

The Growing Size of Radiology Practices

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Purpose: To describe trends in the size of radiology practices from 1990 to 2007.

Methods: Data from the American College of Radiology's 1990, 1995, 2000, and 2003 surveys of radiologists and radiation oncologists and its 2007 survey of radiologist members are compiled to describe the changing distribution of radiologists by practice size over time. All estimates are weighted to be representative of all radiologists in the United States.

Results: The fraction of radiologists in small practices (1-4 radiologists) decreased from 29% in 1990 to 22% in 2007. The fraction in medium-sized practices (5-14 radiologists) decreased from 51% in 1990 to 38% in 2007. The fraction in practices with 15 to 29 radiologists increased from 14% in 1990 to 21% in 1995 and has since remained constant. The fraction in practices with 30 or more radiologists grew from 5% in 1990 to 19% in 2007, but since 2000, growth among these practices has largely been limited to practices with 60 or more radiologists. The median radiologist was in a 7-radiologist practice in 1990. This size increased to 11 in 2000 and was the same in 2007. The size of a practice at the 90th percentile of radiologists increased from 22 in 1990 to 45 in 2007.

Conclusion: Radiology practices grew in size throughout the 1990 to 2007 period. In general, changes were more rapid in 1990 to 2000 than since. The most conspicuous growth was in practices with 30 radiologists or more. This category almost quadrupled its share of radiologists. In contrast, the share of very small practices (1-4 radiologists) declined relatively little, by only approximately one-fourth.

Key Words: Demographics, practice size, trends in practices

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INTRODUCTION

The size of radiology practices has long been growing, as we have previously shown [1]. Many observers think that small practices are doomed dinosaurs, and some believe that even medium-sized practices will not be sustainable in the future.

Because of widespread concern in the radiology profession about this topic, and because we have not reported on trends in practice size more recent than for the year 2000, we provide an update through 2007. In addition to reporting on trends in the size of radiology practices, we give attention to the causes of trends and make comparisons with physician practices as a whole. Because

some of the advantages (and disadvantages) of large size are alternatively provided by being part of a multispecialty practice, we also report on trends in the percentage of radiologists in such practices.

This study was undertaken as part of the American College of Radiology's (ACR's) mission of providing radiologists with in-depth information on topics of major concern to their profession.

METHODS

Our data are tabulations from the ACR's 1990, 1995, 2000, and 2003 surveys of radiologists and radiation oncologists and its 2007 survey of radiologist members. The survey methods used in the 1990 to 2003 surveys have been published in detail [1-4]. In brief, these were stratified random sample mail surveys. The universe sampled consisted of all radiologists and radiation oncologists in the United States, not merely ACR members. Through repeated mailings and other reminders, response rates of 68% in 1990, 75% in 1995, 74% in 2000, and 63% in 2003 were attained. Responses were weighted

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to make them represent what answers would have been if all members of the professions in the United States had been surveyed and had responded. For this study, only responses from radiologists were included; radiation oncologists were excluded.

The 2007 survey was a stratified random sample telephone quota survey of ACR radiologist members conducted in May and June 2007. (Approximately two-thirds of post-training, professionally active radiologists in the United States are ACR members.) Radiation oncologists were excluded, as were trainees and retirees. The strata were the states of Arkansas, California, Georgia, Iowa, Louisiana, Michigan, Montana, New Jersey, New York, North Dakota, Texas, West Virginia, and all other states grouped by the 4 census regions (Northeast, Midwest, West, and South). For the selected states, the sample included minimums of 30 responses for New York, 42 responses for California, and 20 responses for each of the other states on the list. The remaining states were treated as 4 groups by census region, and the minimum sample size required was proportionate to the population of these states in the census region. For example, the states in the South not listed above had 66% of the population of the South, and the minimum sample size collectively required from these states was 66. In total, 487 responses were received, and the response rate was 20% (487/(2702 contacted—282 disconnected phone numbers or wrong number—36 not qualified)). Respondents were promised confidentiality; to further ensure confidentiality, the survey was conducted by an outside contractor, dmrkynetec (<http://www.dmrkynetec.com/Index/Index.aspx>), and the data set delivered to the ACR was stripped of all individual identifiers.

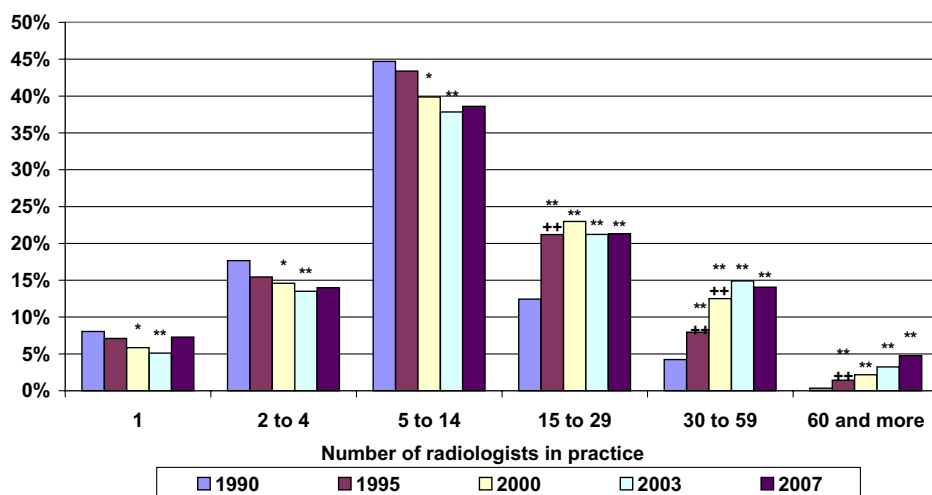
To make the 2007 data representative of all radiologists in the United States, a multistage weighting process

was carried out. First, responses from each state were weighted by (number of ACR members in the state)/(number of responses from the state). Second, the 2003 survey had shown differential response by age. On the basis of the differential response rates found in 2003, the weight was multiplied by 1.105 for respondents aged less than 35 years; by 1.045 for respondents aged 35 to 44 years; by 0.974 for respondents aged 45 to 54 years; by 0.934 for respondents aged 55 to 64 years; by 0.929 for respondents aged 65 to 74 years; by 0.994 for respondents aged 70 years and older; and by 1 for those of unknown age. Finally, because ACR members were on average in somewhat larger practices than radiologists as a whole in 2003, another adjustment was required. To do this, we separated respondents into practice size categories of 1, 2 to 4, 5 to 7, 8 to 10, 11 to 14, 15 to 19, 20 to 24, 25 to 29, 30 to 34, 35 to 39, 40 to 44, 45 to 49, and 50 or more. For respondents in each size category, the previously derived weight was multiplied by (percentage of all radiologists in the United States in the size category in 2003)/(percentage of ACR members in the size category in 2003).

All data analysis was carried out with SAS Version 9.1 (SAS Institute Inc, Cary, North Carolina). A *p* value less than 0.05 (2-tailed) was considered statistically significant.

RESULTS

The fraction of radiologists in 1-radiologist practices declined from 9% in 1990 to 5% in 2003, but then rebounded to 7% in 2007 (Figure 1). (The 2007 rebound was not statistically significant, ie, the associated *p* is > 0.05. For more on the statistical significance of changes reported in this and the next few paragraphs, see Figure 1.)



** : Significantly different from 1990, *p* < 0.01; * : Significantly different from 1990, *p* < 0.05.

++ : Significantly different from previous survey, *p* < 0.01; + : Significantly different from previous survey, *p* < 0.05.

Fig 1. Percentage of radiologists, by practice size, 1990 to 2007. For each of the years for which we have survey data, the bars show the percentage of radiologists who were in each practice size category during that year. All percentages are weighted to be representative of all radiologists in the United States. The percentage of radiologists in large practices (≥ 15 radiologists) increased, and the proportion in smaller practices stayed stable or decreased for at least part of the period.

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