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ABSTRACTS

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CLINICAL RESEARCH RESULTS ABSTRACTS

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CR001

1-year efficacy and safety study of tiotropium Respimat® add-on to ICS in adolescent patients with symptomatic asthma

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Aim: Tiotropium Respimat® add-on to inhaled corticosteroid (ICS) therapy improves lung function in adult patients. Here we examine the efficacy and safety of tiotropium Respimat® in adolescents.

Method: We carried out a 48-week, Phase III, randomised, double-blind, placebo-controlled, parallel-group trial (NCT01257230) in asthmatic adolescents (12–17 years). Inclusion criteria were: ⩾3-month asthma history; pre-bronchodilator forced expiratory volume in 1 second (FEV_1) ⩾60 and ⩽90% of predicted; and seven-question Asthma Control Questionnaire score of ⩾1.5 at screening. Patients were randomised to once-daily Tiotropium Respimat® 5 µg, tiotropium Respimat® 2.5 µg or placebo Respimat® add-on to ICS (12–14 years: 200–400 µg budesonide or equivalent; >14 years: 400–800 µg budesonide or equivalent). The primary end point at Week 24 was peak FEV_1 within 3 hours post-dose (peak $FEV_{1(0\text{-}3h)}$). Additional end points were trough FEV_1 (Week 24), morning and evening peak expiratory flow, and adverse-event data (Weeks 24 and 48).

Results: 397 patients were treated: mean age was 14.3 years (range 11–17 years); 65% of patients were male; and mean FEV_1% predicted at baseline was 82.8. Tiotropium Respimat® 5 µg significantly improved all end points versus placebo Respimat® at 24 and 48 weeks; tiotropium Respimat® 2.5 µg significantly improved some end points, eg peak $FEV_{1(0\text{–}3h)}$ at 24 and 48 weeks and trough FEV_1 at 48 weeks (Table). Adverse events were comparable across all treatment groups; a small number of drug-related adverse events (tiotropium Respimat® 5 µg, $n=4$, tiotropium Respimat® 2.5 µg, $n=1$, placebo Respimat®, $n=1$) and no fatal adverse events were reported.

Conclusion: Tiotropium Respimat® add-on to ICS significantly improves lung function, has a safety profile comparable with placebo and is well tolerated in adolescent patients with symptomatic asthma.

Declaration of interest: Trial funding provided by Boehringer Ingelheim. Editorial assistance provided by Complete HealthVizion.

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[CR001]

Table 1.

	Week 24[a] Mean Response[b] (95% CI) P value n	*Week 48[a] Mean Response[b] (95% CI) P value* n
Peak FEV_1 (0–3 h)(ml)		
Tiotropium Respimat®5 µg	174 ml (76,272) $P=0.0005$ $n=131$	174 ml (76,272) $P=0.0006$ $n=127$
Tiotropium Respimat® 2.5 µg	134 ml (34,234) $P=0.0085$ $n=120$	176 ml (75,278) $P=0.0007$ $n=113$
Trough FEV_1 (ml)		
Tiotropium Respimat® 5 µg	117 ml (10,223) $P=0.0320$ $n=131$	157 ml (49,264) $P=0.0044$ $n=127$
Tiotropium Respimat® 2.5 µg	84 ml (−25,194) $P=0.1307$ $n=119$	137 ml (26,248) $P=0.0154$ $n=113$
Morning PEF (l/min)		
Tiotropium Respimat® 5 µg	15.824 l/min (2.348, 29.299) $P=0.0214$ $n=124$	19.623 l/min (5.857, 33.389) $P=0.0052$ $n=114$
Tiotropium Respimat® 2.5 µg	9.718 l/min (−4.092, 23.528) $P=0.1676$ $n=110$	14.038 l/min (−0.025, 28,102) $P=0.0504$ $n=105$
Evening PEF (l/min)		
Tiotropium Respimat® 5 µg	16.691 l/min (3.422, 29.960) $P=0.0137$ $n=122$	18.211 l/min (4.764, 31.658) $P=0.0080$ $n=119$
Tiotropium Respimat® 2.5 µg	12.249 l/min (−1.298, 25,797) $P=0.0763$ $n=114$	15.274 l/min (1.448, 29.101) $P=0.0304$ $n=104$

[a]Full analysis set, [b]Adjusted mean difference
CI, confidence interval: PEF, peak expiratory flow

CR004

Airway hyperresponsiveness among patients attending a primary care clinic with symptoms compatible with asthma

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Aim: Asthma is one of the most common chronic inflammatory lung conditions encountered by primary care physicians. Asthma diagnosis is based on clinical symptoms, physical exam findings, simple spirometry, and other objective tests if necessary. Since most patients with mild asthma in primary care have normal lung function, spirometry may lack the sensitivity to provide objective diagnostic confirmation at time of testing- a feature that may delay diagnosis. Furthermore, lack of objective testing has been implicated in over diagnosis of asthma. While it has been well documented that methacholine challenge testing (MCT) is more sensitive than spirometry for inclusion or exclusion of asthma diagnosis, MCT is promoted as a second line test in clinical guidelines. The latter may be related to the widespread and timely availability of simple spirometry compared to MCT. This study explores airway hyperresponsiveness among patients attending a primary care clinic with symptoms compatible with asthma using a pragmatic approach that might be suitable for more widespread adoption in the family medicine setting.
Method: Seventy three patients who attended a primary care clinic with symptoms compatible with asthma, normal spirometry at time of testing, without a prior diagnosis of asthma were retrospectively reviewed. All patients received timely access to simple spirometry and MCT. Some patients were referred to the clinic by physicians in the local community, including same day testing.
Results: Airway hyperresponsiveness was confirmed in 34.2% of patients (PC20 = 4.1 ± 2.8). The average turn-around time from time of referral to MCT testing was 21 days.
Conclusion: This study shows that about a third of patients in primary care with symptoms compatible with asthma will exhibit airway hyper-reactivity with MCT. This information can be obtained in a timely fashion in the community setting and may be useful for objective confirmation of asthma. Larger studies are required to determine whether our approach may be associated with reductions in asthma over-diagnosis in the primary care setting.
Declaration of interest: None
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CR005

An integrated tool to measure the burden of COPD, the Assessment of Burden of COPD (ABC)-tool: Development and validity

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Aim: The burden of Chronic Obstructive Pulmonary Disease (COPD), as experienced by patients, is an essential element in the approach of COPD. It is important for daily clinical practice to have a valid tool that can both assess this burden and therefore facilitate the communication with patients.
Method: Six consecutive steps were taken to develop and validate this tool. a) defining the concept of burden of COPD, b) checking the definitions' compatibility with the experiences of patients and healthcare providers, c) formulating the requirements this instrument should meet, d) conducting a systematic review, e) developing a new tool, f) validating the tool.
Results: A definition of the burden of COPD was formulated by a Dutch expert team. Interviews with patients and healthcare providers showed agreement on this definition. The systematic review did not yield a tool that fully measures our pre-defined burden of disease. However, the Clinical COPD Questionnaire met most requirements. Questions on fatigue and emotions were added resulting in the Assessment of Burden of COPD (ABC)-scale. The outcomes of the ABC-scale are displayed in order to visualize the different domains of the burden of COPD, the so-called ABC-tool. This tool provides a treatment algorithm that can help patients and healthcare providers in deciding on a treatment plan. Test-retest reliability of the scale was determined in 133 patients in a 2-week interval (Intra Class Coefficient = 0.92 (CI: 0.89–0.95)). The convergent, divergent and known-groups validity was determined with 162 patients. A significant correlation was found between the ABC-scale and the SGRQ (r = 0.72 (CI:0.61,0.83). The ABC-scale did not correlated with the FEV_1%pred. (r = − 0.15, 95%CI: − 0.31,0.004). The known-groups analysis showed that the ABC-scale had good discriminative properties.
Conclusion: This newly developed ABC-tool can provide insight for the patient in his/her own disease by visualizing the outcomes of the burden of COPD. Furthermore, it can facilitate communication between patient and healthcare provider and subsequently result in shared decision making. The aim of the tool is to help the patient in taking control over his/her own disease by increasing self-management. To accomplish this, the tool provides the possibility to make a tailor made treatment plan and to formulate a personal goal. This tool can be used in daily practice, during each consultation.
Declaration of interest: This research is subsidized by the Dutch Lung Alliance.
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CR006

Antibiotic prescribing habits for URTI (Upper respiratory tract infection) cases among local physicians

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Aim: A common question that arises in primary care is when to prescribe antibiotics for patients with upper respiratory tract infections (URTI). Studies have shown that the Centor criteria correlate well with a laboratory diagnosis of Group A Streptococcus infection, an indication for antibiotics, and that its usage has helped physicians reliably reduce excessive antibiotic prescription.[1,2] My project aims to study if physicians here are prescribing antibiotics in accordance with the score.
Method: During my stint at Frontier Healthcare Ang Mo Kio branch, I retrospectively looked at case notes of patients seen in the clinic over a 2 week period. URTI cases were identified from the prescription list. Those who had URTI medicines prescribed were presumed to have URTI, and their case notes were analysed. The following data was collected: gender, age, whether antibiotics was prescribed, and among these, the presence of comorbidities, whether it was a revisit, whether the patient had requested for antibiotics, and the criteria for calculation of the Centor score (temperature, tender anterior cervical lymphadenopathy, tonsillar swelling or exudate, absence of cough, and age). The percentages of patients prescribed antibiotics were then tabulated based on their respective Centor scores.
Results: There were 184 URTI cases identified, among which 68 (37.0%) were prescribed antibiotics. A breakdown of their Centor scores is as follows: 0–47 (69.1%), 1–13(19.1%), 2–6(8.82%), 3–2(2.94%), ⩾4–0(0%). Among them, 22 (32.4%) were revisits, 1(1.47%) had specifically requested for antibiotics, and 33 (48.5%) had comorbidities.
The results seem to indicate that local physicians do not follow objective scores when prescribing antibiotics for URTI cases. According to guidelines, antibiotics are indicated for those with scores ⩾4, may be indicated in those with scores 2–3, and not indicated in those with scores 0–1 (refs 1,2). In our sample population, 69.1% of those prescribed antibiotics had a score of 0. However, this project has its own limitations. Firstly, it's only a 1 time capture over a short period with a small sample size. Secondly, the manner of sieving might have missed some mild URTI cases not prescribed any symptomatic medications. Thirdly, the controls (those not prescribed antibiotics) were not analysed in same detail as the cases, and thus, no comparison could be drawn between the 2 groups. These would be improvements that can be made with future studies.
Conclusion: Before future studies arise, perhaps more awareness could be made about objective scores such as the Centor score, so as to guide physician care and minimise unnecessary antibiotic prescription.
Declaration of interest: None
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CR007

Antibiotic prescription and sputum culture diagnostics in acute exacerbations of COPD in primary care: an important field for antibiotic stewardship

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Aim: Acute exacerbations of COPD (AECOPD) are generally treated with optimization of broncho-dilatation therapy and a course of oral corticosteroids, mostly without antibiotics. According to the Dutch primary care guidelines, antibiotic treatment is reserved for those patients with fever combined with either an $FEV_1 < 30\%$, or lack of clinical response after 4 days of standard treatment. Amoxicillin or doxycyclin are the antibiotics of first choice. Here we evaluated antibiotic prescription in AECOPD in primary care and the use of sputum cultures.
Method: We retrospectively analyzed data of 1.297 COPD patients from 2009–2013 in 3 primary care health centers, and evaluated sputum culture results. AECOPD were defined by oral corticosteroid courses of at least 5 days. Antibiotics prescribed for respiratory infections within plus/minus one month from the start date of corticosteroid courses were counted.
Results: 616 of the 1297 patients with COPD experienced a total of 2316 AECOPD. For this, 1720 antibiotic courses were prescibed. Doxycyclin ($n = 1085$) and amoxicillin ($n = 254$) accounted for 56% of these prescribed antibiotics. 74 sputum samples were taken in 67 AECOPD events (2.9%). In 24/74 sputum cultures potential pathogenic micro-organisms were cultured. *Haemophilus influenzae* was most frequently cultured ($n = 10$), and was tested susceptible to doxycyclin in 10/10, and to amoxicillin in 8/10 strains. *Pseudomonas aeruginosa* was cultured in 5 patients, *Enterobacteriaceae* in 4, *Staphylococcus aureus* in 2, *Haemophilus spp* (non-*influenazae*) in 2, and *Stenotrophomonas spp* in 1. All *Pseudomonas aeruginosa* and *Enterobacteriaceae* were resistant to the initiated antibiotic treatment, however, in none of these cases antibiotics were adjusted based on culture results.
Conclusion: Our real life data analysis shows that antibiotics are widely prescribed for COPD exacerbations and that antibiotic guidelines are poorly adhered to. The reason for the poor adherence is unclear; the alternative choices cannot be justified by existing sputum culture data since these were collected only in 2.9% of cases. Surveillance data to determine the prevalence of a bacterial origin of AECOPD and susceptibility of isolated pathogens may contribute to better care. Since antimicrobial resistance is a threat to health care, future interventional studies should aim to support prudent, tailor-made antibiotic prescription in AECOPD.
Declaration of interest: None
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CR008

Are pharmacological RCTs relevant to real life asthma populations? An UNLOCK study from the IPCRG

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Aim: Asthma is a worldwide highly prevalent disease with a vast range of phenotype manifestations. The major international clinical guidelines for prevention and management of asthma are mostly influenced by the empirical evidence and conclusions of Randomised Controlled Trials (RCTs). However, RCTs tend to be highly selective in terms of inclusion criteria for people with asthma and may actually under-represent real life populations with asthma. The assessment of the external validity of asthma RCTs is needed to better understand the clinical relevance of its conclusions and better inform practice guidelines.
The aim of this study is to explore to what extent are the inclusion criteria for people with asthma in the major RTCs representative of real life primary care populations with asthma. Therefore, the study addressed the following research question: What proportion of patients of primary care would be eligible for RCT studies in GINA 2014 guidelines?
Method: Comparing baseline characteristics in asthma patients in 3 different European primary care databases with the inclusion criteria in the pharmacological RCTs that support major practice guidelines (i.e. GINA). RCTs were identified by a systematic review focusing the search on GINA 2014 references that fit the following criteria: (a) RCT study; (b) At least a step 2 heading for step 3—combination therapy; (c) RCT sample size $n > 400$; (d) Other criteria (e.g. adult population).
Results: The systematic review retrieved 11 RCTs that fitted the inclusion criteria for this study from the 490 references of the GINA 2014. The proportion of eligible asthma patients in these 11 RCTs ranged from 39 to 81.8%.
Conclusion: The study shows that there is a large variation in the proportion of asthma patients from primary care that would be eligible in the RCTs on which current guidelines are based. This raises the question of the generalizability of the RCTs for primary care asthma patients and the clinical relevance of the guidelines.
Declaration of interest: KL has received honoraria for educational activities and lectures from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Meda, MSD, Novartis, Takeda and has served on advisory boards arranged by Novartis, and Meda. The IPCRG provided funding for this research project as an UNLOCK Group study for which the funding was obtained through an unrestricted grant by Novartis AG, Basel, Switzerland. Novartis had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.
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CR009

Assessment on the relationship of family Function on the prevalence of depression and anxiety among MDRTB Patients

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Aim: (Despite the increasing incidence of MDRTB, up to date there was no published studies found in the Philippines which discuss the prevalence of Depression and Anxiety among MDRTB and its correlation to Family function.) This study aims to determine the correlation of family function and the prevalence of depression and anxiety among MDRTB patients.
Method: This is a Descriptive Correlational Research study. Respondents were diagnosed MDRTB patients currently undergoing treatment at Vicente Sotto Memorial Medical Center satellite treatment center. Purposive sampling was done using Zigmond and Snaith's Hospital Anxiety and Depression scale as well as Smilkstein's Family APGAR scale. Data was analyzed using Frequency Distribution and Percentage and Pearson Correlational Analysis.
Results: Majority of the respondents were in the 41 years of age and above (57.1%); males (64.3%); single (46.4%); unemployed (71.4%), earning a monthly income of 5,000 pesos (~SGD151) and below (53.6). Majority has a highly functional family (57.1%). Most respondents have an abnormal level of anxiety (53.6%) whereas, 71.4% of respondents have an abnormal level of depression. There is no significant relationship between family function and the level of anxiety ($p, < 0.351$). However, a negative moderate relationship existed between family function and depression ($r, -.361$).
Conclusion: Prevalence of anxiety among MDRTB patients is said to be intrinsic and is not related to family function. However, results showed that family function has a direct relationship on the level of depression. Thus, a functional family could lower the risk of depression among MDRTB patients which ultimately could contribute in better treatment outcome. Hence, strong familial support and care should be cultured within family of MDRTB patients.
Declaration of interest: None
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CR010
Asthma control in primary school children from different ethnicities

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Aim: To assess the level of asthma control in different ethnicities and to describe the impact of ethnicity on asthma related outcomes
Method: This is a two-phased cross-sectional study involving 5366 children in nine primary schools in the Port Dickson District, Malaysia. In Phase 1, self-administered questionnaires were used to identify children with physician-diagnosed asthma as reported by parents. In Phase 2, asthma control was assessed using GINA 2009 guidelines. Data on socio demography, health care utilisation and medicine use were collected.
Results: A total of 364 (8.5%) children were reported by parents to have asthma. Of these, 290 parents agreed to participate in Phase 2 (response rate79.7%). The prevalence of asthma was 10.1% in Indian children, followed by 9.2% in the Malays and 6.6% in the Chinese. Only 77(26.6%) children had good asthma control, 135 (46.6%) had partial control and 78 (26.6%) had uncontrolled asthma for the past one week. The Chinese children had the highest proportion (42.6%) with good asthma control, followed by the Malays (19.2%) and the Indians (18.5%). More Indian children had asthma exacerbations in the last one year (mean 1.5 ±1.8 attacks per year) compared with the Malay (1.1 ± 1.4attacks per year) and the Chinese (0.8 ± 1.2attacks per year) (F 4.609, $P < 0.011$). About 53.3% of the Indian children had emergency care in the past one year. Overall there was underutilization of the use of controller medications (14.1%) compared to the use of reliever medications (43.1%). More Indian children had regular follow up (54.3%) and were on controller medications (15.2%) compared with other ethnicities
Conclusion: Asthma control in primary school children in Port Dickson was poor. Chinese children were found to have better asthma control compared to the Malays and the Indians. The Indian children had more frequent asthma exacerbations and frequent need for emergency care and could have more severe asthma. Overall, the used of controller medications were low
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CR013
Case finding for COPD in primary care: a qualitative study of the views of health professionals

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Aim: COPD is common but largely under-diagnosed. A number of case finding initiatives have been evaluated in primary care but there is a paucity of qualitative evidence on the views of service providers on whether or how this might be implemented in practice. We aimed to explore the views of clinicians and managers in primary care on case finding for COPD and potential barriers and facilitators to its implementation.
Method: 20 semi-structured interviews were conducted from March to September 2014 among GPs, nurses and managers from practices participating in a large COPD case finding trial based in primary care in the West Midlands, UK. Questions were asked about participants' views on case finding for COPD. Interviews were transcribed and analysed using the framework method.
Results: Participants felt that case finding improves patient care, including smoking cessation and access to healthcare but also acknowledged potential harms such as increase in workload and over-diagnosis. Insufficient resources, poor knowledge of COPD, and limited access to diagnostic services were viewed as barriers to diagnosis while provision of community respiratory services, including COPD specialist nurses, and support from secondary care were thought to be facilitators. Participants also expressed a need for more education on COPD for both patients and clinicians.
Conclusion: Care providers believe early detection of COPD improves patient care but also has accompanying harms. Barriers to diagnosing COPD, such as insufficient expertise in primary care and limited access to diagnostic services in the community should be explored and addressed. The knowledge and attitudes of the public about COPD and its symptoms should also be investigated to inform future education and awareness-raising strategies.
Declaration of interest: Shamil Haroon was funded by a National Institute for Health Research (NIHR) doctoral fellowship [DRF-2011-04-064]. Rachel Jordan, Peymane Adab and David Fitzmaurice are principal investigators on the Birmingham Lung Improvement Studies (BLISS), funded by the NIHR under its Programme Grants for Applied Research Programme (Grant Reference Number RP-PG-0109-10061). The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.
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CR015
Combination therapy versus separate therapy in real-life primary care patients with moderate severe asthma

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Aim: In uncontrolled steroid naïve asthma patients guidelines recommend separate low dose ICS plus SABA (ST) as reliever therapy. Many physicians however prescribe combination therapy (CT) in these patients. We have evaluated the effectiveness of both strategies in a real-life primary care setting. Aim of this study is to compare longitudinal differences in patient related outcomes between combination and single therapy in steroid naïve patients.
Method: We included 416 patients assessed by an Asthma/COPD (AC) service for primary care (33% men, mean age 48 ± 17, mean Asthma Control Questionnaire (ACQ) 1.4 ± 1). We examined patient related outcomes ($FEV_{1\ pre}$, exacerbations, ACQ and Clinical COPD Questionnaire(CCQ)) in inhalation Corticosteroid(ICS) naïve patients who were prescribed with CT ($n = 337$) or ST ($n = 79$) by a pulmonologist from the AC service. All data, including CCQ are were of the regular assessment procedure in all patients. We evaluated initial differences between both groups and computed differential scores by subtracting follow-up scores from baseline scores. The average follow-up time was 9 months. We compared these differential scores between groups with the Mann-Whitney U test.
Results: There were no initial differences between both groups in asthma severity. At follow-up both groups have improved in $FEV_{1\ pre}$, exacerbations, ACQ_{total} and CCQ_{total}. However, CT patients improved more than ST patients on ACQ and CCQ and change in ACQ and CCQ scores in CT patients was clinically relevant (Improvement $FEV_{1\ pre}$ CT: 4.0%, ST: 0.8%, $P < 0.01$ | Improvement ACQ CT: 0.5 ± 1, ST: 0.1 ± 1, $P < 0.01$ | Improvement CCQ CT: 0.5 ± 1, ST: 0.2 ± 1, P = ns), see table 1.
Conclusion: Moderate severe ICS naïve asthma patients showed more improvement while prescribed with combination therapy compared with separate therapy. Combination therapy might also be beneficial in less severe asthma patients.
Declaration of interest: None
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CR016
Comparing three different forms of education on health care professional inhaler technique and maintenance

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Aim: To compare the effect of three education interventions, on the ability of health professionals (HPs) to achieve and maintain correct inhaler technique (IT).

[CR015]

Table 1. Mean differential scores (in grey: significant group differences)

Patient related outcome	*Patients using combination therapy* (n = *337*)		*Patients using separate inhalers* (n = *79*)		P
	Change baseline → follow-up	Mean ± s.d.	*Change baseline → follow up*	Mean ± s.d.	
FEV_1 pre broncho dilator	Improvement	4.0 ± 10	Improvement	0.8 ± 8	< 0.01
Exacerbations		− 0.4 ± 1		− 0.3 ± 1	ns
ACQ total	Improvement	− 0.5 ± 1*	Improvement	− 0.1 ± 1	< 0.01
CCQ total		− 0.5 ± 1*		− 0.2 ± 1	ns
CCQ functional subscale	Improvement	− 0.5 ± 1	No change	0.0 ± 1	0.01
CCQ mental subscale		− 0.3 ± 1		− 0.2 ± 1	ns
CCQ symptom subscale		− 0.6 ± 1		− 0.4 ± 1	ns
CCQ question 1		− 0.6 ± 2		− 0.5 ± 1	ns
CCQ question 2		− 0.7 ± 2		− 0.6 ± 2	ns
CCQ question 3		− 0.3 ± 1		− 0.2 ± 1	ns
CCQ question 4		− 0.4 ± 1		− 0.2 ± 1	ns
CCQ question 5		− 0.7 ± 2		− 0.2 ± 2	ns
CCQ question 6		− 0.4 ± 2		− 0.5 ± 2	ns
CCQ question 7		− 0.6 ± 2		− 0.2 ± 2	ns
CCQ question 8	Improvement	− 0.6 ± 1	No change	0.0 ± 1	< 0.01
CCQ question 9	Improvement	− 0.2 ± 1	Deterioration	0.1 ± 1	0.02
CCQ question 10	Improvement	− 0.5 ± 1	No change	0.0 ± 1	0.01
ACQ question 1		− 0.5 ± 1		− 0.2 ± 1	ns
ACQ question 2	Improvement	− 0.5 ± 1	No change	0.0 ± 1	0.003
ACQ question 3	Improvement	− 0.6 ± 1	Improvement	− 0.1 ± 1	< 0.01
ACQ question 4		− 0.6 ± 1	Improvement	− 0.3 ± 1	ns
ACQ question 5	Improvement	− 0.7 ± 2	Improvement	− 0.3 ± 2	0.04

* = clinically relevant

Method: A parallel group, three arm, repeated measure design was used to implement and evaluate three educational interventions: traditional face-to-face workshop (Model 1), online learning module (Model 2) and a collaborative face-to-face workshop (Model 3). HPs' IT was assessed within a fortnight of competing the modules. If HP IT was not correct, the assessor would provide immediate personal training and assessment until correct IT was achieved. HPs then delivered the Collaborations in Asthma Management in the Community (CAMCOM), protocol, involving optimisation of patient's IT over 6 months. HPs IT was then re-assessed.
Results: A total of 81 HP (27 GPs, 11 practice nurses and 43 pharmacists) participated in the study (28, 17 and 36 HPs in Models 1, 2, and 3 respectively). There was a statistically significant difference in the mean proportion of HPs with correct technique between Modules 1, 2, and 3 initially (72, 27.4 and 47.8% respectively, Pearson's Chi-Squared, $n = 81$, $P < 0.05$) and at the 6 month follow-up (57.8, 44.4 and 25.3% respectively, Pearson's Chi-Squared, $n = 41$, $P < 0.05$).
Conclusion: Different forms of HP education have had differing effects on inhaler technique of participating HPs. After 6 months this technique had generally deteriorated which has implications for what patients might receive in practice. Reasons for non-maintenance of HP IT need to be further explored.
Declaration of interest: Has been previously presented at PCNE 2013 and PHCRIS 2013
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CR017
Comparing three different forms of education on patient asthma outcomes

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Aim: A high proportion of inhaler device users, use their device incorrectly. A collaborative approach to asthma management and device use, could help address this problem. However, enabling a collaborative approach is difficult to achieve and establishing evidence of effect on patient outcomes is a challenge. The Collaborative Asthma Management in the Community (CAMCOM) study evaluated the impact of 3 models of interprofessional education on attitudes towards collaboration and patient health outcomes. This abstract focuses on patient outcomes. To evaluate the effect of three CAMCOM interventions on clinical asthma outcomes
Method: Health Care Professionals (HCPs) from three general practice networks were recruited into one of three groups (1, 2, and 3) receiving one of three models of interprofessional education (joint setting group, online group and socio-cultural theory-based group, respectively). HCPs from a fourth network, received no intervention and acted as control. Following completion of educational module, HCPs recruited people with asthma using inhaler devices and provided them with inhaler device education over a six month period (5 visits). Inhaler technique, asthma control, asthma quality of life, perceived control of asthma were evaluated over this time period.
Results: Total 37 pharmacists, 13 general practitioners and 2 practice nurses recruited 312 patients with asthma. Linear mixed modelling with autoregressive covariance indicated significant differences between Groups 1, 2, 3 and control over time in terms of inhaler technique, asthma control, asthma quality of life and perceived control of asthma ($P < 0.0001$ for all four outcomes).
Conclusion: While clinical content of continuing profession education sessions can be fixed, the impact of the interaction of health care professionals and the educational material can have a significant impact on clinical outcomes for people with asthma.
Declaration of interest: Has previously been presented at PCNE 2013 and PHCRIS 2013
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CR018
Comparison of the value of Chronic Obstructive Pulmonary Disease Screening Questionnaires of GOLD and IPAG

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Aim: To compare the value of Chronic Obstructive Pulmonary Disease Screening Questionnaires of GOLD and IPAG

Method: Prospective cross-sectional study. Participants from commune heath care centers of District 5, 10, Phu Nhuan would be included in our study from June to September 2014. The participants answered with those screening questionnaires and performed spirometry to confirm diagnosis of COPD.
Results: 800 invitations were sent. 241 participants agreed to participate in our study. Of 241 participants, male accounts for 66.4%. The average age is 58.63 ± 11.31. Patients with chronic obstructive pulmonary disease accounting for 16.6% of the total participants. Proportion of GOLD stage I, II, III, and IV are 22.5, 40, 30, and 7.5%, respectively. Area under the curve of the IPAG and GOLD questionnaires are 0.8103 and 0.8323, respectively; the difference between those two areas shows no statistical significance ($P = 0.5666$).
Conclusion: Those IPAG and GOLD questionnaires have equal value in early screening for COPD.
Declaration of interest: None.
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CR019

Concordance between GeneXpert, mycobacterial culture and drug susceptibility testing results

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Aim: The aim of the study was to evaluate the positive predictive value (PPV) and factors associated with positive prediction of GeneXpert System's (MTB/Rif assay) for MTB and Rif resistance detection by using Mycobacterium culture and drug susceptibility testing (DST) as reference/gold standard.
Method: This was a cross-sectional study conducted at Programmatic Management of DR-TB (PMDT) centre, Department of Pulmonology LRH Peshawar. All subjects with MTB & RIF resistance detected on GeneXpert were included in the study. Their sputum specimens were also sent to Agha Khan University Lab for Culture and DST. SPSS 16 was used for data analysis.
Results: 308 patients (mean age 30.44+ 14.55 years) who had MTB and Rif Resistance detected on Xpert were included in the study. 172(56%) were female and 136(44%) were male. Of these 308 patients 34 (11%) had never taken ATT in the past. 86(28%) and 88(29%) were failure of CAT I and CAT II respectively, 37(12%) Relapse TB, 7(2%) Default whereas 56(18%) others. AFB Cultures were positive in 297 out of 308 MTB detected patients on GeneXpert (PPV for MTB detection = 96.42%). RIF resistance was found in 308 patients on GeneXpert and was subsequently confirmed by DST in 283 patients (PPV for Rif resistance = 92%). Out of these 283, 281(99%) were also resistant to INH. No statistically significant association ($p < 0.05$) was observed between GeneXpert's Positive Prediction for MTB detection, Rif resistance and any other factor.
Conclusion: GeneXpert has high accuracy for MTB and Rifampicin resistance detection. Thus positive Gene Xpert results suffice to start a patient on second line anti TB regimen.
Declaration of interest: None
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CR020

Defining Well-Controlled Asthma: Perspectives from Patients and Primary Care Physicians in Asia

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Aim: REALISE Asia is a two-part survey on asthma which was conducted to better understand the attitudes of patients towards their condition and treatment (Part 1), as well as perceptions and insights from physicians managing this disease (Part 2). Using data obtained from primary care physicians (PCPs) in Part 2, as well as corresponding results from Part 1 of the survey, we report here the extent of discrepancy in the perspectives of patients and PCPs in Asia regarding their understanding of well-controlled asthma.
Method: The study was conducted in 8 regions in Asia (China, Hong Kong SAR, Indonesia, Malaysia, Philippines, Singapore, South Korea, and Taiwan). Part 1 is an online questionnaire-based survey involving 2,467 patients with asthma aged 18–50 years. Part 2 consists of interviews conducted face-to-face or online amongst 375 physicians, 46% of which are engaged in primary care practice.
Results: PCPs report seeing over 900 patients in a month, around 7% of which are patients with asthma aged 12 years and above. Initial and follow-up consultations for asthma last for 18.5 and 10.6 min respectively, with 87% of patients visiting them at least once every 3 months. Four out of 5 PCPs report using GINA criteria, ACT, or local treatment guidelines in assessing asthma control. While 89% of patients consider their asthma to be controlled, PCPs perceive around 56% of their own patients as well-controlled. Both are overestimation of the actual proportion of patients achieving control (18%) based on GINA-defined criteria. Seven out of 10 PCPs perceive that their patients' definition of well-controlled asthma is aligned with their definition. On further probing, PCPs perceive that patients relate well-controlled asthma to absence of symptoms (35%), no/reduced attacks (40%) and minimal impact on daily life (58%), while patients relate control more to having medications to cope with their symptoms (26%) or quickly control asthma attacks (15%), reflective of the patients' crisis-oriented mind-set towards their disease.
Conclusion: Overestimation of the level of asthma control highlights the importance of accurate assessment in clinical practice, and the role of primary care physicians in improving the understanding of concept of well-controlled asthma amongst their patients. Standardized tools (i.e. validated questionnaires) may improve assessment of control while discussion of treatment goals using shared language can be carried out without too much burden on already time-constrained consultations.
Declaration of interest: Mundipharma Pte Ltd provided funding for the survey and authors received honoraria from Mundipharma Pte Ltd for participation in REALISE Asia Working Group.
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CR021

Development of a decision tree that can be used to predict the diagnoses asthma, COPD and Asthma/COPD overlap syndrome in primary care respiratory patients

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Aim: Aim of this study is to develop a diagnostic decision support tool based on real-life data to predict diagnosis in primary care patients with suspicion of asthma or COPD. We have assessed the diagnostic accuracy of this tool in an external primary care population.
Method: The initial decision support system was derived from 9,297 patients (men 45%, mean age 53 ± 17 years, 69% never smoked, mean $FEV_{1\ post}$89%) from an Asthma/COPD service for primary care. All patients were suspected to have an obstructive pulmonary disease and were diagnosed by a pulmonologist based on guideline guided assessments. We used FEV_1/FVC_{post}, FEV_1, smoking, age of onset, allergy, reversibility and wheezing as predictors of diagnosis and the exhaustive CHi-squared Automatic Interaction Detection (CHAID) for development of our tool. We have externally validated our tool in the population of a comparable external Asthma/COPD service ($n = 3,215$, 43% male, mean age 49 ± 17, 70% smoked, mean $FEV_{1\ post}$92%) by applying our CHAID algorithm.
Results: The final decision tree was able to correctly predict 79% of the asthma patients, 85% of the COPD patients and 32% of the ACOS patients. The overall

[CR021]

Table 1. Diagnostic accuracy of our decision tree (internal validation and external validation)

	Diagnosis predicted by decision tree					
Internal validation						
Diagnoses by pulmonologist initial AC-Service						
	ACOS*	COPD	Asthma	Other**	Total	Correct
	n	*n*	*N*	*n*	*n* (%)	*n* (%)
ACOS*	225	355	98	33	711 (7.6)	225 (31,6)
COPD	135	1454	68	59	1716 (18.5)	1454 (84,7)
Asthma	162	101	3253	609	4125 (44.4)	3252 (78,9)
Other**	28	128	1109	1480	2745 (29.5)	1480 (53,9)
Total n (%)	**550 (5.9)**	**2038 (21.9)**	**3419 (48.7)**	**2181 (23.5)**	**9297 (100)**	**6412 (69,0)**
External validation						
Diagnoses by pulmonologist external AC-Service						
ACOS*	59	152	35	2	248 (7.9)	59 (23.8)
COPD	53	452	36	6	547 (17.4)	452 (82.6)
Asthma	42	32	532	78	684 (21.8)	532 (77.8)
Other**	21	72	919	651	1663 (52.9)	651 (39.1)
Total n (%)	175	708	1522	737	3142 (100.0)	**1694 (53.7)**

[CR021]

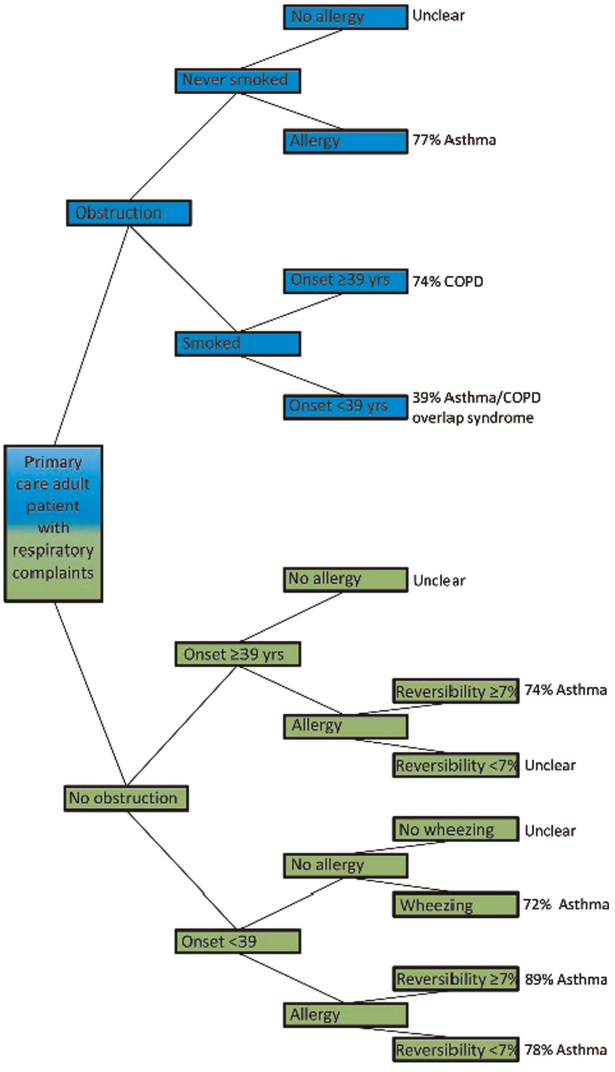

Figure 1. Decision Tree.

diagnostic accuracy of the external validation was 54% (see table 1). The predictive accuracy for COPD was good (82% of the proposed diagnosis was in accordance with the diagnosis given by the pulmonologist). However, our tool over-diagnosed asthma in this population although patient characteristics of both populations were comparable.

Conclusion: Most asthma and COPD patients could be correctly predicted with this instrument. Our decision tree is considered to be promising because it was based on real life primary care data and used diagnoses made by pulmonologists. The total decision tree can be implemented in the AC service for automatic evaluation of individual assessments. A simplified version of this decision tree (see figure 1) can be used in clinical practice to predict diagnosis. The pulmonologists from the initial decision tree (44% asthma patients) seem to use lower thresholds to diagnose patients with asthma than pulmonologists from the external AC service (22% asthma patients). Although our decision support tool seems promising, more research is needed to validate the instrument in other populations.

Declaration of interest: This study was sponsored by Novartis.

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CR022

Effect of Physical Exercise and Breathing Exercise in moderate and severe asthma: on plasma levels of TGF-beta1, IL-17and NO associated with airway remodeling

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Aim: To prove that physical exercise is able to decrease TGFβ 1, IL-17 and Nitric Oxide levels in patients moderate and severe asthma

Method: 34 patients of moderate and severe persistent asthma bronchiale divided into 2 groups: non exercise/control group ($n = 18$) and exercise group ($n = 16$). Physical exercise (upper extremities and lower extremeties) performed in 20 min and breathing exercise performed in 10 min, carried out 5 days in a week for 8 weeks, Both of group measured of TGFβ 1, IL-17 and NO levels in the plasma specimen by enzyme linked immunoassay/ ELISA method, (before and after study).

Results: The levels of TGFβ 1 was significantly higher in plasma specimen exercise group than control (Probability Value $0.045 < 0.05$ or 5% level of significance). Levels of marker inflammation IL-17 in severe asthma was not decreased significantly in exercise group compare with control (Probability Value $0.954 > 0.05$ or 5% level of significance).The role of nitric oxide in airway remodeling, particularly that associated with chronic inflammatory responses

significant decreased in exercise group compared with control (Probability Value 0.041 < 0.05 or 5% level of significance)
Conclusion: This study showed Physical exercise and breathing exercise in patients moderate and severe persistent asthma are effective to decrease of IL-17 and NO plasma levels, suggest that exercise decreases airway inflammation and remodeling.
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CR023
Effectiveness of physicians-recruiting-physicians vs e-mail+SMS in participation of Philippine Academy of Family Physician members in TB training using RCT

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Aim: The main objective is to determine the effectiveness of physicians-recruiting-physicians versus electronic mail with SMS in recruiting PAFP members to attend TB training. More than that, the assumption is that physicians-recruiting-physicians method is more effective by 20% in attendance rate than electronic mail and SMS in recruiting PAFP members to attend TB training.
Method: This study will be an open-labelled randomized controlled trial involving active members of the PAFP who are practicing clinicians. Members who will fulfil the inclusion criteria will be included in the study and randomly assigned to a recruitment strategy. Recruitment will be done by a distinguished member of the academy and the primary investigator. For the physicians-recruiting-physicians, an officer or distinguished member of the academy will be requested to personally invite the members to attend the training on tuberculosis. Recruitment shall be done either by phone call or in-person. On the other hand, an invitation letter and program of the training will be sent by way of electronic mail by the investigator. Also, an SMS containing a standard text message shall be sent.
Results: Participation in the tuberculosis training is the expected primary outcome in the study. Secondary outcomes include improvement in medical knowledge on tuberculosis of the participants using pre- and post-test results and report of facilitating and inhibiting factors in the participation to the training.
Conclusion: This study will provide information on ways to effectively invite family physicians to attend activities for continuing medical education.
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CR025
Effects of cigarette health warning posters on the intellectual, psychological and behavioral responses of selected public secondary school students in Iloilo

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Aim: This study aimed to determine the intellectual, psychological and behavioural responses of public high school students before and after exposure to the campaign materials about the hazards of smoking.
Method: Pre-test post test study design was used. 97 respondents were chosen among Lapayon High School students using stratified random sampling. Pre test was done and this was followed by posting of cigarette health warning posters in the classroom in the bulletin boards for 23 days and post test was done thereafter. Statistical tools include paired *T*-tests and means and ANOVA.
Results: Majority of the respondents are males (53.6%), 39.2% are 15 years of age, and 34% are smokers. There is equal prevalence of smokers (50%) and non-smokers in males, while 16% of females are smokers. On the intellectual, psychological and behavioural questions, majority of the responses have significant differences after exposure to health warning posters. There is a highly significant difference on the intellectual and psychological responses at *P* value of 0.000 and a significant difference on the behavioural responses before and after exposure to health warning posters with a *P* value of 0.004. There is a significant difference on psychological and behavioural responses before and after exposure to health warning posters towards a highly favourable response against smoking. This means that the cigarette warning posters have influenced the intellectual, psychological and behavioural responses regarding smoking.
Conclusion: Almost all the questions on the perceptions on smoking got a significant difference on the responses of the students before and after exposure to the posters. This means that the respondents had heightened awareness on the effect of smoking after exposure to the campaign ads.
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CR026
Enhancing the use of Asthma and COPD Assessment Tools in Balearic Primary Care (ACATIB): A regional wide cluster non-randomised controlled trial

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Aim: Assess the effect of an educational intervention program on the use of the Asthma Control Test (ACT), modified Medical Research Council (mMRC) and COPD Assessment Test (CAT) among primary care settings of the Balearic Islands, Spain.
Method: In this 1-year regional wide cluster non-randomized controlled study, an educational intervention on the use of respiratory health status tools was offered to primary care physicians and nurses. In the educational program, potential benefits for patient management and training on where to find-and how to record- the tools were highlighted. To all participants, written material was provided to educate their colleagues. Primary outcome was the difference between intervention and non-intervention practices in percentage of practices that increased the use -and recording- of ACT, CAT and mMRC tests between November 2012 (before intervention) and November 2013 (after intervention).
Results: In November 2012, 399 test scores were recorded in a total of 88194 patients (asthma: 57339; COPD: 30855). In November 2013, 1576 test scores were recorded in 92714 patients (asthma: 61841; COPD: 30873). In the intervention group, 26 out of 31 (84%) centres enhanced the total number of tests, compared with 10 out of 26 (38%) in the non-intervention group (χ^2; $P = 0.0007$).
Conclusion: Educational intervention programs targeted on primary care physicians seem to enhance the use of respiratory health status tools, however overall use is still suboptimal.
Declaration of interest: This study was supported by an unrestricted grant from GSK Spain to develop the educational strategy.
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CR027
Evaluation of dispnea degree in obese patients

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Aim: Dyspnea is a symptom that can be associated with anemia, cardiovascular diseases, obesity, hyperthyroidism, intense exercise and lung diseases. In obesity patients, having more adipose tissue around the neck increases the tendency of upper airway narrowing and obstructions. Because of the close relation between obesity and dyspnea, questioning respiratory functions of patients' is essential. The aim of the present study was to determine the severity of dyspnea with the pulmonary function tests.
Method: 40 obese subjects were included in this study randomly who were referred to the Clinic of Obesity of Izmir Tepecik Training and Research Hospital in the period of June—July of 2014. Questionnaire for the assessment

of the severity of dyspnea and pulmonary function tests for the obese individuals are evaluated statistically.
Results: The average rate of the participants' age was 46,2 (min. age: 18, max. age: 79)., There was no significant difference on education level *between the groups*. %70 of patients (n:28) were known with coexisting diseases besides obesity and %60 of the patients (n:24) were on medical treatments. Mean BMI (Body Mass Index) was 37,99 ± 5,47 kg/m^2 (min: 29, max: 56,5); 8 patients (%20) were overweight, 20 patients (%50) were obese, 10 patients(%25) were morbid obese. According the severity of dyspnea 40% of the patients were assessed as grade 1 (n: 16), 35% were grade 2 (n:14), 12,5% were grade 4 (n:5). According to FEV1; 3 patients (%7,5), according to FVC; 9 patients (%22,5) and according to FEV%; 4 patients (%10) meet the dyspnea criteria.
Conclusion: In obese patients; clinical dyspnea symptoms are more significant compared to low pulmonary functions test results. Regardless the etiology; effective management of obese patients with the dyspnea complaints; should include planning for treatment of obesity while covering pulmonary symptoms.
Declaration of interest: None
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CR028
Excessive Reliever prescribing in asthma...who are the patients and what is the effect of structured review? Experience of a UK general practice

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Aim: A key recommendation of the United Kingdom (UK) National Review of Asthma Deaths is the urgent review of asthma patients prescribed more than 12 short-acting reliever inhalers (SARI) per year. This study aims to look at the characteristics of these patients and effects of structured review in a single UK general practice.
Method: Patients were identified from practice records and invited to attend for a 30 minute review with the author, an asthma –interested GP. Control was assessed and patients managed according to British Asthma Guidelines. A retrospective review of inhaler use and recorded exacerbations was made 6 months after asthma review.
Results: 445 patients with asthma were identified (14% of practice list 6300) 19 patients (4.4% asthmatics) were prescribed >12 reliever inhalers in the year April 2013-April 2014. 15 patients attended for review, with 4 failing to attend in spite an average of 1.2 letters and 2.1 telephone calls per patient overall.
Conclusion: Patients with asthma prescribed more than 12 relievers per year had low exacerbation rates but high symptomatology. Issue of action plans was purportedly high but low usage emphasising the importance of checking action plan adherence. Structured review resulted in lower reliever use and increased ICS prescription uptake.
Declaration of interest: None
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[CR028]

Table 1. Characteristics of the patients

AGE/SEX($n = 19$)_	4 < Age 18 15 ⩾ Age 18 Mean Age = 43 5 Male 14 female
BODY MASS INDEX($n = 16$)	9 patients (56%) >30 ('obese')
NIJMEGEN SCORE > 23 (suggesting dysfunctional breathing) $n = 14$	4/15 = 26%
NUMBER OF SITES INHALERS KEPT ($n = 15$)	Median = 2 (IQR 2–4). 7 patients (48%) had inhalers in > 2 places
ASTHMA ACTION PLANS ($n = 15$)	From records: 15 patients had plans. On review 5 said had plans, 5 had lost plans
Royal College of Physicians (RCP) 3 questions($n = 15$) (⩾1 poor control)	Median = 1 (IQR = 1–3)
Exacerbations in last year needing oral steroids	'Pre' Median = 0(IQR 0–1) 'Post ' Median = 0(IQR 0–0)
HOSPITAL ADMISSIONS IN PREVIOUS 12 MONTHS($N = 15$)	'pre' Median = 0(IQR0–1) 'post' Median = 0)IQR 0–0)
NUMBER SABA* CANISTERS	'Pre' (12 months) Median = 16 (IQR 13–20) 'Post' (6 months) Median = 4 (IQR 2–6)
NUMBER PATIENTS USING ICS** >50% PREDICTED 100% PREDICTED	'Pre' (12 months) 15/19 = 79% 'Post' (6 months) 12/13 = 92% 'Pre' (12 months) 2/19 (12%) 'Post' (6 months) 6/13 (23%)

*SABA = short –actingbeta-2 agonist use
**ICS = Inhaled Corticosteroid
'pre' = pre review.
'post' during 6 month post-review

CR029
Factors affecting smoking cessation

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Aim: Smoking is the most important cause of preventable mortality and morbidity. The habit of smoking is a significant public health problem that leads to plenty of diseases (1).In Turkey, approximately 100,000 people die each year due to smoking-related diseases (2). Turkey is still among the countries with high rates of smoking (3, 4).We aimed to investigate what approaches were used on the individuals who applied to our hospital to quit smoking, the rate of smoking and the factors that can have an effect on smoking cessation.
Method: The records of cases admitted to Mehmet Akiflnan Hospital in 2014 to quit smoking were analyzed and 114 cases were included in the study. The factors that have an effect on smoking and nonsmoking status of individuals were investigated in the study. The data was evaluated using SPSS 18.0. Chi-square test and Mann-Whitney U test was used. Statistical data $p < 0.05$ was considered statistically significant.
Results: Of all 114 cases included in the study, the mean age was 41 ± 14.31; 24 were female (21.1%) and 90 were male (78.9%). The mean age of smoking initiation was 18.42 ± 4.56, cigarette consumption was 22.89 ± 16.35 packet/year. Of all cases, 91 (79.8%) are still smokers and 23 (20.2%) quitted smoking. Features of the cases as to whether they quitted or not are presented in Table 1. No statistically significant difference was found between cases who

[CR029]

Table 1. Features of the cases as to whether they quitted and did not quit

Smoking Status	*Those who quitted*	*Those who didn't*	*P value*
Age	40.4 ± 24.0	41.2 ± 20.0	0.740
Gender			
Male	19 (%82.6)	71 (%78.0)	0.461
Female	4 (%17.4)	20 (%22.0)	
Educational Status			0.829
Literate	4 (%17.4)	20 (%22.0)	
Primary School	10 (%43.5)	40 (%44.0)	
High School	4 (%17.4)	18 (%19.8)	
University	5 (%21.7)	13 (%14.3)	
Age of Smoking Initiation	19.0 ± 5.0	18.3 ± 5.0	0.972
Cigarette Packet/Year	17.0 ± 20.0	24.4 ± 24.0	0.027
Occupation			0.276
Unemployed	6 (%26.1)	37 (%40.7)	
Officer- Worker	10 (%43.5)	25 (%27.5)	
Self-Employed	7 (%30.4)	29 (%31.9)	
Residence			0.947
Village	2 (%8.7)	10 (%11.0)	
District	3 (%13.0)	11 (%12.1)	
Town	18 (%78.3)	70 (%76.9)	

[CR029]

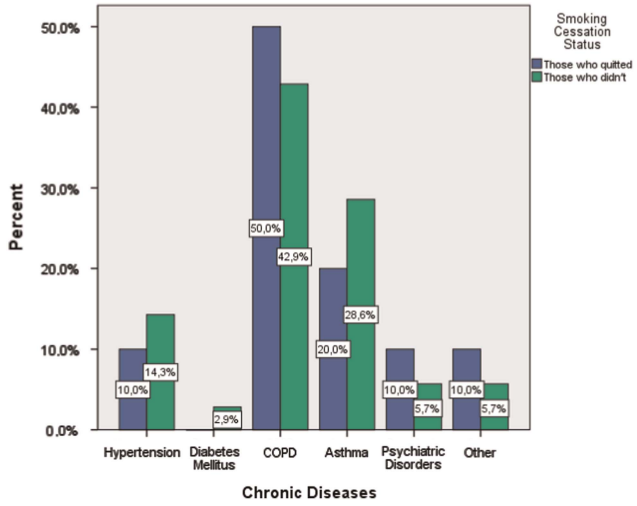

Figure 1. Distribution of comorbidity in cases who quitted smoking and who did not (%).

[CR029]

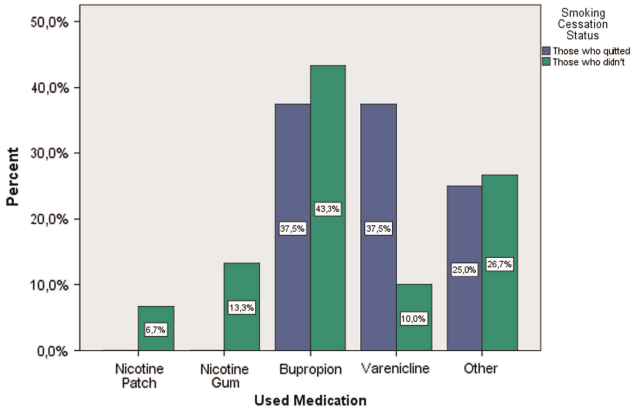

Figure 2. Distribution of drugs used on cases (%).

quitted smoking and those who did not in terms of age, gender, occupation, residence, educational status and age of smoking initiation ($P > 0.05$). The packet/year rates of smoking were found to be significantly higher at those who couldn't quit smoking when compared to those who quitted ($P = 0.027$). Comorbidity claims was given in Figure 1. The distribution of the drugs was given in Figure 2.

Conclusion: In our study we found the rate of smoking cessation as 20.2%. The studies conducted in our country in order to evaluate the success of smoking cessation claimed that this rate was between 21.6 and 45% (5). The packet/year consumption rates of the cases were different in two groups and the group who couldn't quit smoking was found, as expected, to smoke more cigarettes. It is important to evaluate the factors that can have an effect on smoking cessation success in order to prevent smoking. We believe the need of a comprehensive prospective study.

Declaration of interest: None

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CR030

Factors associated with inhaled corticosteroids prescription in primary care patients with COPD: a cross-sectional study

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Aim: Guidelines recommend prescribing inhaled corticosteroids (ICS) only in a sub-group of patients with severe COPD and frequent exacerbations. Recent studies suggest an over-prescription of ICS. The aim of this study was to assess the prescription rate of ICS and to identify factors associated with ICS prescription among patients with COPD, treated in Balearic primary care.

Method: This cross-sectional study included all patients with a clinical COPD diagnosis,that attended a Balearic primary care centre in 2012. In addition, a sub-population with spirometry-confirmed COPD was defined. Data were obtained on patient demographics, smoking status, spirometry, ICS prescriptions, other respiratory medication, exacerbations and comorbidities. Associations with ICS and high-dose ICS prescription were assessed using univariate and multivariate regression analyses.

Results: 15,440 patients were included (70% men, mean age 68.6 years). 44.6% were prescribed ICS. The largest association with ICS prescription was asthma comorbidity (OR: 3.50), followed by exacerbation history (OR: 2.23). In addition, smoking status (current: 34.6%; ex-smokers: 51.0%; non-smokers: 51.7%), spirometry (yes: 48.9%; no: 40.8%), atopic dermatitis (yes: 51.4%; no: 44.1%) allergic rhinitis (yes: 50.3%; no: 44.4%) and mean age were significantly ($P < 0.001$) associated with ICS treatment. In the spirometry-confirmed population, asthma (OR: 2.89), exacerbations (OR: 2.85) and severe bronchial-obstruction (OR: 2.63) were the major factors. High-dose ICS prescription was mainly associated with severe obstruction (OR: 2.47), exacerbations (OR: 2.01) and asthma (OR: 1.46).

Conclusion: The percentage of COPD patients prescribed ICS in Balearic primary care is relatively low. Asthma comorbidity, exacerbation history, severe bronchial-obstruction, smoking status and spirometry were significantly associated with ICS prescription.

Declaration of interest: No funding was received.

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CR031

From neonate to adult; the role of environmental agents on airway epithelial cell function

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Immunologically mediated inflammation undoubtedly plays a central role in the airway inflammation characteristic of asthma but such inflammation alone does not explain many of the characteristic pathological features of asthma. There is increasing evidence that the epithelium of the asthmatic airways is structurally and functionally abnormal and critically contributes to the inflammatory response and re-modeling of asthmatic airways. In asthmatics the airway epithelium secretes a variety of cytokines, chemokines and growth factors (e.g., PGE_2, IL-8, IL-1, IL-6 eotaxin, RANTES, TNF-a, GM-CSF, TGFa/b) with increased responses to pathogenic and environmental stresses (e.g. air pollution, viral infection, oxidative stress) compared to healthy subjects. We have a programme of work that is examining the effect of a number of environmental agents (house dust mite antigen, side stream tobacco smoke, nanoparticles) on the secretory function of cultured airway epithelial cells from neonates, children and adults with or without asthma. We are also examining the modulating effects of established asthma therapy such as the leukotriene antagonist Montelukast. This presentation will cover the background to our studies and present data on our key findings to date.[4]

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CR032

General and upper respiratory tract infection-specific antibiotic prescribing rates in the Asia-Pacific region: a systematic review

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Aim: Overuse of antibiotics for upper respiratory tract infections is a major contributory factor towards antibiotic resistance, and has been promulgated across the globe through globalization. European studies have highlighted large geographical variations in antibiotic use with an increase in use of broad-spectrum antibiotics, and have helped authorities to evaluate adherence to guidelines and policies, as well as assessing outcomes of national and regional interventions. This study reviewed the antibiotic prescribing rate, in general and specifically upper respiratory tract infections (URTIs) in primary care settings in the Asia-Pacific region.
Method: A comprehensive search of full text cross-sectional or prospective primary care studies was made using PubMed and Google Scholar. Studies were included if they involved at least 100 patients with URTI, performed within Asia-Pacific countries, and were conducted from 2000 to 2014. Included studies were assessed for quality by two independent investigators with differences resolved by consensus. Antibiotic prescription rate was calculated by dividing the number of antibiotics prescribed among URTI patients or total patients
Results: 22 studies from 11 countries were identified (total of 12,944,418 patient data and 8,117,453 URTI patients). There is heterogeneity in the geographical coverage, sample size, methods of data collection and definition of upper respiratory tract infection. Overall antibiotic prescribing rates varied from 4.5 to 85.2% (median 44.9%) while URTI-specific antibiotic prescribing rates varied from 1.8 to 64.8% (median 30.4%). Even within the same country antibiotic prescription rates vary significantly. Reduction in antibiotic prescription rate was observed in two countries. Overall data from health insurance tend to have a lower antibiotic prescription rate (21.6 vs 7.5%). For general antibiotic prescribing rates, four out of eight countries reported rates exceeding 30%, and for URTI-specific antibiotic prescribing rates, five out of nine countries reported rates exceeding 30%.
Conclusion: Cross-national comparison of antibiotic prescribing in Asia-Pacific countries is difficult to do because of methodological differences and absence of data using defined daily dose. Nonetheless, our results suggest there is excessive antibiotics prescribing, in general as well as for URTI in the majority of countries where data are available. Existing data shows that there is a high intra- and inter-country difference in antibiotic prescription rate, which is likely a result of cultural and health system differences. There is a need for a better concerted effort among primary care physicians within the Asia-Pacific region to coordinate research targeting antibiotic usage in order to combat the growing problems from antibiotic resistance.
Declaration of interest: None
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CR033

Generating a consensus on an electronic patient record for COPD in Portugal: a Delphi study

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Aim: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality associated with high social and economic costs. An improvement in the epidemiological knowledge on the management of COPD is important to the delivery of health care services. This Delphi study was conducted to obtain a consensus about the clinical variables necessary to the management of COPD through the development and implementation of an electronic clinical record. This tool will provide support for routine consultations and will allow data extraction for clinical research. An open prospective research cohort of patients with COPD in primary care in Portugal will be created using this tool. The study aimed to reach a consensus on the relevant clinical variables for the management of COPD to be used in an electronic patient record.
Method: An adapted Delphi method was implemented with a panel of 15 experts including Family Physicians and Primary Care Nurses. The research team developed an initial list of relevant clinical variables for the management of COPD. Each expert was asked to add new variables to that list. The final list of variables was considered independently by experts in 3 rounds of assessment of importance and periodicity of clinical record. The median value of the degree of importance for each variable from the previous round was presented to the experts for consideration. A consensus was considered as reached on a rate of 80% of agreement on the importance of each variable.
Results: A list with 66 variables was considered by the expert's panel for the level of importance and also for the periodicity of record. The final round provided a consensus of importance in 56 (85%) variables. The consensus included: 6 individual socio demographic variables, 16 clinical history variables, 16 specific COPD disease related variables, 12 COPD intervention variables, 6 health services related variables. From the list of 66 variables, 10 (15.2%) were discarded due to a low consensus rate (i.e. $< 80\%$). These were mostly individual socio demographic and clinical history variables.
Conclusion: A consensus on the most relevant clinical variables for the management of COPD and for research purposes has been established by a panel of experts based on the initial contribution of the researchers.
Declaration of interest: None to declare
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CR034

Glycopyrronium significantly improves lung function and health status when co-administered with fluticasone/salmeterol in patients with COPD: The GLISTEN study

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Aim: The GLISTEN trial studied triple therapy—long-acting muscarinic antagonist added to fixed-dose combined inhaled corticosteroid and long-acting beta2-agonist—in Chronic Obstructive Pulmonary Disease (COPD).
Method: GLISTEN was a randomised blinded placebo controlled trial in patients with moderate-to-severe COPD comparing glycopyrronium 50 µg, tiotropium 18 µg or placebo (each once-daily), when administered with a fixed dose combination of fluticasone/salmeterol 500/50 µg twice daily. The primary objective was to determine non-inferiority of glycopyrronium versus tiotropium (added to fluticasone/salmeterol) on trough FEV_1 after 12 weeks. An important secondary aim was to demonstrate the superiority of triple therapy compared to fluticasone/salmeterol treatment alone.
Results: A total of 773 patients from primary and secondary care sites (mean age 68 years; mean post-bronchodilator FEV_1 57.2% predicted) were randomised; 84.9% completed the study. At week 12, glycopyrronium demonstrated non-inferiority to tiotropium when added to fluticasone/salmeterol for trough FEV_1: least square mean (LSM) treatment difference − 7 mL (Standard Error [SE] 17.4). There were statistically and clinically significant improvements in trough FEV_1 at Week 12 with glycopyrronium added to fluticasone/salmeterol versus fluticasone/salmeterol alone (LSM difference 101 mL, $P < 0.001$). Glycopyrronium (administered with fixed dose combination of fluticasone/salmeterol) produced

a statistically significant improvement in health status after 12 weeks versus fluticasone/salmeterol alone (St George's Respiratory Questionnaire total score least square mean treatment difference −2.154, $P=0.02$). Glycopyrronium (administered with fixed dose combination of fluticasone/salmeterol) also demonstrated a significant reduction in rescue medication use versus fluticasone/salmeterol alone (LSM difference −0.72 puffs/day; $P<0.001$). The incidence of adverse events (58.4%, 64%, 57.6%) and serious adverse events (5.8%, 8.5%, 5.8%) was comparable between glycopyrronium, tiotropium and placebo (added to fluticasone/salmeterol), respectively.
Conclusion: Compared to fluticasone/salmeterol fixed dose combination alone, glycopyrronium 50 µg co-administered with fluticasone/salmeterol fixed dose combination demonstrated significant improvements in lung function, health status and rescue medication use across a range of COPD severities in patients with minimal history of exacerbations; glycopyrronium+fluticasone/salmeterol was comparable to tiotropium+fluticasone/salmeterol in all efficacy measures.
Declaration of interest: The Study was funded by Novartis Pharmaceuticals Australia Pty Limited.
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CR036
Indoor air pollution and lung health in highlanders and lowlanders among rural areas of Kyrgyzstan (FRESH AIR study in Kyrgyzstan)

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Aim: Evaluation the level of indoor air pollution, the frequency of respiratory symptoms and prevalence of respiratory diseases in highlanders and lowlanders among rural areas of Kyrgyzstan.
Method: For determine the indoor pollution we studied the level of respirable particles PM2.5 in the air in 37 houses on the Aksai high altitude plateau located 3200–3800 meters above sea level with using special equipment TSI SidePak AM510 Personal Aerosol Monitor. We looked also of carbon monoxide (CO) in houses. We investigated the frequency of respiratory symptoms, pulmonary function and prevalence of respiratory diseases among 148 residents of these houses. For comparison we conducted the same research in 39 houses (160 residents) of lowlanders (Lebedinovka village, 760 meters above sea level).
Results: All mountaineers use of biomass for cooking and heating in all the 37 houses that we have investigated. We found high levels of indoor air pollution in houses of highlanders, and it was confirmed by the high values of respirable particles PM2.5 in the air in these houses. Thus, the maximum value of the respirable particles PM2,5 (Max\mg/m^3) was 7,03 ± 1,146. The average value PM2,5 (Avg\mg/m^3)—0,289 ± 0,066, and TWA (8 hr) was 0,169 ± 0,037. Importantly, that we also found higher values of carbon monoxide (COppm)—1,5 ± 0,411. The same parameters were lower in houses of lowlanders (Max \mg/m^3 was 1,03 ± 0,643 ($P<0,01$); Avg\mg/m^3—0,178 ± 0,056 ($P<0,05$), COppm—1,2 ± 0,51). Thus we observed that lowlanders mainly used coal and wood for heating of rooms, and not often used biomass. Smoking was an identical serious problem in both groups. We found a strong association of indoor air pollution with a frequency of respiratory symptoms (46% of residents had a cough, 17.3% had dyspnea and wheezing) in highlanders. Among them 15,4% had significantly reduce lung function and we saw also high prevalence of COPD. In group of lowlanders also were problems with lung health, but the situation was slightly better.
Conclusion: Preliminary results demonstrate that in the houses of the inhabitants of the highlands of Kyrgyzstan we found a high level of indoor air pollution and bad situation with lung health. Not so good situation and for lowlanders too.
Declaration of interest: We have no interests with pharmaceutical companies and other commercial interests
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CR037
Inhaler technique evaluation amongst physicians managing asthma: Data from REALISE Asia

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Aim: REALISE Asia is a two-part survey conducted to understand patients' and physicians' perceptions and perspectives towards asthma. From the self-reported patient survey (Part 1) we uncovered that in almost half of the patients, inhaler technique has not been evaluated by a healthcare professional (HCP) in the previous year.[1] A poor inhaler technique is associated with impaired asthma control and mixed devices, which are commonly prescribed in Asia are further associated with poor control. In Part 2 of REALISE Asia, we sought to assess if physicians in Asia are able to identify incorrect usage of the commonly prescribed inhalers.
Method: Part 2 of REALISE Asia was conducted in 8 regions in Asia (China, Hong Kong SAR, Indonesia, Malaysia, Philippines, Singapore, South Korea, and Taiwan). This consisted of face-to-face or online interviews amongst 375 physicians managing asthma. Three videos of a patient-model incorrectly using pMDIs and DPIs (namely Diskus®[2] and Turbuhaler®[3]) were shown. Physicians were then asked to assess if the inhalers were used correctly, and identify errors if any.
Results: Six out of ten physicians stated that they check their patients' inhaler technique during follow-up consultations. The proportion of their patients which they thought used their inhaler incorrectly was ~30%. For the videos, 79% of physicians (91% of specialists, 66% of PCPs) noted that the pMDI was used incorrectly; and only 48 and 42% for Turbuhaler and Diskus respectively. The proportion of those who correctly identified the video as erroneous, remain similar across the differing frequencies of checking patient's inhaler techniques. Of those who mentioned the video as erroneous, the following percentages of those not able to identify the critical error are: 55% in pMDI (i.e. patient inhalation is too fast); 45% in Turbuhaler (i.e. patient inhalation is too slow); and 65% in Diskus (i.e. inhaler facing downwards after dose preparation).
Conclusion: These findings reveal that HCPs tend to underestimate patient errors. Furthermore, HCPs often fail to identify important errors with pMDIs and DPIs, however, they seem to be more aware of errors with pMDIs than with DPIs.
Declaration of interest: Mundipharma Pte Ltd funded the survey and authors received honoraria from Mundipharma Pte Ltd for their participation in REALISE Asia Working Group meetings.
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Footnotes
[1]Ho JC *et al.* Poster presented at the Asian Pacific Society of Respirology (APSR) Congress, Bali, Indonesia,13–16 November 2014.
[2]Diskus is a registered trademark of GlaxoSmithKline group of companies.
[3]Turbuhaler is a registered trademark of AstraZeneca group of companies.

CR039
Investigating allergic rhinitis management from the perspective of the patient

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Aim: The study aimed to investigate the management of allergic rhinitis from the perspective of the patient.
Method: People suffering from allergic rhinitis were invited to participate in a qualitative, semi-structured interview on their allergic rhinitis with opportunity to discuss asthma if co-existing. Interviews were transcribed verbatim and qualitatively analysed for emerging themes.
Results: Forty six participants (31 female) were interviewed about their allergic rhinitis and asthma if co-existing (18 participants). A majority of participants

had predominantly experienced nasal and ocular symptoms since childhood with many having undergone allergy testing and were able to identify particular triggers. The majority of medical attention received appeared to be concentrated during these early years and managed by the parents. In adulthood, participants predominantly self-managed their symptoms with a strong preference of avoiding pharmacological treatment. Pharmacological treatment was reserved for severe symptoms that were impacting on their lifestyle or performance at work. Oral, second generation antihistamines were the preferred medicines, with most participants self selecting over the counter preparations from pharmacies. Participants would experiment with different over the counter options before finding a preferred treatment. While some participants with severe symptoms and co-existing asthma sought the advice of their medical practitioner, many relied on their own experimentation; recommendations from fellow allergy sufferers particularly close family and friends and occasionally a pharmacist. Allergic rhinitis was often not considered a high priority medical condition by the participants and felt it did not warrant further medical attention.
Conclusion: People that suffer from allergic rhinitis consider the symptoms a nuisance but are reluctant to use pharmacological treatments. While they recognise that health care professionals can be of assistance they feel that they adequately self-manage their symptoms and that further medical attention is not warranted.
Declaration of interest: None.
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CR040
Knowledge and attitudes regarding electronic cigarettes in Canadian primary care physicians

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Aim: To understand prevailing knowledge and attitudes regarding E-cigarettes amongst Primary Care providers in Canada
Method: An electronic questionnaire was composed and sent out to members of Canadian primary care respiratory societies.
Results: 57 respondents, 68% male,16% current or former smokers responded and only 25% considered themselves knowledgeable or very knowledgeable about E cigarettes. Almost 75% of their patients had used E cigarettes (E cig), but less than half had consulted with their physicians about it. 44% of their patients were using the E cigarettes recreationally (in their minds). Physician advice re E cigarettes was broken down basically into roughly quartiles; 24% saying to stop using them. 26% said to continue using them, 24% said that they did not know how to answer their patients, and 21% gave no advice at all.
Efficacy: 7% said E cig are more effective than traditional smoking cessation (SC) strategies, 22% said less effective, 33% said that they were so different as to not be comparable, but 38% said that they did not know the answer due to lack of knowledge
Safety: 58% agreed that E cig were safer than smoking, 34% were neutral on this and 8% thought they were less safe than smoking. With all of this, ¼ felt that E cig should be used to assist SC, ¼ said they should not and ½ were undecided. This is despite a subsection (unidentified) of physicians who had personally tried an E cigarette (30%) and in whom it helped with smoking cessation (67%). Specific questions regarding legislation suggestions to improve the overall safety of the use of E cigarettes and help curtail issues in E cigarette 'misuse' included: no selling to minors (76%), no flavouring (53%), no advertising (51%), no nicotine (47% and this is the current law in Canada), with only 2% saying that no legislation was needed.
Conclusion: Smoking cessation is important, and use of E cigarettes to help the habit component of SC advice can be useful if harm can be reduced. Authority legislation can help to reduce the use of misuse, such as use by minors. There is a gap in knowledge about this mode of therapy in primary care physicians that needs to be addressed.
Declaration of interest: None
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CR041
Knowledge of COPD and spirometry in Norwegian and Swedish GPs

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Aim: Chronic obstructive pulmonary disease (COPD) and asthma are common diseases in primary care. Spirometry is central to diagnosis and staging of COPD and an important tool in the diagnosis of asthma. Good knowledge of spirometry is essential for proper treatment of these patients. Norwegian GPs need to recertify their specialty of primary care every fifth year. As part of recertification, participation in several CME courses is needed. In Sweden patients with Asthma and COPD are taken care of in asthma and COPD clinics led by asthma/COPD-nurses.
Method: In Norway, in connection with CME courses in spirometry and COPD, general practitioners were invited to participate in a survey regarding knowledge of spirometry and COPD, before and three months after the courses. Their knowledge about spirometry and COPD was mapped using a questionnaire. In Sweden, general practitioners, asthma / COPD nurses and physiotherapists answered the same questionnaire as the first step in a spirometry training course (Spirometry driving license). The same questionnaire was repeated adjacent to a follow-up course a year later. The results from the baseline questionnaire will be presented here.
Results: In Norway 191 of 279 physicians (68%) completed the questionnaire, 63% were specialists in family medicine. Ninety-six percent of the doctors had a spirometer in their clinic and assisting personnel performed spirometry in 87% of the clinics. Eighty-two percent of the doctors had a correct answer about how to diagnose COPD, while 63% knew the spirometry criteria for diagnosis. Fifty-one percent knew the correct staging of COPD, and 33% had a correct answer regarding the first-line drug therapy. In Sweden 132 primary care physicians and 146 asthma/COPD nurses attended the spirometry course and completed the questionnaire. All clinics had a spirometry and the nurses performed spirometry in all clinics. Eighty-nine percent of the doctors and 90% of the nurses had a correct answer how to diagnose COPD, while only 67% of both doctors and nurses knew the spirometry criteria for diagnosis. Sixty-nine percent of the doctors and 62% of the nurses knew the correct staging of COPD, and 81% respectively 65% had a correct answer regarding the first-line drug therapy.
Conclusion: There is a significant potential for improvement of knowledge about spirometry and COPD both regarding doctors and asthma/COPD nurses. Implementation of knowledge regarding spirometry and COPD to both physicians and other health care professionals is an important step in the management of patients with COPD.
Declaration of interest: None
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CR042
Knowledge, Attitude, and Practices on Smoking Cessation among Physicians in Makati Medical Center

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Aim: To describe and correlate the knowledge, attitudes, and practices on smoking cessation of physicians at the Makati Medical Center.
Method: A single center, hospital based, survey was conducted among randomly selected 339 physician in Makati Medical Center for the year 2014. All selected participants were sent a copy of a 47- item self-administered modified WHO Global Health Professional Survey (GHPS).
Results: There were 110 respondents out of 339 physicians, giving a response rate of 32.4%. There were more never smokers (70 of 110, 63.6%) than there were ever smokers (40 of 110, 36.4%). 13 out of 40 ever smokers reported to be current smokers while 24 were previous smokers. Less than half of the physician respondents have heard of, read, or are familiar with the smoking

cessation guidelines. All physicians agreed that smoking is harmful to health. All physicians have positive attitude regarding smoking cessation. Ever smokers tend to be less active in providing smoking cessation practices compared to never smokers.
Conclusion: The physicians in Makati Medical Center were noted to have good knowledge and attitude regarding smoking cessation, regardless of smoking status; smokers tend to educate less than nonsmokers. Never smokers tend to have a better practice regarding smoking cessation compared to ever smokers. Majority stated that lack of time and training are the common barriers they encounter in their practice. Majority expressed interest in updating their knowledge.
Declaration of interest: None
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CR043
Nasal stem cell research: understanding the role of nasal epithelium in common nasal diseases and their impacts on future development of cell therapy

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The nose together with the paranasal sinuses has an approximate surface area of 100 to 200 cm2 in adults, which is lined with pseudostratified columnar ciliated epithelium. It serves several important physiological functions such as conditioning and filtration of the inspired air and the provision of end organ for the sense of smell. It is also a physical and immunological barrier as it is the first site of interaction between the host tissue and foreign invaders (viruses, bacteria, and allergens). Airway epithelium is one of the central players in respiratory disease, but it is notoriously difficult to distinguish between cause and effect with regard to the epithelium's role in the context of diseases. It is important to gain insights into the mechanism by which human nasal epithelial cells respond to various pathogens or antigens, where such an event might take place in nature. Recently, we have been successful in isolating adult human nasal epithelial stem/progenitor cells from nasal biopsies of healthy subjects and patients with chronic rhinosinusitis with nasal polyps. Single cell derived colonies stain uniformly for basal cell markers such as p63 and keratin 5 (Krt5), and about 80% of the colonies show long-term self-renewal potential with an estimated 20–50 additional doublings, while maintaining an immature phenotype. Lineage potential has been assessed through multiple differentiation assays, in which the pedigree lines developed from single cells can differentiate into stratified mucociliary airway epithelium composed of both ciliated columnar cells and goblet cells. It opens up many research possibilities to understand the molecular mechanisms and pathways underlying both healthy and diseased nasal epithelium and to identify more targeted and cellular therapies for common nasal diseases.
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CR044
Obesity Case with Obstructive Sleeping Apnea Disorder

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Aim: Obstructive Sleeping Apnea (OSAS) is an important disorder among respiratory diseases in primary care. It is recognized by complete or partial and recurrent obstruction of the upper respiratory tract. It is mostly seen together with obesity and while sleeping oxygen saturation levels at the blood reduce to critical levels. In this presentation; an OSAS case originating from obesity is presented and its importance was emphasized
Method: Case presentation: A seventy-seven year old female patient applied to Tepecik Education and Research Hospital Obesity Polyclinic on 24th December 2013. She suffered from complaints such as shortness of breath, snoring, night sweating, insomnia and waking up tired in the morning. Moreover; she had chronic renal failure, hypertension, hyperlipidemia and type-2 diabetes, almost for 10 years. Physical examination was held; her length and weight were measured as 168 cm and 124 kg respectively. Her body mass index was calculated as 43,9 kg/m^2. Her chest radiography showed mediastinal enlargement, tracheal deviation to the right and increase in cardiothoracic index. She showed high blood sugar (249 mg/dl), urea (56 mg/dl), creatinin (1,4 mg/dl), uric asid (6,7 mg/dl), cholesterol (214 mg/dl) and triglyceride (235 mg/dl) levels. Other biochemistry parameters were usual. Cardiological consultation was evaluated as normal (ejection fraction:60%). Blood gas parameters were detected as; PH:7,47, PCO_2:47,9, PO_2:66,8, HCO_3:30,9 and SO_2:93,3%. Complain of palpitation was found normal in the holter electrocardiography. In the chest disease consultation; it is decided that shortness of breath is related with obesity. Giving weight and N-BPAP titration investigation was advised for the future period.
Conclusion: Obesity, leads many chronic diseases. Moreover; most of these diseases are related with high levels of morbidity and mortality. It is a serious health problem, especially for primary care doctors. It shows togetherness at approximately 70% of the OSAS cases. This situation is mostly related with the increase of adipose tissues at neck circumference. The examination of obese patients' respiratory functions and sleeping mode is important due to the close relationship between obesity and OSAS.
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CR045
Once-daily tiotropium Respimat® add-on to ICS ± LABA improves control across asthma severities

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Aim: Tiotropium Respimat® added to ICS ± LABA has been investigated across asthma severities. We present ACQ-7 responses from six Phase III, randomised, double-blind, placebo-controlled, parallel-group trials in patients with symptomatic asthma.
Method: Two 48-week trials (PrimoTinA-asthma®): 5 µg added to ICS (⩾800 µg budesonide or equivalent)+LABA; two 24-week trials (MezzoTinA-asthma®): 5/2.5 µg added to ICS (400–800 µg budesonide or equivalent); one 12-week trial (GraziaTinA-asthma®): 5/2.5 µg added to ICS (200–400 µg budesonide or equivalent); one 52-week trial (CadenTinA-asthma®): 5/2.5 µg added to ICS (400–800 µg budesonide or equivalent). ACQ-7 responder rates were pre-specified in MezzoTinA-asthma®, GraziaTinA-asthma® and CadenTinA-asthma®; ACQ-7 change from baseline (response) was pre-specified in PrimoTinA-asthma®.
Results: Mean baseline ACQ-7 (s.d.): PrimoTinA-asthma® 2.63 (0.69); MezzoTinA-asthma® 2.18 (0.49); GraziaTinA-asthma® 2.10 (0.42); CadenTinA-asthma® 1.95 (0.39). ACQ-7 responder rate data are presented (Table 1). Adjusted mean response difference versus placebo Respimat® ± SE: PrimoTinA-asthma®, 5 µg −0.132 ± 0.049 ($P = 0.007$); MezzoTinA-asthma®, 5 µg −0.115 ± 0.043 ($P = 0.008$), 2.5 µg −0.160 ± 0.043 ($P < 0.001$); GraziaTinA-asthma®, 5 µg 0.014 ± 0.067 ($P = 0.835$), 2.5 µg 0.061 ± 0.067 ($P = 0.362$). Mean ACQ-7 (s.d.) in CadenTinA-asthma®: 0.98 (0.63), 1.09 (0.72) and 0.99 (0.68) for 5/2.5 µg and placebo.
Conclusion: Once-daily tiotropium Respimat® add-on to at least ICS maintenance therapy is associated with improved asthma control across severities.

[CR045]

Table 1. ACQ-7 responder rate data

		ACQ-7 responder rate[a], n *(%)*		
		Tiotropium Respimat® 5 µg	*Tiotropium Respimat® 2.5 µg*	*Placebo Respimat®*
PrimoTinA-asthma®	n	453	-	454
(NCT00772538/NCT00776984)	Responder	244 (53.9)	-	213 (46.9)
Week 24	No change	180 (39.7)	-	209 (46.0)
	Worsening	29 (6.4)	-	32 (7.0)
	OR	1.32	-	-
	P value	0.043	-	-
PrimoTinA-asthma®	n	453	-	454
(NCT00772538/NCT00776984)	Responder	263 (58.1)	-	205 (45.2)
Week 48	No change	155 (34.2)	-	209 (46.0)
	Worsening	35 (7.7)	-	40 (8.8)
	OR	1.68	-	-
	P value	< 0.001	-	-
MezzoTinA-asthma®	n	513	515	518
(NCT01172808/NCT01172821)	Responder	330 (64.3)	332 (64.5)	299 (57.7)
Week 24	No change	162 (31.6)	163 (31.7)	181 (34.9)
	Worsening	21 (4.1)	20 (3.9)	38 (7.3)
	OR	1.32	1.33	-
	P value	0.035	0.031	-
GraziaTinA-asthma®	n	155	154	155
(NCT01316380)	Responder	90 (58.1)	91 (59.1)	91 (58.7)
Week 12	No change	60 (38.7)	51 (33.1)	62 (40.0)
	Worsening	5 (3.2)	12 (7.8)	2 (1.3)
	OR	0.97	1.02	-
	P value	1.182	1.038	-
CadenTinA-asthma®	n	114	114	56
(NCT01340209)	Responder	87 (76.3)	81 (71.1)	41 (73.2)
Week 52	No change	25 (21.9)	30 (26.3)	15 (26.8)
	Worsening	2 (1.8)	3 (2.6)	0

[a]Responder defined by a reduction in ACQ-7 score of ≥ 0.5 (minimal clinically important difference)
OR, odds ratio

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CR047

Palliative care patient with chronic obstructive pulmonary disease, reactive tuberculosis and autoimmune polyneuropath

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Aim: Palliative care is a service where complicated cases were followed for the palliation of the current problem. Tuberculosis is still an important disease for Turkey because of its exacerbations. In this presentation, palliative care of a tuberculosis patient with homeventilator is discussed.
Method: **Case:** Patient with known chronic obstructive pulmonary disease, reactive tuberculosis and autoimmune polyneuropathy was transferred to Family Medicine palliative care service from chest diseases in the 65 days of the anti-tuberculosis treatment. Patient was hospitalized to the service because of nutritional problems, electrolyte imbalance and mobilization training. In the first examination; he was conscious, cooperative and was not speaking due to tracheostomy. Cardiac and respiratory sound were normal. In all of the extremities, muscle weakness was present. Other examinations were normal. Laboratory findings were as follow; crp 2.5, sedimentation 82, leucocyte 9800, haemoglobulin 13.8, midcorpusculer volüme 83, thrombocyte 283000, INR 1.43, APTT 31.4, phrothyrombin 17.2, urine test erythrocyte (++), ketone (+), protein (++), uric aside 11.1, blood sugar 131, urea 29, creatin 0.9, LDH 627, procalcitonin 0.05, K 2.34. Chest graphy was compatible with tuberculosis infiltration. Medical treatment was planned as; mukolitik süsp, clexane 0.4, pirazinid 500 tb 1x4, seroquel 2x1, rifampycin 300 cap 1x2, INH 300 tb 1x1, etambutol 500 tb 1x3, deltacortril 5 mg 1x8, recource feding formula 3x1, pantpas tb, KCl amp 1x4, 500cc %0.45 Nacl. Direct examination and culture of the sputum were requested. Related with the normal sputum findings; the four antituberculosis therapy was returned to dual therapy. Muscle strength in the examination by physical therapy was 3/5 for upper extremities and 2/5 for lower extremities. Patient was given a bed form exercise and a positioning order in the bed. After stabilizing the patient's condition, he will be asked for wheening. If he can respirate without homeventilator, he will be discharged.
Conclusion: Palliative care patients need a different approach than other patients. Sometimes, caregivers of the patients need support more than the patient. Biophysicosocial approach; basic approach of Family Medicine, will be useful for that kind of patient.
Declaration of interest: None
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CR048

Pattern of IgE mediated sensitization in allergic patients in Saudi Arabia

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Aim: To evaluate allergic patient's sensitivity to aeroallergens in Saudi Arabia having rapid modernization and changes in the environment.
Method: Standard method of Skin Prick Testing (SPT) on forearms of allergic patients attending adult allergy clinics was employed. A total number of 485 adult patients from 8 Centres participated in the study. A number of indigenous aeroallergens based on national environmental studies along with commercial extracts were selected. Allergenic extracts of all indigenous and non-indigenous allergens were prepared by a European Allergen Products Manufacturer M/S Inmunotek, Madrid, Spain. Indigenous allergens, mostly weeds, included: *Salsola imbricata, Plantago boissiere, Amaranthus viridis, Artemisia monosperma, Chenopodium murale, Prosopis juliflora, Rumex vesicarius* and *Atriplex nummularia.* Commercial antigenic extract, included House Dust Mites (*Dermatophagoides pteronnyssinus, D. farinae);* Cat dander *(Felis domesticus);* Cockroaches *(Blattella germanica, Blatta orientalis, Periplaneta americana).* Grass allergens included: *Cynodon dactylon, Lolium perenne* and *Phleum pretense.* Fungal allergens included (indigenous material): *Aspergillus fumigatus, Cladosporium spp., Alternaria alternata, Penicillium spp.,* and *Ulocladium atrum.* Tree pollen allergens, *Olea europaea, Morus alba, Phoenix dactylifera, Fraxinus and Cupressus* were also included.
Results: The compounded results of 8 Centres within the Kingdom of Saudi Arabia, showed *D. farinae* and *D. pteronyssinus* as 2 top allergens with over 50% mean reactivity followed by Cat dander *(Felis domesticus)* with above 40% mean reactivity. *Periplaneta Americana, Blattella germanica*, and *Blatta orientalis* sensitization level were closed to 30%. The pattern of IgE mediated positive reactivity varied from region to region with a higher number of poly-sensitized individual. Some of these patients reactivity may have been the result of cross-reactivities between the allergens of the same group or between the taxonomically related genera. In general, the reactivity patterns were corresponding to the likely presence of aeroallergens as humid areas resulted in maximum sensitization with the *D. pteronnyssinus* and *D. farinae.* Regions with dry weather and less humidity showed higher reactivities with pollen, cat

[CR048]

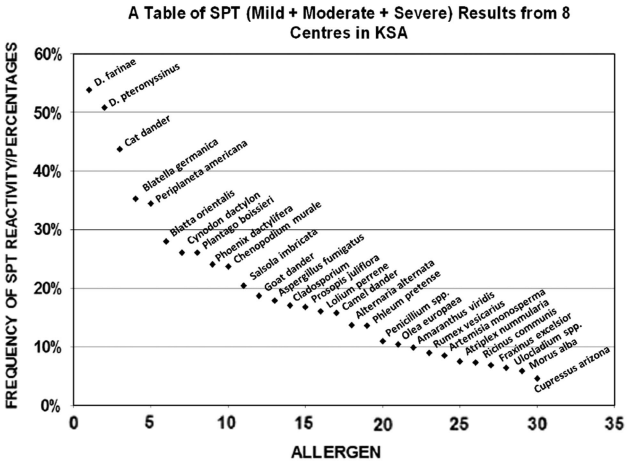

Figure 1. A table of SPT (Mild+Moderate+Severe) results from 8 centres in KSA.

and cockroaches and less reactivity with the house dust mites. The data plotted graphically on a figure 1.

Conclusion: In Saudi Arabia, modernization is taking place in every walk of life. The impact of modernization can be witnessed by roadside ornamentals, agricultural activities, carpeting in homes etc. Likewise, prevalence of asthma has increased threefold in the last 20 years. Therefore, our study evaluating IgE mediated sensitization revealed that there are regional diversities in the sensitization pattern in the country corresponding to the changes in the environment, humidity and socioeconomic changes.

Declaration of interest: None

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CR049

Perception and preference of general practitioners for asthma management: A survey in Pakistan

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Aim: Establishing and sustaining asthma control entails accurate diagnosis, providing suitable medication, addressing necessary factors that cause deteriorating symptoms, aiding patients acquire self-management skills, and continuous monitoring to evaluate control and thus, regulate therapy. To assess the prevalence and the general practitioner's (GPs) insight on management of asthma in Pakistan.

Method: A questionnaire based survey was conducted among general practitioners in Pakistan, regarding their choice of monitoring and diagnosing tool for asthma, the treatment modality and their preference for prescribing a device.

Results: Of the 200 doctors approached, 164, responded to the survey. Sixty two percent of the GPs, used peak flow meter as a diagnostic and monitoring tool for asthma, whereas, 57% also preferred spirometer for diagnosis. Salbutamol was the favored reliever medication (49%) as against the SMART therapy (40%). For mild asthma management, 31% GPs prescribed inhaled corticosteroids (ICS) and 28% preferred prescribing combination of long acting beta agonist (LABA) and ICS. Most of the GPs recommended LABA/ICS for moderate (76%) and severe asthmatics (46%). Budesonide surfaced as the most preferred ICS with 55% GPs prescribing it and its combination with formoterol (69%). The choice of device accompanied with patient skillset and their willingness to adhere to the therapy govern the effectiveness of asthma management. Fifty one percent of the GPs believed that 70% of the patients adhere to inhalation therapy. Despite 81% GPs being confident, that use of spacer with a pressurized metered dose inhaler improved clinical outcome, only 29% of them prescribed it. Thirty percent GPs advised the use of dry powder inhalers and 23% reported that they decided it based on the patient. Asthma-COPD Overlap Syndrome (ACOS) is now gaining progressive attention. Sixty one percent GPs reported that, in every 50 patients that visit, less than 20% have ACOS symptoms and only 30% of them prescribe triple therapy with LABA, ICS and long acting muscarinic antagonist for its management.

Conclusion: The survey highlights the fact that most of the GPs in Pakistan are well aware of diagnosing and monitoring tools for asthma and its management, however, lack clarity in terms of device preference. ACOS still appears to be a new condition for them to conceptualize.

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CR050

Polysomnographic parameters and correlation of types of OSAS at obese and morbidly obese patients

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Aim: In this study, it was planned to examine the effect of obesity on the degree of OSAS by comparing body mass index with obese and morbidly obese patients

Method: The patients included in this study is composed of people who applied to clinic of obesity at İzmir Training and Research Hospital in 2014. 47 patients with OSAS symptoms were referred to the sleep clinic. Performed polysomnography results were evaluated retrospectively. The results of obese and morbidly obese patients were compared. All statistical analysis were conducted by SPSS 15 package program. Grouping variables were described by frequencies and percentages, continuous variables were described by means and Standard deviations. Spearman Correlations and Chi-square test were used for relationship analysis. Mann Whitney U or Kruskal Wallis test were used to understand the difference between groups' means. A *P* value less than.05 was accepted statistically significant

Results: 82,6% of the participants were female. Ages of 30 patients are ranging from 25 to 50, the others are over 50 olds. Body mass index over the 40 levels were 22 (47,8%) patients. The patients were diagnosed with moderate OSAS (23.9%), severe OSAS(17.4%), with mild OSAS(15.2%), simple type of snoring (15.2%), RAM associated with OSAS (15.2%), RAM and position associated OSAS (8.7%) and position associated OSAS (4.3%). There wasn't any significant p-values between apnea-hypopnea index, REM apnea-hypopnea index, supine apnea-hypopnea index, oxygen desaturation index, obesity hypoventilation syndrome values and experimental stages of OSAS patients on the correlation of polysomnography parameters of patients with body mass index above 40 and below.

Conclusion: Increasing the degree of obesity does not affect OSAS type and polysomnography values OSAS can develop at every stage of obesity. There is a need to work with larger patient series.

Declaration of interest: None

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CR051

Positive expiratory pressure breathing reduces post-exercise dyspnea and dynamic hyperinflation in patients with COPD: a pilot study

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Aim: Patients with chronic obstructive pulmonary disease develop lung dynamic hyperinflation during and following exercise leading to the sensation of dyspnea. The aim of this study was to investigate the extent to which positive expiratory pressure (PEP) can reduce hyperinflation and dyspnea induced by moderate exercise.
Method: A randomized cross-over trial was conducted with 10 stable moderate to severe COPD patients. Immediately after the end of 5 min spot marching exercise, which produced moderate dyspnea, participants performed 6 PEP breaths using a water pressure threshold device (BreatheMAX) with a load of 5 cmH_2O in the Experimental intervention and 0 cmH_2O in the Sham. Inspiratory capacity (IC) and slow vital capacity (SVC) were measured pre and immediately post-exercise in an initial familiarization visit and, in the intervention visits, were measured again before exercise and then after 10 min recovery. Respiratory function and rating of dyspnea were measured every minute during exercise and 10 min recovery.
Results: IC decreased by 229 ml (95% CI 107 to 351 ml) at the end of exercise indicating dynamic hyperinflation. After 10 min recovery, IC was 90 ml (95% CI 55 to 125 ml) and SVC 45 ml (95% CI 29 to 61 ml) greater following the PEP intervention than Sham. The mean different in post-exercise dyspnea between intervention was 0.63 ± 0.85 units (95% CI 0.46 to 0.80 units). Dyspnea recovered approximately twice as fast following PEP as with the Sham intervention (1.30 ± 0.40 compared to 0.69 ± 0.09 units/min; $P < 0.001$). Dyspnea returned to baseline after 3 min after PEP compared to 5 min for the Sham intervention. Pulse oxygen saturation and exhaled end-tidal carbon dioxide were not different between interventions at any time point.
Conclusion: PEP breathing with expiratory load of 5 cm H_2O decreases and speeds up the recovery of post-exercise dyspnea. This is likely contributed by the reduction of dynamic hyperinflation in patients with COPD.
Declaration of interest: Positive Expiratory Pressure, Dynamic Hyperinflation, Dyspnea, Exercise Recovery, Chronic Obstructive Pulmonary Disease
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CR052

Predicting Patients with COPD who are likely to have 2 or more exacerbations in the following 12 months: is it achievable in Primary Care?

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Aim: The aim of the study was to explore the possibilty of using routine GP data available from most GP computer clinical systems to build a risk assessment algorythm for exacerbations in patients with COPD.
Method: Suitable patients were identified from the Optimum Patient Care Research Database (OPCRD), these patients had an FEV1/FVC ration of < 0.7 and had records for the baseline year & one outcome year from which COPD exacerbations and hospital admissions could be identified. Logistic regression analysis was used to estimate the are under the curve (AUC) and identify those patients at risk of $> = 2$ exacerbations in the outcome year. Initial risk factors studied were: Body Mass Index (BMI), lung function, COPD Assessment Test (CAT), Modified Medical Research Council dyspnoea score (mMRC),smoking status, the presence of atopy including allergic rhinitis, asthma or ezcema, nasal polyps, diabetes, gastro oespophageal reflux disease(GORD) and depression or anxiety. These risk factors were also compared with DOSE, GOLD and FEV1% predicted.

[CR052]

Table 1.

Total population n = *3713*	*Odds ratio (95% CI)*	P *value*
Baseline number of exacerbations	1.79 (1.68–1.92)	$< 10^{-10}$
FEV1 %predicted per 10% lower	1.06 (1.01–1.12)	0.02
Female Gender	1.32 (1.10–1.58)	0.003
Asthma record ever	1.19 (1.00–1.43)	0.052
Nasal polyps ever	2.02 (1.24–3.29)	0.005
Eosinophilia ($> = 0.5 \times 10^{-9}$) in non smokers	1.42 (1.03–1.97)	0.03
CAT score oer 10 units higher	1.26 (1.14–1.4)	1×10^{-5}

Results: Out of 3,713 suitable patients 19% had at least 2 exacerbations in the outcome year. The factors identified from the GP routine databases which could predict these exacerbations were: female gender, asthma, eosipnophil count $> = 0.5 \times 10^9$/litre (in non smokers), presence of nasal polyps and CAT score. The AUC for these factors was significantly better than DOSE, GOLD or airflow limitation at predicting 2 or more exacerbations. See Table 1.
Conclusion: Patients at risk of 2 or more COPD exacerbations can be identified using some of the routine data available within UK GP clinical systems. The challenge is to see if this theorectical tool can be applied in normal GP practice. To this end a pilot study is underway in North Norfolk to identify patients at risk of two or more COPD exacerbations and to see if a series of simple interventions can reduce COPD exacerbation and hospital admission rates.
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CR053

Predicting risk of undiagnosed COPD in primary care: Development and validation of the TargetCOPD model

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Aim: Previous prediction models have been developed for assessing the risk of undiagnosed COPD. These used data from patients who received a diagnosis through routine care, which may be inaccurate because of widespread under diagnosis and misdiagnosis. We therefore developed and externally validated a primary care-based model using data from a unique case finding trial.
Method: Patients aged 40–79 years with no prior diagnosis of COPD received a screening questionnaire either by post or opportunistically at primary care attendances through a large case finding trial based in primary care in the West Midlands, UK. Those reporting chronic respiratory symptoms were assessed with spirometry. COPD was defined as presence of respiratory symptoms with post-bronchodilator $FEV_1/FVC <$ lower limit of normal. A prediction model was then developed using logistic regression with predictor variables available from electronic health records from subjects who returned a postal questionnaire ($n = 2{,}398$, mean age 59.9 years, 52% male). The model was internally validated in the development sample, and externally validated among subjects who returned an opportunistic questionnaire ($n = 1{,}097$, mean age 60.1 years, 51.6% male).
Results: A model containing age, smoking status, dyspnoea, and prescriptions of salbutamol and antibiotics discriminated reasonably well between patients with and without undiagnosed COPD (external validation c-statistic 0.74 [95% CI 0.68 to 0.80]). Using a cut-point of $\geqslant 7.5\%$ predicted risk to prompt referral for diagnostic assessment has a sensitivity of 68.8% (95% CI 57.3 to 78.9%) and a specificity of 68.8% (95% CI 65.8.1 to 71.6%), and requires seven diagnostic assessments (95% CI 6 to 10) to identify one patient with undiagnosed COPD.

Conclusion: We have developed and externally validated a simple and readily applicable risk prediction model for undiagnosed COPD using routine data from electronic health records in primary care. This could improve the efficiency of targeting patients for case finding but should be validated in other populations and its impact on patient outcomes evaluated in RCTs.
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CR054

Prevalence of latent tuberculosis infection and its associated factor among diabetics in a Malaysian regional referral hospital

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Aim: The important association between tuberculosis and diabetes mellitus is even more prominent in developing countries, including Malaysia, where tuberculosis is endemic and the burden of diabetes mellitus is fast increasing. The aim of this study was to determine the prevalence of latent tuberculosis infection among diabetics and factors associated with it.
Method: A cross sectional study was conducted at a regional referral hospital in East Coast Malaysia from October 2013 to January 2015. Consented participants underwent tuberculin skin test and reading was done at 72 hours, with a cut-off point of 10mm or more as positive for latent tuberculosis infection.
Results: The response rate for this study was 93.7% with 319 respondents tested with tuberculin skin test for latent tuberculosis infection. The prevalence of latent tuberculosis infection among diabetic patients was 11.4%. Factors studied (age, duration of diabetes, HbA1c result, and diabetes treatment types) showed no significant association with latent tuberculosis infection in diabetic patients.
Conclusion: The prevalence of latent tuberculosis infection in Malaysia was relatively low for an intermediate tuberculosis burden country, though comments cannot be made on the risk of diabetic compared with the general population as there were no prevalence data available for latent tuberculosis infection in the general population. However this preliminary evidence provide a baseline data on the reservoir of latent tuberculosis infection among diabetic group in our setting, which is especially important in the issue of tuberculosis chemoprophylaxis for latent tuberculosis infection among diabetics, as coupling of primary with secondary control of tuberculosis has been shown to have the potential to reduce tuberculosis towards the global move to eliminate tuberculosis.
Declaration of interest: None
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CR055

Quality of asthma care through the prescribing habits of doctors- a comparison of public and private primary care

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Aim: Satisfactory control of asthma remains elusive worldwide despite established management guidelines. Such is the case of a dichotomised healthcare system like Malaysia. A previous opinion-based study has shown variations in asthma prescribing preference between the public and private sectors. However, the study was unable to define the actual practice, and to explain reasons for such variations. Therefore, we undertook a study based on patient encounters, aiming to examine the disparity of actual prescribing practices between the two sectors and identify correlates for the observed differences.
Method: The National Medical Care Survey (NMCS) is a cross-sectional, stratified random cluster sampling survey conducted in 2014. It is the only nationwide provider-based survey of primary care in Malaysia. This survey gathers information on patient encounters from 129 public clinics (92.8%) and 416 private clinics (41.5%). We extracted and analysed encounters with the diagnosis of asthma from the dataset. The outcome measures were medications prescribed in asthma. Measurable potential correlates include prescribers' profile, patients' profile, diagnoses and reasons for encounter.
Results: We analysed 604 encounters (2.2 per 100 encounters) with median age of 40 years (IQR: 21.1–55.1). Of these encounters, 52.5% were prescribed inhaled short acting beta-agonist (ISABA), 28.8% oral beta-agonist(OBA), 28.1% of patients prescribed with aberrant drugs (including antitussives, mucolytics and nasal preparation medications), 27.5% oral corticosteroids (OCS) and 27.2% inhaled corticosteroids (ICS). When both sectors were compared, the private sector had higher prescription rates of aberrant drugs (88.9 vs 24%, $P < 0.001$), OCS (50 vs 14.6%, $P < 0.001$), OBA (49.7 vs 10.9%, $P < 0.001$), antibiotics (15.3 vs 3.9%, $P < 0.05$) and oral leukotriene receptor antagonist (4.2 vs 0.46%, $P < 0.01$). On the other hand, the private sector had lower prescription rates of ISABA (25.7 vs 82.6%, $P < 0.001$), ICS (3.2 vs 50.6%, $P < 0.001$) and inhaled anticholinergic (0.63 vs 6.8%, $P < 0.05$). Given such variation in both sectors, we aim to determine correlates for such differences and to present the significant findings later.
Conclusion: There is disparity in prescribing pattern for asthma between public and private sectors in Malaysia; suggesting a shortfall in asthma management in the country versus international guidelines. Determining significant correlates for such prescribing habits will help tackle the mismanagement at its root.
Declaration of interest: None declared
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CR056

Randomized controlled trial of glycopyrronium added to salmeterol-fluticasone in COPD: primary care and specialist site differences in the GLISTEN study

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Aim: The GLISTEN trial studied triple therapy in Chronic Obstructive Pulmonary Disease (COPD). The study conduct was unique as it was a multicentre trial conducted across primary care (PC) and specialist sites. It assessed the efficacy of adding long-acting muscarinic antagonists to a fixed-dose combined inhaled corticosteroid and long-acting beta-agonist. Trial conduct issues and outcomes are described.
Method: GLISTEN was a blinded, double-dummy, randomised controlled trial in patients with moderate to severe COPD comparing glycopyrronium (GLY) 50 mcg once daily (o.d.), tiotropium (TIO) 18 mcg (o.d.) or placebo, added to fluticasone/salmeterol (FLU/SAL) 500/50 mcg twice daily. The primary objective was to determine efficacy of GLY vs TIO (added to FLU/SAL). The target sample size was 510 evaluable patients (84% statistical power) to demonstrate non-inferiority of GLY to TIO on trough FEV1 after 12 weeks.
Results: The study was conducted in Australia and New Zealand (NZ) and recruitment was from specialist and PC sites, the latter supported by dedicated practice study nurses. A total of 1509 patients were screened and 773 randomized (accounting for drop out and deviations)—267 from 18 specialist centres (14.8/centre) and 506 from 56 PC centre (9.0/centre). Screen failures were greater in PC (54%) than in specialist sites (37%), as were withdrawal

rates: PC (17%) versus specialist (11%). However on a per centre basis drop outs at specialist sites (1.6) did not differ from PC (1.5). Study completion took 20 months.
Conclusion: This study showed the feasibility of recruiting COPD patients through PC as well as specialist sites in Australia and NZ. Specific strategies were needed to achieve randomization targets in primary care but this approach seems likely to provide a more representative sample of COPD patients.
Declaration of interest: The Study was funded by Novartis Pharmaceuticals Australia Pty Limited
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CR057
Research Agenda in Respiratory Diseases in Primary Care in Portugal: a Delphi study

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Aim: Respiratory diseases are significant in Primary Care, therefore research in this area is important. In 2010, the International Primary Care Respiratory Group (IPCRG) published the Research Needs Statement (RNS), in which 145 research questions were identified. In 2012, the prioritisation of the respiratory research needs was published. The aim of the study was to develop a national research consensus in Respiratory Diseases in Primary Care in Portugal and to assess the applicability, in Portugal, of the prioritisation of respiratory research needs in Primary Health Care conducted by IPCRG.
Method: To achieve consensus we used an e-mail Delphi study, with the participation of a panel of primary and secondary care experts on RD. There were 3 Rounds. In Round 1, the research needs in RD in Portugal were identified. In Round 2, 196 research questions (Round 1 and RNS) in six disease areas were prioritised (scale 1 to 5).The questions were submitted to a new prioritisation, in Round 3, with feed-back information of the median of the answers from the group. The consensus was considered as reached when 80% agreement was reached with scores 4 or 5.
Results: The 40 experts identified 121 questions (Round 1) and expressed their views in 196 questions (Rounds 2 and 3). 12 questions (6%) reached a consensus: 5 questions on the 'Asthma' domain (early diagnosis, pulmonary function tests, use of inhalers and medication adherence); 4 questions on the 'Chronic Obstructive Pulmonary Disease' domain (vaccinations, routine monitoring and evaluation of treatment, diagnosis and adherence to maintenance treatments); 1 question on the 'Smoking' domain (short counselling) and 2 on 'Respiratory Tract Infections' the domain (treatment of children and antibiotics prescription). Furthermore, 23 questions (12%) were identified with a threshold between 75 and 79%.
Conclusion: The results reflect the particularities of Portuguese reality in face of the International Agenda published by the IPCRG, and can therefore support the development of future respiratory research in Portugal.
Declaration of interest: None to declare
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CR058
Role of cytological evaluation of cervical lymphadenopathy for diagnosing tuberculosis (chronic granulamatous inflammation)

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Aim: To assess the role of FNAC to diagnose Tuberculosis (chronic granulamatous inflammation) in our setting.
Method: A number of systemic diseases and local conditions manifest as enlarged lymph nodes. Fine needle aspiration cytology (FNAC) is a simple and minimal invasive technique to evaluate the lymphadenopathy and can diagnose tuberculosis (chronic granulamatous inflammations), metastatic malignancies and reactive conditions. It saves the patient from excisional biopsy. We performed FNAC on palpable enlarged cervical lymph nodes on the patients referred by surgical outdoors. A trained pathologist performed the technique and then the smears were stained and evaluated in histopathology department.
Results: A total of 97 FNACs from cervical lymph nodes were performed during 1st January 2011—31st December 2011. 93 out of 97 smears were adequate for reporting while 4 smears were not. 39 patients were male while 54 patients belonged to female gender. The patients' age group ranges from 1 year to 82 years. Maximum number of patients (27.9%) were from 2nd decade followed by 3rd decade (24.7%), 4th (17.2%) and 5th (16.1%). Forty-two (45.1%) cases were positive for diagnosing Tuberculosis (chronic granulamatous inflammation) FNAC is a simple cost effective technique to evaluate lymphadenopathy and should be adopted prior to more invasive methods.
Declaration of interest: None
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CR059
Sensitivity of BCG scar as an indicator of BCG vaccination among children in Peshawar

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Aim: The aim of this study was to find out the presence or absence of BCG scar in immunized children living in Peshawar and to assess the possibility of using it as an indicator for BCG vaccination.
Method: This study was a prospective study performed at a large scale covering the city of Peshawar and the rural area immediately surrounding it. The outpatient department of Cantonment General Hospital Peshawar was the main site of the study besides which various health units and EPI centers were a part of it as depicted in the table 1 (vaccination centre). This study was conducted over a period of a year from January till December 2012; it was undertaken by a team of General Medical officers, Pediatricians and Vaccinators. 1000 patients were involved in this study, all of whom were below 12 years of age. Gender distribution was almost equal as shown in the table 2 (Gender). Patient population was mostly from the Peshawar city and rest from the immediately adjacent rural areas. Vaccination status was assessed using questionnaire method which was mostly filled by our own team owing to the high illiteracy rate in this area.
Results: According to the results 81.9% of the children were fully immunized while 18.1% were partially immunized as per EPI schedule. All the patients

[CR059]

Table 1. Vaccination Centres

Centre	*Frequency*	*Percent*
EPI Centre	308	30.8
Hospital	666	66.6
Private Clinic	8	0.8
BHU	15	1.5
RHU	3	0.3
Total	1000	100

[CR059]

Table 2. Gender

Gender	*Frequency*	*Percent*
Male	529	52.9
Female	471	47.1
Total	1000	100

were immunized against tuberculosis yet only 77.5% had a BCG scar on their upper right arm.
Conclusion: With 77.5% of the study participants showing BCG scar, hence it can be stated that BCG scar is a reliable indicator for the absence of BCG vaccination. Pakistan is a developing country with a low literacy rate, even though Peshawar is the capital of one of the four provinces of Pakistan the majority patient parent population was illiterate. Hence using BCG scar as an indicator of vaccination is very important in this part of the World.
Declaration of interest: I declare that no Financial or personal interest influenced the authenticity of this paper and everything is stated as documented.
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CR060
Surveillance of tuberculosis cases in the urban slums of District Peshawar, KPK

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Aim: (a) To improve the case detection and reporting of Tuberculosis cases in the district. (b) To find the reasons of defaulters in the area. (c) To know the number of registered TB cases in the slums of district. (d) Making recommendation to provincial and district TB Control Officers, health staff, patients and community health workers to improve the program.
Method: (a) TB suspects visiting or referred to the Health Facilities were advised two sputum examination for Direct Microscopy at Diagnostic Centre. (b) If Positive, started with anti TB treatment as Sputum Smear Positive cases. (c) If Negative, antibiotic course was given and asked for repeat sputum examination after 10–15 days. If negative, Chest X-ray was advised, if clinical history and chest X-ray is suggestive, anti TB Treatment started as sputum smear negative. (d) For Extra Pulmonary cases, opinion from the related specialties with Clinical evidence was obtained.
Results: (a) Data was analyzed from TB 03 as New Cases, Relapse, Failure, Sputum Smear Negative and Extra-Pulmonary. (b) Type of patients, Disease classification and category for treatment was decided. (c) In the selected six DOTS Centers in the slum catchment area, case detection rate for all case 89%. (d) Case detection for Sputum Smear Positive 57%, & early Default rate less than 01%. (e) Barriers observed at three levels of TB Care. (f) Individuals, Groups and System. (g) 85–89% of patients feel ashamed that they have developed TB and try to hide disease.
Conclusion: (a) The study declared that patients with TB disease trust in public health system. (b) They have been educated regarding the disease, severity and outcome. (c) Case detection rate of TB disease in the studied area was almost above the WHO targets, meaning that the community was aware about the services in the public sector. (d) All anti TB medicine are available at all treatment and Diagnostic Centers to every patient. (e) Health education was given to every patient, his key member by the DOTS facilitator at every health facility during registration time. (f) Every Health Facility has got trained Medical officer, Laboratory Staff & DOTS Facilitator. (g) Elements for success—3'W's and an 'O' Wisdom (knowledge)+Will+ Work with Ownership = Success.
Declaration of interest: None
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CR061
Survey on doctors' perceptions of currently available inhalation devices in India: Results from the INSPECT survey

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Aim: This survey titled INSPECT: INhalation deviceS: Physicians' PErCepTions aimed to understand the perceptions of doctors about the currently available inhalation devices in India.
Method: A cross-sectional questionnaire based survey was conducted to understand doctors' perception about pressurized metered dose inhalers (pMDIs), pMDI+spacer, dry powder inhalers (DPIs) and breath actuated inhalers (BAIs).
Results: A total of 83 doctors participated in this survey of which 66.3% were pulmonologists, 18.1% were internal medicine specialists, 8.4% were pediatricians and 7.2% were general physicians. The doctors preferred to prescribe DPIs and pMDI+spacer over pMDI alone and breath actuated inhaler (BAI). 58.5% of the doctors stated that DPI is the easiest to be taught to patients among the currently available inhalation devices, followed by pMDI +spacer (25.6%) and BAI (15.8%); none of the doctors selected pMDI in this category. Majority (63.86%) of the doctors felt that DPIs take the least time to teach, followed by BAI (33.73%). 11 doctors who had selected DPI as the easiest device to be taught shifted to BAI as they thought it takes least time for patient instruction. The devices were easy to understand, the most common response 'understand very easily (DPIs: 75.64%, BAI: 58.9%) and 'understand but take time' (pMDIs: 71.1%, pMDI+spacers: 52.5%). Incorrect use of device (74.7%) and poor compliance to treatment (74.7%) were cited as the most common reasons for patients not responding to the prescribed inhaled treatment, with both having been given equal importance. 95.2% of the doctors said that improper use of inhalation devices is common among their patients and 97.6% of the doctors agreed that more complex the device, the lesser is patient's adherence to treatment. When asked to rate the features of an ideal device on a scale of 1 to 5, 5 being the most important and 1 being the least important, highest priority was given to the instructions related to device use being simple to understand and easy to follow which was rated as 5 or 4 by 54% of the doctors followed by requirement of minimal steps (44%).
Conclusion: The doctors reported that incorrect usage of inhalation devices was high among their patients which leads to lack of response to prescribed inhaled treatment. The doctors felt that complexity of the inhalation devices was a major reason for their improper use and gave high importance to the device being simple to understand and requiring minimal steps for use.
Declaration of interest: JG is fulltime employee of Cipla Ltd.
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CR062
Survey on patients' perceptions of currently available inhalation devices in India: Results from the INSPECT survey

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Aim: The INSPECT (INhalation deviceS: Patients' PErCepTions) survey was designed to assess the perceptions of patients about the different inhalation devices. Additionally, their technique of using the inhalation devices was also assessed.
Method: A questionnaire based survey was administered to patients using inhalation device/s or to the caregivers (in case of paediatric and geriatric patients). Checklists containing the usage steps for various devices were also marked by the administrator.
Results: A total of 1486 patients (56.2% males; mean age 44.6 years) using inhalation devices (69.2% for asthma, 27.7% for COPD) participated in the survey. The participants were using dry powder inhalers (DPIs; 48.8%), pressurized metered dose inhaler (pMDI)+spacer (36.0%) and pMDI (16.1%). 42.7% patients had used another inhalation device in the past and the most common reason for changing the inhalation device by these patients was 'not getting results with the earlier device' (57.3%) followed by 'difficulty in using the earlier device' (29.2%). 99.6% of the patients stated that they were taught how to use the prescribed inhalation device and 88.9% said that they found it easy to learn the usage of device. Also, 53.6% of the patients stated that they learnt to use the device quickly, i.e., in the first visit and in less than 5 min.

58.1% of the patients rated their confidence level about using the device correctly as ⩾8 on a scale of 0–10. 79.4% patients believed that they remembered all the steps required to use the inhalation device. 72.5% patients felt that not too many steps were involved in using the device. Half of the patients didn't desire any changes in their current inhalation device. Contrary to their own perception, only 1 out of 4 users performed all the steps correctly when asked to demonstrate their technique of using the device. This percentage was comparable for all types of inhalation devices demonstrated by the patients.

Conclusion: Majority of the patients were very confident about using the prescribed inhalation devices correctly and had been taught how to use the devices. However, on being asked to demonstrate their technique of using the device, a large percentage made one or more errors. Hence, there's a need to periodically check the patients' technique, to tailor the choice of device according to patient's needs and also to come up with devices which have lesser number of steps involved and are thus easier to remember and use.

Declaration of interest: JG is a permanent employee of Cipla Ltd.

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CR064

The prevalence of comorbidities in COPD patients and their impact on the quality of life and COPD symptoms in primary care patients—an UNLOCK study from the IPCRG

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Aim: Chronic obstructive pulmonary disease (COPD) is associated with comorbidities that increase in number and severity with age and are more prevalent among deprived social groups. Little is yet known about prevalence of comorbidities with COPD and its impact in quality of life in primary care populations. Increasing this knowledge is relevant for the development of better intervention strategies and for informing the reframing of clinical guidelines in primary care. The study aimed to answer the following research questions: (a) What is the prevalence of comorbidities in COPD patients in primary care? (b) What is the impact of one or more comorbidities on the quality of life and on COPD symptoms?

Method: Retrospective cross-sectional analysis of 4 primary care datasets from different European countries. The impact of the number of comorbidities on Quality of Life was explored using one-way ANOVA tests and Scheffe post-hoc tests. Statistical significance was considered for P values < 0.05 (*i.e.* error type I $< 5\%$) and statistical power and observed effect size measures are reported. Mean estimation and 95% confidence intervals for groups in error bars graphics were also considered.

Results: The prevalence of comorbidities in COPD patients in primary care datasets ranged from 0 to 8. The prevalence of three or more ranged from 0 to 28.8%. Results suggest that the difference between countries might be due to differences in the GOLD stages (I-IV) across primary care datasets. Additionally, the analysis of the impact of the number of comorbidities on Quality of Life perceptions revealed statistical significant differences in CCQ and CAT scores. The impact of the number of comorbidities in Quality of Life perceptions revealed that major significant differences occur when having 2 or more comorbidities in 3 of 4 datasets. One-way ANOVA models were performed across datasets to analyse the variance between-subjects due to the impact of the number of comorbidities. The estimated explained variance in these scores ranged from 6.4 to 26.9%. The analysis controlled for sex, age and smoking status influence.

Conclusion: Comorbidities are common in COPD patients in primary care and the results in this UNLOCK study suggest that the number of comorbidities is an important factor influencing Quality of Life.

Declaration of interest: BS has received honoraria for educational activities and lectures from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Meda, MSD, Novartis and TEVA, and has served on advisory boards arranged by AstraZeneca, Novartis, and Boehringer Ingelheim. The IPCRG provided funding for this research project as an UNLOCK Group study for which the funding was obtained through an unrestricted grant by Novartis AG, Basel, Switzerland. Novartis had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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CR065

The prevalence of night and morning symptoms in primary care COPD patients: how do they relate to COPD health status and disease severity? An UNLOCK study from the IPCRG

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Aim: COPD patients in clinical practice regularly report night and morning symptoms. Aim of this study is to explore if night and morning symptoms give additional information in the management of COPD patients.

Method: We included 1,998 primary care COPD patients (58% male, 49% current smokers, mean age 65 ± 11) who were referred for diagnostic assessment to an Asthma/COPD service. Spirometry, patient history, the Clinical COPD Questionnaire (CCQ) and the Asthma Control Questionnaire (ACQ) were part of the regular assessment procedure. The ACQ was used to evaluate night (question 1) and morning symptoms (question 2). We selected patients with low CCQ scores (< 2) and evaluated within this group the number of patients with many night (ACQ question 1 ⩾ 4) and morning symptoms (ACQ question 2 ⩾ 4). Patient characteristics of patients with many

[CR065]

Table 1. Comparison between COPD health status measured with the CCQ and night/morning symptoms measured with the ACQ question 1 and 2. In grey, the small group of patient with severe night wakening (n = 11, 0.55%) or morning symptoms (n = 19, 0.96%) and (not entirely) stable COPD

	COPD health status				
	Stable CCQ < 1	*Not entirely stable CCQ ⩾ 1& < 2*	*Unstable CCQ ⩾ 2& < 3*	*Very unstable CCQ ⩾ 3*	*Total*
Night wakening					
No symptoms ACQ1 = 0	593	423	135	25	1176
Mild symptoms ACQ1 = 1–3	106	330	204	98	738
Severe symptoms ACQ1 ⩾ 4	1	10	20	41	72
Total	700	763	359	164	1986
Morning symptoms					
No symptoms ACQ2 = 0	525	313	61	23	922
Mild symptoms ACQ2 = 1–3	170	433	266	87	956
Severe symptoms ACQ2 ⩾ 4	4	15	32	53	104
Total	699	761	359	163	1982

[CR065]

Table 2. Comparison in patient's characteristics between different levels of night- and morning severity symptoms

Patient characteristic	*No symptoms ACQ1 = 0 & ACQ2 = 0*	*Mild symptoms ACQ1 > 0 & ACQ1 < 4 ACQ2 > 0 & ACQ2 < 4*	*Severe symptoms ACQ1 or ACQ2 ⩾ 4*	P *value*
	n(%)	*n*(%)	*n*(%)	
Male	444(57)	597(56)	84(59)	0.653
Current smokers	313(40)	622(58)	93(65)	< 0.000
	Mean ± s.d.	Mean ± s.d.	Mean ± s.d.	
Age	65.9 ± 10	64.6 ± 11	59.5 ± 11	< 0.000
Age of onset	53 ± 21	52.4 ± 19	49.6 ± 15	< 0.000
FEV_1/FVC post	57.2 ± 11	55.5 ± 11	54.0 ± 12	0.001
FEV_1 post proportion predicted	72.0 ± 18	68.1 ± 18	62.7 ± 19	< 0.000
Average number of exacerbations	0.6 ± 1	0.9 ± 1	1.0 ± 1	< 0.000
Reversibility	5.4 ± 6	6.6 ± 8	6.3 ± 8	0.166
CCQ total score	0.9 ± 1	1.7 ± 1	2.9 ± 1	< 0.000
CCQ subscale functional status	0.8 ± 1	1.5 ± 1	2.6 ± 1	< 0.000
CCQ subscale mental status	0.2 ± 1	0.7 ± 1	1.8 ± 2	< 0.000
CCQ subscale symptom status	1.4 ± 1	2.4 ± 1	3.8 ± 1	< 0.000
ACQ total	0.5 ± 0	1.5 ± 1	2.8 ± 1	< 0.000

night and morning symptoms were compared with other patients using chi square and Kruskal-Wallis test. Finally, multinomial logistic regression was used to examine to what extend an increase in night and morning symptoms are associated with having an exacerbation.
Results: 814 (40.8%) patients had night complaints (ACQ question 1 > 0) and 1067 (53.5%) patients reported morning symptoms (ACQ question 2 > 0). A subset of patients had severe symptoms (ACQ question 1 ⩾ 4, $n = 73$, 3.7% and ACQ question 2 ⩾ 4, $n = 105$, 5.3%). Only a small proportion of the low symptomatic patients (CCQ < 2) had severe night (ACQ question 1 ⩾ 4 $n = 11$, 0.55%) or morning symptoms (ACQ question 2 ⩾ 4, $n = 19$, 1.0%, table 1). Patients with severe night/morning symptoms are on average younger, have poorer lung function, higher CCQ scores and are mostly smokers (see table 2). And increase in ACQ question 1 or ACQ question 2 score increased the odds of having an exacerbation although the proportion of explained variance was 2% (odds ratio ACQ question 1: 1.1, CI 1.0–1.2, $P = 0.02$|odds ratio ACQ question 2: 1.1, CI 1.1–1.2, $P < 0.01$).
Conclusion: Night and morning symptoms were common in COPD patients. However they seem to go along with other COPD symptoms while they are associated with an increase in the exacerbation risk.
Declaration of interest: The IPCRG provided funding for this research project as an UNLOCK Group study for which the funding was obtained through an unrestricted grant by Novartis AG, Basel, Switzerland. Novartis had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.
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CR066
Turkish medical, nursing and midwifery students' knowledge of and attitudes towards patients with tuberculosis

Safiye özkan sarılı

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Aim: To analyze the knowledge, attitudes and practices about TB in medical, nursing and midwifery students.
Method: A cross sectional study was carried out and KAP (knowledge, attitudes and practices) questionnaire was applied to 141 nursing students, 115 medical students and 158 midwifery students. Epi-Info version 6.04 was used for comparison of proportions with statistic significance at $P < 0.05$.
Results: Mistaken concepts on TB were observed among the three searched groups. PHS also showed basic errors on TB knowledge thus pointing out imperfections on training.
Conclusion: KAP revealed efficient for data collection of general knowledge items but was limited on practices and attitudes and so its use as the only tool for data collection about knowledge, attitudes and practices on TB is not advisable. It is suggested its regular use to aid educational activities and considering the high prevalence of TB among prisoners, it is noted the need to involve the Departments of Health in the supervision of educational activities in the prison system.
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CR067
Understanding the severity, risk factors and comorbid conditions in newly diagnosed COPD patients: the SCOPE study

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Aim: Survey of newly diagnosed COPD PatiEnts (SCOPE) aimed to gain insights on presenting symptoms, severity, exacerbation history, risk factors and treatment practices in newly diagnosed Indian chronic obstructive pulmonary disease (COPD) patients.
Method: This survey was conducted in 7 cities of India from 1st May to 30th June 2014 and involved 47 pulmonologists. Each pulmonologist filled a respiratory health questionnaire capturing information on symptoms, risk factors, lung function, previous respiratory ailments, use of inhalers, history of exacerbations, hospitalizations, comorbid conditions and recorded COPD assessment test (CAT) score for consecutive newly diagnosed COPD patients.
Results: Data was obtained on 247 newly diagnosed COPD subjects, of which spirometry data was available on 231 patients. The mean age of these patients (± s.d.) was 59.91 (±11.53) years, with 84.6% of them being males. Nearly 75.7% were either past smokers or current smokers with a smoking history of (± s.d.) 18.15 (±14.99) pack years. Of the 60 nonsmokers, (24.29%) reported exposure to biomass. The average FEV_1% predicted was 50.30 (±18.96) [$n = 178$] and average FEV_1/FVC% was 60.38 (±20.30) [$n = 231$], indicating a higher degree of airflow limitation at first diagnosis. Presenting symptoms included cough (97.57%), dyspnea (95.45%), sputum (92.41%), wheezing (82.51%) and chest tightness (85.59%). Approximately, 31%, 28 and 22% of all patients reported biomass exposure, living close to highway/ industrial areas and work related exposure (cotton mills/ chemicals industry etc.), respectively. 29.96% patients had earlier been diagnosed with asthma, 15.38% with tuberculosis and 5.73% with allergic rhinitis. 45.9% of the patients were using inhalers, 67.44% did not

have a good inhaler technique and 59.77% had average to poor compliance with therapy. On an average, there were 1.96 exacerbations and 0.79 hospitalizations for respiratory conditions in the last 1 year. The average CAT score (± s.d.) for these newly diagnosed COPD patients was 21.26 (±7.68). Hypertension, diabetes mellitus, osteoporosis, depression was reported in 33.2%, 17.81%, 7.69 and 6.88% of the COPD patients. There was no significant difference between the symptoms, clinical presentation, co-morbidities, number of exacerbations and CAT assessment in smokers and non-smokers.
Conclusion: The SCOPE survey highlights that COPD patients are at an advanced stage of COPD when they are diagnosed for the first time by a pulmonologist. This warrants the need for greater awareness amongst the general practitioners so that COPD is diagnosed at an earlier stage, thus reducing morbidity of the disease.
Declaration of interest: None
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CR069
Variation in respiratory hospital admissions in patients with COPD: an observational cohort study using the Hampshire Health Record Analytical database (HHRA).

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Aim: The NHS Atlas of Variation in Healthcare for People with Respiratory Disease has shown a five-fold variation in COPD emergency hospital admission rates across England. We aimed to study this in our COPD population in Hampshire, UK.
Method: A retrospective observational cohort study, using individual patient-anonymised routine data held in the Hampshire Health Record Analytical database (HHRA, an electronic NHS database holding coded clinical data for ⩾1 million patients living in Hampshire, UK). Read codes (a coded classification of clinical terms used in UK primary care to record information electronically) were used to identify a prevalent cohort with a practice diagnosis of COPD at 31/12/2010 and to assess smoking status, FEV1%predicted and deprivation (IMD). Respiratory-cause emergency hospital admissions over 3 years (01/01/11-31/12/13) were identified by ICD-10 codes and categorised by referral route (GP, out-patient (OP) clinic or self-referral to Accident and Emergency (A+E) department).
Results: Among 137 practices, COPD prevalence range was 0.1 to 2.8%, median (IQR) 1.3 (1.0–1.7). The COPD cohort consisted of 16,149 patients (male 54.4%) mean (s.d.) age 70.9 years (11.4); smoking status in 96.2%: current smokers 36.6%, ex-smokers 56.5%, never smokers 3.1%; FEV1%predicted values in 50.1%: median (IQR) 59 (45–72). IMD deciles in 69.9%: median (IQR) 7 (4–9). Over 3 years, 20.2% of patients ($n=3276$) were admitted to hospital on ⩾1 occasion; 0.8% ($n=132$) were admitted on ⩾6 occasions. Route of hospital admission: self-referral to A+E in 75.3%, GP referral in 23.6 and OP referral in 1.1% of cases. Comparing respiratory-cause admission rates (ratio of number of admissions to number of COPD patients) in each practice, there was a 13-fold variation (range 0.1–1.3, median (IQR) 0.4 (0.3–0.5)) across practices when all routes of admission were combined. There was greater variation for patients self-referring to A+E (range 0.1–1.0, median (IQR) 0.3 (0.2–0.4)) than for patients admitted via GP or OP clinic (range 0–0.6, median (IQR) 0.09 (0.06–0.12).
Conclusion: Over a 3 year period, one fifth of the COPD cohort had at least one unplanned respiratory-cause hospital admission, but we have demonstrated large variations in admission rates between practices, especially when no prior patient triage had been made (A+E admissions) in contrast to admissions following referral by GP or OP doctor. Factors other than disease severity are likely to be important in explaining this variation and more work needs to be done to address this.
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CR070
Variations among spirometry interpretation algorithms: the push towards standardisation

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Aim: Asthma and COPD are two of the most common respiratory illnesses encountered in primary care. Though patients often present with similar symptoms, it is important to distinguish between the two diseases because their pathophysiology and management is very different. Simple spirometry is an objective pulmonary function test that can support a diagnosis of asthma or COPD, but recent evidence has demonstrated that patients with moderate to very severe COPD also meet spirometric criteria for asthma diagnosis. Spirometry interpretation algorithms (SIA) should conform to diagnostic guidelines while acknowledging this overlap and prompting the clinician to consider further clinical assessment where such an overlap exists. The objective was to determine the variations in SIA that exist in the published literature and online sources.
Method: Medline, Embase, and mainstream search engines were used to identify all SIA-related material dating back to 1990. Keywords used were 'spirometry', 'algorithm', 'algorism', and 'algorhythm'.
Results: 17 out of 27 SIA are unable to serve well as stand-alone documents. 24 SIA lack a logic string to post-bronchodilator FEV1/FVC ratio, potentially impeding COPD diagnosis. 10 SIA rely solely on post-bronchodilator improvement in FEV1 to definitively diagnose asthma. 23 SIA lack a prompt for bronchodilator challenge when FEV1/FVC is normal. 4 SIA unnecessarily recommend DLCO testing to confirm COPD diagnosis.
Conclusion: 25 out of 27 SIA feature variations that may lead to disease misclassification. Further studies are needed to confirm whether this link truly exists. This study points to the need for minimizing SIA variability, including a standardized approach for the spirometric diagnosis of asthma and COPD.
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CR071
Which symptoms and clinical findings in exacerbations of asthma and COPD represent changes from a stable state?

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Aim: To identify which symptoms and clinical findings changes most in patients suffering from acute exacerbation of their asthma or COPD in primary care.
Method: Patients aged 40 years or more registered with a diagnosis of asthma and/or COPD the previous 5 years from seven general practice offices in Norway were identified, and 1111 patients were invited to participate. The patients were asked to contact their GPs if they experienced exacerbations during the study period, and chest findings, together with symptoms, CRP, pulse oximetry and spirometry were registered during these visits. COPD clinical questionnaire (CCQ) was used to register the symptoms during exacerbations.
Results: Of the 376 patients included in baseline registration, 95 patients experienced one or more exacerbation during study period and included in the analysis. All symptoms, chest findings (except diminished breath sounds), and positive test results were more frequently found during exacerbation than during stable state. The symptoms that most frequently increased were shortness of breath at rest (40.3%), and limitations in social activities (41.8%). A new chest finding was observed in 34.7%.
Conclusion: Most of the respiratory symptoms and chest findings changes during acute exacerbation of asthma and COPD, and can be used as an indication of the occurrence of these acute deteriorations.
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