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A Public Health Perspective on Radiologists' Interpretation Volumes

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A Public Health Perspective on Radiologists' Interpretation Volumes

In the recent *AJNR* study by Ivanovic et al,¹ interpretation volume is associated with diagnostic error at the time of interpretation, presumably in the form of a missed diagnosis or misdiagnosis. The actual error rates may be even higher since RADPEER likely biases reviewers to save time and protect colleagues by minimizing discrepancy. While we support the goal to limit volumes, we note that suddenly limiting ourselves to 32 or 40 neuroradiology examinations per shift would rapidly lead to large queues of unread examinations and would inevitably delay many diagnoses. A delay in diagnosis is also a diagnostic error as defined by the National Academies. In England, delays in reporting have contributed to one-third of examined radiology systems failures.²

Also, we cannot estimate how volume limits would reduce error without knowing the degree to which the study model explains error. In our experience, regression models in radiology quality studies often explain only 10%–15% of the studied effect. We, thus, advocate for including the R^2 value to help elucidate the potential impact of interventions on the studied outcome.

Furthermore, as illustrated by the cited airline and anesthesiology experiences, risk mitigation entails addressing many factors that contribute both directly and indirectly to error. For example, examination types are associated with radiologists' recommendation rates,³ due to diagnostic uncertainty, and there is likely a similar association with error. The Ivanovic et al¹ study did not address whether the small fraction of studied shifts with <26 examinations included a high proportion of high-certainty/low-error examination types. Additional unstudied factors that potentially contribute to or confound the error association are noninterpretative responsibilities,⁴ case complexity, and shift time of day.

Radiologists largely agree that higher interpretation volumes are psychologically unacceptable and unsustainable. Nevertheless, imaging volumes continue increasing, and our work is most valuable to patients and referring providers when performed promptly. Increasing the number of radiologists is virtually impossible in the short term given the 10-year American train-

ing pipeline and the barriers to hiring foreign-trained radiologists.⁵ Meanwhile, strategies to limit radiologists' workloads and mitigate error should include the following: clinical trial-validated technologies, including artificial intelligence tools, to reduce ancillary and repetitive tasks and interruptions; reduction of clinically unnecessary imaging; examination scheduling triage based on urgency; and evidence-based guidelines that rank and reward quality and safety to counterbalance the incentive for workflows that maximize revenues and profits.

Disclosure forms provided by the authors are available with the full text and PDF of this article at www.ajnr.org.

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