

Relevancy of an In-Service Examination for Core Knowledge Training in a Surgical Subspecialty

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OBJECTIVE: To facilitate knowledge acquisition during plastic surgery residency, we analyzed the breast curriculum on the Plastic Surgery In-Service Training Exam (PSITE).

DESIGN: Breast-related questions on 6 consecutive PSITEs were analyzed (2008-2013). Topics were categorized by the content outline for the American Board of Plastic Surgery written board examination. Question vignettes were classified by taxonomy and clinical setting. References for correct answer choices were categorized by source and publication lag.

RESULTS: A total of 136 breast-related questions were analyzed (136/1174, 12%). Questions tended to appear more in the Breast and Cosmetic (75%) section than the Comprehensive (25%) section ($p < 0.001$). Most question vignettes were written in a clinical setting (64%, $p < 0.001$). Question taxonomy was evenly distributed among recall (34%), interpretation (28%), and decision-making (37%, $p > 0.05$). Only 6% of questions required photographic evaluation. Breast-related topics focused on esthetic problems (35%), traumatic deformities (22%), and tumors (21%). Answer references comprised 293 citations to 63 unique journals published a median of 6 years before PSITE administration. *Plastic and Reconstructive Surgery* (57%) was the most cited journal ($p < 0.001$) and *Surgery of the Breast: Principles and Art* by Spear was the most referenced textbook (22%).

CONCLUSIONS: The PSITE affords a curriculum that reflects breast-related topics on the American Board of Plastic Surgery written board examination. These data may optimize knowledge acquisition in esthetic and

reconstructive breast surgery. (J Surg Ed 73:305-310. © 2015 Published by Elsevier Inc. on behalf of the Association of Program Directors in Surgery)

KEY WORDS: residency, resident education, examination, in service, PSITE, boards

COMPETENCIES: Medical Knowledge, Patient Care, Practice-Based Learning and Improvement

INTRODUCTION

Integrated plastic surgery residency programs must develop comprehensive clinical curricula that cover the breadth of plastic and reconstructive surgery in 6 years. Program directors must overcome limited resources and work hours in developing efficient residency curricula.¹ At the same time, trainees must acquire sufficient knowledge during residency to pass the written and oral board examinations of the American Board of Plastic Surgery (ABPS). Currently, there are limited resources to adequately prepare residents for the written board examination. The most recent statistics from 2013 demonstrate that 15.6% of examinees fail their written examinations.²

Every year, the American Society of Plastic Surgeons administers a national assessment of plastic surgery knowledge via the Plastic Surgery In-Service Training Exam (PSITE). Widely adopted among residency training programs in the United States, the PSITE allows residents to assess their mastery of plastic surgery knowledge against a national norm. Among its many benefits, the PSITE can help identify areas of weakness and thus direct educational efforts during residency. To date, however, it remains unknown whether the PSITE can help prepare residents for the ABPS written board examination. This research question is of particular interest to the American Council of Academic Plastic Surgeons.³

Cosmetic and reconstructive breast surgeries are among the most frequently demanded services of plastic surgeons.⁴

Previous Presentations: Data from this manuscript were presented in part at the *Northeastern Society of Plastic Surgeons*, Providence, RI, September 12, 2014.

Institutional Review Board: This study qualified as nonhuman research and received exemptions as per the standing policy of the IRB.

This project was supported by the National Institutes of Health, USA Grant R25-HL084665 (to J.S.).

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Plastic surgery residents must receive adequate training in breast surgery as determined by the American Council of Graduate Medical Education.⁵ The purpose of the present study was to characterize breast-related topics on the PSITE to help optimize knowledge acquisition during residency and help residents prepare for the ABPS written examination.

To achieve this goal, this study analyzes PSITE breast-related questions to determine (1) the proportion of questions dedicated to the breast, (2) distribution of question taxonomy, (3) overlap of content with the ABPS written examination, and (4) frequently cited references to correct answer choices. Residents and faculty can use these data to determine high-yield topics and literature sources, thereby facilitating the development of a core breast-related curriculum for plastic surgeons.

METHODS

Digital PSITE syllabi were reviewed for 6 consecutive years (2008-2013). This 6-year period was selected to reflect the typical examination experience of an integrated plastic surgery resident. Analyses were limited to breast-related topics because of its widespread relevance to cosmetic and reconstructive plastic surgeons.⁴ Evaluators reviewed question vignettes, answer choices, and references of correct responses. A database was developed that included variables for each question obtained after thorough review and consensus of authors. Questions determined to be of poor statistical performance and ultimately not scored were excluded from analysis.

The total number of breast-related questions per section and year of examination administration were recorded. Using an established educational taxonomy model,⁶ breast-related questions were categorized into 1 of 3 categories: level I, recall; level II, interpretation; and level

III, decision-making. This educational taxonomy model describes a need for higher cognitive processes on level III questions, as these questions incorporate skills required from preceding levels. Question vignettes were categorized according to the clinical scenario depicted as clinical, operating room/perioperative, or not applicable.

Breast-related content was categorized via established topics on ABPS written board examination content outline.⁷ Section X on "Plastic Surgery of the Breast" was used to categorize breast-related content on the PSITE. In cases of multiple categories tested, questions were categorized according to the concept that led to the correct answer choice. Articles referenced in support of correct answer choices were quantified by source and relative year of publication. Publication lag was defined as the number of years between publication and PSITE administration. Referenced textbooks were quantified by source.⁸⁻¹²

Question variables were presented descriptively with percentages and means. Trends in breast-related questions over time were analyzed via chi-square goodness of fit testing. Categorical differences were determined via chi-square analyses and post hoc analyses with Fisher's exact tests. Statistical tests were 2 tailed, performed on STATA 13 (StataCorp, College Station, TX), and considered significant if $p < 0.05$.

RESULTS

Of 1174 scored PSITE questions over 6 years, 136 involved the breast (11.6%). This averaged to 23 questions per year (Table 1). Questions were most often in the Breast and Cosmetic section (75%) than the Comprehensive section (25%, $p < 0.001$). Only 8 questions had an associated photograph (5.9%). There was no difference in the percentage of annual breast-related questions during the study

TABLE 1. Characteristics of Breast-Related Questions by Year

	Questions, No. (%)						Total	Average (%)
	2008	2009	2010	2011	2012	2013		
Total	195	196	200	194	194	195	1174	196 (100)
Breast Section	17 (9)	27 (14)	22 (11)	28 (14)	17 (9)	25 (13)	136 (12)	23 (12)
Comprehensive	1	8	4	7	5	9	34	6 (25)
Breast and Cosmetic	16	19	18	21	12	16	102	17 (75)
Photographs	1	1	1	3	0	2	8	1 (6)
Taxonomy								
I (recall)	9	10	7	11	5	5	47	8 (34)
II (interpretation)	3	8	6	7	6	8	38	6 (28)
III (decision-making)	5	9	9	10	6	12	51	9 (37)
Vignette								
Clinic	8	17	15	18	12	17	87	15 (64)
OR/periop	4	5	4	5	1	7	26	4 (19)
N/A	5	5	3	5	4	1	23	4 (17)

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