Abstract P14 Table 1

Quality Marker	2008–2009		2009–2010		2010–2011	
	Mean	SD	Mean	SD	Mean	SD
Oxygenation Assessment	96.6	3.8	98.3	2.1	99.3	0.9
Guideline Compliant Initial Antibiotic Selection for CAP	80.5	14.5	85.6	12.0	90.6	9.5
Blood cultures performed prior to initial antibiotic	58.5	21.9	68.7	17.5	80.3	11.5
Initial Antibiotic Received Within 6 Hours of Arrival	64.0	13.2	69.2	9.0	76.3	7.0
Adult Smoking Cessation Advice/Counselling	35.4	17.5	52.4	19.6	55.0	19.8
Composite Process Score	76.1	8.4	81.3	5.1	85.7	4.0

compliance for each variable for each Trust, together with standard deviation as a measure of variability across hospital sites, are presented in the Table for each cohort.

Initial compliance was worst for administration of smoking cessation advice and best for oxygenation assessment. While variability between hospitals was least for oxygenation it was greatest for the performance of blood cultures prior to antibiotic administration. Over the 3 cohorts overall compliance with QM assessment steadily improved for all QMs and variability between Trusts declined for all but smoking cessation advice.

Conclusions The Advancing Quality Programme has resulted in improved quality of pneumonia care as assessed by both the improvement in overall compliance and the reduction in inter-hospital variability.

P15 HOW IMPORTANT ARE BLOOD CULTURES IN THE MANAGEMENT OF PATIENTS SUSPECTED TO HAVE COMMUNITY ACQUIRED PNEUMONIA?

doi:10.1136/thoraxjnl-2012-202678.156

W Kent, L Potter, S Roberts, R Shaw, K Vaudrey, P Deegan, J Folb. *Royal Liverpool University Hospital, Liverpool, United Kingdom*

Background It is acknowledged in the BTS guidelines that the routine use of blood cultures in community acquired pneumonia (CAP) has been questioned on the grounds of cost, low sensitivity and lack of impact on antimicrobial management.[1] In October 2011 the hospital policy for severe CAP (CURB 65 ≥ 3) at our trust changed to benzylpenicillin and clarithromycin. This combination is associated with decreased rates of *clostridium difficile*, however it has weak cover against *Haemophilus influenzae* and none against gramme negative bacilli.

Aim To determine the positive yield from blood cultures in patients suspected as having CAP at presentation to hospital, their impact on management and, in particular, the outcomes associated with Gram negative bacteraemia.

Method Patients were prospectively identified at a large University Hospital in whom CAP was suspected as their admitting diagnosis between November 2011 and January 2012. The patient demographics and outcomes were analysed at admission and revisited at 7 and 30 days.

Results 151 patients were identified for inclusion. Age range was 22–97, median 75. The CXR was reported as showing infiltrates in 93/148 cases (62.8%). Blood cultures were sent in 41/88 patients (46.5%) with CURB score ≥ 2 and 21/37 patients (56.8%) with CURB score ≥ 3. There were 10 positive blood cultures (representing 14.5% of all blood cultures sent). 6 were positive for *streptococcus pneumoniae* and 4 yielding *E. Coli* or *Klebsiella* suggesting an alternative source of infection. There were no cases of severe CAP due to *Haemophilus influenzae*. 60/151 patients had a change in their antibiotics; 11 as a result of poor clinical progress, 11 due to positive microbiology results, 38 due to a new diagnosis or no evidence of infection.

Conclusion Blood cultures can be of increased importance in the investigation of CAP when used in combination with a narrower spectrum of antibiotics, particularly when checking for the possibility of occult gram negative sepsis.

References

1. Lim WS et al. Pneumonia Guidelines Committee of the BTS Standards of Care Committee. BTS guidelines for the management of community acquired pneumonia in adults: update 2009. Thorax. 2009.Oct; 64 Suppl 3:iii 1–55.

P16 AN INVESTIGATION INTO 'DO NOT RESUSCITATE ORDERS' IN ADULTS ADMITTED FOR PNEUMONIA

doi:10.1136/thoraxjnl-2012-202678.157

E Cant, MA Woodhead. *Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK*

The NHS Outcomes framework classes respiratory deaths in those aged under 75 as potentially avoidable. In practise the level of care available is often limited in those who are unlikely to benefit from invasive interventions which may limit death 'avoidability'. We sought the frequency of such limitations by investigation of the use of 'Do not actively resuscitate' (DNAR) orders in adults with pneumonia.

Adult admissions for pneumonia (ICD10 J12-J18) to one NHS Trust between 01/01/2012 and 31/05/2012 were retrospectively identified. Case details were gleaned from the case records.

293 cases were found of which 81 (28%) died. After exclusions (no radiographic pneumonia (12), no radiograph within 24 hours (1) and no radiograph (1)), 67 deaths remained. From these, 20 case notes were obtained and compared with the 40 subsequent surviving admissions. DNAR orders were present in 18 (30%) cases. 11 DNAR orders were recorded within 48 hours of admission, 2 within the next 48 hours and 5 in the following 5 days. They were more

Abstract P15 Table 1 Outcomes amongst patients with Gram-negative bacteraemia

Age	CURB-65 score	CXR infiltrates?	Organism	New diagnosis	New antibiotic	Outcome
87	3	No	E.Coli	Urosepsis	Tazozin	Discharged after 23 days
85	Not recorded	No	E.Coli	Urovs intra abdominal sepsis	Tazozin + Ciprofloxacin	Discharged after 4 days
75	1	Yes	E.Coli	Biliary sepsis	Tazozin + Gentamycin	Discharged after 13 days
83	3	No	Klebsiella	Not specified; CXR NAD	Tazozin	Discharged after 6 days

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

doi:10.1136/thoraxjnl-2012-202678.158

KL Pink, I Mitchell, HE Davies. *University Hospital Llandough, Cardiff, UK*

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?

doi:10.1136/thoraxjnl-2012-202678.159

A Khanna, P Sierra Perez, H Moxon, ML Billington, R Berg Derby. *Royal Hospital NHS Trust, Derby, UK*

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

doi:10.1136/thoraxjnl-2012-202678.160

DA Jolliffe, AR Martineau, CJ Griffiths. *Barts and The London School of Medicine and Dentistry, London, England*

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