Assessing the Surgical Skills of Urology Residents After Preurology General Surgery Training: The Surgical Skills Learning Needs of New Urology Residents

Robert E. Mitchell, MD, Peter E. Clark, MD, and Harriette M. Scarpero, MD

Department of Urologic Surgery, Vanderbilt University, Nashville, Tennessee

OBJECTIVE: Resident work-hour restrictions and a reduction in general surgery training have impacted urologic training. We sought to assess the educational needs of urology residents after preurology training in general surgery to compare self-reported outcomes to those of supervising faculty and to determine which aspects of preurology training have an impact on those needs.

DESIGN: A survey was distributed electronically to urology residents and faculty of Accreditation Council for Graduate Medical Education (ACGME) residency programs. Residents evaluated 11 surgical skills with regard to their importance to subsequent urology training and their self-assessed proficiency with those skills. Faculty members evaluated the same skills with regard to their importance and their residents' proficiency with those skills. All individuals evaluated 11 general surgery rotations with regard to their importance to later urology training. The responses were analyzed using the paired Wilcoxon test, and faculty responses were compared with resident responses using the Fisher exact test and the χ^2-test.

SETTING: Urologic surgery residency programs in the United States.

PARTICIPANTS: There were 305 resident responses and 58 faculty responses.

RESULTS: For each surgical skill, residents perceived skills as being more important than their self-assessed proficiency with those skills ($p < 0.001$). Resident and faculty assessments of surgical skills and of general surgery rotations were similar. More time spent in general surgery training was associated with increased self-assessed proficiency. No difference was found between resident and faculty assessment of global surgical skills ($p = 0.76$) or general surgery rotation importance ($p = 0.87$).

CONCLUSIONS: A discrepancy was determined between urology residents' perceptions of the importance of surgical skills and their proficiency with those skills. The duration of general surgery training might have an impact on self-assessed skills proficiency. Concordance was demonstrated between resident and faculty perceptions of residents' surgical skills and of general surgery rotations. (J Surg 68:341-346. © 2011 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: internship and residency, clinical skills, needs assessment

COMPETENCIES: Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills

INTRODUCTION

Urologic residency training has changed over the last decade. Residency work-hour restrictions, less time spent in preurology general surgery training, an increasing presence of subspecialty fellows, and a new emphasis on laparoscopic and robotic surgery have all impacted the way residents are inculcated into the field. Although these unavoidable changes have been deliberate and carefully planned, their effects might not be entirely positive. Residents are acquiring technical surgical skills later in their training. The intern year is often spent managing postoperative patients and completing documentation. The Accreditation Council for Graduate Medical Education (ACGME) does still require 12-24 months of general surgery training; some of this time is spent in core general surgery rotations, and some time is spent on a urology or other subspecialty rotation. Beginning in undergraduate medical education, evidence suggests a discrepancy between the level of surgical proficiency anticipated by attending surgeons and the actual skills possessed by incoming residents.[1] This gap between expected and actual abilities is aggravated by a disparity between the perceived

Correspondence: Inquiries to Robert E. Mitchell, MD, Department of Urologic Surgery, Vanderbilt University Medical Center, A-1302 Medical Center North, Nashville, TN 37232; fax: (615) 343-0153; e-mail: Robert.mitchell@vanderbilt.edu

learning needs of residents themselves and those of their supervising faculty.[2] The purpose of the current study is to assess the perceived educational needs of urology residents after completion of preurology training in general surgery, to compare those perceptions to the perceptions of supervising faculty, and to determine which aspects of preurology training have an impact on those needs. The results of this needs assessment study might be used to guide and target future efforts to improve the technical surgical skills of urology residents and to "bridge the gap" between faculty (and other stakeholder) expectations and actual abilities.

MATERIALS AND METHODS

An application was submitted to the Vanderbilt University Medical Center Institutional Review Board. Because of the anonymity of the data to be collected and the minimal risk involved in participating in the study, this project was deemed to be exempt from Institutional Review Board oversight. A novel electronic survey was created using Survey Monkey (http://www.surveymonkey.com) and distributed directly via e-mail to all urology residents in the American Urology Association (AUA; including those in preurology training). A second e-mail (reminder e-mail) was not sent. The survey elicited basic personal and program-specific demographic information, including sex, AUA region, and years of preurology general surgery training. Each responder was then asked to consider 11 discreet technical surgical skills. A Likert-style score (1-5) was used to assess the importance of each skill subsequent to urology training. A critical self-assessment of proficiency with regard to each of the surgical skills was then requested, also using a Likert-style score. Similarly, responders were then asked to consider 11 common general surgery rotations encountered during preurology training. Each rotation was evaluated with respect to its importance to subsequent training in urology and with respect to its efficacy in teaching basic surgical skills. The surgical skills and general surgery rotations were decided on after a review of the literature and conversations with experts in surgical education.[1-3] Finally, a global, dichotomous self-assessment of surgical skills proficiency and a similar assessment of general surgery efficacy was requested.

Urology faculty were contacted indirectly: An e-mail was sent to each residency program's director with a request to forward the survey on to their faculty members. Responders were asked to complete a similar survey. Surgical skills were evaluated with regard to their importance and program-specific resident proficiency with those skills. General surgery rotations were evaluated based only on importance to later urology training. Faculty were not asked to evaluate the efficacy of each rotation. Global assessments of their residents' surgical skills and of general surgery efficacy at their institution were requested. Please refer to the appendix for a key to the Likert-style scoring system used for survey questions.

The responses were tabulated. Resident responders who were in preurology training were eliminated from the analysis because they were not yet in a position to assess the results of their internship. The Paired Wilcoxon statistic was used to compare resident assessments of the importance of surgical skills to their self-assessed proficiency with those skills. The same statistic was used to compare the importance of general surgery rotations to the efficacy of those rotations in teaching basic surgical skills. Faculty responses were compared to resident responses using the Fisher Exact test. The χ^2-test was used to compare dichotomous variables.

RESULTS

A total of 305 residents responded to the survey (21.8% of 1396 residents queried). In all, 275 respondents completed their preurology training. There were 58 faculty responses (the total number queried is not available for faculty). Personal and program-specific demographic information is displayed in Table 1. Of note, 150 (54.5%) responders completed only 1 year of general surgery training. All responders were participants in ACGME-administered urology residency programs. Significant variability, as allowed by the ACGME, was found with regard to the exact rotations that each resident completed within the umbrella of general surgery.

Resident Assessments

A rank-ordered list of the resident-assessed importance of each surgical skill is demonstrated in the first column of Table 2. All surgical skills were regarded as at least "relevant" to subsequent urology training, but residents reported, on average, that they became competent with only "closing skin" and "using electrocautery in obtaining hemostasis." Without exception for every surgical skill, significant differences were noted between perceived importance and self-assessed proficiency (paired Wilcoxon $p < 0.001$ for each skill). These data are demonstrated graphically in the first and third columns in each skill group in Fig. 1. This finding indicates that residents are not as proficient with surgical skills as they should be, as measured by the skills'

TABLE 1. Resident Responder Demographics and Residency Program Information

Total responses	275
PGY year	n (% of total)
2	52 (18.9)
3	77 (28.0)
4	59 (21.5)
5	61 (22.2)
6	26 (9.5)
Sex	
Male	216 (79.1)
Female	57 (20.9)
General surgery time	
1 year	150 (54.5)
1-2 years	56 (20.4)
2 years	63 (22.9)
Other	6 (2.2)