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Title: Recovery and Adaptation: Radiology Volumes Post-Pandemic Using Data from 12.4 Million Imaging Examinations, 197 Facilities, and 1,600 Radiologists

Introduction: The COVID-19 pandemic transformed radiology and had a dramatic effect on radiology imaging volumes. This study aims to analyze the changes in imaging volumes across a diverse sample of radiology facilities in the United States before, during, and after the COVID-19 pandemic.

Methods: We conducted a comprehensive analysis of imaging volumes from 197 radiology facilities and 1,600 radiologists across 23 states in the United States (academic [N<=5], community hospital [N=79], multi-specialty clinic [N<=5], freestanding imaging center [N=109], other [N<=5]). Data from 12.4 million imaging examinations were collected from December 1, 2017, to February 28, 2023, covering the pre-pandemic, pandemic, and post-pandemic periods. Six modalities—computed tomography (CT), mammography, magnetic resonance imaging (MRI),

X-ray, ultrasound, and positron emission tomography (PET)-CT—were assessed individually and collectively. Using the American College of Radiology (ACR) General Radiography Improvement Database (GRID), we tracked changes in workforce number, workload, NPI attrition, and NPI turnover by quarter, utilizing National Provider Identifiers (NPIs) to identify individual radiologists.

Results: Of the 1,600 radiologists, 804 (50%) remained throughout the study period, with 581 (36%) consistently reading at least 100 examinations per quarter in included practices. The average change in exams read per day from 2017 to 2023 was +1.4% (49.5/day to 50.9/day) and -0.2% (54/day to 53.8/day), indicating a complete recovery following a peak decline of -35%/quarter (2,015,150 to 1,304,748) in March through May 2020. Notably, radiologists in the top quartile of productivity experienced significant increases in exams read per day (+25.4%; 52.3/day baseline vs. 65.6/day in 2022) and clinical days worked per quarter (+24.4%; 37.7 vs. 46.9, respectively) from 2017 to 2022. Despite considerable turnover, the number of unique radiologists in the sample increased from 997 (baseline) to 1,144 (2023), with days worked per national provider identifier number (NPI) per quarter remaining relatively stable (40 days vs. 39 days).

Conclusion: Our findings indicate a complete recovery of radiology imaging volume post-pandemic. While the average radiologist's workload remained similar pre- and post-pandemic, high-volume radiologists exhibited a 25% increase in examinations read per day and worked 24% more clinical shifts per quarter. These insights highlight the adaptability and resilience of radiology practices in responding to the challenges posed by the COVID-19 pandemic.