The chest X-ray (CXR) is a quick and inexpensive radiological exam with judicious use of CXRs being a valuable tool in patient care, while unnecessary use increasing costs, adding to patient radiation exposure, and may be in conflict with standards of patient care. Doctors are advised that there should be justification for every requested for X-ray examination. This may be interpreted as the results of the examination (either a positive or negative result) which will lead to a change in patient management. A study was carried out in general practice which retrospectively examined the number of CXRs ordered in a general practice population over a 10 year period, and how the results impacted on clinical management. A total of 7161 patient records were reviewed, and from this cohort of 655 patients were identified that had at least 1 CXR performed in the 10 year period. Outcomes were collapsed into two dichotomous variables, management in general practice and management in hospital. We found that the majority of CXR reports did not result in a change in clinical management (91.4% in current or prior smokers and 81.1% in non-smokers). Patients with a current or prior smoking history were referred more frequently for CXR than their non-smoking counterparts, however we found no difference between patients with a current or previous smoking history versus non-smokers in relation to CXR results necessitating referral to hospital for further management ($\chi^2=0.19$, df=1, p=0.66).

The study showed that the majority of CXRs requested in general practice caused no change in management of patients regardless of whether the patient had a smoking history or not, yet it also has shown itself to be a significant tool in diagnosis. During review of the patient files, it was noted that 2 patients had been admitted through an Accident and Emergency Department on the basis of their CXR results from the radiology department, having initially been assessed and referred by their GP. The first patient had returned to his general practitioner with symptoms of a persistent chest infection after treatment with antibiotics. The CXR result had subsequently shown an upper lobe consolidation with pleural effusion and tracheal deviation. Admissions a diagnosis of lymphoma was made and chemotherapy started. The second patient was admitted for a CXR following a persistent cough. The CXR result demonstrated extensive changes affecting both lung fields; a diagnosis of lymphangitic carcinomatosis was subsequently made. Neither of these patients had been smokers, though the link between smoking and cancer is well known.

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