

# How Competitive Is the Match for Radiology Residency? Present View and Historical Perspective

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**Purpose:** Interest in radiology as a career among US medical students has changed. The aim of this study was to investigate the recent and historical trends in residency applications and how they have affected competitiveness in obtaining a position.

**Methods:** Statistics published by the National Resident Matching Program in “Results and Data: Main Residency Match” for 1991 to 2013 were analyzed.

**Results:** The number of radiology residency positions has trended upward over the past 23 years; however, the number of applicants from US medical schools has been widely variable. The number of applicants peaked in 2009 but has since decreased every year. The number of positions per US senior applicant (PPUSA) is a judge of specialty competitiveness on a supply-and-demand basis. A lower PPUSA indicates a more competitive specialty. Radiology saw its most competitive year in 2001, with only 0.91 PPUSA. PPUSA has been on the rise every year since 2009. From 2009 to 2013, the number of residency positions increased by 56, but there were 241 fewer US senior medical students preferring radiology. In 2013, there were 1,143 residency positions available for only 845 US senior medical students who preferred the specialty. The PPUSA was 1.35, making 2013 the least competitive year in obtaining a radiology residency position since 1998. Over the past 23 years, 5.5% of all US senior medical students have applied to radiology for residency. Interest reached an all-time high in 2009, at almost 7%. In 2013, only 4.8% of all US seniors preferred radiology, the lowest since 1999. The historical (1991–2013), current (2011–2013), and most recent (2013) PPUSAs for radiology were 1.19, 1.29, and 1.35, respectively. For comparison, the current PPUSAs for the following specialties were: 0.74 for plastic surgery, 0.83 for orthopedic surgery, 0.95 for dermatology, 1.10 for general surgery, 1.24 for obstetrics and gynecology, 1.31 for anesthesiology, 1.42 for pediatrics, and 1.80 for internal medicine (1.80).

**Conclusions:** Although radiology residency positions have continued to increase, interest among US seniors has dropped every year since 2009. The 2013 match was the least competitive since 1998. Over the past 3 years, the competitiveness of matching radiology on a supply-and-demand basis has been close to that of obstetrics and gynecology and anesthesiology.

**Key Words:** Radiology, residency, application, match, competitive

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## INTRODUCTION

Diagnostic radiology has traditionally been regarded as one of the more competitive specialties in the residency match. The acronym “ROAD” is popular among US medical students and represents: radiology, ophthalmology, anesthesiology, and dermatology. These 4 specialties are deemed competitive because they offer perceived work-life balance. The mean United States

Medical Licensing Examination (USMLE) Step 1 score for US applicants who matched into radiology in 2011 was 240 [1]. Only dermatology (244), otolaryngology (243), and plastic surgery (249) applicants who matched into their respective programs had higher average scores. Unlike these 3 specialties, the match rate for US seniors who apply to radiology is very high (99% in 2013) [2]. Radiology also has more positions available through the match than all 3 of these specialties combined. Competitiveness is reflected not just in the quality of the applicants but also in the supply and demand of a specialty’s residency positions. We sought to investigate the recent and historical trends in residency applications, how they have affected competitiveness in obtaining a

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radiology residency position, and how they may impact the radiology workforce of the future.

## METHODS

There are 19 major participating specialties in the National Resident Matching Program (NRMP). The majority of the specialties in the NRMP system had match statistics available for the past 20 years. Exceptions included internal medicine and pediatrics, neurology, and otolaryngology. We analyzed statistics published by the NRMP in “Results and Data: Main Residency Match” for 1991 to 2013 [3]. Ophthalmology and urology do not participate in the NRMP match. Their match data were accessed through the San Francisco Matching Program and the American Urological Association (urology data are available only from 2008 onward) [4,5].

We recorded the number of positions and number of US senior applicants for each specialty in each year of the match. “US seniors” are defined as students in their final year at US allopathic medical schools. Because there are many applicants who apply to, and rank, multiple fields in the match, the number of applicants for a specialty is often overcounted. For example, if applicant X applies to both general surgery and orthopedic surgery and ranks the latter first and matches into it, the number of applicants to general surgery will be inflated. To prevent double counting, we included candidates as applicants to a field only if they ranked only one specialty (only choice) or if they ranked that specialty first out of multiple specialties (first choice). The NRMP refers to this as the “preferred” specialty. This method counts only applicants who intended on matching into that specialty.

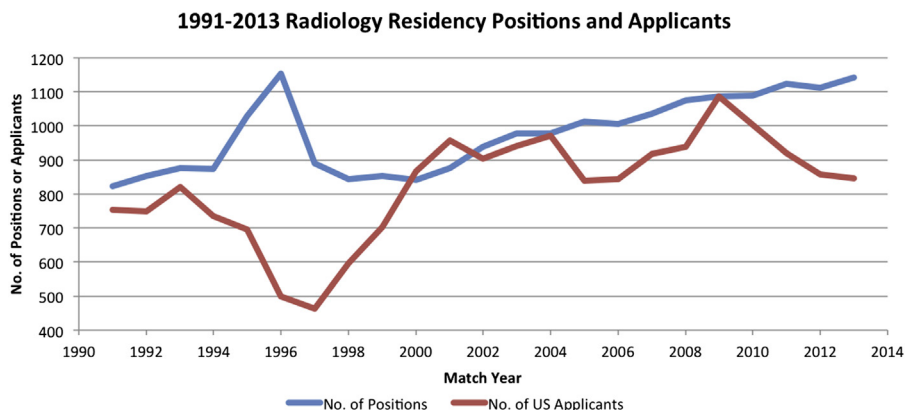
We divided the number of residency positions by the number of applicants to determine the number of positions per US senior applicant (PPUSA), which is a judge of specialty competitiveness on a supply-and-demand basis. This calculation is specific to US seniors and is not meant to assess the quality of US seniors versus nontraditional applicants. Nontraditional applicants include previous US MD graduates, osteopathic students,

Canadian students, Fifth Pathway applicants, US international medical graduates, and non-US international medical graduates. The PPUSA is calculated for each specialty in each year of the match. The PPUSA for each specialty is then tabulated as historical (combined for all available years), current (combined for 2011 to 2013), and most recent (2013) values. The 2013 PPUSA is a snapshot of the most recent match competitiveness. However, there could be 1-year outliers. The current or 2011 to 2013 PPUSA will better represent how competitive a field has been in recent times.

We then focused on radiology-specific data. We recorded the number of US senior radiology applicants and total US senior residency applicants from 1991 to 2013. Simple division calculated the percentage of US seniors applying to radiology each year. In addition, we tabulated the number of radiology residency positions offered, total positions matched, and positions matched to US seniors from 2009 to 2013. The 2009 match represented the most recent peak in competitiveness for radiology, and we chose to trend the data from 2009 to the most recent year, 2013. This was used to calculate the percentage of positions filled by US seniors, nontraditional applicants, and that remained unfilled.

## RESULTS

The number of radiology residency positions has trended upward over the past 23 years; however, the number of US senior medical students applying to radiology residency has been widely variable (Fig. 1). Radiology residency programs offered the most positions in 1996 and saw the fewest US senior applicants in 1997. The number of US senior applicants peaked in 2009 but has since decreased every year. PPUSA is a judge of specialty competitiveness on a supply-and-demand basis. A lower PPUSA indicates a more competitive specialty. Radiology saw its least competitive year in 1996 because of a large increase in positions and an almost mirroring decrease in applicants. Radiology saw its most competitive year in 2001, with a PPUSA of only 0.91. PPUSA has been on the rise every year since 2009 (Fig. 2). From



**Fig 1.** Number of radiology residency positions and US seniors applying to radiology from 1991 to 2013.

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