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Commentary

There is the eternal debate among medical educators as to the right balance between formal teaching and hands on experience for post graduate trainees. Just to give some historical perspective almost all postgraduate residency training programs started out as apprenticeship programs which were heavy on learning by doing. This lead not only lead to highly variable learning experiences for the trainees but also highly variable outcomes for the patients that these learners used as learning opportunities. Over the years this lead to the programs becoming more outcome based and didactic. The other imperative for the shift away from apprenticeship model was the realisation that expecting young physicians to work endless hours without rest. The shift away from the apprenticeships has had many consequences one of which is a general impression (among the older physicians) that the newer trainees lack the necessary skills. In this context Agarwal et al's paper makes important points. There is a point where the two of view camps intersect. The new challenge will be to determine the sweet spot for each individual speciality.

One consequences of having trainees in your department is the poorly understood (by radiologists) phenomenon of confirmation bias. This is when we search for, interpret, favour, and recall information in a way that confirms one's pre-existing beliefs, opinions or hypotheses. Confirmation bias can prevent us from considering other information when making decisions. So when a resident says that a scan is normal, confirmation bias may lead the supervisor to ignore findings that contradict this. This is of course done at a subliminal level and the supervisor is not aware of the this at the time. This can lead to errors. Nanapragasam et al find that it is indeed the case. Awareness of this unintentional blindness goes a long way in mitigating it.

BIRADS set the global benchmark for standardised reporting nomenclature and remains the most widely applied and used standardised reporting format in the world. There have been many additional attempts to standardise reporting for other organs. One of these is TIRADS for thyroid images. The meta-analysis seems to indicate that more work needs to be done before TIRADS becomes as widely accepted and applied as BIRADS. As the world of radiology reports move to more and more standardisation and AI based image interpretation algorithms we as radiologists will need to recongnise not only that it is important to stay on top of technology but also to stay on top of our professions.

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Resident Case Volume Correlates with Clinical Performance: Finding the Sweet Spot

RATIONALE AND OBJECTIVES: To determine whether the total number of studies interpreted during radiology residency correlates with clinical performance as measured by objective criteria.

MATERIALS AND METHODS: We performed a retrospective cohort study of three graduating classes of radiology residents from a single residency program between the years 2015-2017. The total number of studies interpreted by each resident during residency was tracked. Clinical performance was determined by tracking an individual resident's major discordance rate. A major discordance was recorded when there was a difference between the preliminary resident interpretation and final attending interpretation that could immediately impact patient care. Accreditation council for graduate medical education milestones at the completion of residency, Diagnostic radiology in-training scores in the third year, and score from the American board of radiology core exam were also tabulated. Pearson correlation coefficients and polynomial regression analysis were used to identify correlations between the total number of interpreted films and clinical, test, and milestone performance.

RESULTS: Thirty-seven residents interpreted a mean of 12,709 studies (range 8898 - 19, 818; standard deviation [SD] 2351.9) in residency with a mean major discordance rate of 1.1% (range 0.34% - 2.54%; stand dev 0.49%). There was a nonlinear correlation between total number of interpreted films and performance. As the number of interpreted films increased to approximately 16,000, clinical performance (p =?0.004) and test performance (p =?0.01) improved, but volumes over 16,000 correlated with worse performance.

CONCLUSION: The total number of studies interpreted during radiology training correlates with performance. Residencies should endeavor to find the “sweet spot”: the amount of work that maximizes clinical exposure and knowledge without overburdening trainees.

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A. Nanapragasam, P. Bhatnagar and D. Birchall

Trainee radiologist reports as a source of confirmation bias in radiology

AIM: To assess and quantify the relationship between trainee reporting and radiology errors.

MATERIALS AND METHODS: A retrospective analysis of the 100 most recent cases reviewed by a discrepancy forum in a tertiary neuroradiology service was performed. Data on the time of the scan and the presence of a trainee report were collected, with comparison being made between the cohort of erroneous reports and the overall service.

RESULTS: Although out-of-hours imaging only constituted 18% of the overall service, 36% of erroneous reports originated from scans performed out-of-hours. Eighteen percent of scans were first reported by a trainee and then checked by a consultant, with the remaining 82% being solely reported by the consultant. Despite this, 52% of errors were from consultant-checked trainee reports.

CONCLUSION: Although out-of-hours imaging has

long been associated with error, this study identifies consultant checking of trainee reports as another error-associated reporting context. This is likely to relate to confirmation bias, in which the pre-existing trainee report may result in inattentional blindness on the part of the checking consultant. Awareness of this phenomenon is important for the reduction of error in this specific and widely underestimated reporting context.

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B. Migda, M. Migda and M.S. Migda

A systematic review and meta-analysis of the Kwak TIRADS for the diagnostic assessment of indeterminate thyroid nodules

AIM: To explore the diagnostic usefulness of the Thyroid Imaging Reporting and Data System (TIRADS) classification proposed by Kwak in indeterminate nodules using a systematic literature review.

MATERIAL AND METHODS: The PubMed, Cochrane database, ScienceDirect, and EMBASE databases were searched for relevant articles. A meta-analysis was performed to calculate pooled sensitivity, specificity, negative and positive likelihood ratios (LR- and LR+), diagnostic odds ratio (DOR), and area under the curve (AUC) from summarised receiver operating characteristic (SROC) curves.

RESULTS: Six publications describing 1,096 nodules were analysed. Overall pooled sensitivity, specificity, LR+, LR-, DOR, and AUC for SROC were 0.913, 0.347, 1.396, 0.341, 5.832, and 0.7180, respectively.

CONCLUSIONS: Kwak TIRADS classification with 3/4a cut-off for indeterminate lesions has high sensitivity but low specificity to exclude benign lesions. A higher Kwak TIRADS cut-off could help exclude larger numbers of benign lesions and lower the rate of unnecessary surgeries.