Key Criteria for Selection of Radiology Residents:
Results of a National Survey[1]

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Rationale and Objectives. We sought to identify the criteria that academic radiology departments in the United States consider for selecting their residents.

Materials and Methods. In a cross-sectional study, a validated survey was sent to all the program directors of radiology residency programs. A total of 25 variables were studied. Descriptive statistics and correlations were calculated by the χ^2 test. Nonparametric correlations were calculated with the Kruskal-Wallis rank test. Statistical significance was set at 5% α-error level ($P < .05$).

Results. We had a response rate of 53.1% (77 of 145). All responders participate in the National Resident Matching Program (NRMP), and 93.5% fill all their positions through NRMP. The preinterview selection criteria showed no significant difference by size, region, or affiliation with a medical school. An "interviewing body" carries out the interview process in 87.3% of the cases. Residents and fellows are part of the interviewing body in 76.5% of the programs, the body has the final word in accepting candidates in 62.9% of the programs, 55.4% of the programs use score sheets during interviews with candidates, and only 6.5% of the programs perform panel interviews. Programs associated with a medical school are significantly more likely to have more members in their interviewing body and to use score sheets when evaluating candidates, and panel interviews (more than one candidate or interviewer) are significantly more common among programs in the northeast region.

Conclusion. All preinterview selection criteria and some interview structural characteristics are independent of the program's size, region, or affiliation with a medical school. More research regarding optimal preselection and interview processes is needed, and closer attention should be paid to the NRMP process if current practices are to be maintained.

Key Words. Radiology residency; candidates selection.

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Directors of radiology residency programs share the ultimate goal of choosing the most competent and proficient candidates for their programs by using selection measures that will predict residency performance (1) and identify residents who are the best matches for the department and for whom the department is the best choice (2). The selection process usually includes a preselection review of medical school performance and an interview phase car-

ried out before deciding which candidates will be accepted. Several studies to identify which selection criteria best predict in-training performance of radiology residents (1, 3–5) have consistently found a lack of correlation between academic performance during medical school or preclinical training and later performance during residency training (1, 6–10), suggesting that the assessment of noncognitive abilities is key for successful recruitment (1, 11, 12).

Radiology is a specialty in high demand; each year residency programs receive hundreds of applications for a few residency posts, and great financial and human resources are used to screen and evaluate those applicants (13, 14). The success of the recruitment process determines the success of the program if we assume that "a

program is only as good as its residents" (2). Surveys used to evaluate current practices and to gain a better understanding of recruiting trends suggest that the process for recruiting radiology residents is highly variable and somehow correlated with the location and type of program (15). However, to the best of our knowledge, no current information about this process has been published, and new trends have not been described in more than a decade.

We tried to identify the criteria for preselection of candidates, to describe the interview process, and to determine how the final decision-making is organized in radiology residency programs, while attempting to identify significant differences in these practices among regions and different size departments and hospitals across the United States.

MATERIALS AND METHODS

Survey

We conducted a cross-sectional multi-institutional survey study among academic radiology departments across the United States from August 2005 to January 2006 to identify the criteria they consider in selecting their residents. Our institutional review board approved the study.

The 145 program directors listed by Practice Sight, Inc. received an email explaining the purpose of our study, with an embedded link to complete the survey as well as a link to remove their names from the list of recipients if they did not wish to participate (16). The survey was available online through a web-based commercial site (surveymonkey.com) (17). The process was automated, and questionnaires were sent automatically again to nonresponding hospitals for a total of six rounds at 2-week intervals. The responses were kept confidential and anonymous. The survey took approximately 10–15 minutes to complete. Because none of the questions were mandatory, not all of the returned questionnaires were answered completely, a fact taken into consideration in the results section.

The questionnaire initially assessed the general organizational characteristics of the institutions surveyed, including region, number of beds, and volume of radiologic examinations. The remaining questions were divided into three sections, including 1) preresidency indicators, 2) intraresidency indicators, and 3) postresidency indicators, were studied. For this article, we analyzed the 25 variables studied under the preresidency indicators section,

Table 1
Sample Demographics

	Number of Programs	Percentage
U.S. region		
Pacific	11	14.3%
Southwest	6	7.8%
Midwest	19	24.7%
Northeast	28	36.4%
South	13	16.9%
Hospital size (operational beds)		
Less than 200 beds	5	6.5%
Between 200 and 500 beds	24	31.2%
More than 500 beds	48	62.3%
Department size (exams/year)		e
Less than 200,000	17	22.08%
Between 200,000 and 400,000	37	48.05%
More than 400,000	23	29.87%
Association with a medical school		
Yes	64	91.43%
No	6	8.57%

including eight open-ended questions. The questionnaire is included as Appendix 1.

Statistical Methods

First, a descriptive analysis was performed to assess the general characteristics of the responding institutions and the organization, characteristics, and mechanism used to select residents. Second, departments were grouped according to geographic region (Pacific, Southwest, Midwest, Northeast, and South), number of operational beds (<200, 200–500, and >500 beds), radiologic examination volume (<200,000, 200,000–400,000, and >400,000 examinations performed per year), and association or lack of association with a medical school (see sample demographics in results section, Table 1) and compared by a Pearson χ^2 test. Third, nonparametric correlation analysis with the Kruskal-Wallis rank test was performed to assess the importance assigned to the selection criteria for each of the candidates. Statistical significance was set at 5% α-error level ($P < .05$).

RESULTS

General Characteristics

A total of 77 (53.1%) of the 145 surveyed program directors responded to the questionnaire; 27 (36%) of the responding programs were in the Northeast, 18 (24%)