

from our Advancing Quality team who keep a record of all pneumonias admitted. CURB 65 score and MEWS was collected from the documentation on admission and CURBO2 65 was calculated by applying above criteria for oxygenation.

Results

Average MEWS and CURB Scores

Score	COPD (101 patients)	Non-COPD (168 patients)
CURB - 65	p value: 0.0921	P value: 0.0228
CURBO2 - 65	P value: 0.0054	P value: <0.0001

Conclusion CURB65 does not have predictable correlation with MEWS on admission. By incorporating oxygen into CURB65 and converting to CURBO2 65, we demonstrated its enhanced capability to correlate with MEWS on admission.. Further valid-ity prospective studies are required to confirm our findings.

REFERENCE

1. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study
2. W S Lim, M M van der Eerden, R Laing, W G Boersma, N Karalus, G I Town, SA Lewis, J T Macfarlane

P247 CURBO2-65 IS SUPERIOR TO CURB-65 IN PREDICTING READMISSIONS, LENGTH OF STAY AND IDENTIFYING SICKER PATIENTS

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Introduction and Objectives Community Acquired Pneumonia (CAP) accounts for a significant proportion of hospital admissions and is a common cause of mortality and morbidity in UK. CURB-65 is recommended by BTS and widely used to stratify patients according to severity and guide initial treatment (1). As oxygen is not part of the CURB-65 assessment, we incorporated

Oxygen saturations (SATS) to CURB-65 to create CURBO2-65 score. We then compared CURBO2-65 with CURB65 to assess if CURBO2-65 would be a superior indicator in identifying patients with severe pneumonia.

Methods We retrospectively reviewed electronic medical records of patients who were diagnosed with CAP between December 2012 and January 2013. CURB-65 was documented for all the cases whilst CURBO2-65 scores were retrospectively calculated. A score of 1 was allocated if SATS were <88% for COPD patients or <94% for non-COPD patients. A score of 1 was added if they were on supplemental Oxygen to maintain their SATS.

Results (see Table 1)

Total of 269 admissions with CAP were analysed. 12 of these 269 patients were admitted to critical care. 2/12 (ITU) patients had a CURBO2-65 score of ≤ 2 whilst 7/12 had a CURB-65 score ≤ 2 . CURBO2-65 also had a better correlation with MEWS than CURB-65 on admission ($p < 0.05$).

Only 10% of cases with a CURBO2-65 score of 0-1 (5/50) were readmitted within 28 days compared to 15% of cases with a CURB-65 score 0-1 (13/87).

There was a statistically significant correlation between length of stay and CURB-65 ($p = 0.0085$) and CURBO2-65 ($p = 0.0014$).

Conclusions CURBO2-65 is superior to CURB-65 in identifying sicker cohort of patients, predicting readmission rates and length of stay. Adding Oxygen to CURB-65 is simple and can be undertaken even in primary care setting (CRBO2-65 instead of CRB-65).

REFERENCES

1. Lim WS *et al.* Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax* 2003;58:377-382.

P248 LEGIONELLA PNEUMONIA OUTBREAK RELATED TO A DISPLAY SPA POOL AT A RETAIL UNIT

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Background Legionella pneumonia (LP) has been reported in a number of outbreaks in the UK. It has significant implications for public health as outbreaks require investigation to identify a responsible source. An outbreak of LP occurred in the Stoke-on-Trent area of North Staffordshire in July 2012. This is an analysis of the clinical cases reported and subsequent public health enquiry. **Method** Retrospective review of case records, pathology and radiology. Data was collated on clinical and biochemical features, microbiology and clinical outcome. Results of the public health enquiry were sourced from the local Health Protection Agency (HPA).

Results 20 patients were confirmed to have LP. 13 male, 7 female. Mean age was 65 years. 50% were ex-smokers. 70% had

Abstract P247 Table 1. CURB-65 versus CURBO2-65.

	CURB-65		CURBO2-65	
Readmission within 28 days	Score	Rate(%)	Score	Rate(%)
	0	10	0	0
	1	18	1	14
	2	30	2	25
	3	19	3	26
	4	16	4	25
Length of Stay (Mean number of days)	Score	Days	Score	Days
	0	6.3	0	5.2
	1	6.8	1	5.9
	2	8.3	2	7.7
	3	9.9	3	8.6
	4	10.8	4	8.8
Critical Care Admission	-	-	5-6	11.3
	Score	Number of cases	Score	Number of cases
	0	0	0	0
	1	2	1	0
	2	5	2	2
	3	3	3	3
	4	2	4	3
	5	0	5	3
	-	-	6	1

Abstract P248 Table 1. Clinical, biochemical and radiology findings.

Fever > 38°C	11 (78%)
Type 1 respiratory failure	9 (45%)
Type 2 respiratory failure	1 (0.05%)
CRP > 300	9 (45%)
Hyponatraemia (Na < 130)	7 (35%)
LFT derangement (ALT > 40)	16 (80%)
Hypoalbuminaemia (< 25)	10 (50%)
Consolidation on CXR	19 (95%)

at least two co-morbidities requiring treatment. 3 were immunosuppressed on longterm steroids. Only 1 patient reported foreign travel in the preceding month. Clinical, biochemical and radiological findings are shown in Table 1. Urinary legionella antigen was detected in all patients. Sputum PCR for legionella pneumophila was positive in 8 cases and identified a single strain present in all samples (ST1268). Mean length of stay was 8.9 days. 6 patients (30%) required admission to intensive care for respiratory support; 2 were invasively ventilated. 18 patients were discharged home, 2 died. 65% had follow-up chest xrays showing improvement or resolution of consolidation. All cases were from the Stoke area. The HPA investigation detected the same legionella pneumophila strain in a display spa pool at a retail unit, as found in the sputum. As no other tested sites were found to have this strain, it is very likely this was the origin of the local outbreak. All cases had visited the retail unit prior to their hospital admission.

Conclusion LP remains a possible diagnosis in any case of community acquired pneumonia. This outbreak is a reminder that patients do not always present following the classic travel history. The diagnosis needs to be considered and vigilance in microbiological testing is necessary to identify potential cases.

Screening and management of obstructive sleep apnoea

P249 OBSTRUCTIVE SLEEP APNEA OUT PATIENT SCREENING STUDY

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Introduction Obstructive sleep apnea (OSA) is increasingly being recognised as an important health care issue. Incidence and prevalence of OSA are gradually increasing worldwide. There is increasing evidence that OSA is being considered as an independent risk factor for hypertension, diabetes mellitus, cardiovascular diseases and stroke, leading to increased cardio-metabolic morbidity and mortality. Many questionnaires are available for OSA screening. Many studies done in peri-operative population showed that the STOP-BANG questionnaire (Snoring, Tiredness, Observed apnea, high blood Pressure, BMI > 30, Age > 50, neck Circumference, Gender male) is the simplest, with a high positive predictive value. A sleep study is advised for anyone who has 3 or more positive variables from STOP-BANG. The purpose of our study was to analyse the STOP-BANG questionnaire's validity for OSA screening in the primary care setting.

Abstract P249 Table 1.

No. of positive variables	No. of patients (% of total)	Who got sleep study (% in group)	OSA confirmed (% of pt. with Sleep study in group)
3	124 (31%)	16 (12.9%)	10 (62.5%)
4	180 (45 %)	26 (14.4%)	15 (57.7%)
5	54 (13.5 %)	28 (51.8%)	21 (75%)
6	32 (8 %)	23 (71.8%)	18 (78.2%)
7	10 (2.5%)	7 (70%)	6 (85.7%)

Increasing positive variables translated into more patients with confirmed sleep apnea when tested with sleep study.

Currently, there is no available screening tool for OSA in outpatient setting.

Methods Study involved a retrospective chart analysis from outpatient clinics. Patients from neurology and sleep clinic were excluded. Electronic medical record was used for patient selection. We randomly selected the first 400 patients who had 3 out of 8 variables from STOP-BANG.

Results Out of 400 selected patients, 124 (31%) had 3 variables, 180 (45%) had 4 variables, 54 (13.5%) had 5 variables, 32 (8%) had 6 variables & 10 (2.5%) had 7 variables. Neck circumference was not documented in the charts so the 8th variable was not available.

Out of 400 patients with 3–7 positive STOP-BANG variables, only 25% (100/400) received a sleep study and 73% (73/100) were diagnosed with OSA.

Conclusion Primary care physicians should screen all high-risk patients using STOP-BANG questionnaire. STOP-BANG is an affirmative screening tool in peri-operative population and our study indicates that it can also be an efficient screening questionnaire in primary care clinics. However more studies are needed to testify it. OSA is an easily diagnosable condition but often overlooked. Early recognition and treatment of obstructive sleep apnea may prevent adverse health consequences.

P250 REVIEW OF REFERRALS TO SLEEP CLINICS IN GLASGOW

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Aim There is increasing pressure within Sleep Services in NHS GGC. To manage the service appropriately we felt that robust and evidence based referral guidance should be available for potential referrers. We sought to develop these by analysing content of current referrals to the service, to establish whether there was any link with clinic outcome.

Method Referrals to sleep services were audited throughout NHSGGC for the month of November 2012. We looked for information that would be helpful in pointing toward a diagnosis of OSAS. This was; the presence of snoring, witnessed apnoeas, daytime somnolence, Epworth sleepiness score (ESS) and BMI. We also looked at the outcome of the consultation in terms of whether or not further investigation was required and whether or not the patient was discharged after the first clinic appointment.

Results There were 156 referrals received. 66% were from GPs. Referral from other respiratory departments constituted 17% of referrals, from ENT departments 8%, with 9% of referrals coming from various other medical specialties.

The presence of snoring was recorded in 60% of all referrals, witnessed apnoeas in 58%, daytime sleepiness in 67%, ESS in 30% and BMI in 31%. Only 55% of all referrals included 3 or more of the above pieces of information. Occupation/driving status was recorded in only 17% of all referrals.

63% of all patients went on to have a sleep study performed, with 36% being discharged after the first clinic appointment. There appeared to be a relationship between what was recorded in the referral letter and 'clinic outcome.' When 3 or more of snoring, witnessed apnoeas, daytime sleepiness, ESS and BMI had been recorded in the referral letter, only 19% of patients were discharged after the first clinic visit without further investigation. This figure rose to 39% when less than 3 of the above