

# Analyzing the Effects of a Tiered Quota System on Radiology Resident Production

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## INTRODUCTION

- With an aging United States population and expanded access to radiology services for many patients, volumes in private and hospital settings have soared.
- One study by Bruls and Kwee found that on-call workloads increased by 297% from 2006-2020.
- Many practices have moved to some variation of a quota system to set fair expectations and ensure equitable radiologist participation.

## OBJECTIVES

- Determine if a quota system could have an observable impact on resident productivity.
- Determine if a quota system is an acceptable way to set expectations for residents.

## METHODS

- In July of 2022, with input from residency staff and administration, we implemented a quota system for R2, R3, and R4 residents on their neuroradiology rotations.
- R2s were asked to read at least 10 cross-sectional studies per day (50/week).
- R3s/R4s were asked to read at least 20 cross-sectional studies per day (100/week).
- In 2023, two years of data were directly sourced from PACS software to determine the number of cases interpreted by each resident one year prior to and one year following the quota's implementation (excluding evening/overnight call and moonlighting).
- The data was then aggregated on a class-by-class basis, ensuring that individual resident production was not disclosed.

## RESULTS

- Our data demonstrated no significant impact of the quota system on senior resident case volumes.
- Pre-implementation, R3s/R4s together averaged ~48 cases per week
- Post-implementation this remained relatively stable at 45.7 cases.
- Interestingly, R2s averaged 25.7 cases per week pre-implementation and 41.8 cases per week post-implementation.
  - This corresponded with an overall increase in R2 volumes across all subspecialties and was not felt to be related to the quota.

### R4 Class

Metric	Pre-Quota	Post-Quota
Total Cases	230	465
Total Weeks	5	10
Cases/Week	46	46.5

### R3 Class

Metric	Pre-Quota	Post-Quota
Total Cases	971	448
Total Weeks	20	10
Cases/Week	48.6	44.8

### R2 Class

Metric	Pre-Quota	Post-Quota
Total Cases	591	376
Total Weeks	23	9
Cases/Week	25.7	41.8

Figures 1-3: Tables showing the total cases per week read by each class, the total number of weeks a member of that class was on a neuroradiology rotation, and a calculation of the average number of cases read per week.

## DISCUSSION

- Residents were closest to hitting daily quota earlier in the week when volume of unread studies was greatest.
- Many confounding variables affected the volume of cases read, including being pulled to "must cover" rotations.
- All seniors surpassed ACR requirements by the end of residency.

## CONCLUSIONS

- Residents read at approximately the same pace before and after the quota program was enacted, suggesting that such a system has no discernable effect on resident production or workflow, especially at senior resident levels.
- Discussions with residents at the pilot program's end determined that individual staff preferences, rather than program-wide expectations, were the most significant factor influencing day-to-day volumes.

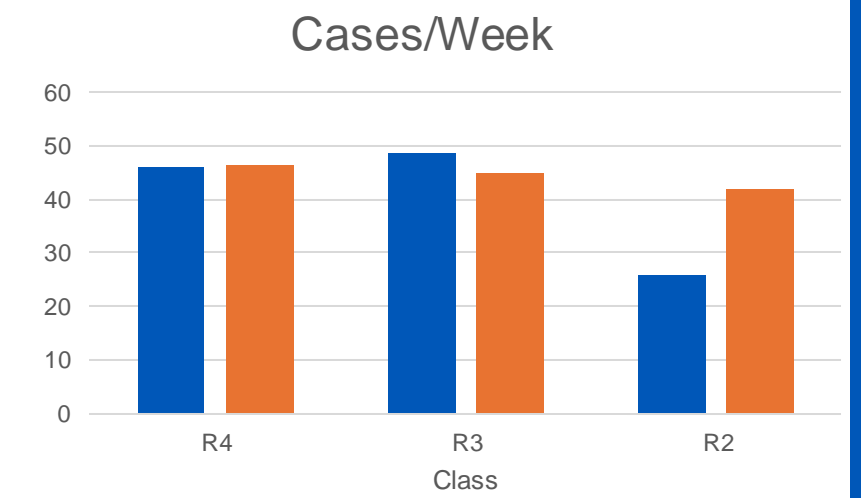


Figure 4: Bar chart above detailing weekly production by class pre/post quota.

## REFERENCES

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