Conclusion Implementation of a collaborative AMT was associated with an 18% reduction in antibiotic consumption (DDD/1000 bed days) between the two periods within the respiratory directorate of a large urban university teaching hospital.

REFERENCE

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P225 THE POST PANDEMIC INFLUENZA EXPERIENCE IN A BUSY DISTRICT GENERAL HOSPITAL

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The 2009/2010 swine origin influenza virus (H1N1) pandemic created a national helpline, vaccination program and advertising campaign that cost many millions of pounds. There were a number of deaths in young pregnant people and those with existing respiratory morbidity. In contrast, in the post pandemic we have seen budgetary cuts, no advertising campaign and a reluctance to give vaccination to anyone but clearly defined groups. Our experience during the December 2010 holiday period suggests this was ill advised.

We analysed all admissions with H1N1 in December 2010—January 2011. In total we had 63 cases in a take that has a mean of 27 (SEM ±1.97) patients per day. Over 70% of patients presented between 30th December and 2nd January. These patients were young (mean age 47 (SEM 1.81)), had an increased length of stay (mean LOS 6.2 days (SEM 1.54)) and were from low risk populations (35/63 (56%) had no co-morbidities or risk factors). All had a significant fever (>38°C) and most had a successful recovery (95% discharged home). CXR was normal in the majority (78%), mean WCC was normal (8.83 (SEM 0.51)) but most were lymphopaenic (mean lymph 1.01 (SEM 0.09)). Only one had a positive sputum culture, (*Haemophilus influenzae*) and all blood cultures were negative. Six were admitted to ITU (9.6%, but 100% of ITU beds available) and 3 died (4.8%), all of whom had significant respiratory co-morbidity.

Our small DGH experienced a significant number of extra admissions over what is perhaps the busiest and least well staffed period the NHS has to deal with. These included a high number of young, previously well patients who had significant illness and lengths of stay. At one point 100% of critical care and level 2 beds were full of patients with H1N1. Vaccination would have prevented this crisis and at a reasonable cost and is as important in the post pandemic year as during a pandemic. It should be freely available to all on an annual basis.

P226 MANAGING SUSPECTED PULMONARY EMBOLISM IN AN AMBULATORY SETTING: THE LEICESTER EXPERIENCE

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Introduction Suspected Pulmonary Embolism (PE) is a significant cause of admission to hospital. The objective of this study was to establish the feasibility and safety of managing suspected and proven PE in an out-patient setting.

Methods Criteria for low risk patients with suspected PE suitable for treatment in an ambulatory setting were established based on modified Pulmonary Embolism Severity Score (PESI) criteria. Patients deemed low risk were referred to a nurse-led clinic. Clinical pre-test probability of PE was recorded for all patients and those with a low/intermediate probability had D-dimer testing. Patients with a high pre-test probability or D-dimer=0.5 μg/ml had radiological investigations. Data were collected prospectively. Missing information was completed from pathology, imaging systems and case-note review.

Results 362 patients (Median age 46, Female 70%) with suspected PE were referred to the ambulatory clinic in 12 months from June 2010. 269 (74%) patients presented with chest pain. 145 patients (40%) had a negative D-dimer and were discharged. 210 patients (58%) had subsequent imaging in the form of 65 (31%) VQ scan, 138 (66%) CT scan, 7 (3%) both. Median time to imaging was 1 day (range 0—5 days). 34 patients were diagnosed with PE (9%). 11 patients (3%) were admitted, of which 5 (45%) were due to right heart strain. Likelihood of PE correlated strongly to clinical probability (low 2%, intermediate 14%, high 42%). One patient with a negative D-Dimer and intermediate clinical probability was diagnosed with PE. 294 (81%) patients were discharged with no follow-up, 28 (8%) patients were followed-up by consultant care. One patient admitted as they did not meet criteria for ambulatory care (tachycardia) had a cardiorespiratory arrest as an inpatient due to massive PE but was successfully resuscitated. To date three patients have (0.8%) died since attending the clinic, no death was related to PE. Savings to PCTs were estimated at £120 000 over 12 months.

Conclusion Selected patients with suspected and proven PE may be managed safely in an ambulatory PE clinic setting resulting in significant savings to the healthcare community.

P227 DEVELOPMENT OF A PRELIMINARY QUESTIONNAIRE FOR THE IDENTIFICATION OF VOCAL CORD DYSFUNCTION

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Background Vocal cord dysfunction (VCD) is a debilitating condition characterised by paroxysmal episodes of dyspnoea, typically resulting from abnormal adduction of the vocal cords during breathing. Diagnosis is complicated by its self-limiting nature and significant overlap in symptoms with other respiratory conditions such as asthma, and referral for further investigation therefore requires a high index of suspicion from non-specialist physicians. Our aim is to design a questionnaire with a high positive predictive value for VCD, which would hopefully lead to earlier identification and treatment and also reduce the levels of iatrogenic morbidity associated with misdiagnosis.

Methods 15 subjects with a confirmed diagnosis of VCD were recruited from the outpatient respiratory department. Semi-structured interviews in four focus groups were conducted to capture each sufferer's subjective experience. Concurrently, two focus groups were held with nine healthcare professionals with specialist and non-specialist interest to gather professional opinion on VCD symptoms. The collated data were used to generate a preliminary questionnaire that was tested for face validity in ten patients and healthcare professionals.

Results (1) Item generation: symptom profiles varied markedly, however certain characteristics did emerge with commonalities between most of the subjects or within a specific subset of individuals. These were grouped into the following themes—location, onset, sensations, breathing/voice changes, triggers, exacerbating factors and psychosocial impact. 17 items were generated for the preliminary questionnaire and expressed as positive or negative statements. (2) Face validity: general response was positive towards the comprehensibility of the statements and relevance to each subject. Based on user comments the number of items was reduced to twelve, all items were modified to positive statements to improve comprehensibility and a 5-point analogue scale will be used for scoring responses.

Conclusions A preliminary diagnostic tool has been generated and tested for face validity in patients with VCD. Initial feedback

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indicates a high relevance of the questionnaire items to the subject. At this stage, modifications have been made to eliminate ambiguity and repetition. We will now test concurrent validity, specificity and test-retest variability of the questionnaire in healthy volunteers, and respiratory patients with and without VCD.

P228 AN AUDIT OF THE EFFECTIVENESS OF COMPETENCY BASED SPIROMETRY TRAINING

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Introduction The PCT had funded practice nurses to undertake formal competency based training in spirometry measurements. An audit of spirometry provision in practices within the PCT was undertaken to assess equipment, training and quality of spirometry being performed with comparison made between spirometry undertaken by trained staff (ARTP Cert) and that performed by untrained staff. The aim was to assess the effectiveness of the competency based training being funded by the PCT.

Methods 36 practice nurses had received training from Respiratory Physiologists based in an acute hospital trust to ARTP Full Certificate in Spirometry standards. 62 Primary Care practices were sent a questionnaire, designed by the author, and asked to supply five recent anonymous spirometry traces.

Results 26 practices responded (42%); 5 (19%) did not perform spirometry testing, due to a "lack of staff skills" (4/5) and "young patient population" (1/5). Of those practices performing spirometry, all were using the Care Fusion MicroLab spirometer and the following training had been undertaken; ARTP training course (16/21), drug representative training (3/21), COPD Diploma (1/21) and no response (1/21). 81% of practices performing spirometry had a calibration syringe and performed calibration either at each session or weekly. Training for the practices that did not have a calibration syringe (19%) was by; COPD Diploma (1/4) and drug representative (3/4). 18/21 practices performing spirometry sent five traces for analysis. Only 17% practices performed relaxed VC manoeuvres and of these 66% achieved acceptability criteria. 13/18 performed the recommended minimum of three FVC's (72%) with 11 of these (85%) achieving two results within 5% or 100 ml.[1] 5/18 did not perform a minimum of three manoeuvres (for three practices only one of the five traces met acceptability criteria, two of whom were ARTP spirometry trained). Two practices submitted five traces where none of the traces achieved the required acceptability criteria (both Drug Representative trained).

Conclusion Training staff to ARTP standards improves the quality of spirometry performed in primary care (when compared to other modes of training), however once training is completed, it is important to audit quality standards to ensure that they are still met.

REFERENCE

1. *ARTP/BTS Guidelines Respiratory Medicine*. 1994.

P229 FACTORS AFFECTING INHALER CHOICE AND ADHERENCE IN URBAN LIVERPOOL

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Introduction Salmeterol/Fluticasone propionate (SFC) in the form of a dry powder inhaler (DPI) is often used in COPD, however it is also available as a metered dose inhaler (MDI). This is unlicensed for COPD and costs considerably more. At our hospital, a high proportion of COPD patients used SFC MDI, the reasons for this were unclear. This study aimed to investigate the effects of patient preference on inhaler adherence.

Methods Patients admitted to hospital with an exacerbation of COPD taking either SFC DPI or MDI were recruited. All patients completed a pre-discharge questionnaire about their inhaler usage. MDI patients were switched to DPI, following education and check of their inspiratory flow. GPs were informed that their patient was involved in a study of inhalers but not the detail of the study. All patients underwent a further questionnaire at 3 months.

Results 101 patients, mean (SD) age was 69 (9) years and 50% male. On admission, 66 (65%) on MDI, 35 (35%) on DPI. 100% of MDI patients were switched to DPI. At 3 months, follow-up data were available on 81 patients. Of those patients admitted on DPI, 26/29 (92%) remained on it and were satisfied with it. In the group switched from MDI to DPI, 26/52 (50%) were again receiving MDI at 3 months. 16 patients had asked for their prescription to be changed back. 10 patients had their prescription changed without their knowledge or did not receive DPI on discharge. Regardless of the reasons for the switch, 18 patients stated they preferred MDI over DPI. Reasons why patients requested the change back to MDI included dry powder irritating the throat, dry mouth and the inhaled dose not going into the lungs.

Conclusion Following a relatively simple intervention 50% of COPD patients using SFC MDI could be switched and maintained on SFC DPI. Factors relating to a return to MDI included patient related and organisational factors. A whole system approach is required to effect robust systematic change in this patient group, however approximately a third of the group switched to DPI will still request a change back to MDI.

P230 DO WE NEED A "TWO WEEK RULE" REFERRAL PATHWAY FOR LUNG CANCER?

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Introduction The introduction of the two week rule (TWR) cancer referral system aimed to expedite the diagnosis and treatment of patients with lung cancer. There have been concerns that the system may even lead to delays and there remains little evidence to support its use. We therefore used prospective data to assess the effectiveness of this system.

Methods We prospectively collected data on patients referred in 2010 with suspected lung cancer to a large West London lung cancer centre. We evaluated final diagnosis, performance status, lung cancer staging, time until seen in specialist clinic and time until first treatment for patients referred under the TWR compared with patients referred via our in-house abnormal radiology referral service.

Results In total 249 patients were included in the study (181 from radiology reporting and 68 from GP referrals via the 2 week wait). 83 (33%) cancers were diagnosed from a total of 249 referrals. Patients referred from the radiology department were significantly more likely to have a diagnosis of lung cancer (73/181, 40%) than patients referred under the TWR (10/68, 15%; $p<0.001$). The mean time from date of referral to seeing a specialist was similar in both groups. All patients diagnosed with lung cancer referred through the TWR had an abnormal chest radiograph. More patients with a performance status 0–1 and earlier stage disease were referred from radiology than through the TWR.

Conclusions A robust radiology referral system is an effective alternative method to diagnosing lung cancer than the TWR. Patients referred from radiology are significantly more likely to have lung cancer. We propose that out-patient clinic slots are reserved for

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