



# Breath of L I F E

Lung Information & Friendship for Everyone

People with long term lung conditions, their family & carers

Autumn 2018

Mar - May

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## AUTUMN



Autumn weather in Perth can go from 40C days like the height of summer - to chilly nights snuggled up under a duvet. It's not just the temperature either. In WA humidity has been increasing with longer term climate changes, especially affecting people with COPD.

We all know that the weather can affect how breathless we feel by day and by season. But apparently little systematic research has been carried out into how the weather affects people with COPD. People with asthma have been studied a bit more, but not other lung conditions.

It seems some people get more breathless when the air is warmer, while others are more affected by cold air. Some people are affected by both. Very likely changes in humidity, pollen levels and other air-borne particles are confounding factors.

There's an interesting article on weather and breathing on the website of an Irish COPD support group. If you have computer access read it [here](#). An extract appears on page 9 under SHORTS. Thank you to Michael from Benbulbin COPD Support Group, County Sligo, Ireland.

## Your Feedback Needed

We forecast changes to the way we run L I F E in the last issue and a planning meeting on 17 January. We hope to be able to pull together so that L I F E can continue to offer the same major activities for people with long term lung conditions. To keep on track we really need your feedback. A short survey was circulated with the Summer issue. Due to a low response rate we've extended the deadline. Please let us know your views today! Another copy is enclosed with this issue or click [here](#) to do it online. **Please respond by 28 February.**

## E-COPY



### Please consider...

We can email **Breath of L I F E** you - or you can read it online on the L I F E webpage

<http://tinyurl.com/kdtrqxc>

Two-thirds of your annual membership fee now gets swallowed up in printing & postage.

Switch to an e-copy - get a full colour magazine with clickable links, save trees, and let more of your membership fee support L I F E and the Institute for Respiratory Health.

[life@resphealth.uwa.edu.au](mailto:life@resphealth.uwa.edu.au)

## Breath of L I F E Archives

A copy of every issue of Breath of L I F E is lodged with the State Library of WA and the National Library of Australia. Our digital record number (ISSN) now appears in the top right corner of the cover.

We started as LISA News in 1993 and became Breath of L I F E in 2009.

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## L I F E EVENTS

### Recent

#### Dec - Christmas Party



As you can see we had no shortage of celebratory dishes for our annual Christmas party. Staff from the Institute for Respiratory Health, including some of the lovely nurses from the Clinical Trials Unit were able to join us and celebrate. Thank you to Sarah C and Alison H from the Institute who set up the wonderful Christmas decorations.

#### Jan - Planning

Usually L I F E takes a break over January, but in

November we decided to have a special planning meeting in January to discuss how we can keep L I F E going if and when Jenni Ibrahim's health takes a turn for the worse. That special meeting was held on 17 January.

The meeting discussed ways to attract new members using posters, "business cards", distributing past issues of Breath of L I F E to waiting areas, word of mouth and community radio spots. We also decided to consider how to better promote L I F E in the Respiratory Health Clinic

at Charlie's in discussion with key Department of Respiratory Medicine staff. We looked briefly at the Breath of L I F E but changes here need further input from readers. So please complete the survey, if you haven't already.

We reminded how important it is to each have a chat with a person attending a meeting for the first time. And use name tags when there's someone new. There's nothing worse than showing up to a new group and go away feeling no one noticed you. So if you've never come to our monthly meetings, we'll make very sure you feel welcome.

We decided that alternate monthly meetings will not feature a speaker. Instead a group member will facilitate a discussion on a topic of interest. The social meeting in February will include a brainstorm of topics members are interested in. One topic mentioned in January was, *How do you talk to family, friends and the public about lung disease?* Is there a topic you'd like to talk about? Send in your ideas to Jenni or Sal. Contact details on the back of this issue.

These are not major changes but we hope they will make a difference. We'll have a review mid-year to see how we are going.

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## Coming Events

### L I F E Autumn Lunch

#### Belmont Tavern

**Mon 9 April from 12 noon**

174 Wright Street  
Cloverdale (facing the  
Belmont Forum carpark,



near the corner of Knutsford Ave). T 9277 2077 [www.belmonttavern.com.au](http://www.belmonttavern.com.au)

**Getting there:** Depart Perth Busport on bus #220 at 11.29am, change to #38 bus at Victoria Park Transfer Station at 11.42am, get off at stop 11672. Or phone the InfoLine on 13 62 13 for more options.

**Please RSVP** by **Thursday 5 April** to Mary E [mvfedele@bigpond.com](mailto:mvfedele@bigpond.com)  
T 9337 1286

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## RESPIRATORY NEWS

### Charlie's Chariot – new contact number

The volunteer buggy at Sir Charles Gairdner Hospital can take you round the QEII Medical Campus. From your car or the bus stop to your appointment - or to a L I F E meeting in the Perkins Building. **0481 438 731** This number has recently changed - update your mobile contacts.

### Changes at L I F E ahead

L I F E began as LISA in 1992 as the first respiratory support group in Australia. With Jenni, our Coordinator's health in jeopardy how can we sustain the legacy our founder Edna Brown has left us?



In January we held an extra meeting to plan for the future. We reviewed our current activities, all aimed at providing fellowship and information to people living with long term lung conditions.

If you, a family member or a friend could offer help, you can reach Sal on 9331 3651 or [salhyder1@gmail.com](mailto:salhyder1@gmail.com).

### Members' Survey

A members' survey was circulated with Summer 2017-18 issue of Breath of L I F E to find out which L I F E activities are of most value to members. There was another opportunity to fill it out at the L I F E Christmas party in December. Despite promoting the survey in the Breath of LIFE, at the Christmas party and on



Facebook, we received only a small number of responses. **We need more!**

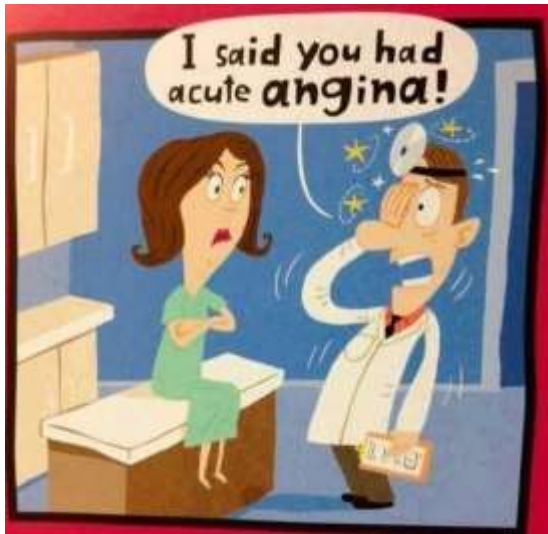
If you mislaid your copy, there is another included with this Autumn 2018 issue - or do it online [here](#). We are very interested to hear from L I F E members who rarely or never attend activities.

**Please do not fill it out if you have already done so.**



## LUNG LAUGHS

One carried over from Christmas...



*"You all came down with the flu at the same time. Do you, by chance, all work together?"*

### X-Ray

A former radiologist told the story from years before, when kitted up in a lead apron and gloves, he was conducting an X ray examination of a woman's abdomen. Finding that her clothing was interfering with the image on the fluorescent screen, he asked: "Would you pull down your knickers, please?" The patient did nothing so he repeated the request. He then heard her say: "I'm so sorry, doctor. I thought you were talking to the nurse. *(Perhaps no longer politically correct?)*

### Medical student one-liners

*Supposedly written by students in exams*

The three kinds of blood vessels are arteries, veins, and caterpillars.

The skeleton is what is left after the insides have been taken out and the outsides have been taken off. The purpose of the skeleton is something to hitch meat on.

Artificial insemination is when the farmer does it to the cow instead of the bull.

To prevent contraception, wear a condominium.

To remove dust from the eye: pull the eye down over the nose.

For nosebleeds, put the nose lower than the body until the heart stops.

## SOMETHING GOOD HAPPENED

Here is a great idea for the year. Write a post-it every time something good happens in your life. An old friend phoned. You had an enjoyable meal with family. You saw a stunning sunset. Read a great book. Heard some music that moved you. Your team won. You lost some weight. Someone complimented you on looking well. You walked further than usual today before you needed a rest.

You can add more than one note each week, if you like. And you don't have to wait until New Year's Eve December 2018 to read them out. Do it whenever you need a bit of a cheer up! Since February is almost over, better catch up now.



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## RESPIRATORY RECIPES – OR HEALTHY EATING?

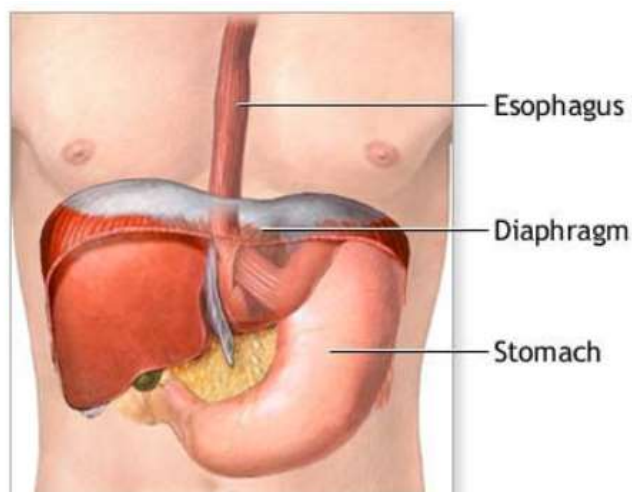
Although most past issues of Breath of L I F E have featured recipes for seasonal eating, the emphasis has usually been on **healthy** eating and eating well with a chronic lung condition.

Would you like to read more about tips for healthy living and the nutritional benefits of the foods we eat? How to change eating habits of a life time - or think about trying?

This article will address some of the eating issues faced by people with chronic lung conditions.

### Breathlessness

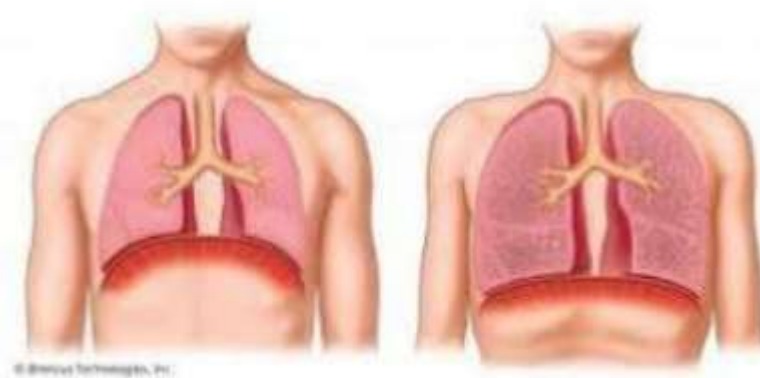
Many people report is that they feel uncomfortable and more breathless if they try to walk or exercise soon after eating. There are several reasons for this. One



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is that as the stomach fills with food and drink it expands upwards towards the diaphragm, a vital part of your respiratory system. Since the stomach sits right under the diaphragm, a fuller stomach leaves less room for the diaphragm to move.

Some chronic lung conditions, particularly COPD, tend to cause the diaphragm to flatten (see diagram – Normal, no COPD – left, COPD – right). The full stomach is even closer to your diaphragm. So it's easy to understand



why you might feel more breathless after a meal. Two suggestions come to mind: take your walk at a different time, before you eat - or eat less!

### **Underweight**

Another eating problem for people

with advanced lung disease is not having much of an appetite. Even eating and breathing require a certain amount of energy or calories (kilojoules). So if you do not eat enough, you'll lose weight. Sometimes a nutritionist or dietician can help with ideas for stimulating the appetite, and eating smaller more frequent and more nutrient-rich meals. Even sharing a meal with a friend can help make meal time more enjoyable and enliven your appetite.

### **Meal Preparation**

Some people with advanced lung disease may find that the effort involved in meal preparation is the problem. They do not eat well because shopping, preparing meals and tidying up afterwards become hard work. Carrying shopping upstairs can make you really short of breath. Some people manage this by shopping online and having groceries delivered to their kitchen, by shopping for a smaller amount more frequently, getting ready-made meals delivered or getting aged care services to help them with shopping.

### **Overweight**

A 2016 review of 17 studies of the mortality of over 30,000 people with COPD who were either of normal weight, underweight or overweight, came to the surprising conclusion. Being overweight was associated with a lower risk of death from any cause and being underweight was associated with a higher risk of death (from any cause).

Although being slightly overweight provides a slight immune system advantage to people with lung conditions, too much excess weight, particularly around the middle, makes breathing difficult and is a deterrent to exercise.

It is so very easy to put on weight as we grow older. We may continue to serve the same size meals that we always have, even though our physical activity is much reduced, particularly with chronic lung disease. Some medications, especially oral corticosteroids (e.g. Prednisone) can cause weight gain too.

We cannot easily exercise away this extra weight. So unless we cut down our portion size we will gain weight. Smaller plate sizes and careful measurement can help.

If you are well nourished, you are more able to maintain your strength and fight infections, including chest infections. Preserving muscle mass is important in helping your lungs to function. We need to maintain a healthy body weight. It is sometimes a struggle for people with lung conditions to maintain a healthy diet and not be over or under weight.

### **What is a healthy weight?**

This is often defined in terms of having a Body Mass Index (BMI) in the normal range of 18.5-25.0. BMI is calculated by dividing your mass in kilograms (weight) by the square of your height (in metres, without shoes).

For example 65kg weight divided by square of a height of 1.65m is 23.9, within the normal range. There are many online calculators that can help. Or use this chart which covers both metric and imperial measures.

Also check your **waist measurement**. It should be less than 94cm (male) or 80cm (female).

If you think you could improve in this area ask your GP's advice. Perhaps a referral to a dietician or nutritionist could help.

### **More**

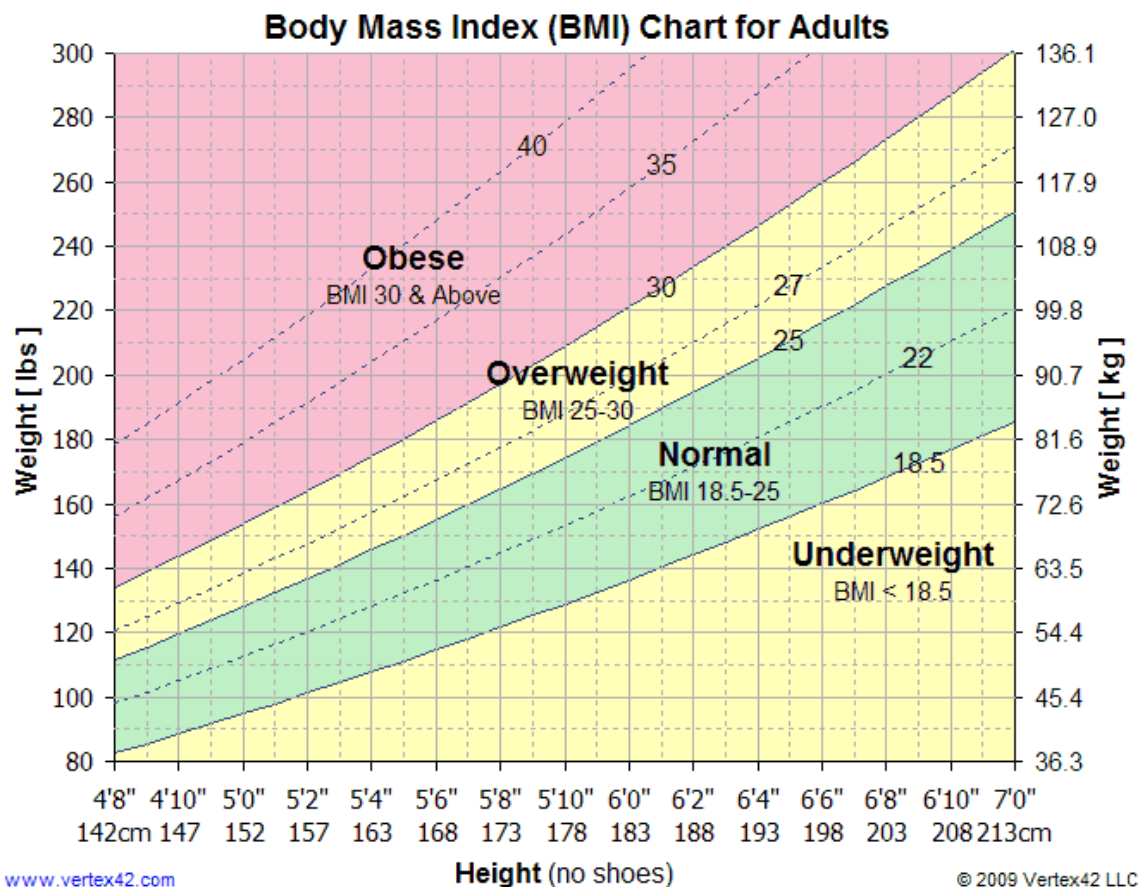
Read what the Lung Foundation Guide to COPD says about healthy eating <https://lungfoundation.com.au/healthy-eating-in-lung-disease/>

Check your weight on the [Heart Foundation's BMI \(Body Mass Index\) calculator](#), using your gender, height and weight

Yibin Guo et al Body mass index and mortality in chronic obstructive pulmonary disease, Medicine (Baltimore). 2016 Jul; 95(28): e4225 [www.ncbi.nlm.nih.gov/pmc/articles/PMC4956822/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4956822/)



So what would you like to see in the Breath of L I F E? Tips for healthy eating – or recipes?



## SHORTS

### TEMPERATURE AND BREATHLESSNESS

Changes in temperature seem to affect the level of dyspnea (the sensation of shortness of breath). How could temperature have an effect?

Extreme hot or cold conditions stress the entire body. In an effort to maintain a constant body temperature (98.6 degrees Fahrenheit), you expend additional energy to warm or cool your body. This additional energy requirement also increases the amount oxygen your body is using (ie, oxygen is required to create the additional energy). Since you are using more oxygen, this may further deplete your blood oxygen levels and increase your sensation of shortness of breath.

Breathing hot or cold air can also have a drying or irritating effect on the airway causing bronchospasm (contraction of the smooth muscle that surrounds the airway). Bronchospasm decreases the size of the airway and

thus makes it more difficult to get the air in and out of the lungs, increasing shortness of breath.

Many patients notice increased wheezing or shortness of breath when going out into cold air. This is especially true in asthmatic patients where cold air-induced bronchospasm is well recognized. However, many COPD patients experience a similar response to cold air.

A Finnish study demonstrated that exposure of the body to cold air had a more deleterious effect on breathing than just breathing cold air. Although breathing cold air through a mask while in a warm room did decrease lung function, placing the patient in a cold environment further reduced airflow.

Source [COPD Support Ireland](#)

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## **TIMELINESS OF LUNG CANCER DIAGNOSIS AND TREATMENT**

Guidelines recommend timely evaluation of patients with suspected lung cancer. Researchers evaluated the impact of a Rapid Investigation Clinic (RIC) on timeliness of lung cancer diagnosis and treatment between February 2010 and December 2011.

Investigation within the RIC was conducted by a respiratory physician and a nurse clinician. Controls were patients with lung cancer, investigated outside the RIC at the same institution during the same time period. The primary outcome was time between first contact with a local physician for suspected lung cancer (T0) and first treatment. Factors associated with the delay from T0 to first treatment were examined using multivariate analysis.

Completeness of lung cancer staging according to guidelines was assessed.

A total of 195 patients were investigated within the RIC vs. 132 patients outside the RIC. The median delay between T0 and first treatment was 65 days (interquartile range [IQR] 46-92 days) in the RIC and 78 days (IQR 49-119 days) in the non-RIC patients ( $p \leq 0.01$ ).

Time from T0 to pathological diagnosis was shorter in the RIC (median 26 days; IQR 14-42 days) vs. non-RIC patients (median 40 days; IQR 16-68 days). In multivariate analysis, investigation in the RIC was associated with a reduction in time to first treatment of 24 days (95% confidence interval [CI] 12-35 days) when adjusted for relevant confounders. Guideline-



concordant investigation occurred more frequently in RIC patients, based on the quality indicators examined.

The researchers concluded that a Rapid Investigation Clinic reduces delays to lung cancer diagnosis and treatment, and impacts quality of care.

Source: [\*Impact of rapid investigation clinic on timeliness of lung cancer diagnosis and treatment\*](#), *BMC Pulm Med*

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## HOW LIKELY IS PNEUMONIA GOING TO LEAD TO THE ICU?

Pneumonia poses a significant burden to the U.S. health-care system<sup>1</sup>. However, there are few data focusing on severe pneumonia, particularly cases of pneumonia associated with specialised care in intensive care units (ICU).

Researchers in this US study used administrative and electronic medical record data from six integrated health care systems to estimate rates of pneumonia hospitalisations with ICU admissions among adults between 2006 and 2010. Pneumonia hospitalisation was defined as either a primary discharge diagnosis of pneumonia or a primary discharge diagnosis of sepsis or respiratory failure with a secondary diagnosis of pneumonia in administrative data.

ICU admissions were collected from internal electronic medical records from each system. Co-morbidities<sup>2</sup> were identified by ICD-9-CM codes coded



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<sup>1</sup> In fact, health systems across the world

<sup>2</sup> Co-existing medical conditions, i.e. in addition to the pneumonia

during the current pneumonia hospitalisation, as well as during medical visits that occurred during the year before admission.

The researchers identified 119,537 adult hospitalisations meeting their definition for pneumonia. Approximately 19% of adult pneumonia hospitalisations had an ICU admission.

The rate of pneumonia hospitalisations requiring ICU admission during the study period was 76 per 100,000 population/year; rates increased for each age-group with the highest rates among adults aged  $\geq 85$  years. Having a co-morbidity approximately doubled the risk of ICU admission in all age-groups.

The study indicates a significant burden of pneumonia hospitalisations with an ICU admission among adults in the cohort between 2006 and 2010, especially older age-groups and people with underlying medical conditions. These findings reinforce current strategies aimed to prevent pneumonia among adults.

*Source: Storms A Det al. Rates and risk factors associated with hospitalization for pneumonia with ICU admission among adults [BMC Pulm Med.](https://doi.org/10.1186/s12890-017-0552-x) 2017; 17: 178. <https://doi.org/10.1186/s12890-017-0552-x>*

*Cited in [DocGuide](#)*

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## NEW TEST SHOWS WHEN BODY IS FIGHTING A VIRUS



A new test that measures RNA<sup>3</sup> can accurately identify viral infection as a cause of respiratory symptoms, according to a study published in December. Performed with a simple nasal swab, the test could prove to be a quicker, cheaper way to diagnose respiratory viral illnesses than current methods.

“It’s a simpler test and more cost-effective for looking at viral infection,” said Ellen Foxman, MD, Yale School of Medicine, New Haven, Connecticut.

Upper respiratory illnesses are common, yet there is no rapid diagnostic test to confirm more than a handful of common viruses as the cause. To identify biomarkers of viral infection applicable to many different respiratory viruses, the researchers first tested human nasal cells in the laboratory. With genetic

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<sup>3</sup> see Respiratory A-Z in this issue for a definition of RNA



sequencing techniques, they screened the cells for RNAs and proteins that increase when a virus is present.

The researchers identified 3 RNAs, and 2 proteins, that are turned on by a virus. They then investigated whether measuring the expression of the genes could predict the presence of a viral infection.

The researchers found that the RNAs and proteins were both accurate predictors of respiratory viral infection, confirmed by subsequent testing for common viruses. The RNAs predicted viral infection with 97% accuracy. This method also picked up viruses that are not identified by many current lab tests.

“Instead of looking for individual viruses, our test asks the question: ‘Is the body fighting a virus?’” said Dr. Foxman. “We found we can answer that question very well.”

The researchers hope to develop the method into a rapid gene or protein test that doctors could perform in their offices. Such a test could help providers diagnose a viral infection more quickly and accurately than with routine evaluation or more time-consuming and expensive tests, the researchers said.

The test could be particularly useful for assessing very sick patients or young children, they added, and it could also help reduce the misuse of antibiotics to treat viral infections.

“One reason to test is to know why the patient is sick,” said Dr. Foxman. “The other reason is to make a decision about whether people who are not that sick should get antibiotics.”

The research team's goal is to create a gene- or protein-based test available for general use within 1 to 5 years.

*Source: Landman M L and Foxman E F Antiviral response in the nasopharynx identifies patients with respiratory virus infection, [The Journal of Infectious Diseases](#), jix648, 21 December 2017 Yale University*  
Cited in [DocGuide](#)

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## **LUNG AGEING AND COPD**

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death worldwide, with increasing prevalence, in particular in the elderly. COPD is characterised by abnormal tissue repair resulting in (small) airways disease and emphysema. There is accumulating evidence that ageing hallmarks are prominent features of COPD.

These ageing hallmarks have been described in different subsets of COPD patients, in different lung compartments and also in a variety of cell types, and thus might contribute to different COPD phenotypes. A better

understanding of the main differences and similarities between normal lung ageing and the pathology of COPD may improve our understanding of the mechanisms driving COPD pathology, in particular in those patients that develop the most severe form of COPD at a relatively young age, i.e. severe early-onset COPD patients.

In this review, after introducing the main concepts of lung ageing and COPD pathology, researchers focused on the role of (abnormal) ageing in lung remodelling and repair in COPD. They discussed the current evidence for the involvement of ageing hallmarks in these pathological features of COPD. They also highlighted potential novel treatment strategies and opportunities for future research based on current knowledge of abnormal lung ageing in COPD.

*Source: Brandsma C, et al. Several ageing hallmarks are present in COPD and indicate a role for (abnormal) ageing in tissue repair in COPD [European Respiratory Review 2017 26: 170073; DOI: 10.1183/16000617.0073-2017](#)*

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## INHALER TECHNIQUE AND ASTHMA OUTCOMES

Poor inhaler technique and inferior asthma outcomes are evident in older adults. Reviews comparing metered dose inhaler (MDI) and dry powder inhaler (DPI) techniques across older adults and younger cohorts are scarce. This systematic review aimed to determine whether there are differences between such age groups regarding the number and type of MDI and DPI errors made.



A systematic literature search was conducted in Embase, Medline and PubMed from July 1 to December 31, 2016. Studies were selected in accordance with pre-set inclusion criteria, relevant data were extracted, and quality was assessed with validated checklists. 14 studies were identified. Evidence suggests a negative correlation between advancing age and correct technique across MDI and varying

DPI devices when examined collectively. There seem to be differences in error types between older adult and younger cohorts prescribed MDIs. There is evidence of age-associated differences in the number and type of inhaler technique errors. Further research is required to assess outcomes in individual DPIs, reproducibility and the effects of confounders.

## MACROLIDES & INTERSTITIAL LUNG DISEASES

A number of L I F E members have pulmonary fibrosis, one of the group of interstitial lung diseases (ILDs). Other ILDs include sarcoidosis, acute interstitial pneumonitis, and cryptogenic organising pneumonia. The lungs become progressively damaged by scarring of the tissue around the alveoli, the tiny air sacs. The causes are not well understood, although research into the scarring process has been underway, including by researchers at the Institute for Respiratory Health.



If you have one of the ILDs you'll know that there are few medications available. This report covers the new use of macrolides, a group of drugs usually used as antibiotics or antifungals, to treat ILDs. Examples of macrolides are: azithromycin, clarithromycin and erithromycin. Breath of L I F E has previously covered reports of some successes.

A recent Italian report reviews all available studies of the use of macrolides for diffuse ILD.

Up to now, research on macrolides has mainly focused on three areas. First, macrolides have shown some promising results in cellular models and case reports as antifibrotic agents, by promoting autophagy and clearance of intracellular protein aggregates and acting as regulators of surfactant homeostasis.

Secondly, macrolides have an immunomodulatory effect, which has been applied in some organising pneumonia cases. In particular, macrolides have been tested in association with systemic corticosteroids as steroid-sparing agents and alone as either first-line agents in mild cases or second-line agents where steroids were poorly tolerated or had failed.

Thirdly, a recent area of research concerns the possible role of macrolides as modulators of lung microbiota and the host-microbiota interaction. This function has been particularly studied in idiopathic pulmonary fibrosis patients, in whom changes in microbiota have been proved to be associated with disease progression. However, the lack of high-quality studies makes the

application of macrolide therapy in ILDs a field in which research should be conducted on a large scale.

Source: Faverio et al. Long-term macrolides in diffuse interstitial lung diseases *Eur Respir Rev.* 2017 Dec 6;26(146). pii: 170082. doi: [10.1183/16000617.0082-2017](https://doi.org/10.1183/16000617.0082-2017). Print 2017 Dec 31

<https://en.wikipedia.org/wiki/Macrolide>

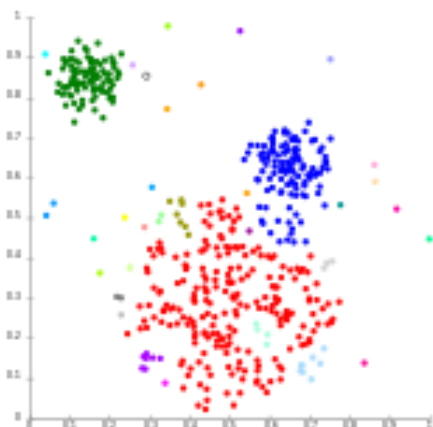
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## CLUSTER ANALYSIS OF COPD IN (S) KOREA

Chronic obstructive pulmonary disease (COPD) is a heterogeneous disease with variable clinical manifestations, structural changes, and treatment responses. Without understanding the sub-types of COPD it is hard to identify the most efficient treatment.

In a cohort study, a South Korean group of researchers carried out a baseline cluster analysis to identify subgroups of COPD and to assess the clinical outcomes of each subgroup during a 1-year follow-up.

Cluster analysis is a statistical technique that analyses information about individuals and groups them so that those in the same group or cluster are more similar to each other than they are to those in other clusters.



First the researchers analysed a group of 272 people with COPD living in dusty areas of South Korea. The main factors with the highest loading in 15 variables were selected using principal component analysis (PCA) at baseline. The COPD patients were classified by hierarchical cluster analysis using clinical, physiological, and imaging data based on PCA-transformed data. The clinical parameters and outcomes during the 1-year follow-up were evaluated among the subgroups.

PCA revealed that six independent components accounted for 77.3% of variance. Three distinct subgroups were identified through the cluster analysis. Subgroup 1 included younger subjects with fewer symptoms and mild airflow obstruction, and they had fewer exacerbations during the 1-year follow-up.

Subgroup 2 comprised subjects with additional symptoms and moderate airflow obstruction, and they most frequently experienced exacerbations requiring hospitalization during the 1-year follow-up.

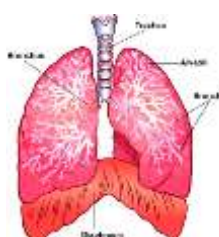


Subgroup 3 included subjects with additional symptoms and mild airflow obstruction; this group had more female patients and a modest frequency of exacerbations requiring hospitalization.

Cluster analysis using the baseline data of a COPD cohort identified three distinct subgroups with different clinical parameters and outcomes. These findings suggest that the identified subgroups represent clinically meaningful subtypes of COPD.

Source Kim S et al. A cluster analysis of chronic obstructive pulmonary disease in dusty areas cohort identified three subgroups. *BMC Pulm Med*. 2017 Dec 16;17(1):209. doi: [10.1186/s12890-017-0553-9](https://doi.org/10.1186/s12890-017-0553-9).

## RESPIRATORY A TO Z



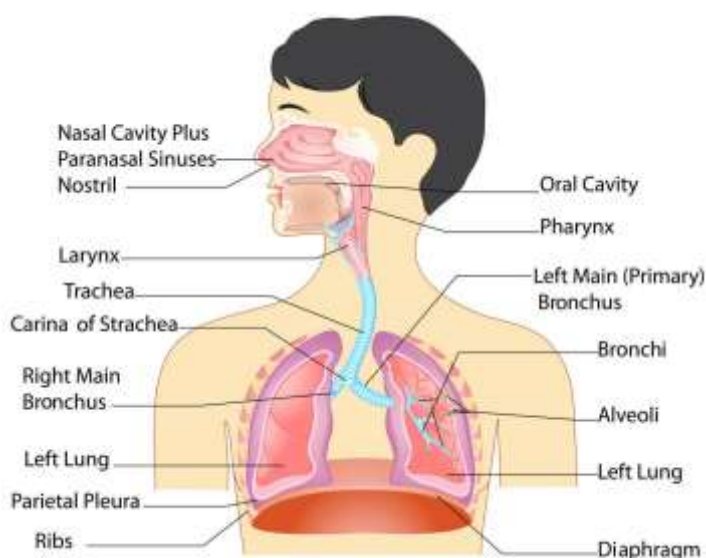
*For the past year we've been exploring the A to Z of respiratory and related medical terms. Next up, R-S.*

*Is there a medical term you'd especially like to know more about? Do let us know*

**R** **Respiratory** – related to the organs of respiration, that is any part of the respiratory system from the mouth down into the lungs. Most commonly referring to the lungs.

Pulmonary is also used in the same way as respiratory.

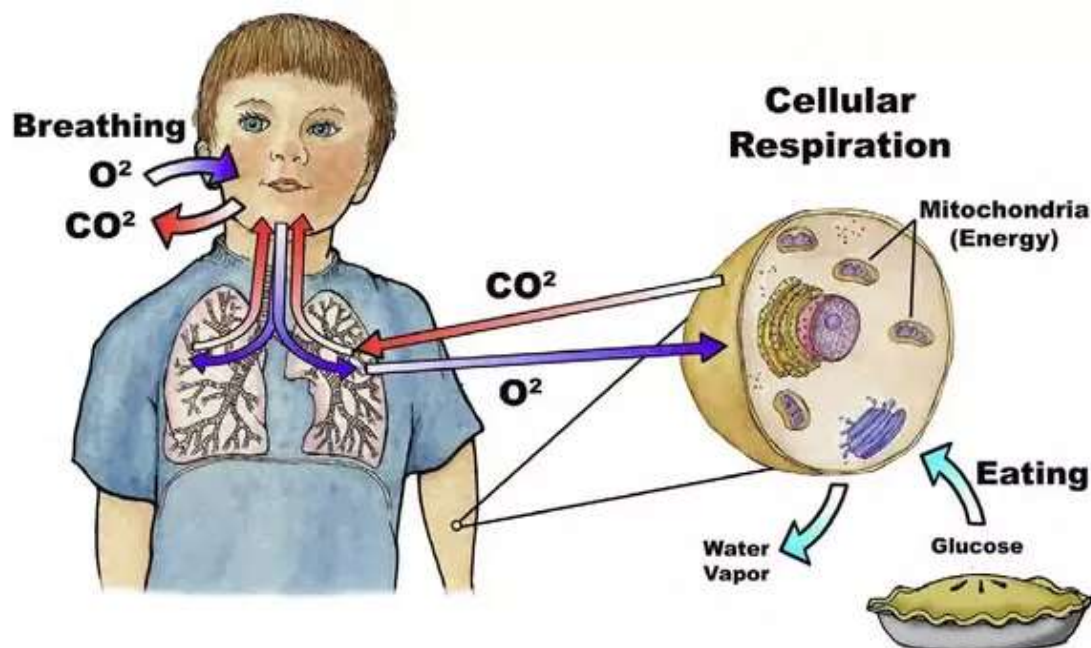
**Respiratory function tests** are a series of tests designed to assess the quality of the gas exchange between the air and the blood in the lungs, as well as the capacity of pulmonary performance. They are useful for making diagnoses or enabling the recovery from lung and bronchial diseases, sometimes given before a general anaesthetic. They measure the volume breathing in or out, test the capacity of each lung, and measure the concentration of gases in the blood. <http://health.ccm.net> (same as **lung function tests** and **pulmonary function tests**)



**Respiration** There are two related meanings for this term: (1) The act of respiring; inhalation and exhalation of air; breathing. (2) (in biology) the sum total of the physical and chemical processes in an organism by which oxygen is conveyed to tissues and cells, and the oxidation products, carbon dioxide and water, are given off. An analogous chemical process of respiration, as in muscle cells or in anaerobic bacteria, can occur in the absence of oxygen.

<http://www.dictionary.com>

Respiration occurs **in all living organisms** and involves the production of energy, typically, but not always, with the intake of oxygen and the release of carbon dioxide from the oxidation of complex organic substances. So even plants respire.



Although we commonly think of respiration as the same thing as breathing, that is more properly called ventilation – the mechanical movement of air in and out. Instead, respiration is a chemical process releasing energy from food. <http://www.bbc.co.uk/schools/gcsebitesize>

**Respiratory failure** results from inadequate gas exchange by the respiratory system, meaning that the arterial oxygen and carbon dioxide - or both - cannot be kept within normal levels. A drop in the oxygen carried in blood is known as **hypoxemia**; a rise in arterial carbon dioxide levels is called **hypercapnia**. Respiratory failure is classified as either Type I or Type II, based on whether there is a high carbon dioxide level. In Type II there is high carbon dioxide level in the arterial blood.

[https://en.wikipedia.org/wiki/Respiratory\\_failure](https://en.wikipedia.org/wiki/Respiratory_failure)

**Respiratory tract** is the passage formed by the mouth, nose, throat, and lungs, through which air passes during breathing. Same as **respiratory system**. [www.memidex.com/respiratory-tract](http://www.memidex.com/respiratory-tract)

**RNA** is short for **ribonucleic acid**. RNA is used in key metabolic processes for all steps of making protein in all living cells. It carries the genetic information of many viruses. Unlike double-stranded DNA, RNA consists of a single strand of nucleotides, and it occurs in a variety of lengths and shapes. [www.dictionary.com/browse/rna](http://www.dictionary.com/browse/rna)

**Residual volume** is a term using in respiratory function testing for the amount of air that remains in your lungs after you breathe out as much as you can. Tests to measure your residual air volume help check how well your lungs are functioning. It is normal to have some air remain after exhaling – this keeps the lungs from collapsing. Long term COPD and other obstructive lung conditions feature abnormally increased residual volume because of air trapping. This leaves less space for fresh air to be inhaled. <https://myhealth.alberta.ca/Health/pages/conditions.aspx?hwid=str2316&>

**Rhinitis** is inflammation of the mucus membrane of the nose, caused by a virus infection (such as the common cold) or by an allergic reaction (e.g. hay fever). It is also known as **coryza**, is irritation and inflammation of the mucous membrane inside the nose. Common symptoms are a stuffy nose, runny nose, sneezing, and post-nasal drip. In **allergic rhinitis** the inflammation is caused by the degranulation of mast cells in the nose. Allergic rhinitis can also cause a chronic cough. <https://en.oxforddictionaries.com> and Wikipedia



**Sarcoidosis** is a long term condition involving abnormal collections of inflammatory cells that form lumps known as granulomas. The disease usually begins in the lungs, skin, or lymph nodes. Less commonly affected are the eyes, liver, heart, and brain. Wikipedia

**Shortness of breath** (dyspnoea – DISP-knee-ah) has many causes affecting either the breathing passages and lungs or the heart or blood vessels. An average 70 kilogram adult will breathe at an average rate of 14 breaths per minute at rest. Excessively rapid breathing is referred to as hyperventilation. Shortness of breath is also referred to as dyspnoea. Clinicians use the acronym SOB as shorthand for short of breath.

Doctors further classify dyspnoea as either occurring at rest or being associated with activity, exertion, or exercise. They will also ask if the dyspnoea occurs gradually or comes on all of a sudden. Each of these symptoms help to detect the precise cause of the shortness of breath.

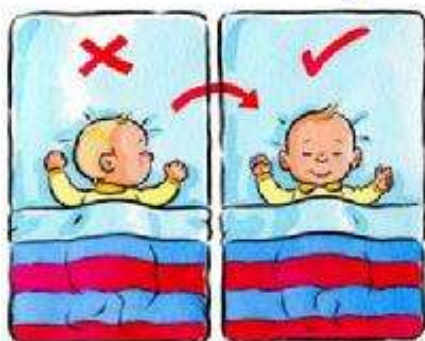
Causes of shortness of breath include asthma, bronchitis, pneumonia, pneumothorax, anaemia, lung cancer, inhalation injury, pulmonary embolism, anxiety, COPD, high altitude with lower oxygen levels, congestive heart failure, arrhythmia in the heart, allergic reaction, anaphylaxis (acute severe allergic reaction), interstitial lung disease, obesity, tuberculosis, emphysema, pulmonary fibrosis, pulmonary artery hypertension, pleurisy, croup, Guillain-Barré syndrome, sarcoidosis, rib fracture, carbon monoxide poisoning, obesity, and aerobic exercise.

[www.medicinenet.com](http://www.medicinenet.com)



**SIDS (Sudden infant death syndrome)**, also known as cot death or crib death, is the sudden unexplained death of a child less than one year of age. Diagnosis requires that the death remains unexplained even after a thorough autopsy and detailed death scene investigation. SIDS usually occurs during sleep. Typically death occurs between midnight and 9am. There is usually no evidence of struggle and no noise produced.

### Safe Sleep for Your Baby



The exact cause of SIDS is unknown. The requirement of a combination of factors including a specific underlying susceptibility, a specific time in development, and an environmental stressor has been proposed. These environmental stressors may include sleeping on the stomach or side, overheating, and exposure to tobacco smoke. Accidental suffocation from bed sharing (also known as co-sleeping) or soft objects may also play a

role.

Another risk factor is being born before 39 weeks of gestation. SIDS makes up about 80% of sudden and unexpected infant deaths (SUIDs). Wikipedia.



Included here because research suggests that an infant's respiratory system is often involved.

**6MWT (6 minute walk test)** is an exercise test used to assess aerobic capacity and endurance. The distance covered over a time of 6 minutes is



measured and compared with other 6MWT results to assess changes in your performance capacity.

It is used with children aged 2-12 years and adults from 18 years and up, with a wide range of diagnoses including: arthritis, fibromyalgia, multiple sclerosis, Parkinson's disease, chronic lung conditions, spinal cord injury, stroke. [www.physio-pedia.com](http://www.physio-pedia.com)

The test is "sub-maximal" in that you are encouraged to walk with usual effort, not as far and fast as you possibly can. It's typically used by pulmonary physiotherapists to monitor walking capacity in people with chronic lung conditions. Now used more often than the shuttle walk test. It is a good assessment of functional capacity and is typical of the kind of walking we do in carrying daily activities.

[www.thoracic.org/statements/resources/pfet/sixminute.pdf](http://www.thoracic.org/statements/resources/pfet/sixminute.pdf)

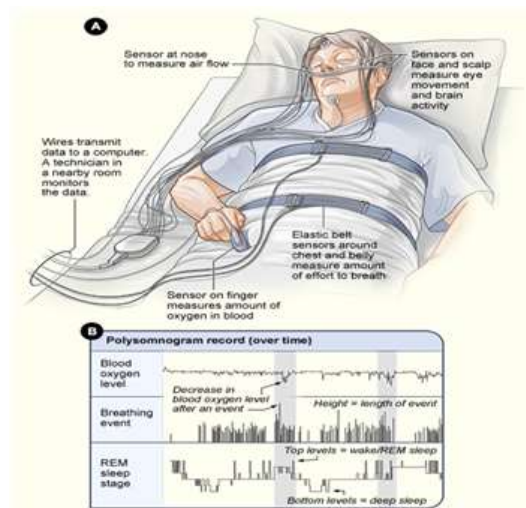
**Sleep apnoea** (AP-ne-ah) is a common disorder in which you have one or more pauses in breathing or shallow breaths while you sleep. Breathing pauses can last from a few seconds to minutes. They may occur 30 times or more an hour. Typically, normal breathing then starts again, sometimes with a loud snort or choking sound. <https://www.nhlbi.nih.gov/>

**Spirometry** (spy-ROM-uh-tree) is a common test used in a doctor's clinic or a lung function testing laboratory, to assess how well your lungs work by measuring how much air you inhale, how much you exhale and how quickly you exhale. Common measurements obtained in spirometry are: Forced vital capacity (FVC) and forced expiratory volume (FEV). FEV was covered in Respiratory A-Z in the autumn 2017 issue. Spirometry is used to diagnose asthma, chronic obstructive pulmonary disease (COPD) and other conditions that affect breathing.

[www.mayoclinic.org](http://www.mayoclinic.org)



**Sleep study or polysomnography** is a test used to diagnose respiratory sleep disorders. It records your brain waves, the oxygen level in your blood, heart rate and breathing, as well as eye and leg movements during the study. It is used to diagnose sleep apnoea (see above) [www.mayoclinic.org](http://www.mayoclinic.org)



**Smoking** hardly needs a definition. However Wikipedia had a go: “a practice in which a substance is burned and the resulting smoke breathed in to be tasted and absorbed into the bloodstream. Most commonly the substance is the dried leaves of the tobacco plant which have been rolled into a small square of rice paper to create a small, round cylinder called a "cigarette"”.

In 2013, 12.8% of Australians aged 14 years or older smoked daily. This compares with 36% of Australians 18 and over in 1977. Two of every three deaths in current long-term smokers can be directly attributed to smoking. Smoking causes an estimated 20% of the nation's cancer disease burden each year.

Studies have shown that risk of dying increases with the number of cigarettes smoked. Smoking just 10 per cigarettes per day doubles your risk of dying and smoking more than 25 cigarettes a day increases your risk of dying four-fold compared to those who have never smoked. Current smokers are estimated to die an average of 10 years earlier than non-smokers.

Tobacco smoke contains more than 7,000 chemicals, over 70 of which are known to cause cancer. When you inhale cigarette smoke these chemicals enter your lungs and spread through your body via blood and lymph systems.

As soon as you quit smoking, there are immediate and long-term health benefits, even if you already suffer from smoking-related health problems. Quitting smoking reduces your risk of dying prematurely with quitting earlier resulting in greater reductions. [www.cancer.org.au](http://www.cancer.org.au)

In the western world, cigarette smoking is the single largest cause of COPD. However, despite being the highest risk group for COPD, regular smokers are less likely than the rest of the population to think of themselves at risk of developing COPD. About 20% of people with COPD never smoked. Other known risk factors are passive smoking, especially during infancy when the lungs are still developing, exposure to environmental agents, including indoor and outdoor air pollutants and occupational dusts and chemicals.

Women may be at greater risk than men of COPD from exposure to smoke at work and are more susceptible to COPD due to smaller lungs and airways and more sensitive airways. Lung Foundation Australia

*(Next issue will cover Vaping)*

**Sinus** is a cavity within a bone or other tissue, especially one in the bones of the face or skull connecting with the nasal cavities. Healthy sinuses are filled with air. But when they become blocked and filled with fluid, germs can grow and cause an infection.



Conditions that can cause sinus blockage include: the common cold, allergic rhinitis, which is swelling of the lining of the nose, small growths in the lining of the nose called nasal polyps, a deviated septum, which is a shift in the cartilage dividing the nose vertically. <https://en.oxforddictionaries.com/>

**Sinusitis** is an inflammation of the lining membrane in any of the hollow areas (sinuses) of the skull around the nose. Sinusitis may be caused by anything that interferes with air flow into the sinuses and the drainage of mucus out of the sinuses. [www.medicinenet.com](http://www.medicinenet.com)

You may hear your doctor use these terms for different types of sinusitis: acute sinusitis which usually starts suddenly with cold-like symptoms such as a runny, stuffy nose and facial pain, lasting 2-4 weeks; subacute sinus inflammation lasting 4 to 12 weeks; chronic inflammation symptoms lasting 12 weeks or longer; and recurrent sinusitis happening several times a year.

[www.webmd.com](http://www.webmd.com)

**Signs vs symptoms** - a **symptom** is any subjective evidence of disease, while a **sign** is objective –anyone can observe it. Blood coming out a nostril is a sign; you can see it and so can your doctor and your family. Symptoms can only be described by the person experiencing them. No one else can observe them. Anxiety, low back pain, and fatigue are all symptoms; only the patient can perceive them. [www.medicinenet.com](http://www.medicinenet.com)

Breathlessness has both subjective and objective elements. The subjective element is the feeling we are all familiar with, the feeling of being short of breath - despite not having run or walked far. **Signs and symptoms of breathlessness** can include: difficulty catching your breath, noisy breathing, very fast, shallow breaths, an increase in your pulse rate, wheezing, chest pain, skin that looks pale and slightly blue, especially around your mouth, cold, clammy skin, using your shoulders and the muscles in your upper chest to help you breathe, anxiety or panicky feelings.

<http://www.cancerresearchuk.org>

**Sputum**, a mixture of saliva and mucus coughed up from the respiratory tract, typically as a result of infection or other disease which may be examined microscopically to aid medical diagnosis. The term **phlegm** is often used interchangeably with sputum.

<https://en.oxforddictionaries.com>. In

comparison **mucus** is the generic term for the slimy substance secreted by the mucus membranes and glands in the body including the respiratory tract and digestive tract. Its purposes include lubrication and protection.

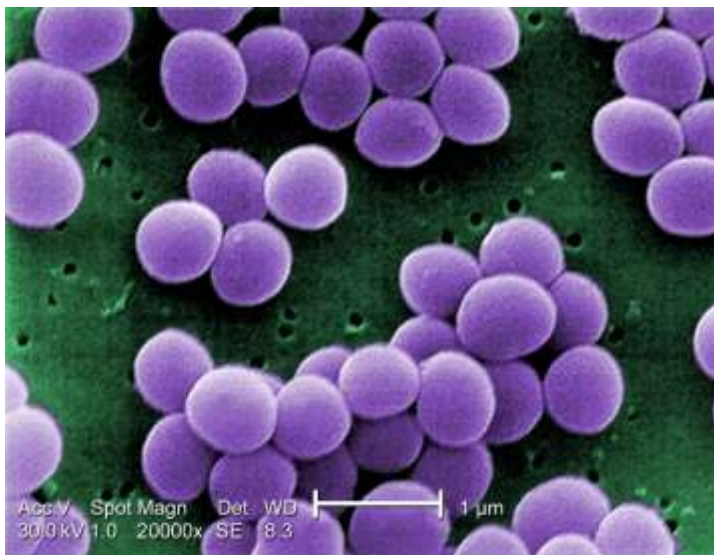


More: The Little Blog of Phlegm <http://littleblogofphlegm.blogspot.com.au/>



**Staphylococcus aureus** (“staph”) *Staphylococcus aureus*, or *S. aureus*, is a common bacterium (*plural* bacteria) that lives on the skin, in the respiratory tract or in the nose. It is also called **golden staph**. (Aurum is the Latin word for gold, and Au is the chemical symbol for gold). *S. aureus* is usually harmless. However, if it enters the body through a cut in the skin, it can cause a range of mild to severe infections, which may cause death in some cases.

[www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au) (Photo credit) By Content Providers(s): CDC/Matthew J. Arduino, DRPH Photo Credit: Janice Haney Carr - This media comes from the Centers for Disease Control and Prevention's Public Health Image Library (PHIL), with identification number #11157. Note: Not all PHIL images are public domain; be sure to check copyright status and credit authors and content providers. English | Slovenščina | +/–, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=7469288>



Although *S. aureus* is not always pathogenic (and can commonly be found co-existing ), it is a common cause of skin infections including abscesses, respiratory infections such as sinusitis, and food poisoning . An estimated 20% to 30% of the human population are long-term carriers of *S. aureus* which can be found as part of the

normal skin flora, in the nostrils, and as a normal inhabitant of the lower reproductive tract of women. *S. aureus* can cause a range of illnesses, from minor skin infections, such as pimples, impetigo, boils, cellulitis, folliculitis, carbuncles, and abscesses, to life-threatening diseases such as pneumonia, meningitis, osteomyelitis, endocarditis, toxic shock syndrome, bacteremia, and sepsis. It is still one of the five most common causes of hospital-acquired infections and is often the cause of wound infections following surgery.

Wikipedia

*S. aureus* (Golden staph) nearly wiped out Breath of L I F E’s editor Jenni when severe pneumonia and sepsis involving *Staphylococcus aureus* lead to respiratory failure and a month in the Intensive Care Unit.

**MRSA** (Methicillin Resistant *Staphylococcus aureus*) is a bacterium that is resistant to many antibiotics. Regular *S. aureus* and MRSA can cause a variety

of problems ranging from skin infections and sepsis (bloodstream infections) to pneumonia.

*In the next issue we'll tackle T onwards. If there's a particular medical term you'd like to have clearly explained, let us know! Contact Jenni at E [life@resphealth.uwa.edu.au](mailto:life@resphealth.uwa.edu.au) or T 9382 4678 or M 0413 499 701.*

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## HOW CAN I GIVE BACK?

Doing something that helps make the world a better place, feels good too. There's always something you can do - no matter how advanced your condition.



1. **Volunteer** for L I F E - help our L I F E group. Or another community organisation near you. Help in the Breath of L I F E mailout or join the L I F E working bee which helps the Institute for Respiratory Health's Clinical Trials Unit. Just speak to Sal at the next L I F E meeting or call her T 9331 3651 E [salhyder1@gmail.com](mailto:salhyder1@gmail.com)
2. **Spread the word** with family and friend. Tell them about L I F E, the Institute for Respiratory Health and respiratory conditions. Our business cards have L I F E contact details and a space for your name and phone number. Contact us for a bundle.
3. **Register with the Clinical Trials Unit** of the Institute for Respiratory Health to take part in the trial of a new respiratory medication. Call T 6457 3198
4. **Become a simulated patient** at the University of Western Australia's School of Medicine and help train doctors of the future. Both people with stable medical conditions and healthy volunteers are required. Call the Doctor of Medicine Team T 6488 7528 E [mdpatients-fmdhs@uwa.edu.au](mailto:mdpatients-fmdhs@uwa.edu.au)
5. **Volunteer to be a research subject** in a medical research project described in Breath of L I F E or in your local paper
6. **Donate** to the work of the Institute for Respiratory Health. Call 6151 0815. Mention the Institute's important research into lung disease to friends and relatives who also might be interested to make a donation.

## SOME USEFUL CONTACTS

Council on the Aging (COTA) voice of older Australians 9472 0104

[www.cotawa.org.au](http://www.cotawa.org.au)

[National Seniors](http://www.national-seniors.org.au) 1300 76 50 50

Connect Groups – peak body for support groups in WA 9364 6909

[www.connectgroups.org.au/](http://www.connectgroups.org.au/)

Lung Foundation Australia 1800 654 301 (Queensland time zone)

[www.lungfoundation.com.au](http://www.lungfoundation.com.au)

[Pulmonary Rehabilitation](#) programs (scroll down to WA) or T 1800 654 301  
- need a respiratory specialist referral.

[Health Direct](#) speak to a registered nurse 1800 022 222

[MyAgedCare](#) aged care services you may be eligible for. Speak to your GP

[Better Health Channel](#) Victorian Government's health information website

[Seniors Services](#) guide

[TED Talks](#) – watch a video of a great speaker on a topic that interests you

[Health Report](#) with Norman Swan ABC Radio National (810 AM) – listen to  
past programs on your computer or smartphone

If you know of other organisations you would like to suggest to list here,  
please contact us.

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## INSTITUTE FOR RESPIRATORY HEALTH

The [Institute for Respiratory Health](#) (formerly LIWA) is a collaborative research organisation. It aims to improve the life of Australians living with respiratory conditions by bringing together world class researchers and dedicated clinicians to investigate, diagnose, treat and prevent respiratory conditions.

The Institute conducts and fosters innovative basic and clinical research and translates their work into improved treatments for people with respiratory conditions in Australia.

The Institute includes a Clinical Trials Unit and the community support group – L I F E for people living with chronic respiratory conditions.

[Membership](#) is open to community members, researchers, health professionals and research students and is due each 1 July. [Your tax deductible donation to the Institute](#) or bequest supports respiratory research.



## About Lung Information & Friendship for Everyone (L I F E)

L I F E - a group for anyone with a chronic lung condition, their family and carers. It's run by, and for, people with chronic lung conditions. Started in 1992 as LISA, our name changed to L I F E in 2009. L I F E is the community support group of [the Institute for Respiratory Health](#). More about the Institute on page 27.

L I F E is also a member of [Lung Foundation Australia](#)'s network of respiratory self help groups T 1800 654 301. L I F E is extremely thankful for the support of the Department of Respiratory Medicine at Sir Charles Gairdner Hospital.



### Breath of L I F E magazine

Our magazine is published 4 times a year - March, June, September & December. It is distributed to all community members of the Institute, including L I F E members. Send your contributions to the editor, Jenni Ibrahim E [life@resphealth.uwa.edu.au](mailto:life@resphealth.uwa.edu.au) 7 Ruislip St, W. Leederville, WA 6007. [Read it online](#).

### L I F E Membership

Join L I F E by becoming a community member of the Institute. Come to a meeting or contact Sarah at the Institute T **6151 0815** or E [life@resphealth.uwa.edu.au](mailto:life@resphealth.uwa.edu.au). Membership fee of \$20 a year (incl. GST) is due each 1 July. Members' help and ideas are always welcome - magazine, speakers, social events. Please be sure to tell us if you change address.

**Seeking information  
about your lung  
condition and how to  
cope with it?**

**Like to meet others in  
a similar situation?**

**Join L I F E!**

### Contacts

**Phone** Coordinator **Jenni Ibrahim** T 9382 4678 M 0413 499 701  
Deputy Coordinator **Sal Hyder** T9331 3651 [salhyder1@gmail.com](mailto:salhyder1@gmail.com)  
**Postal** L I F E c/- Institute for Respiratory Health, Ground Floor E Block, S C G H  
Hospital Ave, Nedlands WA 6009



**Email** [life@resphealth.uwa.edu.au](mailto:life@resphealth.uwa.edu.au) **Web** [L I F E on the Institute website](#) [L I F E also on Facebook](#)

### Meetings

1st Wednesday of every month, February to November from 12 - 2.30pm. Speaker starts at 1.00pm.

**Level 6 Meeting Room 612A, Perkins Institute Building, Queen Elizabeth II Medical Campus, Nedlands.** Wheelchair and gopher accessible. Light refreshments. If you can, please bring a plate to share.

### COMING UP

<b>Wed 7 Feb</b>	Social Meeting - no speaker	Catch up over a cuppa and a bite to eat. Brainstorm discussion topics for 2018
<b>Wed 7 Mar</b>	Laboratory Tour – Institute for Respiratory Health L5, Perkins	12 noon cuppa and a bite in the usual place. At 1pm we'll be taken to L5.
<b>Mon 9 Apr</b>	Autumn lunch 12 noon	Belmont Tavern. Please RSVP by 5 Apr please. More inside.
<b>Wed 4 Apr</b>	Meeting with Speaker	Topic and speaker TBA
<b>Wed 2 May</b>	Discussion on topic of interest	Topic will be decided on 7 Feb.