independently rated residents' NTS using the Non-technical Skills for Surgeons (NOTSS) scale.

**RESULTS:** The observers rated recordings of 36 residents: junior (PGY1, n=12), intermediate (PGY3, n=15) and senior (PGY5, n=9) training levels. High agreement between observers was demonstrated on all four NOTSS categories (Intra-Class Correlation, .766-.899). Marginal or poor ratings (scores 1 or 2) in at least one category were found at all postgraduate levels (PGY1=67%, n=8; PGY3=87%, n=13; PGY5=89%, n=8). Comparison between groups (Kruskal-Wallis test) revealed no significant difference in NOTSS scores (Table).

	Junior: PGY1	Intermediate: PGY3	Senior: PGY5	Kruskal Wallis Test
Situation awareness	3 (1-4)	2 (1-3)	3 (2-3)	p=.346
Decision making	2 (1-4)	2 (1-4)	2 (2-3)	p=.831
Communication/ teamwork	2 (1-3)	2 (1-4)	2 (1-3)	p=.960
Leadership	2.5 (1-4)	2 (1-4)	3 (2-3)	p=.188
Combined	9.5 (5-14)	8 (4-10)	10 (7-11)	p=.522

**CONCLUSIONS:** The rate of NTS failure was unacceptably high among all residents indicating that conventional surgical training does not lead to proficiency in these skills. Standardized training and assessment of NTS needs to be implemented in competency-based curricula in order to ensure ACGME/CanMEDS competency requirements are met in current surgical training.

**Belonging: a simple, brief intervention decreases burnout**

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**INTRODUCTION:** Attrition in general surgery is a significant problem facing residency programs. On average one out of five residents leaves general surgery for another field. We utilized a randomized, controlled trial to determine whether a brief targeted intervention designed to improve residents' sense of belonging might decrease attrition.

**METHODS:** Participants were junior residents from seven surgical specialties (n=35; 15 women). After a survey of attitudes and beliefs, we randomized men and women into either a belonging treatment or control condition. Junior residents read anecdotes from senior residents describing the challenges the seniors had faced early in residency (treatment condition) or describing challenging ethical dilemmas they had encountered early in residency (control condition). Several months later, juniors were asked about their attitudes and beliefs as a proxy for future intentions to leave residency.

**RESULTS:** Residents who felt more like they belonged were more likely to think they would complete residency (r=0.51, p<0.01) and less likely to see themselves as a different type of physician (r=0.36, p<0.01). After the intervention, residents in the treatment condition had significantly lower rates of burnout than those in the control condition (p<0.05).

**CONCLUSIONS:** The belonging intervention decreased the rate of burnout for those in the treatment condition. Because burnout positively correlates with absenteeism and high turnover rates, the residents in the treatment may be less likely to quit residency than those in the control. We intend to follow these residents for several years in order to assess the impact of our intervention on attrition.

**Predictive value of general surgery application data for future resident performance**

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**INTRODUCTION:** USMLE Step 1 and 2 scores have become increasingly important factors in both the screening and selection of general surgery residents. The purpose of this study was to evaluate the association between USMLE scores and clinical and academic performance among surgery residents.

**METHODS:** This was a retrospective cohort study of consecutive categorical resident files from 1998-2008 at our institution. The effect of demographic variables and USMLE Step 1 and 2 scores on clinical and academic performance was evaluated using regression analyses. Clinical performance was assessed using Subjective Clinical Performance Evaluations. Academic performance was assessed using Absite scores and ABS Qualifying Examination (QE) first time pass rates.