

Does Emergency Physician (EP) Diagnostic Imaging Use Affect Clinical Productivity?

Campbell SG, Weerasinghe S, Urquhart DG

Introduction

Considerable variation exists in test use by EPs. We examined the association between physician productivity (PP) and diagnostic imaging (DI) use.

Methods

Using principal component analyses, we analysed PP using patients per hour (pt/hr), percentage of return visits and adjusted workload measurement (AWM), assigning higher scores to CTAS 1-3 patients, of 85 EPs at an academic ED, June 1, 2013 - May 31, 2017. DI utilization included ultrasound (US), CT scan (CT) and x-ray (XR).

Results

Mean pt/hr (1.8; range 1.2-2.5) and AWM (6.9; 4.4 - 9.7) varied significantly. An increase of DI was associated with lower pt/hr and AWM. For pt/hr: 40% CT reduction, doubled the mean ($p=0.001$); 50% x-ray reduction, increased the mean to 2.3 (27%) For AWM: 40% CT reduction, doubled the mean ($p=0.001$), 50% Xray reduction increased the mean by 30% ($p=0.0001$) and 10% reduction of US, increased it by 20% ($p=0.02$). Pt/hr was better correlated with DI ($R^2=38\%$) than AWM ($R^2=30\%$). The benchmark of PP with combinations of positive pt/hr, positive AWM and negative % of return visits was better predicted by DI use ($R^2=42\%$). Less DI ($p=0.0001$), CCFP(EM) training ($p=0.01$), Male gender ($p=0.02$), younger age ($p=0.04$), less CTAS 4 decision time ($p=0.01$) and less patients by a learner ($p=0.07$) were all associated with higher PP.

Conclusion

Increased use of DI were associated with lower pt/hr and AWM and likely contributes to ED overcrowding. Further research is needed to assess the association between DI use and clinical outcome.