frequent in those who died (13/20 – 65%) than those that survived (5/40 – 12.5%; p<0.001). There was a non-significant trend for DNAR to be less frequent in those ≤75 (6/31 – 33%) than those aged >75 (12/29 – 67%; p=0.091) and they were more frequent in those admitted from nursing homes (5/7 – 71.4%) than from their own home (9/49 – 18.4%; p<0.001). 11/60 (18.3%) were admitted to ICU but patients with DNAR were no more or less likely to be so managed (5/18 – 27.8% cf 6/42 – 14.3%; p=0.279). There was a trend for DNAR to have been recorded more often in the more severely ill. Rates by CURB65 score were 0 – 1/5 (20%), 1 – 2/17 (11.8%), 2 – 3/15 (20%), 3 – 8/17 (47.1%), 4 – 3/5 (60%), 5 – 1/1 (100%); p=0.063.

The high frequency of DNAR orders suggests that pneumonia deaths may not be as preventable as might be considered at first sight. This may be especially true for those aged >75. In any assessment of the predictability of death the use of DNAR orders should be considered.

P17 | **THE ACCURACY OF A DIAGNOSIS OF PNEUMONIA IN A UK TEACHING HOSPITAL**

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Background Obtaining an accurate diagnosis of pneumonia is an essential part of optimal patient care. Analysis of patients' hospital records allows clinical coding (ICD-10) of admission events which assist development of clinical decision algorithms, assessment of quality of care and public health evaluation. We sought to evaluate the reliability of applied clinical codes and the accuracy of a diagnosis of pneumonia in our institution.

Methods A retrospective case note review of all patients admitted to University Hospital Llandough in 2011 with a final clinical code diagnosis of pneumonia. Pneumonia was defined as the presence of new radiographic infiltrate in patients with symptoms consistent with an acute lower respiratory tract infection.[1] The chest radiographs of each patient were reviewed by a respiratory physician (KP, HED) and the formal radiology report was independently scrutinised (IM).

Results 710 patient episodes of ICD-10 coded pneumonia were identified in a 1 year period at our hospital. Ten patients had no chest x-ray performed and one x-ray had no report. Radiological confirmation of pneumonia (by radiology reporting) occurred in 69.8% (488/699); a radiological diagnosis of pneumonia was made by a respiratory physician (KP, HED) in 71.8% (502/699) of patients.

There was 85% agreement between the Respiratory and Radiology reports (592/699 cases) with a kappa of 0.66 (95% CI 0.57 to 0.69).

The accuracy of a pneumonia diagnosis differed little between patients cared for by a respiratory physician (72.3% agreement with radiology report) and those admitted to a non-respiratory ward (68.1%). In 27.0% and 31.9% of patients respectively there was no radiological evidence of pneumonia.

Conclusions A clinical coding diagnosis of pneumonia is unreliable with 30.2% of patients not having compatible radiograph change. This has implications for the validity of any research performed on data selected on the basis of clinically coded information. Misdiagnosis by clinicians is the most likely reason for this discrepancy.

Reference

1. BTS Guidelines for the Management of Community Acquired Pneumonia in Adults Update 2009.

P18 | **COMMUNITY ACQUIRED PNEUMONIA: IS MEDICAL ASSESSMENT UNIT SAFE AFTER HOURS?**

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Introduction Early radiological diagnosis is an important quality of care indicator in community acquired pneumonia (CAP), with evidence for negative impact of time to X-ray (TXR) >4 hours on length of stay and time to antibiotic administration[1]. Despite growing concern about impact of out-of-hours admission on outcomes in a variety of acute medical conditions, there is little information on impact of time of day on processes of care in CAP in the UK. We analysed impact on TXR of out-of-hour's admission via Emergency department (ED) versus Medical assessment unit (MAU) in a 1000 bed teaching hospital.

Methods Retrospective review of 300 consecutive adult admissions with radiologically confirmed CAP within a 3-month period. Data included point of entry to hospital, in-hours (08h00–16h00) versus out-of-hours admission, urgency of request, and time taken to order and perform CXR.

Results 210 patients (70%) were admitted via ED and 90 (30%) via MAU. Average TXR (TXR-Ave) overall was 3.20hrs and 80% had TXR < 4 hours. 72% of ED's CXR requests were urgent vs. 56% in MAU (p=0.3). Daytime TXR-Ave in ED was significantly shorter than MAU (2.20 hrs vs. 3.30 hrs; p=0.0003). TXR-Ave in ED was 2.30 hours overall and was not significantly affected by admission out of hours. In contrast, after-hours admission via MAU was associated with significantly increased TXR-Ave (6.20hrs out-of- hours vs. 3.30 hrs in-hours; p=0.0001), and TXR > 4 hours (58% vs. 25%; p=0.0025). Time from request to performance of CXR was not significantly different in vs. out-of- hours, however average time from admission to requesting CXR in MAU was significantly longer out of hours vs. in-hours (4.57hrs vs. 2.03 hrs; p=0.0001).

Conclusions After- hours admission via MAU is associated with a significant increase in diagnostic delay in patients with CAP, largely attributable to delayed CXR requests. This may reflect delayed clerking due to reduced staffing after hours. Organisational and staffing factors associated with 4 hour ED trolley wait pressure may account for swifter and more consistent processes of care in ED. Further studies are required.

Reference

1. Bewick T *et al*; Clin Med. 2010 Dec; 10(6):563–7.

P19 | **VITAMIN D IN THE PREVENTION OF ACUTE RESPIRATORY INFECTION: A SYSTEMATIC REVIEW OF CLINICAL STUDIES**

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Introduction and Objectives Acute respiratory infections (ARI) cause significant morbidity and mortality: in the UK, during 2004, 33,957 deaths occurred due to pneumonia alone. Vitamin D metabolites enhance immunity to a wide range of respiratory pathogens *in vitro*, and numerous clinical studies have investigated whether vitamin D deficiency is a risk factor for ARI, or whether vitamin D supplementation prevents ARI. Systematic reviews of this literature are lacking, however. Our objective was to conduct a systematic review of clinical studies investigating the relationship between vitamin D status or the effect of vitamin D supplementation on risk of ARI.

Methods The PubMed database was searched on 7th June 2012 using the terms 'vitamin D' and' respiratory infection'. Cross-sectional studies, case-control studies, cohort studies or clinical trials in human subjects investigating the relationship between serum concentration of vitamin D metabolites or the effect of vitamin D supplementation on risk of ARI were included; ARI was defined as any infection of the respiratory tract with symptom duration of 30days or less. Studies relating exclusively to tuberculosis were excluded, as this is classically regarded as a chronic respiratory tract infection, with symptom duration usually exceeding 30 days.

Results Thirty-one studies reporting data from a total of 43,272 participants were included in our review. Of these, 19 were