

THE DIAGNOSTIC VALUE OF A CHEST X-RAY IN THE EVALUATION OF PATIENTS WITH FEVER AND NO RESPIRATORY SYMPTOMS OR SIGNS

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Fever is a frequent indication for referral to an emergency department. Often, no localising symptoms or signs are found. International guidelines advise urine analysis and a chest X-ray (CXR) in such patients [1]. To our best knowledge, this recommendation has never been clinically validated. The aim of this study was to investigate the diagnostic value of a CXR in patients with fever of unknown origin and no pulmonary symptoms or abnormal signs at physical examination of the lungs.

First, we explored current clinical practice by conducting a telephone survey. We called the internist and resident on-call of every Dutch hospital for an interview at a random point in time. Secondly, from April 2017 until May 2018 we included in a prospectively designed cohort study all patients with a suspected infection, defined as a body temperature of $>38,0^{\circ}\text{C}$ or $<36,0^{\circ}\text{C}$ (or a CRP value of $>100\text{ mg/L}$), that were referred to the emergency department of the Flevoziekenhuis (Almere, the Netherlands), a medium-sized teaching hospital. In patients with fever of unknown origin and no symptoms or signs of a pulmonary infection, we performed a CXR. The primary outcome of our study was the number of patients in this group in which pneumonia was diagnosed by the CXR. We also calculated the 'number needed to photograph' (NNP) to diagnose one pneumonia.

There were 141 physicians in 83 hospitals available for an interview. Twelve percent said not to perform a CXR in patients with fever of unknown origin and no pulmonary symptoms or

abnormal signs at physical examination of the lungs. We included 741 patients in our prospective cohort, of which 124 patients had no respiratory symptoms or signs. The CXR diagnosed pneumonia in none of them (95%-confidence interval 0.00 – 0.02). This results in an estimated NNP of at least 124.

Our study shows, in contrast to international guidelines and current clinical practice, that a CXR has no relevant diagnostic value in this specific clinical setting. We therefore conclude that it is not necessary to perform a CXR in patients with fever and no symptoms or signs of pneumonia.

[1] NICE guideline. Sepsis: recognition, diagnosis and early management. [ONLINE] Available at: <http://www.nice.org.uk/guidance/ng51/resources/sepsis-recognition-diagnosis-and-early-management-1837508256709>. 2016