frequent in those who died (15/20 – 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 – 19%) than those aged 
>75 (12/29 – 41%; 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 CURBE5 score were 0 – 1/5 (20%), 1 – 2/17 
(11.8%), 2 – 3/15 (20%), 3 – 5/17 (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 assess-
ment 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
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Background Obtaining an accurate diagnosis of pneumonia is an 
esential 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 diagno-
sis 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 
nised (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% (485/699); a radiological diagnosis of pneumonia was made by 
a respiratory physician (KP, HED) and the formal radiology report was independently scruti-
nised (IM).

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. 3.50 hrs; p=0.0005). TXR-Ave in ED was 
2.50 hours overall and was not significantly affected by admission 
out of hours. In contrast, after-hours admission via MAU was asso-
ciated with significantly increased TXR-Ave (6.20hrs out-of-
hours vs. 3.50 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 sig-
nificantly 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 
educating 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

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

doi:10.1136/thoraxjnl-2012-202678.159
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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. Despite growing 
care and antibiotic resistance outcomes and the impact of time day on process in 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 admis-
sions 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. 3.50 hrs; p=0.0005). TXR-Ave in ED was 
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out of hours. In contrast, after-hours admission via MAU was asso-
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hours vs. 3.50 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 sig-
nificantly 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 
educating 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
observational studies (3 cross-sectional, 8 case-control and 8 cohort) and 12 were randomised controlled trials. Sixteen of the 19 observational studies reviewed reported statistically significant associations between vitamin D deficiency and susceptibility to ARI, and 3 reported no such association. Six of the 12 clinical trials reviewed reported protective effects of vitamin D against ARI, while five reported null effects, and one reported an adverse effect on pneumonia recurrence.

Conclusions Observational studies report consistent associations between vitamin D deficiency and susceptibility to ARI in a wide range of age-groups in diverse clinical settings. By contrast, randomised controlled trials of vitamin D supplementation for the prevention of ARI report conflicting results, possibly reflecting varying prevalence of vitamin D deficiency in study populations and/or heterogeneity in vitamin D supplementation regimens investigated.

**P20**  
FATIGUE AND POOR LUNG FUNCTION ARE SIGNIFICANTLY ASSOCIATED WITH IMPAIRED HEALTH-RELATED QUALITY OF LIFE (HRQOL) IN A LARGE COHORT OF PATIENTS WITH CHRONIC PULMONARY ASPERGILLOSIS

doi:10.1136/thoraxjnl-2012-202678.161

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Introduction Fatigue is a prominent disabling symptom in several chronic pulmonary diseases; however, its impact on HRQoL in patients with chronic pulmonary aspergillosis (CPA) has not been investigated.

Method Our 154 patients with CPA completed the Manchester COPD Fatigue Scale (MCFS, Thorax 2009)) and the SGRQ in our specialist referral centre. MCFS measures total fatigue and sub-components comprehensively. Lung function and body mass index were measured. Univariate and multivariate linear and binary analysis, and the principal component analysis (PCA) were used.

Results The mean (SD) age (61.1 (10.8)) years and 44% were female; FEV1% (63.3 (24.9)), BMI (23.7 (5.2)), SGRQ total score (55.6 (23.5) and MCFS total score (30 (14.9)).

PCA showed that 27 items of MCFS loaded clearly on three components: physical and psychosocial and cognitive fatigue.  

Univariate analysis showed a strong association between total SGRQ score and MCFS score (r=0.81, p<0.001). Using total SGRQ as a dependent variable, linear multi-variate analysis showed that fatigue was the strongest factor (beta = 0.83 p<0.0001) associated with impaired health status followed by FEV1% (beta= –0.22, p=0.009), but no statistically significant association with age, BMI and pack/years. This model explained 70% of the variance of SGRQ total score.

Using patients’ self-assessment grades of SGRQ (Very poor, poor, fair, good and very good), one-way ANOVA showed that patients with “very poor” health status had the highest fatigue scores (41–67)) at V1, followed by poor (55 (10.1)), fair (30 (10.4)), good (14 (10.9)) and very good (0) (p<0.001). Splitting the group to (very poor and poor) versus (fair, good and very good), the ROC curve analysis indicated significant ability of MCFS and its components to detect change in HS (AUC=0.82, range 0.75–0.9, p<0.0001) as demonstrated in figure 1.

Furthermore, binary regression analysis showed that only fatigue score (OR =0.92, 95% CI 0.87–0.97, p=0.002) and FEV1% (OR =1.04, 95% CI 1.01–1.07, p=0.02) are significantly associated with impaired health status after correcting to age, gender and DLCO%.

Conclusion This is the first study directly implicating fatigue as a major factor affecting health-related-quality of life in patients with CPA.

**P21**  
LONG TERM ANTIFUNGAL TREATMENT (LTAFT) IS EFFECTIVELY ASSOCIATED WITH IMPROVEMENT IN HEALTH STATUS (HS) IN PATIENTS WITH CHRONIC PULMONARY ASPERGILLOSIS (CPA)

doi:10.1136/thoraxjnl-2012-202678.162

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Introduction CPA is a chronic progressive respiratory infectious disease results in significant lung tissue destruction with a 50%+ 5 year mortality. Response to antifungal therapy is slow, with ~80% of patients who respond doing so by 6 months. We recently demonstrated the reliability and validity of SGRQ in examining HS in CPA (Chest, in press), and now present longitudinal data on the efficacy of LTAFT in improving HS in CPA patients.

Method HS of 98 CPA patients were assessed 3 times over 6 months using the well-established standardised SGRQ. CPA severity was assessed using our published CPA banding system. FEV1, BMI, dyspnoea (using MRC dyspnoea scale) were measured.

Results Mean age was 58 years and 48% were female; and 25, 58 and 15 had band 1, 2 and 3 CPA respectively. At visit 2 and 3 (V2 and V3), we found that overall total and domain SGRQ scores were either lower (improved health status) or similar compared to V1 (table 1).

Categorizing the cohort by those who reported improvement or deterioration by a total SGRQ score of ≥4 at V3 comparing to V1, we found that 43% improved, 22% remained stable and 35% deteriorated. The median (IQR) of total SGRQ score of the improved group at V3 was 58 (42–66) compared to 71 (60–79) at V1, and for the deteriorated group was 67.5 (57–76) at V3 compared to 62 (41–67) at V1. The deteriorated were older (62 (9.8) years versus 56.1 (9.3) (p=0.008); and tended to have lower BMI, more dyspnoea and worse lung function. Moreover, binary regression multivariate analysis showed that age maintained its association with deterioration in HS (OR 1.13, 95% CI 1.01–1.26, p=0.03) after correcting for gender, BMI and FEV1%.

Of the 37 patients started on an antifungal agent at V1 who took it for 3+ months (including a 3 week IV course of amphotericin B), 22 (59%) improved, 11 (30%) were stable and 4 (11%) deteriorated at V3.

Conclusion LTAFT prevented/reduced the progression of CPA and patients preserved overall good HS. More therapeutic approaches for this progressive disease are urgently needed.