Chronic obstructive pulmonary disease

RUTH MORROW, ADVANCED NURSE PRACTITIONER IN PRIMARY CARE AND REGISTERED NURSE PRESCRIBER

COPD, a common preventable and treatable disease, is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. COPD is a preventable and treatable disease. It has two components:

- its **pulmonary** component is characterised by airflow limitation that is not fully reversible
  - FEV_1:FVC ratio <70%, post-bronchodilator (measured via spirometry)
- its **extrapulmonary** effects (weight loss, nutritional abnormalities, skeletal muscle dysfunction, and increased risk for myocardial infarction, osteoporosis, etc.) contribute to the severity in individual patients.

Epidemiology

An estimated 210 million people have COPD worldwide. Ireland has an estimated 110,000 COPD patients (Murtagh et al, 2005). The worldwide prevalence of COPD is >10%. More than 3 million people died of COPD in 2005, accounting for 5% of all deaths globally that year. Worldwide COPD ranked as the 4th leading cause of death and is expected to become the 3rd leading cause by 2030. Total deaths from COPD are projected to increase by >30% in the next 10 years without interventions to cut risks, particularly exposure to tobacco smoke.

There is an increasing prevalence of COPD in women (MMWR, 2008) with an increased risk of COPD in the economically deprived (Prescott et al, 1999) as socioeconomic status is inversely related to risk of COPD.

In relation to other diseases, COPD is the 4th leading cause of morbidity and mortality, the leading cause of disability and the 6th in prevalence of major conditions **(Table 1)** (GOLD, 2013)

Risk factors

The risk factors for COPD include:

- Exposure to particles such as tobacco smoke, occupational dusts, organic and inorganic, indoor air pollution from heating and cooking with biomass in poorly ventilated dwellings and outdoor air pollution
- Lung growth and development
- Gender – males are more susceptible than females
- Age – risk increases with age
- Respiratory infections
- Socioeconomic status
- Asthma/bronchial hyper-reactivity
- Chronic bronchitis

Pathophysiology of COPD

COPD is characterised by airflow limitation, air trapping and decreased exercise tolerance. Frequently, by the time the patient presents with symptoms, many have progressed to moderate COPD. Many patients who have mild COPD on their spirometry will not have symptoms. When airflow is limited, air gets trapped in the lungs which is first recognised by the patient on exercising. Air trapping impacts on the patient by effecting their ability to inhale. It also affects their exercise tolerance and causes patients to limit their activities.

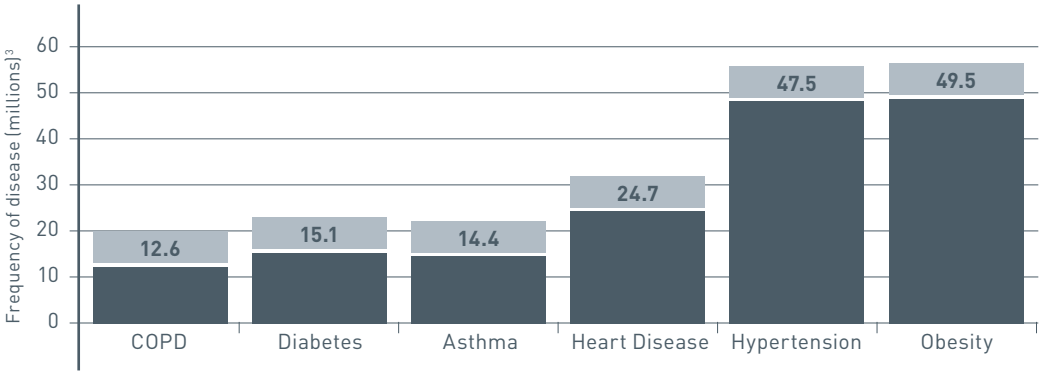
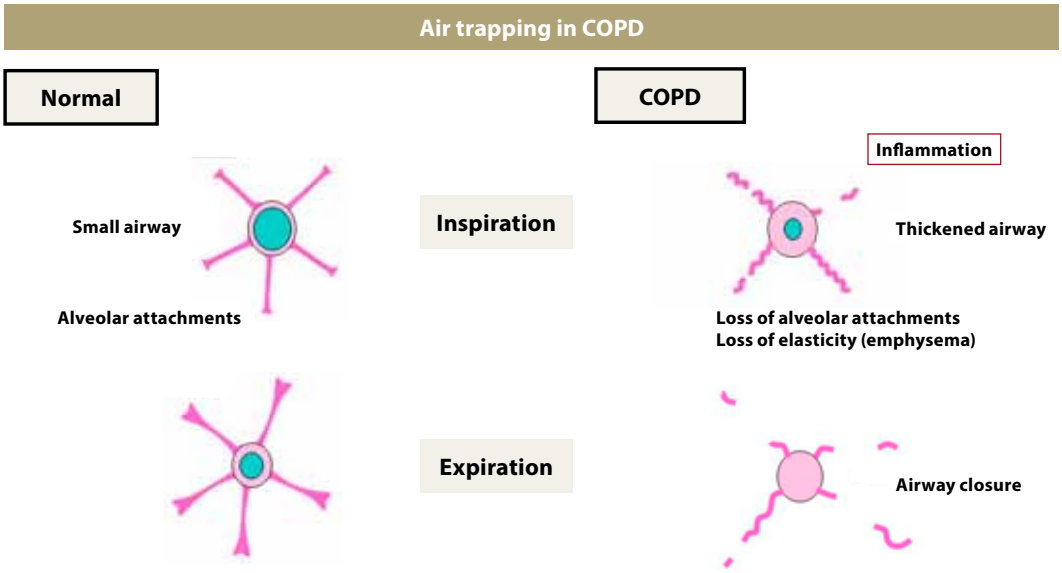


Table 1: Prevalence of COPD in relation to other major conditions



Diagnosis and assessment
The diagnosis and assessment of COPD involves assessing symptoms, airflow limitation, risk of exacerbations and co-morbidities.

Assessing symptoms
The characteristic symptoms of COPD are chronic and progressive dyspnoea, cough, and sputum production that can be variable from day-to-day. Dyspnoea is usually progressive, persistent and characteristically worse with exercise. Patients may have an intermittent and/or unproductive cough but many patients will commonly cough up white/clear non-purulent sputum. Symptoms can be assessed using the COPD Assessment Tool (CAT test) and the Medical Research Council Dyspnoea (MRC) scale. The CAT test is an 8-item measure of health status impairment in COPD (http://catestonline.org). The MRC scale is illustrated in **Table 2.**

Table 2: Medical Research Council Scale

PLEASE TICK IN THE BOX THAT APPLIES TO YOU (ONE BOX ONLY)	
mMRC Grade 0. I only get breathless with strenuous exercise.	☐
mMRC Grade 1. I get short of breath when hurrying on the level or walking up a slight hill.	☐
mMRC Grade 2. I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level.	☐
mMRC Grade 3. I stop for breath after walking about 100 meters or after a few minutes on the level.	☐
mMRC Grade 4. I am too breathless to leave the house or I am breathless when dressing or undressing.	☐

Assessing airflow limitation
Airflow limitation is assessed by spirometry. An FEV_1/FVC ratio post bronchodilator of less than 70% indicates airflow limitation. The severity of airflow limitation is then assessed by the FEV_1. (**Table 3**). The bronchodilator of choice used for reversibility testing is Salbutamol 200mcg – 400mcg via spacer device with the spirometry repeated 15 minutes port administration.

Table 3: GOLD (2014) classification based on FEV_1

In patients with $FEV_1/FVC < 70\%$:	
GOLD 1: Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2: Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3: Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4: Very Severe	$FEV_1 < 30\%$ predicted

**Based on Post-Bronchodilator FEV_1*

Assessing risk of exacerbations
If the patient has had two exacerbations or more within the last year or an FEV_1 <50 % of predicted value, they are considered high risk for exacerbations in the future.

Assessing co-morbidities
Patients with are at increased risk for:
- Cardiovascular diseases
- Osteoporosis
- Respiratory infections
- Anxiety and depression
- Diabetes
- Lung cancer

These co-morbid conditions may influence mortality and hospitalizations and should be looked for routinely, and treated appropriately (GOLD, 2014)

Combining assessments and classification of COPD
GOLD (2014) recommend combining the assessments from airflow limitation, risk of exacerbations and symptoms (**Table 4**) to classify patients as A, B, C, or D **(Table 5)**. This classification assists

NEW

A new LAMA for the treatment of COPD[1]

Improvement in early morning, daily and night-time COPD symptoms.[2]

Twice daily administration[2]

Eklira® Genuair®
aclidinium bromide inhalation powder

Eklira▼ Genuair 322 micrograms inhalation powder
Abbreviated Prescribing Information. Please consult the Summary of Product Characteristics (SPC) for the full prescribing information. **Presentation:** Inhalation powder in a white inhaler with an integral dose indicator and a green dosage button. Each delivered dose contains 375 µg aclidinium bromide equivalent to 322 µg of aclidinium. Also, contains lactose. **Use:** Maintenance bronchodilator treatment to relieve symptoms in adult patients with chronic obstructive pulmonary disease (COPD). **Dosage:** For inhalation use. Recommended dose is one inhalation of 322 µg aclidinium twice daily. Patients should be instructed on how to administer the product correctly. No dose adjustments are required for elderly patients, or those with renal or hepatic impairment. No relevant use in children and adolescents. **Contraindications:** Hypersensitivity to aclidinium bromide, atropine or its derivatives, including ipratropium, oxitropium or tiotropium, or to any of the excipients. **Warnings and Precautions:** Do not use in asthma. Stop use if paradoxical bronchospasm occurs and consider other treatments. Do not use for the relief of acute episodes of bronchospasm. Use with caution in patients with myocardial infarction in the previous 6 months, unstable angina, newly diagnosed arrhythmia within the previous 3 months, or hospitalisation within the previous 12 months for heart failure functional classes III and IV. Dry mouth, observed with anticholinergic treatment, may be associated with dental caries in the long term. Use with caution in patients with symptomatic prostatic hyperplasia or bladder-neck obstruction or with narrow-angle glaucoma. Do not use in patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption. **Interactions:** Do not administer with other anticholinergic-containing medicinal products. No other interactions expected. Please consult the SPC for more details. **Fertility, pregnancy and lactation:** No data on use in pregnancy. Consider risk-benefit before using during lactation. Unlikely to affect fertility at the recommended dose. **Side-effects:** Common (1-10%): Sinusitis, nasopharyngitis, headache, cough, diarrhoea. Uncommon (0.1- 1%): Blurred vision, tachycardia, dysphonia, dry mouth, rash, pruritus, urinary retention. Rare (0.01-0.1%): hypersensitivity. Not known: angioedema. **Pack sizes:** Carton containing 1 inhaler with 60 unit doses. **Legal category:** POM **Marketing Authorisation Number:** EU/1/12/778/002. **Marketing Authorisation holder:** Almirall, S.A., Ronda General Mitre 151, ES-08022, Barcelona, Spain. **Marketed by:** A. Menarini Pharmaceuticals Ireland Ltd., Castlecourt, Monkstown Farm, Monkstown, Glenageary, Co. Dublin. Further information is available on request to A. Menarini Pharmaceuticals Ireland Ltd. or may be found in the SPC. **Last updated:** May 2014.

References: 1. Kerwin EM, D'Urzo AD, Gelb AF, et al. *Efficacy and safety of a 12-week treatment with twice-daily aclidinium bromide in COPD patients (ACCORD COPD I).* COPD. 2012;9(2):90-101. **2.** Eklira® Genuair® Summary of Product Characteristics, last updated May 2014.

Under license of Almirall

This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information.
Healthcare professionals are asked to report any suspected adverse reactions to:
IMB Pharmacovigilance, Earlsfort Centre, Earlsfort Terrace, IRL - Dublin 2,
Tel: +353 1 6764971, Fax: +353 1 6762517, Website: www.imb.ie, e-mail: imbpharmacovigilance@imb.ie
Adverse events should also be reported to A. Menarini Pharmaceuticals Ireland Ltd. Phone no: 01 284 6744.

A. MENARINI PHARMACEUTICALS IRELAND LTD
Healthcare for Life

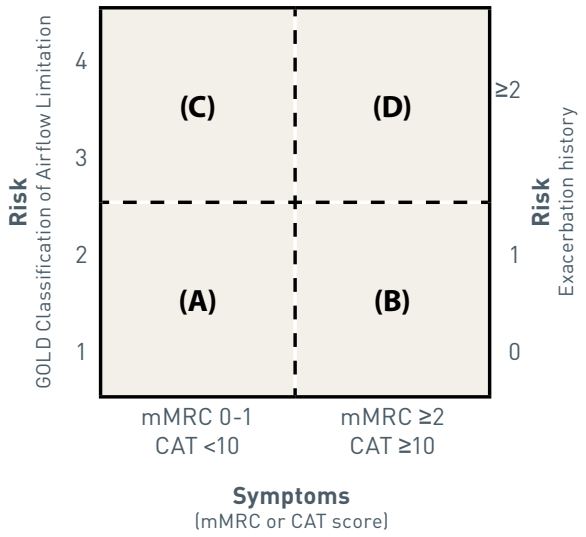
Date of Item: June 2014
14Ekliira006b

the healthcare professional with treatment options and it ensures that patients are prescribed the most appropriate medication for the degree of severity of their COPD

Other investigations
Chest X-ray: Seldom diagnostic but valuable to exclude alternative diagnoses such as malignancy and establish the presence of significant co-morbidities such as heart failure
Lung Volumes and Diffusing Capacity: Help to characterize severity, but not essential to patient management. These test are carried out in pulmonary function laboratories.
Oximetry and Arterial Blood Gases: Pulse oximetry can be used to evaluate a patient's oxygen saturation and need for supplemental oxygen therapy.
Alpha-1 Antitrypsin Deficiency Screening: Should be performed when COPD develops in patients of Caucasian descent under 45 years or with a strong family history of COPD.

There is an increasing prevalence of COPD in womenwith an increased risk of COPD in the economically deprivedas socioeconomic status is inversely related to risk of COPD.

Table 4: Combined assessment of COPD (GOLD, 2014)



Exercise Testing: Objectively measured exercise impairment, assessed by a reduction in self-paced walking distance (such as the 6 min walking test) or during incremental exercise testing in a laboratory, is a powerful indicator of health status impairment and predictor of prognosis.

Differential diagnosis
Asthma is the primary differential diagnosis (**Table 4**). Other differential diagnoses include congestive cardiac failure, lung cancer, TB, alpha one antitrypsin deficiency and cor pulmonale.

COPD	ASTHMA
Onset in mid-life	Onset early in life (often childhood)
Symptoms slowly progressive	Symptoms vary from day to day
Long smoking history	Symptoms worse at night/ early morning
	Allergy, rhinitis, eczema present
	Family history of asthma

Table 5: Classification of COPD (GOLD, 2014)

Patient	Characteristic	Spirometric Classification	Exacerbations per year	mMRC	CAT
A	Low risk Less symptoms	GOLD 1-2	≤1	0-1	<10
B	Low risk More symptoms	GOLD 1-2	≤1	≥2	≥10
C	High risk Less symptoms	GOLD 3-4	≥2	0-1	<10
D	High risk More symptoms	GOLD 3-4	≥2	≥2	≥10

flutiform®

fluticasone propionate/formoterol

50/5 µg 125/5 µg 250/10 µg

COMBINATION

Rapid onset* and long lasting efficacy**

Asthma maintenance treatment

INNOVATION

Modern aerosol device with a patient-facing dose counter[1]

*** Open label study, significant increase in FEV1 5 mins after dosing (p=o.oo1) (Aalbers et al: Onset of Bronchodilation with fluticasone/formoterol combination versus fluticasone/salmeterol in an open-label, randomised study; Adv Ther 2012)**
**** 6-12 month open label study, significant improvement in spirometric secondary endpoints vs baseline (Mansur et al, Long Term Safety and Efficacy of fluticasone/formoterol combination therapy in Asthma; JAMP -Vol 25, No0, 2012 p1-10)**

flutiform
fluticasone propionate/formoterol

A POWERFUL PARTNERSHIP

flutiform is indicated for the regular treatment of asthma in adults and adolescents (12 years and over), where use of a combination product (inhaled corticosteroid [ICS] and long-acting ß2-agonist [LABA]) is appropriate. flutiform 250/10µg indicated in adults only.

***flutiform*® (FLUTICASONE PROPIONATE AND FORMOTEROL FUMARATE) PRESSURISED INHALATION SUSPENSION.**
Prescribing Information Ireland. Please read the Summary of Product Characteristics before prescribing.
Presentation: Pressurised inhalation suspension, in a pressurised metered dose inhaler (pMDI), containing fluticasone propionate and formoterol fumarate dihydrate at strengths of 50 µg/5 µg, 125 µg/5 µg or 250 µg/10 µg per actuation. **Indications:** Regular treatment of asthma where the use of a combination product (inhaled corticosteroid and long-acting β_2-agonist) is appropriate: For patients not adequately controlled with inhaled corticosteroids and 'as required' inhaled short-acting β_2-agonist (SABA), or for patients already adequately controlled on both an inhaled corticosteroid and a long-acting β_2-agonist (LABA). ***flutiform*** 50 µg/5 µg and 125 µg/5 µg per actuation are indicated for use in adults and adolescents 12 years and above. ***flutiform*** 250 µg/10 µg per actuation is only indicated for use in adults. **Dosage and administration:** For inhalation use. The patient should be shown how to use the inhaler correctly by a physician or other healthcare professional. Patients should be given the strength of ***flutiform*** containing the appropriate fluticasone propionate dose for their disease severity (note that ***flutiform*** 50 µg/5 µg per actuation is not appropriate in patients with severe asthma). The appropriate strength should be taken as two inhalations, twice-daily (normally in the morning and evening) and used every day, even when asymptomatic. ***flutiform*** should not be used in children under 12 years. Prescribers should be aware that in asthmatics, fluticasone propionate is as effective as some other inhaled steroids when administered at approximately half the total daily microgram dose. Total daily dose can be increased if asthma remains poorly controlled by administering a higher strength inhaler. Appropriate doses of the β_2-agonist and inhaled corticosteroid (ICS) in separate inhalers, or the ICS alone, should be prescribed if a patient requires doses outside the recommended dose regimens. Patients should be assessed regularly and once asthma is controlled, treatment should be reviewed and stepped down to the lowest effective dose, or an ICS alone. It is extremely important to regularly review patients as their treatment is stepped down. ICSs alone are first line treatment for most patients. ***flutiform*** is not intended for initial treatment of mild asthma. For patients with severe asthma the ICS therapy should be established before prescribing a fixed-dose combination product. Patients on ***flutiform*** must not use an additional LABA. An inhaled SABA should be taken for immediate relief of asthma symptoms arising between doses. The ***AeroChamber Plus®*** spacer device is recommended in patients who find it difficult to use inhalers; re-titration should always follow the introduction of a spacer device. Patients should be advised to contact their prescriber when the ***flutiform*** dose indicator is getting near zero. **Contra-indications:** Hypersensitivity to any of the active substances or excipients. **Precautions and warnings:** ***flutiform*** should not be used for the first treatment of asthma, to treat acute asthma symptoms or for prophylaxis of exercise-induced asthma. It should not be initiated during an exacerbation, during significantly worsening or acutely deteriorating asthma, and should not be stopped abruptly. Patients should use their ***flutiform*** maintenance treatment as prescribed, even when asymptomatic. If a patient experiences serious asthma-related adverse events or exacerbations, they should continue treatment but also seek medical advice. Patients should be reviewed as soon as possible if there is any indication of deteriorating asthma control. In the case of sudden and progressive deterioration, which is potentially life-threatening, an urgent medical assessment should be carried out. Use with caution in patients with: pulmonary tuberculosis; quiescent tuberculosis; fungal, viral or other infections of the airway; thyrotoxicosis; pheochromocytoma; diabetes mellitus (consider additional blood sugar controls); uncorrected hypokalaemia; predisposition to low levels of serum potassium; impaired adrenal function (monitor HPA axis function regularly) ; hypertrophic obstructive cardiomyopathy; idiopathic subvalvular aortic stenosis; severe hypertension; aneurysm or other severe cardiovascular disorders. There is risk of potentially serious hypokalaemia with high doses of β_2-agonists or concomitant treatment with β_2-agonists and drugs that can induce or potentiate a hypokalaemic effect. Particular caution is recommended in unstable or acute severe asthma and other conditions when the likelihood for hypokalaemia adverse effects is increased. Monitoring of serum potassium levels is recommended during these circumstances. Formoterol may induce prolongation of the QTc interval. Caution must be observed when treating patients with existing prolongation of QTc interval. ***flutiform*** should be discontinued immediately if there is evidence of paradoxical bronchospasm. Systemic effects with an ICS may occur, particularly at high doses for prolonged periods or when combined with potent CYP3A4 inhibitors, but are less likely than with oral corticosteroids. Use of a spacer device may also cause an increased systemic exposure. Increased exposure can be expected in patients with severe hepatic impairment. Prolonged treatment with high doses of corticosteroids may result in adrenal suppression and acute adrenal crisis, particularly in adolescents and children or potentially as a result of trauma, surgery, infection or rapid dose reduction. Patients should be advised that flutiform contains a small amount of ethanol; however this negligible amount does not pose a risk to patients. ***flutiform*** is not recommended in children under 12 years of age. **Interactions:** Caution is advised in long-term co-administration with strong CYP3A4 inhibitors (e.g. ritonavir, atazanavir, clarithromycin, indinavir, itraconazole, nelfinavir, saquinavir, ketoconazole and telithromycin); co-administration should be avoided if possible. Ritonavir in particular should be avoided, unless the benefits outweigh the risks of systemic side-effects. Caution is advised with use of non-potassium sparing diuretics (e.g. loop or thiazide), xanthine derivatives, glucocorticosteroids, L-Dopa, L-thyroxine, oxytocin, alcohol or other adrenergic drugs. There is an increased risk of arrhythmias in patients receiving concomitant anaesthesia with halogenated hydrocarbons. Hypokalaemia may increase the risk of arrhythmias in patients being treated with digitalis glycosides. Concomitant use of ß-adrenergic drugs can have a potentially additive effect. Extreme caution should be taken when using formoterol fumarate with drugs known to prolong the QTc interval, such as tricyclic antidepressants or MAOIs (and for two weeks following their discontinuation), as well as antipsychotics (including phenothiazines), quinidine, disopyramide, procainamide and antihistamines. Concomitant use of an MAOI or a similar agent, such as furazolidone or procarbazine, may precipitate hypertensive reactions. ß-blockers and formoterol fumarate may inhibit the effect of each other. ß-blockers may produce severe bronchospasm in asthma patients, and they should not normally be treated with ß-blockers including those that are used as eye drops to treat glaucoma. Under certain circumstances, e.g. as prophylaxis after myocardial infarction, cardioselective ß blockers could be considered with caution **Pregnancy and lactation:** ***flutiform*** is not recommended during pregnancy. It should only be considered if benefits to the mother outweigh risks to the foetus. It is not known whether fluticasone propionate or formoterol are excreted in breast milk; a risk to the breast feeding infant cannot be excluded. A decision should be made on whether to discontinue breastfeeding or discontinue/abstain from flutiform. **Side-effects:** Potentially serious side-effects: hyperglycaemia; depression; aggression; behavioural changes (predominantly in children); paradoxical bronchospasm; agitation; vertigo; palpitations; ventricular extrasystoles; angina pectoris; tachycardia; hypertension; dyspnoea; peripheral oedema; Cushings Syndrome; adrenal suppression; growth retardation; cataract and glaucoma; hypersensitivity reactions and QTc interval prolongation. Please consult the SPC for details of non-serious side-effects and those reported for the individual molecules. **Legal category:** POM **Package quantities:** One inhaler containing 120 actuations 50 µg/5 µg, 125 µg/5 µg, 250 µg/10 µg **Marketing Authorisation numbers:** PA 1688/13/1-3 **Marketing Authorisation holder:** Mundipharma Pharmaceuticals Limited, Millbank House, Arkle Road, Sandyford, Dublin 18, Ireland. Member of the Mundipharma Pharmaceutical Group. For medical information enquiries, please contact **info@mundipharma.ie**
Date of preparation: January 2013

Reference:
1. flutiform Summary of Product Characteristics

Adverse events should be reported. Reporting forms and information can be found at **http://www.imb.ie/EN/Safety--Quality/Online-Forms/Human-Medicine-Adverse-Drug-Reaction.aspx.** Adverse events should also be reported to Mundipharma Pharmaceuticals Limited on 01 206 3800/1800 991830 (outside office hours).

Date of preparation: March 2014
IRE/FL-12042(1)

mundipharma

Management

Key Points for therapeutic options for COPD (GOLD, 2013)
Smoking cessation has the greatest capacity to influence the natural history of COPD. Healthcare providers should encourage all patients who smoke to quit.
Pharmacotherapy and nicotine replacement reliably increase long-term smoking abstinence rates.
All COPD patients benefit from regular physical activity and should repeatedly be encouraged to remain active.
Appropriate pharmacologic therapy can reduce COPD symptoms, reduce the frequency and severity of exacerbations, and improve health status and exercise tolerance.
None of the existing medications for COPD has been shown conclusively to modify the long-term decline in lung function.
Influenza and pneumococcal vaccination should be offered depending on local guidelines.
Counseling delivered by physicians and other health professionals significantly increases quit rates over self-initiated strategies. Even a brief (3-minute) period of counseling to urge a smoker to quit results in smoking quit rates of 5-10%.
Nicotine replacement therapy (nicotine gum, inhaler, nasal spray, transdermal patch, sublingual tablet, or lozenge) as well as pharmacotherapy with varenicline, bupropion, and nortriptyline reliably increases long-term smoking abstinence rates and are significantly more effective than placebo.

Non-pharmacological therapeutic management of COPD

1. Smoking cessation

Smoking cessation is of paramount importance in the management of COPD regardless of disease severity. Support given by health professionals significantly increases quit rates over self-initiated strategies. Even a brief (3-minute) period of counseling to urge a smoker to quit results in smoking quit rates of 5-10%. Smoking cessation should be encouraged at all severities of the condition.

Nicotine replacement therapy (nicotine gum, nasal spray, transdermal patch, sublingual tablet, or lozenge) as well as treatment with Varenicline reliably increases long-term smoking abstinence rates and are significantly more effective than placebo (GOLD, 2014).

2. Pulmonary rehabilitation

Pulmonary rehabilitation has been proven to provide significant benefits in reducing dyspnoea, fatigue and exacerbations and improving quality of life in people with COPD. Although an effective pulmonary rehabilitation programme is 6 weeks, the longer the programme continues, the more effective the results. If exercise training is maintained at home, the patient's health status remains above pre-rehabilitation levels.

Pharmacological management of stable COPD

Maintaining and maximising bronchodilation is key in COPD. This is done by the use of long-acting bronchodilators (LABAs), long-acting

Dyspnoea is usually progressive, persistent and characteristically worse with exercise.

Table 6: COPD vs Asthma

Key Points for diagnosis & assessment of COPD (GOLD, 2013)
• A clinical diagnosis of COPD should be considered in any patient who has dyspnoea, chronic cough or sputum production, and a history of exposure to risk factors for the disease. • Spirometry is *required* to make the diagnosis; the presence of a post-bronchodilator FEV_1/FVC < 0.70 confirms the presence of persistent airflow limitation and thus of COPD. • The goals of COPD assessment are to determine the severity of the disease, including the severity of airflow limitation, the impact on the patient's health status, and the risk of future events. • Comorbidities occur frequently in COPD patients, and should be actively looked for and treated appropriately if present.

Table 7: Pharmacological therapeutic options for stable COPD (GOLD, 2014)

Patient	Recommended First choice	Alternative choice	Other Possible Treatments
A	SAMA prn ***or*** SABA prn	LAMA or LABA or SABA and SAMA	Theophylline
B	LAMA ***or*** LABA	LAMA and LABA	**SABA *and/or* SAMA** Theophylline
C	ICS + LABA or LAMA	**LAMA and LABA *or* LAMA and PDE4-inh. *or*** LABA and PDE4-inh.	**SABA *and/or* SAMA** Theophylline
D	ICS + LABA ***and/or*** LAMA	**ICS + LABA and LAMA *or* ICS+LABA and PDE4-inh. *or* LAMA and LABA *or* LAMA and PDE4-inh.**	**Carbocysteine *SABA and/or* SAMA** Theophylline

HOW MUCH IS TOO MUCH?

- **43%** of mature* drinkers consume alcohol two or more times a week[1]
- During any single drinking occasion **51%** of female and **30%** of male mature* drinkers consumed at a high risk level[1]

Why not discuss drinking habits with your patients today?

<u>Daily</u> risk levels of drinking[2]	Women	Men
Very High Risk	Over 6 standard drinks +	Over 10 standard drinks +
High Risk	4-6 standard drinks	6-10 standard drinks

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ASK ABOUT ALCOHOL · TO GET THE FULL PATIENT PICTURE ·

*Aged 30+. 10g alcohol = 1 standard drink. Irish standard drink approximations are one ½ pint of beer; one small glass of wine (12.5% volume); or one pub measure of spirits (35.5 ml). One bottle of wine contains 8 standard drinks.[3]

References:
1. Empathy Research 2013. **2.** Adapted from acute problems EMA/CHMP/EWP/20097/2008. **3.** Accessed August 2013 www.hse.ie/eng/health/az/A/Alcohol-misuse

SEL1/8/13

Table 8: Bronchodilator and anti-muscarinic (cholinergic) inhaler options

DRUG NAME	FORMULATION	DOSE FREQUENCY	SIDE EFFECTS	AVAILABILITY AS COMBINATION THERAPY
Salbutamol (SABA) Ventolin Gerivent Novolizer Salbutamol Salamol Salbul	Inhaler, syrup, nebule, intravenous infusion/ injection	Up to 4 times per day	Tachycardia, skeletal muscle tremor, headache and irritability. At very high doses, hyperglycaemia, hypokalemia. **Systemic administration with syrup or intravenous** increases the risk of side effects.	Yes – with Ipratropium bromide (Combivent) (available only as UDU's)
Terbutaline (SABA) Bricanyl	Inhaler, injection	Up to 4 times per day		No
Salmeterol (LABA) Serevent	Inhaler	Twice daily		Yes – with Fluticasone (Seretide)
Formoterol (LABA) Oxis	Inhaler	Twice daily		Yes – with Fluticasone (Flutiform) and with Budesonide (Symbicort)
Indacterol (LABA) Onbrez	Inhaler	Once daily		Yes – combined with Glycopyrronium (Ultibro)
Ipratropium bromide Atrovent	Inhaler, nebule	Up to four times per day	Mouth dryness, bad taste in mouth	Yes – with Salbutamol (Combivent) (available only as UDU's)
Tiotropium bromide Spiriva Olodacterol Striverdi	Inhaler	Once daily		No
Glycopyrronium Seebri	Inhaler	Once daily		Yes – combined with Indacterol (Ultibro)
Aclidinium bromide (EkliraGenuair)	Inhaler	Twice daily	Headache, cough, sinusitis, nasopharyngitis,	No

Table 9: Combined therapeutic options

DRUG NAME	FORMULATION	DOSE FREQUENCY
Fluticasone and Salmeterol (Seretide) Budesonide and Formoterol (Symbicort) Budesonide and Formoterol (Bufomix) Fluticasone and Formoterol (Flutiform)	Inhaler	Twice daily
Vilanterol and Fluticasone fuorate (Relvar)	Inhaler	Once daily

Table 10: Xanthine preparations

DRUG NAME	METHOD OF ADMINISTRATION	DOSE FREQUENCY	SIDE EFFECTS
Theophylline Uniphyllin	Oral	Twice daily	GI upset, arrythmias, tremors, transient increased urination
Aminophylline Phyllocontin	Oral	Twice daily	Nausea, gastric irritation, CNS stimulation, headache

muscarinic agents (LAMAs), short-acting bronchodilator (SABAs) and sort-acting muscarinic agents (SAMAs). Other bronchodilator treatments include theophyllines which require regular patient monitoring as these agents interact with other commonly used drugs. **Tables 7, 8 and 9** illustrate the inhaled treatment options for patients with COPD.

The use of inhaled corticosteroids in patients with COPD has been debated at length in recent years and should be reserved for patients who experience more than 2 exacerbations per year as combined therapy is associated with an increased risk of pneumonia (GOLD, 2014)

Phosphodiesterases 4 (PDE4s) are the 'new kids on the block' in COPD and are yet to become available in Ireland. Cilomilast and Roflumilast are currently in development. PDE4 is expressed in airway smooth muscle and, in vitro, PDE4 inhibitors relax lung smooth muscle. They also address the inflammatory process associated

with COPD which is quite different to the inflammatory process in asthma. Selective PDE4 inhibitors are being developed for treating COPD (Brown, 2007) and will become available in Ireland in the near future.

All patients with COPD should be encouraged to have the seasonal Influenza vaccine. Pneumococcal polysaccharide vaccine is also recommended for COPD patients 65 years and older and for COPD patients younger than age 65 with an FEV_1 < 40% predicted.

The use of *antibiotics*, other than for treating infectious exacerbations of COPD and other bacterial infections, is currently not indicated (GOLD, 2013). Patients with viscous sputum may benefit from mucolytics but the overall benefits are very small. Antitussives are not recommended (GOLD, 2014).

Other therapeutic options for COPD include long term oxygen therapy (LTOT). The long-term administration of oxygen (> 15 hours per day) to patients with chronic respiratory failure has been shown to increase survival in patients with severe and resting hypoxemia. Patients require assessment for LTOT and should be referred to a respiratory physician for assessment and suitability for LTOT. The combination of noninvasive ventilation (NIV) with long-term oxygen therapy may be of some use in a selected subset of patients, particularly in those with pronounced daytime hypercapnia (GOLD, 2014).

Management of acute exacerbations of COPD

An exacerbation is *"an acute event characterized by a worsening of the patient's respiratory symptoms that is beyond normal day-to-day variations and leads to a change in medication."* The most common causes of COPD exacerbations are viral upper respiratory tract infections and infection of the tracheobronchial tree. Diagnosis relies on the clinical presentation of the patient complaining of an acute change of symptoms that is beyond normal day-to-day variation. The aim of treatment is to minimize the impact of the current exacerbation and to prevent the development of subsequent exacerbations (GOLD, 2013). For every exacerbation the patient has, he/she will have a further decline in their FEV_1.

The treatment of exacerbations involves maximizing short-acting bronchodilator therapy with or without short-acting anti-cholinergic therapy. Systemic corticosteroids and antibiotics can shorten recovery time and improve lung function and hypoxemia.

The consequences of acute exacerbations are illustrated in **Figure 1**.

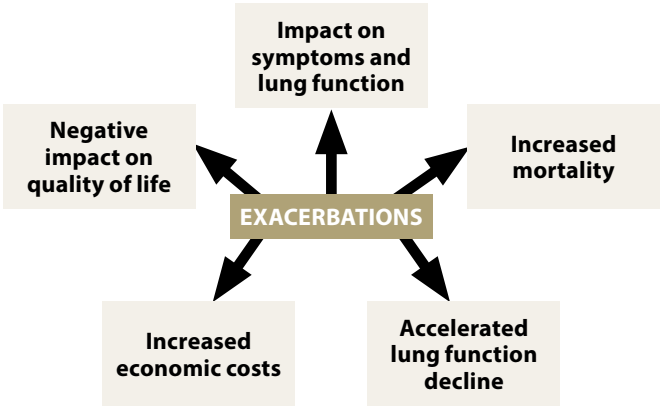

Figure 1: Consequences of acute exacerbations

Managing co-morbidities

Many patients with COPD will have other co-morbidities. The presence of co-morbities should not alter COPD treatment and co-morbities should be managed as if the patient does not have COPD. Co-morbidities include ischaemic heart disease, atrial

COPD is characterised by airflow limitation, air trapping and decreased exercise tolerance.

fibrillation, heart failure, hypertension, osteoporosis, anxiety, depression, lung cancer, metabolic syndrome and diabetes mellitus. Many patients will have more than one co-morbidity and consideration should be given to length of appointment when reviewing these patients.

Conclusion

COPD is a complex multiple system condition whereby patients can experience severe limitations to their quality of life. Patients require a skilled practice nurse to assist them in optimising their full potential. Education, empowerment and self-management are key to the success of preventing exacerbations and avoiding hospital admission. Practice nurses are well placed to provide these supports to patients by ensuring optimal inhaler technique, educating the patient in recognition of acute exacerbations and management of these and assisting with smoking cessation. With the development in recent times of a number of new therapies, people with COPD now have much more therapeutic options available to them and health professionals have much more to offer.

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