THE NZ JOURNAL OF RESPIRATORY HEALTH

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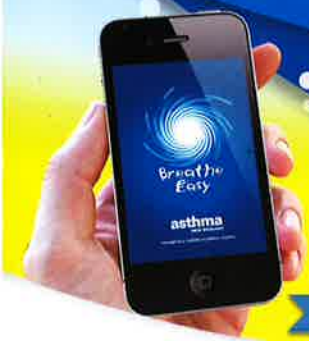

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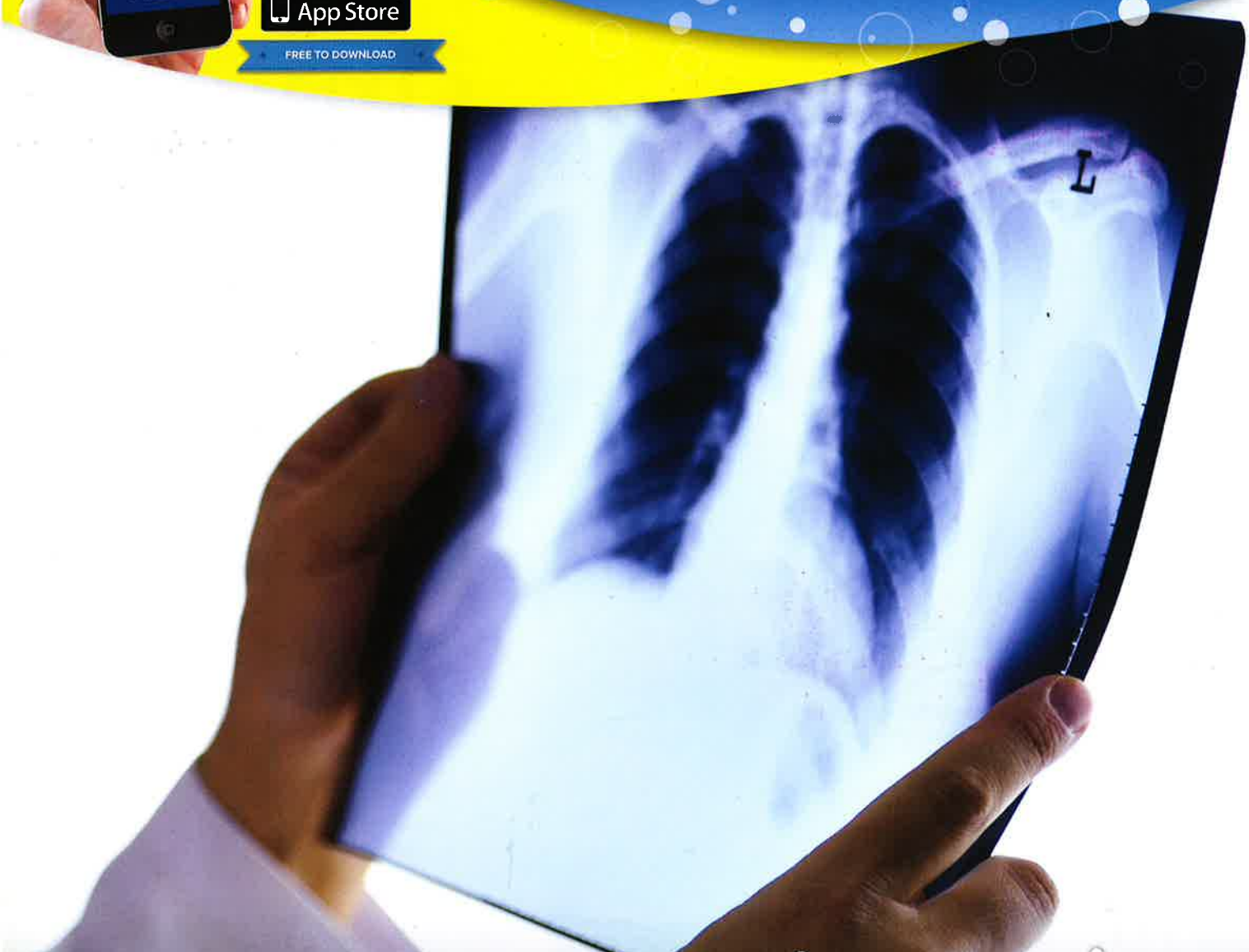

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ON THE COVER
Are your lungs healthy lungs?

DISTANCE LEARNING ASTHMA/COPD NURSING COURSE INFORMATION

Applications are now invited from registered nurses wanting to enrol in the Asthma New Zealand/Unitec Asthma Nursing Course for February 2017, and COPD Nursing Course for April 2017. The programmes are offered by distance learning. The primary aim of the Asthma and COPD Nursing Courses are to provide nursing health professionals with a high level of evidence-based asthma and COPD knowledge that promotes best practice and is consistent with national policy.

The main advantage of distance learning is that it allows you to fit your learning around your work and home life. You can usually also set your own pace of study. It is your decision as to when and where you study. It doesn't matter where you live – you can gain this knowledge from anywhere in New Zealand. Since the commencement of the Asthma and COPD Nursing Courses, 1,063 nurses have enrolled over 49 intakes. Many applicants had not undertaken any additional study since completing their nursing training, which may have been years before. Most find the courses to be a challenging but thoroughly enjoyable learning experience that is within the grasp of any competent nurse.

Asthma New Zealand in association with Unitec New Zealand offers these courses within the Bachelor of Nursing Programme. Both courses are level 7 and attract 15 credits. A grant towards the cost is available for registered nurses from Asthma New Zealand - the Lung Association.

For information contact: Ann/Swarna
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Upcoming events and courses

ASTHMA NEAT COURSE – AUCKLAND

21 September 2016
15 March 2017
20 June 2017

HALF DAY COPD COURSE – AUCKLAND

19 October 2016
16 May 2017
26 July 2017

World COPD Day 2016

Wednesday 16 November 2016

WORLD ASTHMA DAY

Tuesday 2 May 2017

Further enquiries for any of these events phone **09 630 2293** or **www.asthma.org.nz**

MESSAGE TO READERS

Winter has arrived... bringing with it an increase in flare ups not only in asthma but also in chronic obstructive pulmonary disease (COPD): the two most common chronic respiratory diseases. Although they have different characteristics, some individuals share features of both diseases, which is known as the asthma-COPD overlap syndrome (ACOS). COPD is the fourth leading cause of death, in adults after cancer, heart disease and stroke but it is on the rise and we need to keep the government on its toes to ensure funding is available and targeted to help reverse this incline. COPD is a term for permanent damage to the lungs that is not reversible, which makes breathing difficult. The main cause of COPD is long term exposure to substances that irritate and damage the lungs including smoking however, we are seeing a rise in non-smoking related diagnoses which could be from uncontrolled asthma in childhood. Adherence to medications is still one of the biggest challenges facing asthma control worldwide; it is important to have an action management plan in place and know your triggers, know the signs when you are getting unwell and take action.

Research is paramount and who knows, we could soon see big changes coming. A rogue gene has been identified in asthma research carried out by the University of Southampton who discovered that the gene ADAM33 plays a crucial role in causing the inflammation of airways that triggers an attack. It goes on to say that by identifying the rogue gene and switching it off, asthma could be prevented.

Other research says low gut microbial diversity in the intestines of infants can increase the risk for asthma development. A high diversity of gut microbial during the first months of life seems to be important for the maturation of the immune system according to Thomas Abrahamsson, paediatrician and researcher at Linkoping University. The hypothesis is that in order to function effectively, the immune system needs to be "trained" by large numbers of different microorganisms. In the absence of sufficient stimulation from large numbers of different bacteria, the system may overreact to innocuous antigens it encounters.

In short, we may in fact be too clean, children need to get outside and play, get out there and get dirty.

We need to be vigilant and relentless in our approach to do what we can to improve the health outcome for those affected by respiratory disease. Prevention is key, but is it enough to give help for smokers to quit? I don't think so. More needs to be done to educate people not to start in the first place and we absolutely need to address medication adherence issues in this country and then we might actually start to see a difference. Education can and does help but we need more funding available to the community in order to continue to have more specialist nurses in the community driving this home.

We need good health to have a good life!

Linda Thompson
Executive Director
Asthma New Zealand

ASTHMA AND SLEEP PROBLEMS

By Vicki Lyford RN, Asthma Nurse Educator

Sleep is an essential part of our health and wellbeing. It helps us in many ways by protecting our physical and mental health, giving us quality of life and ensuring we are safe to proceed with our daily activities.[1]

While we sleep our body is recharging and restoring itself. During sleep, we consolidate memory from short term to long term, processing what we have learned during the day and storing it for future use. This enables us to perform better by being able to recall information stored.[2] It works to ensure healthy brain function by forming new pathways to help us learn information and process what we have learned the day before and strengthen our memory. It is also during this time that we are able to synthesise hormones, repair tissue and we grow muscle.[2]

How much sleep do we need?

Age	Recommended Amount of Sleep
Newborns	16–18 hours a day
Preschool-aged children	11–12 hours a day
School-aged children	At least 9–11 hours a day
Teens	8–10 hours a day
Adults (including the elderly)	7–9 hours a day

On average adults require 7-9 hours of sleep per night whereas children need considerably more. One year-olds need approximately 11-14 hours, school-aged children need 9-11 and teenagers need 8-10.[2]

Younger people need more sleep because the brain is extremely active, learning social skills, motor skills, language skills and developmental growth. To process this new information good sleep is required therefore we need to be consistent with our sleep routine, going to bed at the same time each night and not having too much stimulation before bedtime.[2]

Nocturnal asthma/Night-time asthma

People with asthma can often suffer from 'nocturnal asthma' – coughing, wheezing and breathlessness, which interrupts our sleep pattern and often get worse as we sleep.[3,4]

Our breathing function peaks between midday and 4 pm, and it is usually between 3 and 4 o'clock in the morning, that our lung function is diminished.[3]

So why are these symptoms worse at night? Evidence shows that our airways function best before we drop off to sleep and as our sleep deepens our airway resistance increases leading to greater lung impairment.[3,4]

This resistance happens to all people whether asleep or not, however, people with asthma often find that their initial symptoms are nocturnal ones during sleep. It often starts in childhood and can lead to poor mental function and performance at school.[4]

Other symptoms from nocturnal asthma are:

- General daytime sleepiness and falling asleep in class/at work
- Waking from sleep gasping for breath or choking
- Being unrefreshed from sleep and feeling fatigued
- Snoring
- Insomnia
- Grinding of the teeth – especially in children.[5]

Asthma is responsible for 550,000 days lost from school by children in New Zealand each year, due partly to disturbed sleep and other factors.[6]

Nocturnal asthma can make your day time asthma symptoms worse during the day, increasing your dependence on your reliever medications. It can decrease your quality of life.[4]

It is believed that our natural body's circadian rhythm (natural clock) causes production of certain hormones to ebb and flow.[7] It is during the early hours of the morning that the hormones used to protect us against asthma symptoms are at their lowest.[4] When you wake up wheezing or coughing it is because these hormone levels have fallen. Our respiratory drive also diminishes as the night goes on, therefore, our body must work a bit harder to compensate for the diminished airflow.[4] Our body's internal natural steroid production decreases during the night. It is thought that this lessening of anti-inflammatory agents leads to our airways becoming inflamed causing our symptoms to worsen during this time.[4]

Other causes for nocturnal asthma may be a post-nasal drip or sinus infection. When you lie flat these nasal secretions pool in your airways making it more difficult for you to breathe freely. Allergies are another cause for waking at night with asthma like symptoms. Sleeping in the same room as your cat/dog may exacerbate your symptoms. Dust mites in your mattress and bedding can also trigger these symptoms so use mattress and pillow covers.

Being aware of your triggers can pre-empt these symptoms from occurring.[3] Not all asthmatics have these issues, however!

It is important to see your medical practitioner to confirm nocturnal asthma as there may be another cause for waking up coughing and wheezing – heartburn, heart failure, abnormalities of the vocal cords, gastric reflux and undiagnosed/untreated sleep apnoea.[3]

What can I do to make myself sleep better??

1. Take medications as prescribed, to keep your asthma under control!
2. Know your triggers and take measures to avoid them – no animals in the bedroom, mattress covers and allergy free pillows
3. Exercise daily
4. Maintain a healthy diet
5. Avoid a large 'heavy' meal just before bedtime
6. Limit snoozing/naps during the day
7. Maintain a good bed time regime
8. Discourage the use of electronic devices at least 1 hour before bed
9. Remove mobile phones from the bedroom –emits stimulating blue light!
10. Encourage relaxation time before bed – take a bath, read a book.[8]

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Nithra Campaign's to Sleep Better

DEAR NURSE

Dear Nurse, why does Ventolin cost more than Respigen?

Dear Reader, Pharmac decided that Respigen and Salamol were as effective as Ventolin. Respigen and Salamol are generic brands (which mean that they are copies of the original) and copies are usually cheaper to make than the original. Ventolin carries a part surcharge which means that you will need to pay the part charge plus the government prescription charge plus a pharmacy mark-up. Ask your pharmacist what the price is. They all contain the same medication which is salbutamol, however, Ventolin does not contain any alcohol, unlike the others which contain a small amount.

Dear Nurse, I have seen a new inhaler advertised on TV. What is it for?

Dear Reader, it is a new inhaled corticosteroid (ICS) and long acting symptom controller (LABA) combination inhaler that is used once a day. This is the first time in New Zealand that we have had a 24 hour ICS/LABA combination inhaler. It is called Breo Ellipta. It can be used for asthma as long as you are over 12 years of age and also for patients diagnosed with chronic obstructive pulmonary disease (COPD).
It is a very simple device to use. It also has a counter on it so you can clearly see how many doses you have left. (See pages 16 &17 in the "O2 – The New Zealand Journal of Respiratory Health" April 2016 for more information).

Dear Nurse, I have recently been diagnosed with COPD and I am worried about how I am going to cope. What can I do?

Dear Reader, COPD stands for chronic obstructive pulmonary disease.
– Chronic means long term
– Obstructive refers to the narrowing of the breathing passages (airways)
– Pulmonary refers to the lungs
Symptoms such as difficulty breathing, especially on exercise, breathlessness, cough, phlegm and wheeze usually start around 40-50 years of age. A spirometry test is the diagnostic test for COPD. Your doctor will prescribe you an inhaler / inhalers to use. Your GP, Practice Nurse, Pharmacist or Asthma Nurse Educator can instruct you on how to use the inhaler device correctly (there are many different types).

If you are a current smoker you must stop to avoid any further damage to your airways.
From time to time if you are unwell you may need steroid tablets or antibiotics. An annual flu vaccination is recommended. It is also important to be referred to your local hospital physiotherapy department for pulmonary rehabilitation. The programme aims to help you understand your condition, how to manage your breathlessness, and help to improve your fitness, strength and tolerance to exercise. You will learn how to recognise worsening symptoms.
Ask your GP for a COPD management plan so you have a written plan to follow when you are not well. COPD support groups can provide you with support, education and socialisation. Contact your local Asthma Society for education and support.

Dear Nurse, what happens if you have asthma and smoke?

Dear Reader, Tobacco smoke damages the little hair-like structures, called cilia, which move dust, pollens and other irritants from your lungs. This means that the normal cleaning action of your lungs is damaged and you are more prone to chest infections, which in turn brings on or worsens your asthma.

- Smoking makes your asthma worse
- Smoking may increase your chances of having an asthma episode
- Smoking reduces the effectiveness of steroid medication
- Smoking makes your day-to-day asthma control harder to achieve
- Smoking increases your chances of permanently damaging your airways

IF YOU HAVE A QUESTION PLEASE EMAIL OR POST TO:
editor@asthma.org.nz or Dear Nurse, Asthma New Zealand, PO Box 67066, Mt Eden, Auckland 1349.

SULPHITES AND ASTHMA – WHAT IS THE CONNECTION?

By Ann Wheat BN RN, Asthma Nurse Educator

Sulphites are chemicals that are used as preservatives that are used in foods and medications. They are found as sodium sulphite, sodium bisulphite, sodium metabisulphite, potassium bisulphite and potassium metabisulphite.[1] Sulphites can be used to prevent browning and discolorations in foods and beverages during preparation, storage and distribution.[2] Sulphites can occur naturally in foods such as fermented beverages and wines.[1]

What is sulphite allergy?

In most people who eat or drink products containing sulphites, it is rare for them to have an allergic reaction.[3] In people though who have asthma and allergic rhinitis, sulphites can trigger an allergy-type reaction in approximately 5 – 13% of them.[1,3] The most common symptoms are wheezing, coughing and tight chest.[3] In asthma, this will be accompanied with a drop in lung function and rash or hives.[1] It is not completely understood why people have a reaction to sulphites, but it may be due to people developing antibodies to sulphites, or by gases generated by sulphites causing muscle spasm in the lungs, or it could be because some people cannot metabolize sulphites appropriately.[1] In some people, sulphite reactions occur when a person's asthma is not well controlled.[4]

How is sulphite allergy diagnosed?

Sulphite allergy may be suspected if there is a history of adverse reactions after consuming sulphite-containing foods or medications.[1] Sulphite allergy is diagnosed by challenging a person with increasing amounts of metabisulphites orally.[1] At each step, the person is monitored using lung function test and vital signs. If there is a significant drop in lung function then this will confirm the diagnosis.[1] A sulphite challenge test is usually only performed by a specialist who is trained in this procedure.

What foods and beverages contain sulphites?

Many foods contain sulphites at various levels and depending on the level the reactions can differ. For foods containing levels of sulphites above 100 ppm, strict avoidance is essential in those with a sulphite allergy. Foods that contain this level are:

- Dried fruits (excluding dark raisins and prunes
- Bottled lemon and lime juice (non-frozen)
- Wine
- Molasses
- Sauerkraut and its juice
- Grape juices (white, pink and red sparkling)
- Pickled cocktail onions.[1]

For foods containing moderate to high levels of sulphites between 50 – 99.9 ppm avoidance is advised in people with a sulphite allergy. Foods in this category are:

- Dried potatoes
- Wine vinegar
- Gravies/sauces
- Fruit toppings
- Maraschino cherries.[1]

Foods containing low to moderate levels of sulphites, between 10 and 49.9 ppm, may cause symptoms in people with severe sulphite allergy. Foods in this category are:

- Pectin
- Fresh shrimp
- Corn syrup, corn starch, corn bread/muffin mix
- Pickled peppers, pickles/relish
- Frozen potatoes
- Maple syrup plus imported jams and jellies
- Fresh mushrooms
- Imported sausage and meats
- Cordials (alcoholic)
- Dehydrated vegetables
- Various cheeses
- Canned/jarred clams, clam chowder
- Avocado dip/guacamole
- Ciders and cider vinegars
- Imported fruit juices and soft drinks.[1]

Foods containing less than 10 ppm of sulphites have a very low risk and generally do not cause a risk even for people with sulphite allergy. The foods are:

- Malt vinegar
- Canned potatoes
- Beer
- Dry soup mix
- Soft drinks
- Frozen pizza and pie dough
- Beet sugar
- Gelatine
- Coconut
- Fresh fruit salad
- Domestic jams/jellies
- Crackers
- Grapes
- High fructose corn syrup.[1]

Some medications also contain sulphites for their antioxidant properties as well as prevention of browning of medications. Some inhalers contain sulphites and people with a sulphite allergy should avoid these. In New Zealand, these are Respigen, Salamol and Salair (Salair only has a very small amount).

Sulphites can also be found in cosmetics such as hair colours or bleaches, skin lighteners, fake tanning lotions, body lotions, shampoos, shower washes and moisturisers to name some of them.[1]

How is sulphite allergy managed?

The best way is to avoid all products, foods or drinks that contain sulphites but this will depend on the level of allergy. Symptoms are treated according to the symptoms with antihistamines, steroids or inhaled asthma medications as needed.[3]

So, if you suspect you may have a sulphite allergy, see your doctor for a correct diagnosis and treatment.

(N.B. Sulfite is the US spelling of sulphite). *References page 11.*

SPRINGTIME AND ALLERGIES

By Sandy McBrearty, Asthma Nurse Educator

Although the warm weather may seem far away, spring will be upon us before we know it. Ideally, those of us with seasonal health issues such as hayfever will be well prepared before the spring arrives. When most people talk about hayfever, it usually means seasonal allergic rhinitis and is triggered by wind-borne pollen from trees, grass and weeds. Plants that are pollinated by birds and insects are less of a problem. Early spring symptoms are usually caused by tree pollen while symptoms in late spring are likely caused by grass and weed pollen. In New Zealand the seasons are not distinct and they vary from region to region; in the north of the North Island, spring starts about a month earlier than in the south of the South Island.[1]

When symptoms are experienced all year round it is called perennial allergic rhinitis and is usually caused by allergens such as house dust mites, dander shed by pets, or mould spores carried in the air.[2]

Around 80% of people with asthma suffer from allergic rhinitis, and around one in four with allergic rhinitis has asthma.[1] Hayfever can make asthma worse, and vice versa, so it is important to treat both conditions adequately to maintain good health. Corticosteroids in asthma preventer inhalers and nasal sprays, antihistamines and anti-leukotriene medications may relieve both nasal and bronchial symptoms. It is important to identify the allergens and triggers, and a skin prick test can be done to confirm allergens.

Tips to help manage your asthma at this time of year

- Review your asthma and allergy medications with your doctor: make sure you are taking your preventer inhaler as prescribed and you have reliever inhalers and antihistamines available
- Close windows on windy days or when humidity is high and at night
- Close windows in cars and use the air conditioner on the recycle option
- Avoid the outdoors when pollen levels are high usually between 5am and 10am
- Wear wrap-around sun glasses when outdoors
- Have a shower after spending time outside as pollen can collect on skin and hair
- Dry your sheets and clothes indoors
- Choose pretty, brightly coloured flowering plants as they attract bees and other insects
- Avoid freshly mown grass and arrange to have lawns mown often to avoid flowering
- Holidays near the beach at the height of the pollen season may cause less symptoms
- Wear a mask or scarf covering the mouth and nose when outside if possible especially if gardening
- Pollen calendars are available to help identify the pollen seasons of different trees, weeds and grasses
- Check the pollen count if this service is available

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SELF-MANAGEMENT EDUCATION IN ASTHMA

By Elaine Murray, Asthma Nurse Educator

Asthma is a common and potentially serious chronic condition.[1]

What is asthma?

"Asthma is a heterogeneous disease, usually characterised by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation."[1]

Factors that may trigger or worsen asthma symptoms include exercise, cold air, temperature changes, smoke, chemicals and fumes or allergens such as house dust mite, pollens, furry animals, and cockroaches. There are also some medications that may trigger asthma such as non-steroidal anti-inflammatory drugs (NSAIDs), aspirin and beta-blockers.

An asthma attack (exacerbation) or flare up may occur, even in people taking asthma medication. When asthma is uncontrolled these episodes are more frequent and more severe. They can be life threatening or even fatal.[1]

Asthma places a heavy burden on New Zealand communities. One in seven New Zealand children and one in nine people in New Zealand aged 15 years of age and over are prescribed some form of asthma medicine. From July 2012 to June 2013, more than 4,200 people under the age of 20 years were admitted to hospital for asthma. On average, more than one person in New Zealand dies each week due to asthma.[2]

Maori and Pacific peoples are more severely affected by asthma. Asthma mortality rates are over three times higher in the most deprived areas of New Zealand compared to the least deprived. The level of care Maori and Pacific peoples with asthma in New Zealand receive does not match their burden of disease.[2] Despite having a higher prevalence and severity of asthma, Maori and Pacific children are less likely to be on inhaled corticosteroids to control their asthma and more likely to present to hospital with acute asthma exacerbations requiring oral steroids.

Fortunately, asthma can be effectively treated.

Most people can achieve good asthma control. **BUT**, people living with asthma have to learn to manage their long term condition.

The British Thoracic Society/Scottish Intercollegiate Guideline Network (BTS/SIGN) asthma guideline recommends that "all people with asthma (and/or their parents or carers) should be offered self-management education which should include a written personalised asthma action plan and be supported by regular professional review", and The Global Initiative for Asthma (GINA) guidelines are similarly unequivocal about the importance of "providing people with education and skills in order to effectively manage their asthma".[3] Asthma self-management not only improves asthma control, reduces asthma exacerbations, emergency treatments or hospital admissions but improves quality of life.[2]

What is self-management?

"Self-management" refers to any way in which a person with any long term condition (or chronic condition), such as asthma, manages their condition by themselves. Learning and practising self-management is an on-going process; it is not achieved in a single step, and it must include a partnership with family, whanau, carers and health professionals.[3]

There are four essential components in self-management:

- Health literacy
- Cultural relevance
- Behaviour change
- The role of the health professional in supporting self-management.[4]

Therefore, it is the responsibility of all health professionals to ensure that health information is delivered to patients and families in a form that can be clearly understood whether it is spoken, written, visual pictures or models (such as an asthmatic airway as opposed to a normal airway), digital images such as on a DVD or an App on a mobile phone. This should also include the person's prescription that can be found on the box or the bottle of medication.

There are many opportunities to educate patients about asthma management, from when they are first prescribed an inhaler by the GP, by the practice nurse before they leave the clinic, then when they pick up the prescription at the pharmacy. Public health nurses, Plunket nurses and school nurses can also assess asthma control when visiting patients in the community. If a patient presents for emergency treatment at the GP, Accident & Urgent Medical Services or at a hospital, this is a very good opportunity to offer further education and support, review inhaler technique and compliance, and also provide an up-to-date management plan.

Self-management education should be reinforced by a written individualised asthma action plan which provides a summary of the regular medications to take every day to keep well, how to recognise symptoms of worsening asthma, and what to do and when to seek medical help. For adults and children 6 years and older, this should also include their personal best peak flow when well and what their peak flow is in mild, moderate and severe worsening asthma symptoms. Management plans should be discussed, negotiated and agreed with patients and reviewed to ensure they are kept up to date.[3]

If patient education is not prioritised, general practitioners often only see patients with asthma when they are experiencing troublesome symptoms. If possible, time should be given to ask the patient to talk about how their asthma usually is, do an assessment about how well their asthma is controlled by asking them to complete the Asthma Control Test (ACT), check how often they are using their preventer and how often they are using their reliever. Adherence to preventer medication is often very poor. There are many reasons why patients do not adhere to preventer medication, but frequently there is a misunderstanding about how to use it correctly, why they need to use it and when to use it. It is also important to check inhaler technique.

Many general practitioners in New Zealand rely on either practice nurses or pharmacists to demonstrate the use of inhalers and spacers, although nurses and pharmacists may assume that this is being done by general practitioners.[2] We often visit families to provide an education session and find that patients have not received education about asthma from their GP, practice nurse or pharmacist. Three missed opportunities!

Asthma Auckland nurse educators work to provide education, training and support to individuals with asthma and their families, other health professionals such as practice nurses, school nurses, GPs, physiotherapists, student nurses and public health nurses. Self-management education in asthma is not an optional extra. Healthcare professionals have a responsibility to ensure that everyone with asthma has personalised advice to enable them to optimise how they self-manage their condition.

Supported asthma self-management improves asthma control, reduces exacerbations and admissions, and improves quality of life.[3]

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asthma NEW ZEALAND THE LUNG ASSOCIATION

Unitec

Congratulations Asthma New Zealand – The Lung Association, in conjunction with Unitec is proud to announce further successful students from the distance learning Asthma Nursing Course in 2016 1st Semester.

1. Tanya Boyer – Auckland
2. Nadine Goldsmith – Waerenga
3. Divya Gopalakrishnan Nair – Christchurch
4. Marie Hardwick – Auckland
5. Wayne Hargreaves – Auckland
6. Alexandra Platts – Taihape
7. Fiona Stratford – Oamaru
8. Jenny Warnock – Nelson

PARACETAMOL USE LINKED TO HIGHER RATES OF ASTHMA

By Karen Little RN, Asthma Nurse Educator

Paracetamol was first discovered in 1877, and is one of the most commonly used medications for pain and fever. Paracetamol is classified as a mild analgesic. It does not have significant anti-inflammatory activity and how it works is not entirely clear.[1] The New Zealand Ministry of Health recommends giving your child paracetamol or ibuprofen if they're distressed or unwell with a fever, however, not to use these medicines just to reduce a fever if your child is otherwise well.[2]

Pregnant women are advised not to take medicine if possible, but paracetamol is often recommended as the best option if painkillers are needed, or to reduce a fever, because there is little evidence that it will cause harm to the baby. Paracetamol is also often recommended if pain relief or temperature reduction is needed for babies.

There has been an association between paracetamol use and asthma since 1998, when an ecological study demonstrated that increasing use of paracetamol was associated with increasing prevalence of asthma.[3] Commencement of asthma by the use of paracetamol is biologically plausible, as paracetamol has been found to deplete glutathione, a key airway antioxidant.[4] An antioxidant is a molecule that inhibits the oxidation of other molecules. Oxidation is a chemical reaction that can produce free radicals, leading to chain reactions that may damage cells. Paracetamol use was positively associated with asthma and rhinitis, but aspirin use was not.[3] While this association has been studied at length, it was not until 2014 that a systematic review and meta-analysis looked at whether this association was confounded by respiratory tract infections, as fever and pain caused by respiratory tract infections leads to increased paracetamol use.[5] This study found that the association between early life paracetamol and asthma is often overstated, and that there was insufficient evidence to support changing guidelines in the use of paracetamol.

A more recent study, in 2016, found that prenatal and infant paracetamol exposures were independently associated with asthma development after adjusting for common indications. They also adjusted figures to take account of the mother's age, whether she had asthma, whether she smoked during pregnancy, antibiotic use, weight, education level and number of children.[6] There were independent modest associations between asthma at 3 years with prenatal paracetamol exposure, and use of paracetamol during infancy. The results were consistent for asthma at 7 years. The researchers found that paracetamol was linked to childhood asthma, both in cases when it had been taken by the pregnant woman and by the young baby (less than six months old). The study estimated that infant exposure to paracetamol increased the asthma risk by 29% at the age of three, and exposure in pregnancy led to a 13% increase; though this estimate was borderline significant. They found no link between the father's use of paracetamol or mother's use outside of pregnancy, and asthma in the child. They also found that the reason for taking the medication did not affect the chances of asthma. This suggests the increased chance of asthma may be due to paracetamol, not to the illness that it was used to treat. This was a cohort study, however, and cohort studies cannot prove that one thing causes another. They can only show there is a link, and investigate factors that may, or may not, have affected the results. The researchers say that advice on paracetamol use for pregnant women and babies does not need to change as a result of their study.

Most medical websites recommend that you do not give babies under 3 months old, or less than 5 kilograms, any medicine without consulting your doctor. Some websites will give a calculated dose on line for paracetamol; the mother just enters the weight, strength of paracetamol, and age of the baby. Paracetamol is recommended for babies over 3 months old.[7] Paracetamol can also be found in many combination medicines you can buy direct from a pharmacy, so it is important not to double up by taking two paracetamol-containing medications. It is not recommended to routinely give paracetamol after regular vaccinations. Wait at least four hours between doses, and it must not be given more than four times in 24 hours. Paracetamol suspension is available in two strengths -120mg/5ml and 250mg/5ml, so always check the dose before giving it to children. Too much paracetamol may damage your child's liver. If you think you have given an overdose, call the Poisons Centre 0800 764 766 immediately. Do not wait for signs of an overdose as these appear late, when the damage to the liver is already done. Over the counter cough and cold preparations are not recommended for children under 6 years of age, and only those labelled as safe for children, should be given to children 6 years of age and older. Paracetamol and ibuprofen are not classed as cough and cold medicines. The Ministry of Health recommends not to treat fever with aspirin in children under 18, as there's a risk of Reye's syndrome, which is very serious.[2]

A fever is usually a normal response of a child's immune system to a virus or bacterial infection. Most healthy children can tolerate a fever well. However, a baby under three months with a fever, even a mild one, must be taken to the doctor.

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MOULDS AND THEIR EFFECT ON RESPIRATORY HEALTH

By Alice Paul, Asthma Nurse Educator, Wellington

What are moulds and why are they so harmful?

Although moulds can be found almost anywhere, they need moisture and nutrients to grow. The exact specifications for optimal mould growth vary by the species of mould. However, mould grows best in damp, warm environments. The availability of nutrients in indoor environments rarely limits mould growth because wood, wallboard, wallpaper, upholstery, and dust can be nutrient sources. Mould and its spores exist in damp materials. Disturbing mould releases potentially hazardous particulates into the air, which can then be drawn into the sinuses and lungs.[1] Some mould spores can cause health problems such as allergic reactions similar to hay fever, breathing difficulties, eye irritation, skin rashes and occasionally, more serious symptoms.[2]

A poor indoor environment can affect our health. Because we spend much of our time indoors in offices and workplaces and at home, our indoor environment is very important and has a direct effect on our health.

Some of the common indoor moulds:

- Cladosporium
- Penicillium
- Alternaria
- Aspergillus

In 2004, the Institute of Medicine (IOM)* found there was sufficient evidence to link indoor exposure to mould with upper respiratory tract symptoms, cough, and wheeze in otherwise healthy people; with asthma symptoms in people with asthma; and with hypersensitivity pneumonitis in individuals susceptible to that immune-mediated condition. The IOM also found limited or suggestive evidence linking indoor mould exposure and respiratory illness in otherwise healthy children. Other recent studies have suggested a potential link of early mould exposure to development of asthma in some children, particularly among children who may be genetically susceptible to asthma development, and that selected interventions that improve housing conditions can reduce morbidity from asthma and respiratory allergies, but more research is needed in this regard.[3]

In 2009, the World Health Organization (WHO) issued additional guidance:

The WHO is concerned about this situation because excessive dampness and mould are a threat to health. Occupants of damp or mouldy buildings are at increased risk of experiencing health problems such as respiratory symptoms, respiratory infections, allergic rhinitis and asthma. Some people are more sensitive to mould than others, and some groups are especially vulnerable. Additional effort should be made to keep away from damp and mould babies and children, elderly people, those with existing skin problems, such as eczema, or respiratory problems, such as allergies and asthma, and anyone who is immuno-compromised (e.g. chemotherapy patients).

Furthermore, WHO has demonstrated that remedial action does work. For example, research shows that people living in well-insulated and adequately ventilated accommodation are less likely to visit their doctor or be admitted to hospital due to respiratory conditions than those living in damp homes.[4]

Indoor temperatures below 16°C increase the risk of respiratory infections and below 12°C stress the cardiovascular system. Cold temperatures also contribute to excess winter deaths (increased number of deaths occurring in the winter months compared with other times of the year). WHO recommends a minimum indoor temperature of 18°C, or 20°C for houses with young children, elderly people or ill people.[5]

In a statement to Newshub May 2015, Professor Howden-Chapman Department of Public Health said that "the investment in children is something you can't put a price on… The greatest social investment that we can make is the health of our children. We know that houses are making children, particularly children in very low-income households, very sick."[6]

In our work as asthma educators, we can identify the hazards, give good advice on how to remove mould and how to increase warmth with good curtains and draught stoppers. We also act as advocates for our clients by writing letters of support to the Housing NZ, City Councils, WINZ and Sustainable Housing. We liaise with GPs, Public Health Nurses, schools and other relevant agencies in an effort to get some improvement in the conditions our clients live in.

*(IOM: A non-profit organization established in 1970 as a component of the US National Academy of Sciences that works outside the framework of government to provide evidence-based research and recommendations for public health and science policy. Abbreviated IOM. The IOM is also an honorific membership organization).

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MESOTHELIOMA –THE LEGACY OF ASBESTOS EXPOSURE

By Adie Riddell, Asthma Nurse Educator

Malignant mesothelioma is a disease of the inside lining of the chest wall (pleura), pericardium and abdomen (peritoneum). Pleural mesothelioma is the most common kind.[1]

Mesothelioma was once considered a very rare disease but the incidence in New Zealand has increased as it has internationally. It is a very slowly evolving tumour – the latency between exposure and development of the disease is in the order of 20 to 50 or more years.[2]

According to a recent article, as recently as 2013, about 125 million people worldwide have been exposed to asbestos in their work environment.[3] Asbestos exposure is the main cause of mesothelioma (80%); other risk factors include genetics and infection with the Simian virus 40 (very rare).[4] Asbestos is a risk to health only when inhaled (breathed in) as a fine dust. The greater the exposure – the greater the risk.

There are four main types of asbestos (commonly known by their colours, as blue asbestos, brown asbestos, white asbestos, and green asbestos) The most dangerous is the blue or brown asbestos –known as 'amphiboles' –and defined by 'long thin' fibres, and the second is white asbestos known as 'chrysotile' and defined by 'feathery' fibres.[1] Amphibole asbestos is four to thirty times more carcinogenic than chrysotile asbestos.[1]

Asbestos became very popular in the early 20th century for its desirable physical properties of sound absorption, average tensile strength, resistance to fire, heat, electricity, and affordability, hence, it was used as electrical insulation for hotplate wiring and in building insulation. In the early 1920s-30s there was some concern that asbestos may be causing some health issues but it was not until the early 1990s that asbestos trade and use was heavily restricted, phased out, or banned outright in an increasing number of countries.[1]

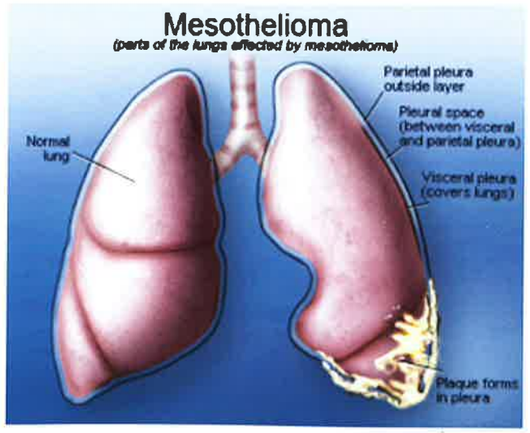
Fortunately asbestos use is a product of the past and is now no longer used in manufacturing. Exposure now mainly occurs where in a building that is undergoing repair, alteration or demolition.[2]

What happens at the cellular level?

Mesothelioma is a type of cancer that develops from the thin layer of tissue that covers many of the internal organs (known as the mesothelium). The most common area affected is the lining of the lungs and chest wall.

It's thought that when asbestos fibres are inhaled or ingested, they pierce the mesothelial lining, causing cells to react abnormally, and this can result in scarring or inflammation. This can lead to pleural plaques or diffuse pleural thickening, altering the cell's DNA to become malignant.

This is a progressive and irreversible condition that restricts breathing caused by the inhaled asbestos fibres, scarring and eventually hardening the lungs. The condition affects the lung walls and sometimes the lining of the heart. It can lead to pulmonary hypertension or heart attack, and death.



The diagnosis may be suspected based on chest X-ray and CT scan findings, and is confirmed by either examining fluid produced by the cancer or by a tissue biopsy of the cancer.[6]

Common symptoms of mesothelioma

Early signs of mesothelioma can be easily mistaken for common, everyday ailments. Symptoms such as fatigue, cough, muscle weakness, fever and night sweats are often ignored, dismissed, or misdiagnosed and initial exposure and conclusive diagnosis can range anywhere from 20 to 50 years. Lower back or side chest pain is reported by nearly 60% of patients diagnosed with pleural mesothelioma. There are also frequent instances of shortness of breath. Some people may experience difficulty swallowing, a persistent cough, fever, weight loss, or fatigue. Additional symptoms include muscle weakness, loss of sensory capability, hemoptysis or coughing up blood, facial and arm swelling, and hoarseness.[4]

The most common presenting features in patients with peritoneal malignant mesothelioma are distension due to ascites, abdominal pain and occasionally organ impairment, such as bowel obstruction.[5]

Treatment

Treating mesothelioma remains a great challenge. Currently, there are no cures but mesothelioma patients can improve their prognosis through various treatments including surgery, radiation, and chemotherapy. Depending on the stage of mesothelioma, surgery may be used to remove the cancer and some of the surrounding tissue. A thoracentesis (when fluid in the chest is removed by placing a needle into the chest cavity) may be done to make a patient more comfortable. Sometimes talc or an antibiotic may be injected into the chest cavity to try to prevent the fluid from returning. These techniques are successful in controlling the fluid, at least temporarily, in as many as 90% of patients.[3] The major goal of treatment is to reduce pain and suffering and prolong a patient's life as long as possible while providing them with the highest quality of life possible.

A recent NZ review (2015) has provided a comprehensive and up to date overview of the scientific evidence on asbestos exposure risk when renovations or repairs of buildings containing asbestos were being undertaken.[2] This was a particularly important assessment in light of the significant rebuilding after the Canterbury earthquakes. It was known that there would be asbestos-containing materials throughout many older homes and buildings and so the asbestos hazard still lingers and is an ongoing risk. It also stated that most asbestos that has been used in New Zealand homes mainly contained chrysotile asbestos which is generally considered to be of lower risk of mesothelioma. The report concluded "that remediation activities are unlikely to result in any significant increase in risk – unless proper precautions such as wetting the surfaces and using a respirator are not taken".

While the major cause of mesothelioma (asbestos) is no longer produced – its legacy is likely to be felt for many years to come. Early diagnosis, which is difficult, may lead to better health outcomes for the client. While there are no cures available, there are treatments to support the management of this disease. Asbestos poses a risk if it is not identified correctly and managed as recommended by the building industry.

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WHAT'S HAPPENING IN CANTERBURY?

By Teresa Chaleck, Nurse Manager CanBreathe

CanBreathe has settled in to our new office in Hills Road and the new location is popular with clients and the passing public. Our meeting room has some regular bookings with a newly established COPD coffee group meeting every Thursday morning and the COPD consumer group monthly meeting. The room can comfortably seat up to 50 and room bookings can be made by phoning our reception on 03 386-0278 or emailing us at office@canbreathe.org.nz

The CanBreathe team provide information stands a number of public events and health expos throughout the year. These events are a great opportunity for people to access free information and advice on asthma, COPD and other respiratory conditions and also find out more about the services available to assist them. Recently we have been busy with several events including the Christchurch Baby Expo on 11th & 12 June and the Arauni Health Day on 29th June. Upcoming events in 2016 include the Positive Ageing Expo at Papanui High on 26th September and Aranui AFFIRM on 3rd December. There are many other health and support services providing information at these events and entry is free so come along and see what's new and what is available in Canterbury.

CanBreathe is one of the main organisers for the South Island Respiratory Educator Forum (SIREF) held annually here in Christchurch. This is a very affordable education event and a great learning and networking opportunity for nurses and allied health professionals wanting to keep up to date in what is happening in respiratory health. Planning is underway for the 2017 Forum to be held at The George on 16th & 17th February. Registrations will open in November and for more information check our website – www.canbreathe.org.nz or email us at office@canbreathe.org.nz

ASTHMA NZ 2016 WORKSHOP

By Karen Little, Asthma Nurse Educator

With our CEO, Linda Thompson's support, Janet Delooze organised a two day workshop on the 18th and 19th April. We brought our nurses up from Wellington, Timaru and Rotorua. A variety of speakers updated us on subjects related to asthma and chronic obstructive pulmonary disease (COPD).

Some of the highlights included the following speakers:
Belinda Castles from GSK demonstrated the new Ellipta® device and described how the new medications Anoro® Ellipta®, Incruse® Ellipta® and Breo® Ellipta® work. It was very exciting to learn about Breo® Ellipta ® a once daily inhaled corticosteroid and long-acting beta$_2$ agonist.

Una Wainevetau, a bronchiectasis specialist nurse from Starship hospital, presented a very informative slide show on this subject. 209 children were diagnosed with bronchiectasis in 2014, and 59% of these children were Pacific Islanders. The most common cause (68) is severe pneumonia and repeated chest infections.

Carmel Vyas, a Public Health Nurse at ADHB presented an update on tuberculosis. We have about 400 new cases in New Zealand each year. It is a serious but treatable illness which if active, requires a six month treatment programme.

We were informed that Nasal High Flow (NHF) therapy may improve quality of life, exercise capacity, and rates of morbidity and mortality for people with COPD by Jonathan from Fisher & Paykel Healthcare. Read the article on this device in the April edition of this journal.

Professor Jeff Garrett provided a fascinating lecture about inhaled corticosteroids (ICS) in patients with COPD. He put forward the idea that the risks and benefits with this therapy are different for individual patients. He explained why blood eosinophil counts can be used as a biomarker to determine which patients are most likely to benefit from treatment with an ICS.

The second day of speakers opened with Glenn White explaining the benefits of Buteyko breathing. The ability to recognise functional and dysfunctional breathing can only help with our assessments, and the many benefits associated with nasal breathing were emphasised.

Stephen Scrivens from McLaren Medical provided a very informative explanation of spirometry and how to perform this important diagnostic test. At Asthma Auckland we have four spirometers that we can use in our rooms or in the community.

Trina Robertson, the senior cardiorespiratory physiotherapist, from North Shore Hospital, gave us an update on pulmonary rehabilitation and breathlessness management. The many advantages of attending this programme were emphasised.

Boehringer-Ingelheim sent their representative, Nicola Gibson-Groot, to update us on the new Respimat® inhalers. The correct inhalation technique, pharmacology, and benefits of Spiolto® Respimat® and Spiriva® Respimat® were discussed with various studies examined.

The two day workshop ended with all nurses participating in a planning session for Asthma New Zealand.

The workshop provided a very valuable opportunity for our nurses from our different societies to update on latest developments and ensure that we are all following best practice.

HEALTH EXPOS

By Karen Little, Asthma Nurse Educator

The Saturday team at the Gluten Free Food and Allergy show.

The nurses at Asthma Auckland have participated over the past few months in some large health Expos. Karen worked all day at The Toddler Day Out and Great Parenting Fair on the 14th May. Thousands of adults and children went through the event, being entertained, engaged, included and involved. Each area of the Massey Leisure Centre had a different look and feel; from the buzz of the main information hall, the loud fun of the messy play area, to the small stage that drew children right into the action. Over 30 families were given advice and education on how to better control their, and their children's asthma.

Papakura Marae.

Toddler day out.

Janet and Karen worked the morning of the 18th May at the Papakura Marae providing asthma education to over 50 people and their whanau. Tangata ako ana i te whare, te turanga ki te marae, tau ana - A person who is taught at home, will stand collected on the Marae (meeting house grounds). As well as providing asthma education to so many, it was a pleasure to network with over 20 other service providers from South Auckland.

All nurses worked at the Gluten Free Food & Allergy Show 21st and 22nd May. We had a large stall providing resources and verbal education to over a hundred families on how to better manage their asthma. Ann spoke in the seminar room on management of asthma triggers which was well received. There were about 50 stands providing a wide range of services and food. The Gluten Free Food & Allergy Shows are New Zealand's only exhibitions dedicated to bringing people ideas and solutions for a wide range of allergies and intolerances, from food to skin or respiratory issues.

ASTHMA WELLINGTON

Asthma Wellington has had a very busy year so far in 2016. With funding from the ANZ Staff Foundation, the Sailor the Pufferfish shows were back on in Wellington schools. Once again, Sailor and Chris the presenter were a huge success and did their usual wonderful job of getting the important messages across about asthma. So far, since we started getting the funding for these shows, Sailor and Chris have strutted their stuff in front of nearly two and a half thousand children.

Adie and Alice have run two very successful NEAT (Nurses Education & Asthma Training) courses. The March course was oversubscribed so another course was run in June and fantastic feedback was given for both courses, on both content and presentation (and lunch!) Well done, Adie and Alice!

March also saw us exhibiting at the Gluten Free Show thanks to the support of The John Illot Trust. Held in Porirua this year, there was as usual, a great turnout with a high number of people with asthma. As always, it was a great opportunity to talk to, and support people with asthma in their family. A long weekend but one that was very worthwhile!

Kid's Page

1 Word Jumble

Unscramble the words below. You will find activities that you can do when you follow your asthma action plan

MUPJ ....

KEYHOC ....

BLIMC ....

NUR ....

NURNGIN ....

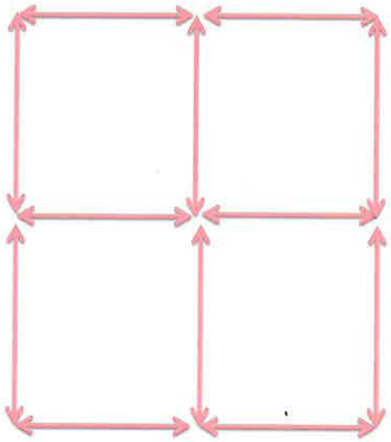
TEAKS ....

GAT ....

CERCOS ....

2 Stick Puzzle

A puzzle that involves transforming four squares into three squares.



Can you make three squares by moving three of the sticks to a different position?

3 WORD SEARCH

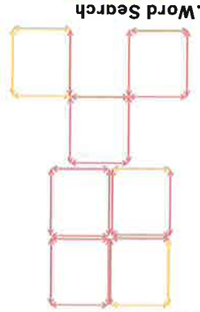
Tired	Itchy eyes	Cough
Fever	Sneeze	Sore Throat
Restless	Headache	Tight Chest
Wheeze	Short of Breath	Runny Nose

T J U M T I R E D L E G A P P L E L T B K S
S H K J B K L J H E S K J D K J S T U N R H
V F E V E R U P A A I N A T I X N Y B X A O
J S T A G O X N Y P E S O N Y N N U R R L R
T K S N E E Z E E S L K J D W I S J E L S T
A I S S U S H C P V J E E S H B E L S E X O
O T I G H T C H E S T K O O E Y Y M I S R F
R A K L L J B K N M B P O J E K E S Y B N B
H F A L F L S A B S G K R D Z T Y O R W U R
T R T N K J V C O U G H K J E K H S E A N E
E P P A C E N S I R H C Y N S P C P P T Z A
R A S E R E H T E G N A R O E K T S C E N T
O X H E A D A C H E A X K J B I I B G R L H
S L S N B Y R E S T L E S S R I A B I J K H

Answers

1. Word Jumble
Jump
Hockey
Climb
Run
Running
Skate
Tag
Soccer

2. Stick Puzzle



3. Word Search

S L S N B Y R E S T L E S S R I A B I J K H
O X H E A D A C H E A X K J B I I B G R L H
R A S E R E H T E G N A R O E K T S C E N T
E P P A C E N S I R H C Y N S P C P P T Z A
T R T N K J V C O U G H K J E K H S E A N E
H F A L F L S A B S G K R D Z T Y O R W U R
R A K L L J B K N M B P O J E K E S Y B N B
O T I G H T C H E S T K O O E Y Y M I S R F
A I S S U S H C P V J E E S H B E L S E X O
T K S N E E Z E E S L K J D W I S J E L S T
J S T A G O X N Y P E S O N Y N N U R R L R
V F E V E R U P A A I N A T I X N Y B X A O
S H K J B K L J H E S K J D K J S T U N R H
T J U M T I R E D L E G A P P L E L T B K S

WHAT IS ALPHA-1 ANTITRYPSIN DEFICIENCY?

By Ann Wheat RN BN, Asthma Nurse Educator

Chronic obstructive pulmonary disease (COPD) affects about 15% of the New Zealand population over the age of 45 years or about 200,000 people.[1] COPD is an umbrella term that covers several conditions such as emphysema, chronic bronchitis and chronic uncontrolled asthma. The main trigger for COPD is usually considered to be smoking, of any kind. But for some people this is not the case as they may never have smoked but still develop COPD. This occurs when someone develops emphysema because of Alpha-1 antitrypsin deficiency. Apart from emphysema, Alpha-1 antitrypsin deficiency (A1AD) can cause cirrhosis of the liver and a skin condition called panniculitis. A1AD can also be implicated in bronchiectasis where there is no known cause.[2]

What is Alpha-1 antitrypsin deficiency?

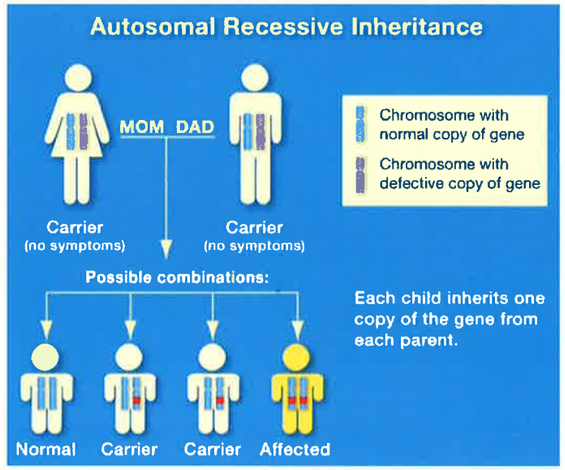
A1AD is a condition where the body does not make sufficient amounts of the protein Alpha-1 Antitrypsin (AAT). This protein is produced by the liver and is released into the blood stream.[3] AAT is produced to protect the body against damaging enzymes that circulate when the body is trying to protect itself from infections and irritants.[4] The enzyme is called neutrophil elastase and is made by white blood cells.[4] In the lungs, if there is none, or insufficient AAT, then emphysema may result.[5] As a result, environmental factors such as cigarette smoke, dust and pollution can impact the severity of the condition.[6]

A1AD is an autosomal recessive inherited disorder. When a child is born it receives a gene from each parent. If one of these is damaged then the child will become a carrier of the condition.[4] On the other hand, if a child receives an abnormal gene from each parent, then they can develop the condition.[4] A1AD is caused by a mutation in the SERPINA 1 gene on chromosome 12.[4] The most common version (allele) of the SERPINA 1 gene is called M and most people have two of these (MM) in each gene.[6] These people produce a normal amount of AAT. There are, however, other versions of the SERPINA 1 gene which can lead to reduced levels of AAT. Two of these are the S allele and the Z allele.[6] People with S allele produce moderately low levels of AAT while those with Z allele produce virtually no AAT.[6] As a result those with a SZ allele can develop A1AD especially if they smoke, while those with a ZZ allele will most probably have A1AD.[6] People with an SS allele usually produce enough AAT to protect the lungs.[6]

When the gene is mutated, it causes an abnormal production of AAT protein which then becomes stuck in the liver and so the excess amounts of AAT in the liver is how the liver is damaged.[4] Because the AAT is stuck in the liver it does not get into the bloodstream.[4] As a result the lungs are left unprotected and the neutrophil elastase is able to damage the lungs.[4]

Who may be affected?

Although the condition occurs worldwide, its prevalence varies by population.[6] AIAD affects 1 in 1,500 to 3,500 individuals with European ancestry.[6] It is uncommon in people of Asian descent. Many people may remain undiagnosed even though they may have COPD or even asthma.[6] As mentioned before, the condition is present at birth and approximately 10 percent of infants with A1AD will develop liver disease.[6] If infants are born with the A1AD defect, it can cause prolonged jaundice of the new born and if this is present for more than two weeks, then A1AD should



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be suspected. A blood test can identify whether AAT is present in the blood and at what level. It is also known that approximately 15% of people with A1AD will develop cirrhosis of the liver due to the formation of scar tissue.[6] Hepatocellular carcinoma or liver cancer is also a risk when A1AD is present.

What are the symptoms of Alpha-1 Antitrypsin Deficiency in COPD?

The most common symptom of A1AD is shortness of breath, especially during activities and eventually doing normal daily activities.[5] This is due to emphysema which is damage that is done to the alveoli (air sacs) in the lung . The condition starts between the ages of 30 to 45 years which is 20 to 30 years earlier than in people who develop emphysema from smoking.[5] Apart from shortness of breath, other symptoms include cough, sputum production, intermittent wheezing and recurring chest colds.[5] Other symptoms may include jaundice, abdominal distention, gastrointestinal bleeding and unexplained liver problems.[5] The condition may often be incorrectly diagnosed as asthma.

How is Alpha-1 Antitrypsin Deficiency diagnosed?

A1AD is diagnosed by a simple blood test. If the levels are low then it is important that genetic testing is done to identify exactly which type of A1AD is present. If there is a family history of emphysema, COPD or liver disease at an early age, adult onset asthma or recurrent bronchitis then it is essential that a person is tested. If the condition is present then all family members should be tested including children. This will enable prevention measures for children to be put in place, such as advice not to smoke in the future and to not work in an occupation that could cause COPD.

What can you do if you have Alpha-1 Antitrypsin Deficiency?

At present in New Zealand, the treatment for this condition is the same as for those with emphysema caused by smoking. This includes the use of inhalers such as short and long acting beta agonists, short and long acting muscarinic antagonists and the use of inhaled corticosteroids if needed. Some of the most important actions a person can do though are as follows:

- Do not smoke
- Be physically active with regular exercise
- Maintain a healthy weight
- Have a 'flu vaccine each year and pneumococcal vaccine as recommended by your health professional
- Treat chest infections quickly
- Avoid being in places that can irritate the lungs and can make emphysema worse such as smoky environments, areas where there are a lot of fumes, dust or pollen.[7]

Overseas but not in New Zealand, AAT made from donated blood can be given regularly by intravenous infusion and this is currently being evaluated to find the benefits or downsides of this treatment.

In conclusion, Alpha-1 antitrypsin deficiency is a condition that is inherited if both parents have the SERPINE 1 abnormality. It can cause children and adults to be carriers of the condition or develop the condition. The condition is not curable but people can be assisted with management. Children need to be identified so that lifestyle choices can be made to try to reduce the effects of the condition in later life.

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INTERSTITIAL LUNG DISEASE

By Janet Delooze, Asthma Nurse Educator

Interstitial lung diseases (ILD) are a collection of conditions that affect the interstitium, or parenchyma of the lungs.[1] The lung parenchyma is the tissue that makes up the lungs – it gives support to the airways and includes the alveoli, or air sacs, where the exchange of gases takes place.[2] ILDs, also known as diffuse parenchymal lung disorders, are progressively worsening conditions where the lung tissue becomes damaged resulting in scarring and fibrosis leaving the tissues stiff. ILDs cause restricted lung movement because the elastic recoil of the lungs is lost, and impaired gas transfer due to damage to the alveoli.[3]

There are many conditions included under the broad term ILD which were classified according to their cause, either known or unknown.[1] In 2013, the classification of the idiopathic interstitial pneumonias (IIPs) was revised as seen in Table 1.[4] The most commonly known ILDs are idiopathic pulmonary fibrosis (IPF), now categorised as a major IIP, and sarcoidosis: this is an inflammatory disease of unknown origin where abnormal masses or nodules of inflamed tissue are found in multiple organs of the body, particularly in the lungs and lymph glands, affecting the structure and function of that organ.[6]

Table 1. Update of the classification of idiopathic interstitial pneumonias[4]

Major idiopathic interstitial pneumonias
Idiopathic pulmonary fibrosis
Idiopathic nonspecific interstitial pneumonia
Respiratory bronchiolitis-interstitial lung disease
Desquamative interstitial pneumonia
Cryptogenic organising pneumonia
Acute interstitial pneumonia
Rare idiopathic interstitial pneumonias
Idiopathic lymphoid interstitial pneumonia
Idiopathic pleuroparenchymal fibroelastosis
Unclassifiable idiopathic interstitial pneumonias

Incidence.

ILD causes significant morbidity and mortality. In 2006, 123 people died of ILD in New Zealand, the majority of who were over the age of 70 years. Statistics also show that there were 1,755 DALYs in 2006 (one DALY, or Disability Adjusted Year of Life = one year of healthy life lost). Sarcoidosis, which is a type of ILD, caused 11 deaths, and contributed to 633 DALYs lost, mostly to people over the age of 30 years. There were 454 hospitalisations for ILD in 2011/12 where an average stay in hospital was just over 7 days, giving a total cost of $3 million.[4]

Symptoms of ILD are cough and/or dyspnoea (breathlessness) on exertion and later at rest, as the condition progresses.

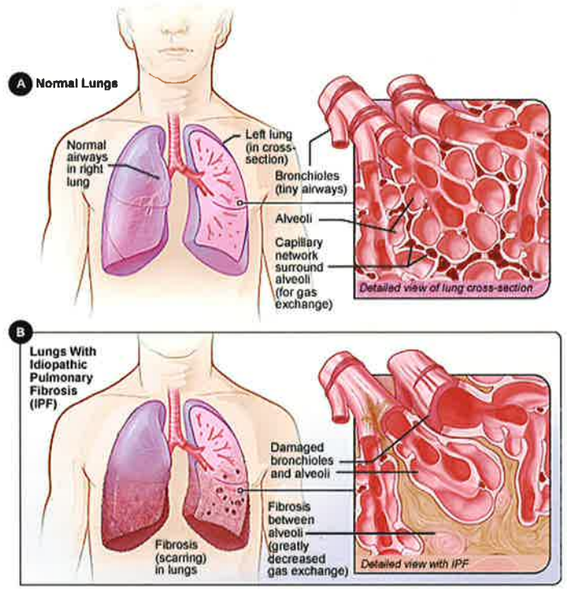
Causes

Often the cause is unknown (idiopathic), however, there are some known causes or precipitating factors[5]:

Occupational and environmental factors

Long-term exposure to a number of organic and inorganic materials and agents can damage your lungs. These include:

- Asbestos fibres
- Bird protein (live pets and feather-containing products)



http://www.nhlbi.nih.gov/health/health-topics/topics/ipf/lungworks

- Coal dust
- Grain dust
- Mould from bathroom, showers and prior water damage
- Silica dust

Medications and radiation

Some drugs can damage your lungs, especially:

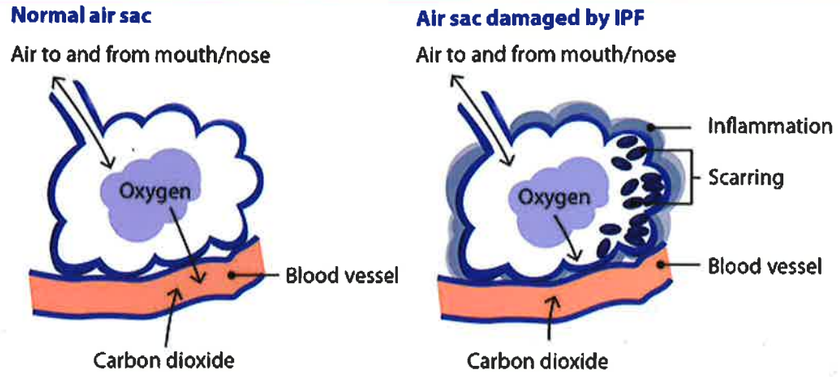
- Chemotherapy/immunomodulating drugs, such as methotrexate and cyclophosphamide
- Heart medications, such as amiodarone and propranolol
- Some antibiotics, such as nitrofurantoin and sulfasalazine

Of course, your doctor will have carefully weighed up these effects against the benefits of prescribing them.

Some people who have radiation therapy for lung or breast cancer show signs of lung damage months or sometimes years after the initial treatment.

Medical conditions

- Dermatomyositis/polymyositis
- Mixed-connective tissue disease
- Pulmonary vasculitis (microscopic polyangiitis)
- Rheumatoid arthritis



- Sarcoidosis
- Scleroderma
- Sjogren's syndrome
- Systemic lupus erythematosus
- Undifferentiated connective tissue disease.[5]

Factors that may make you more susceptible to ILDs are occupational hazards/chemicals that may be encountered particularly in farming, mining and construction; smoking; age – older people are more likely to develop ILD though it does occur in infants and children; some conditions are hereditary; and as mentioned before, some drugs and radiotherapy.[5]

Diagnosis

Diagnosis of ILD is made by taking a detailed history including lifestyle, work history, exposure to inhaled toxins, medications, and by physical examination. Chest x-ray and spirometry may rule out obstructive lung diseases such as asthma and COPD initially. High resolution computed tomography (HRCT) is the 'gold standard' for diagnosis. Lung tissue analysis by taking a biopsy can determine the cause by microscopic examination of the tissues. Early diagnosis can help to minimise lung damage and in some instances allow for healing, however, diagnosis of IIPs can be difficult.[1]

Pathological process

Regardless of the cause, all ILDs follow identical disease development ending with thickened interstitium with or without fibrotic changes. Following exposure to the causal agent, an inflammatory response is triggered in the lungs. The body releases cytokines and other inflammatory chemical messengers causing inflammation of interstitium. If the alveoli are involved, it becomes more difficult for oxygen to pass into the bloodstream. There may also be increased pressure in the pulmonary arteries. As the lungs begin the repair process and the inflammation settles, scarring can occur due to thickening of the interstitium, fibrosis and cystic airspaces, further impairing the lungs normal physiological function. As the condition worsens, so do the symptoms of breathlessness, cough and fatigue.[1]

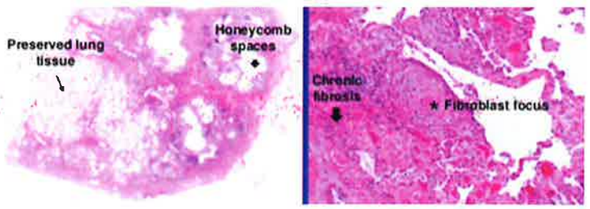
Management

Once scarring has occurred in the lungs, it is often irreversible. However, some treatments can slow down the progression, such as anti-inflammatories and anti-fibrotics. Lifestyle changes are an important aspect in the management of ILD. Stopping smoking would be the number one priority.

Pulmonary rehabilitation is a programme of exercise, education, and support to help you learn to breathe—and function—at the highest level possible.[7] The exercise component is tailored to enable the individual to be the best that they can be with their particular condition. Education is given around eating well, and coping strategies for managing breathlessness, and general physical and emotional wellbeing.[5]

Long term oxygen therapy may be prescribed as the condition progresses to improve low oxygen levels and facilitate activities of daily living.

In conclusion, ILDs is a collection of progressively worsening lung conditions where the lung tissue becomes scarred with a subsequent decline in lung function and a reduction in gaseous exchange. Although there are different causes, the pathological changes of each condition cause similar symptoms of cough, breathlessness and fatigue. Early detection is the key to delaying end stage lung disease.



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NEWSTREAM

Source: **N Engl J Med**
Clinical Significance of Symptoms in Smokers with Preserved Pulmonary Function;
Woodruff P, Barr R, Bleecker E, Christenson S, Couper D, Curtis J, Gouskova N, Hansel N, Hoffman E, Kanner R, Kleerup E, Lazarus S, Martinez F, Paine R, Rennard S, Tashkin D, Han M, SPIROMICS Research Group ; New England Journal of Medicine (NEJM) 374 (19), 1811-21 (May 2016)
BACKGROUND: Currently, the diagnosis of chronic obstructive pulmonary disease (COPD) requires a ratio of forced expiratory volume in 1 second (FEV1) to forced vital capacity (FVC) of less than 0.70 as assessed by spirometry after bronchodilator use. However, many smokers who do not meet this definition have respiratory symptoms.
METHODS: We conducted an observational study involving 2736 current or former smokers and controls who had never smoked and measured their respiratory symptoms using the COPD Assessment Test (CAT; scores range from 0 to 40, with higher scores indicating greater severity of symptoms). We examined whether current or former smokers who had preserved pulmonary function as assessed by spirometry (FEV1:FVC ≥0.70 and an FVC above the lower limit of the normal range after bronchodilator use) and had symptoms (CAT score, ≥10) had a higher risk of respiratory exacerbations than current or former smokers with preserved pulmonary function who were asymptomatic (CAT score,<10) and whether those with symptoms had different findings from the asymptomatic group with respect to the 6-minute walk distance, lung function, or high-resolution computed tomographic (HRCT) scan of the chest.
RESULTS: Respiratory symptoms were present in 50% of current or former smokers with preserved pulmonary function. The mean (±SD) rate of respiratory exacerbations among symptomatic current or former smokers was significantly higher than the rates among asymptomatic current or former smokers and among controls who never smoked (0.27±0.67 vs. 0.08±0.31 and 0.03±0.21 events, respectively, per year; P<0.001 for both comparisons). Symptomatic current or former smokers, regardless of history of asthma, also had greater limitation of activity, slightly lower FEV1, FVC, and inspiratory capacity, and greater airway-wall thickening without emphysema according to HRCT than did asymptomatic current or former smokers. Among symptomatic current or former smokers, 42% used bronchodilators and 23% used inhaled glucocorticoids.
CONCLUSIONS: Although they do not meet the current criteria for COPD, symptomatic current or former smokers with preserved pulmonary function have exacerbations, activity limitation, and evidence of airway disease. They currently use a range of respiratory medications without any evidence base. (Funded by the National Heart, Lung, and Blood Institute and the Foundation for the National Institutes of Health; SPIROMICS ClinicalTrials.gov number, NCT01969344.).

Source: **Lung**
Frequent Exacerbator: The Phenotype at Risk of Depressive Symptoms in Geriatric COPD Patients;
Tse H, Tseng C, Wong K, Ng L, Lai T, Yee K; Lung (May 2016)
INTRODUCTION: Depression is associated with a poorer quality of life and higher rate of COPD exacerbations and mortality. However, with multiple confounding factors, 'independent' risk factor for depression among COPD patients remains ambiguous. Our study aims to identify independent risk factors for depression by specifically evaluating for any independent relationship between frequent exacerbations and various domains of the BODE index on depression.
METHODS: This study is a cross-sectional study, conducted in Hong Kong SAR. Age and comorbidity-matched COPD and control subjects were recruited. Depressive symptoms were measured by a validated Chinese version of the Geriatric Depression Scale (GDS-15 items). Prevalence rates of depressive symptoms were compared between COPD and control groups. Predictors for depression (GDS ≥ 8) were determined using univariate and multivariate analyses.
RESULTS A total of 161 patients (89 and 72 patients, mean ages 75.2 and 75.6 in COPD and control group, respectively) were recruited. Higher prevalence rate of significant depressive symptoms was seen in COPD patients (20.2 vs. 4.2 %, p = 0.006*). Univariate analysis suggested that predictors for depression in COPD patients included (i) exacerbation frequencies in prior year, (ii) dyspnea level, (iii) BMI, (iv) functional status (Barthel index, 6MWD, activity domain of SGRQ), and (v) BODE index. In multivariate analysis, only the 'exacerbation frequencies in prior year' (OR 1.46, p = 0.042*) and 'dyspnea level' (MMRC) (OR 2.75, p = 0.001*) remained significant independent predictors for depression in COPD patients.
CONCLUSIONS: A high prevalence of depressive symptoms was observed in COPD patients. 'Frequent exacerbation phenotype' remained a significant independent predictor for depressive symptoms in COPD. Among the BODE index domains, dyspnea level is the most important predictor for depression in COPD patients.

Source: **Respir Care**
Mortality-Reducing Effect of Rehabilitation for COPD: Observational Propensity-Matched Cohort Study Using a Nationwide Database;
Nakahara Y, Yasunaga H, Inokuchi H, Ogata N, Horiguchi H, Matsuda S, Fushimi K, Haga N; Respiratory Care (May 2016)
BACKGROUND: In the course of therapy of patients with COPD, non-pharmacologic treatment, such as rehabilitation, plays an important role. Although some studies have provided concrete evidence of the effectiveness of rehabilitation in improving functional outcomes in subjects with COPD, evidence of its mortality-reducing effect has been insufficient. In the present study, we examined whether rehabilitation had positive effects on in-hospital mortality of subjects with COPD.
METHODS: We used the Japanese Diagnosis Procedure Combination nationwide administrative claims database. This was a retrospective cohort study, and there were 18,037 eligible subjects with COPD from 1,055 hospitals. The main outcome was in-hospital mortality rates. A one-to-one propensity score matching method was used to compare hospital mortality rates after admission between rehabilitation and non-rehabilitation groups.
RESULTS: A total of 3,356 pairs of subjects were selected from the rehabilitation and non-rehabilitation groups (n = 6,712). Subjects in the rehabilitation program showed a reduction in the odds of mortality (odds ratio = 0.80, 95% CI 0.65-1.00, P = .045). In the subgroup analyses, the rehabilitation group had a lower in-hospital mortality in the pre-obese subgroup (body mass index 25.0-29.9) than the non-rehabilitation group (P = .02). Although not significant, the rehabilitation group showed a relatively low in-hospital mortality in the Hugh-Jones dyspnea scale class 5 subgroup (P = .066).
CONCLUSIONS: This large nationwide cohort study showed that rehabilitation indeed contributed to a reduction of in-hospital mortality. These findings underscore the importance of adopting rehabilitation as part of the treatment of COPD.

Source: **Respirology**
Need for intensive care in patients admitted for asthma: Red flags from the social history;
Moghaddas F, Smith C, Pilcher D, O'Hehir R, Hew M, Dabscheck E; Respirology (Jun 2016)
BACKGROUND AND OBJECTIVE: Asthma deaths in Australia are associated with illicit substance abuse, mental health problems and social issues. However, a large proportion of these deaths occurs out of hospital and is difficult to avert by the time the individuals seek medical attention. We hypothesized that

these characteristics may also increase the risk for a patient to require intensive care admission when they present to emergency departments.
METHODS: We studied consecutive patients admitted to a tertiary metropolitan hospital with a primary diagnosis of asthma between January 2010 and January 2014. Clinical and demographical data were obtained from chart review. The patient's postcode was used as a surrogate for socioeconomic status.
RESULTS: There were 482 asthma patients admitted during the study period, of which 39 required intensive care. Ten patients admitted to intensive care (26%) used illicit drugs compared with 29 (7%) of those admitted to the ward (adjusted odds ratio: 3.6, P=0.012). For illicit users, nonadherence to preventer therapy was associated with an even higher risk of intensive care unit admission. Socioeconomic index was lower in the group requiring intensive care admission. The frequency of psychiatric diagnoses was similar in both groups.
CONCLUSION: Among patients admitted to hospital for asthma, illicit substance abuse is a strong independent risk factor for intensive care requirement. Preventer therapy nonadherence further increases this risk. Lower socioeconomic status is also associated with increased risk. These historical features should be actively sought on admission and may serve as useful 'red flags' to prompt consideration of intensive monitoring.

Source: J Asthma
Caregiver Perception of Asthma Management of Children in the Context of Poverty;
Bellin M, Land C, Newsome A, Kub J, Mudd S, Bollinger M, Butz A; Journal of Asthma (Jun 2016)
OBJECTIVE: Low-income caregivers of young children with high-risk asthma experience social stressors and illness-related demands that may impede effective home asthma management. Knowledge of the caregiving experience in the context of poverty is limited.
METHODS: Convenience sampling methods were used to recruit low-income caregivers of children aged 7-12 years who are frequently in the Emergency Room (ED) for uncontrolled asthma. Thirteen caregivers participated in focus groups that were designed to elicit reflections on asthma home and community management from the caregiver perspective. A grounded theory approach was used in the open coding of transcript data from three focus groups, as well as to revise and reorganize emerging themes and sub-themes.
RESULTS: Participants (Mean age = 33.9 years) were predominantly the biological mother (92.3%), single (84.6%), and impoverished (69.2% reported annual household income ≤$30,000). Their children (Mean age = 7.8 years) were African-American (100%), enrolled in Medicaid (92.3%), averaged 1.38(SD = 0.7) ED visits over the prior three months, resided in homes with at least one smoker (61.5%), and nearly all (84.6%) experienced activity limitations due to asthma. Five themes emerged in the analysis: intensive caregiving role, complex and shared asthma management responsibility, parental beliefs and structural barriers to guideline-based care, lack of control over environmental triggers, and parent advocacy to improve child **asthma care and outcomes.**
CONCLUSIONS: Caregivers managing a child with high-risk asthma in the context of poverty indicate the need for ongoing asthma education, increased sensitivity to the complexity of home asthma management, and family-centered interventions that enhance communication and collaboration between caregivers and providers.

Source: J Asthma
Work stress, asthma control and asthma-specific quality of life: Initial evidence from a cross-sectional study;
Hartmann B, Leucht V, Loerbroks A; Journal of Asthma (Jun 2016)
OBJECTIVE: Research has suggested that psychological stress is positively associated with asthma morbidity. One major source of stress in adulthood is one's occupation. However, to date, potential links of work stress with asthma control or asthma-specific quality of life have not been examined. We aimed to address this knowledge gap.
METHODS: In 2014/2015, we conducted a cross-sectional study among adults with asthma in Germany (n = 362). For the current analyses that sample was restricted to participants in employment and reporting to have never been diagnosed with chronic obstructive pulmonary disease (n = 94). Work stress was operationalized by the 16-item effort-reward-imbalance (ERI) questionnaire, which measures the subcomponents'effort','reward'and'overcommitment.'Participants further completed the Asthma Control Test and the Asthma Quality of Life Questionnaire-Sydney. Multivariable associations were quantified by linear regression and logistic regression.
RESULTS: Effort, reward and their ratio (i.e. ERI ratio) did not show meaningful associations with asthma morbidity. By contrast, increasing levels of overcommitment were associated with poorer asthma control and worse quality of life in both linear regression (ß = -0.26, p = 0.01 and ß = 0.44, p<0.01, respectively) and logistic regression (odds ratio [OR] = 1.87, 95% confidence interval [CI]= 1.14-3.07 and OR = 2.34, 95% CI = 1.32-4.15, respectively).
CONCLUSIONS: The present study provides initial evidence of a positive relationship of work-related overcommitment with asthma control and asthma-specific quality of life. Longitudinal studies with larger samples are needed to confirm our findings and to disentangle the potential causality of associations.

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Ph: (03) 214 2356

WAIRARAPA ASTHMA SOCIETY
Wairarapa Community Centre
41 Perry Street
Masterton 5810
Ph: (06) 377 1175

WELLINGTON REGIONAL ASTHMA SOCIETY
Level 1 Salvation Army Bldg
125-137 Johnsonville Rd
Johnsonville 6037
Ph: 04 237 4520

WHAKATANE ASTHMA AND COPD GROUP
141-143 King St
Whakatane 3120
Ph: (07) 307 1447

ASTHMA SOUTH CANTERBURY
Community House
27-29 Strathallan St, PO Box 267
Timaru 7940
Ph: (03) 687 7379

NORTH OTAGO ASTHMA SOCIETY INC
Community House
100 Thames Street
Oamaru 9400
Ph: (03) 434 3202

ASTHMA WAIKATO
Level 3, Norris Ward McKinnon Bldg
711 Victoria St
Hamilton 3204
Ph: (07) 838 0851

Questions, Letters, Articles, Advertisements

O_2 Journal welcomes dialogue with readers. Whether you are a person with asthma, a company involved in the sector, or a potential advertiser, we welcome your enquiries and communication.

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