

The medical challenges

OHS Labour Department conference July 15, 2019

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Objectives

- Defining the medical challenges.
- What are the medical issues?
- Is it real or imagined?
- What is the spectrum of the illness?
- How are the symptoms treated?
- Defining the most vulnerable individuals.

Health

- “A state of complete physical, mental and social wellbeing and is not merely the absence of disease.”

World Health Organization (1948)

From the headlines



barbadostoday.bb



Dr Brian Charles, the former head of the accident and emergency department of the Queen Elizabeth Hospital, who now runs the Sandy Crest and Coverley Medical Centres, expressed concern that so far this year, his clinics were seeing as many as one in ten patients who had fallen ill on the job.

Dr Charles said: “For the second quarter of 2019, six per cent of the attendees at the Sandy Crest Medical Centre came owing to work-related health and safety issues. That is, companies sent them to us after they had fallen ill or sustained injuries that required medical attention while on the job.

“Meanwhile, at Coverley, which caters to people on the south and east coast, that figure was eleven per cent. Now if one of ten people come

Is this sick building syndrome?

Building related illnesses

vs.

Sick building syndrome

Building related illnesses

- Work related asthma
- Hypersensitivity pneumonitis
- Legionnaire's Disease

Work related asthma

- Indistinguishable from “regular” asthma
 - Persistent cough
 - Chest tightness
 - Wheezing
 - Shortness of breath

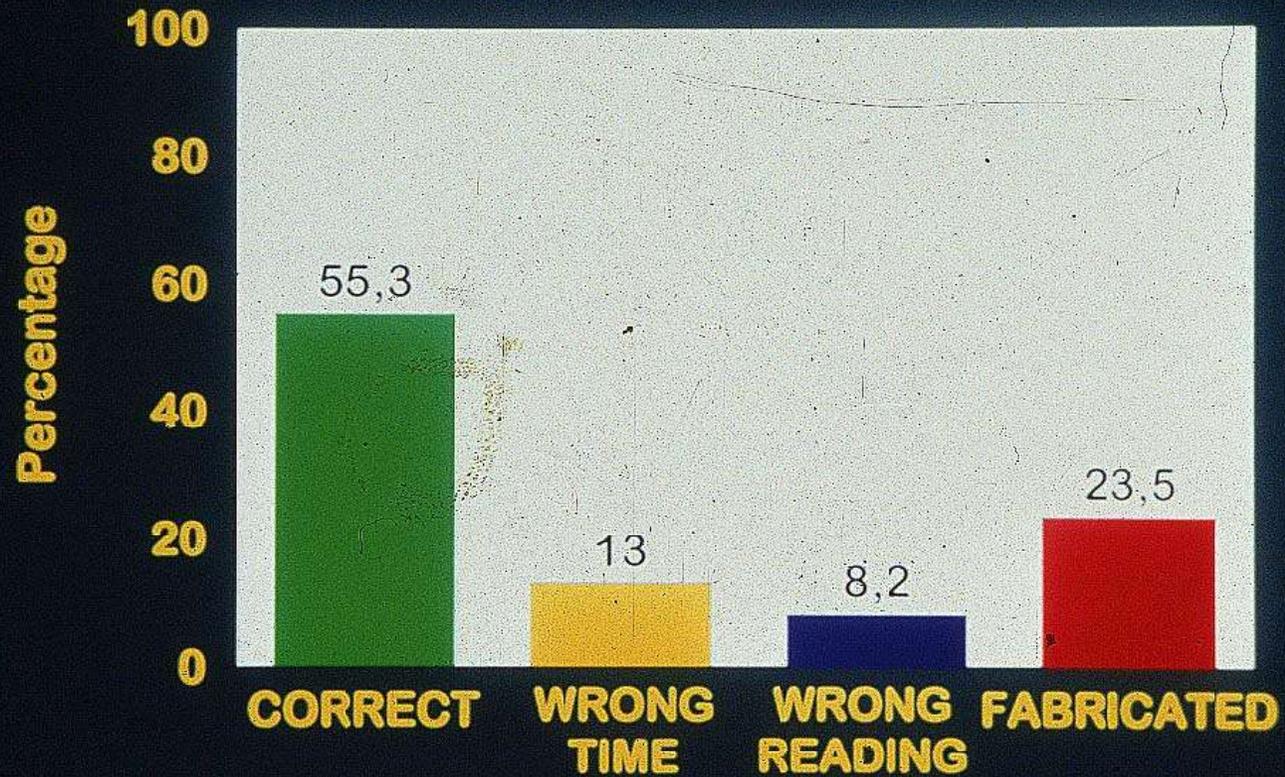
Why is diagnosis of work related asthma important?

- Wrong advice based on medical impression without objective testing →
continued exposure to offending agent(s) leading to worsening asthma or death.
- Unnecessary removal from a job
with considerable financial consequences if work related asthma is not present

Diagnosis

- Documentation of serial peak flow measurements over a two week period
- Documentation of bronchial hyperreactivity

Accuracy of the readings



Quirce et al. Am J Respir Crit Care Med 1995

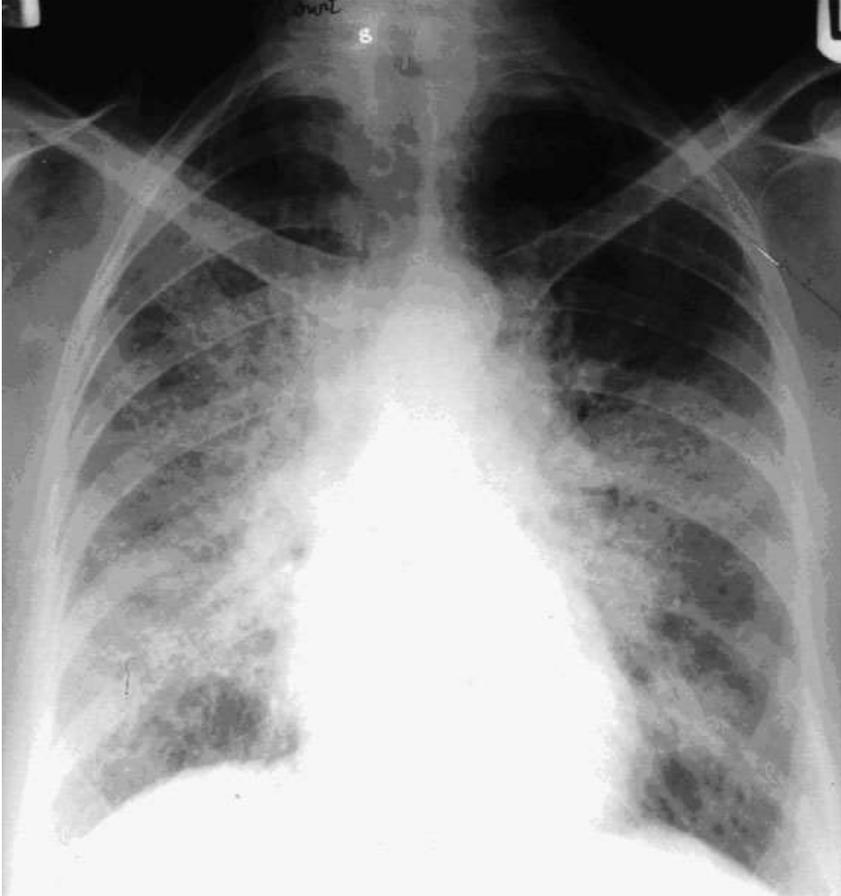


Hypersensitivity Pneumonitis

formerly known as Extrinsic Allergic Alveolitis

- Colloquially known as ‘ farmer’s ’ or ‘ bird fancier’s ’ lung
- Inhaled particles, such as fungal spores or avian proteins, provoke an allergic reaction in the lungs of hypersensitive individuals
- Count as an industrial disease if the exposure was as a result of the individual’s work

Hypersensitivity Pneumonitis Chest X-ray



- Chest X rays may be normal.
- Typically multiple small nodules or ground glass .
- Confirmation of the illness is based on
 - HRCT findings
 - Presence of serum precipitins to the provoking factor (found in more than 90% of patients)

RadioGraphics 2001; 21:1371-1391

InnovAIT, Vol. 1, No. 10, pp. 686-692, 2008

Legionnaires Disease

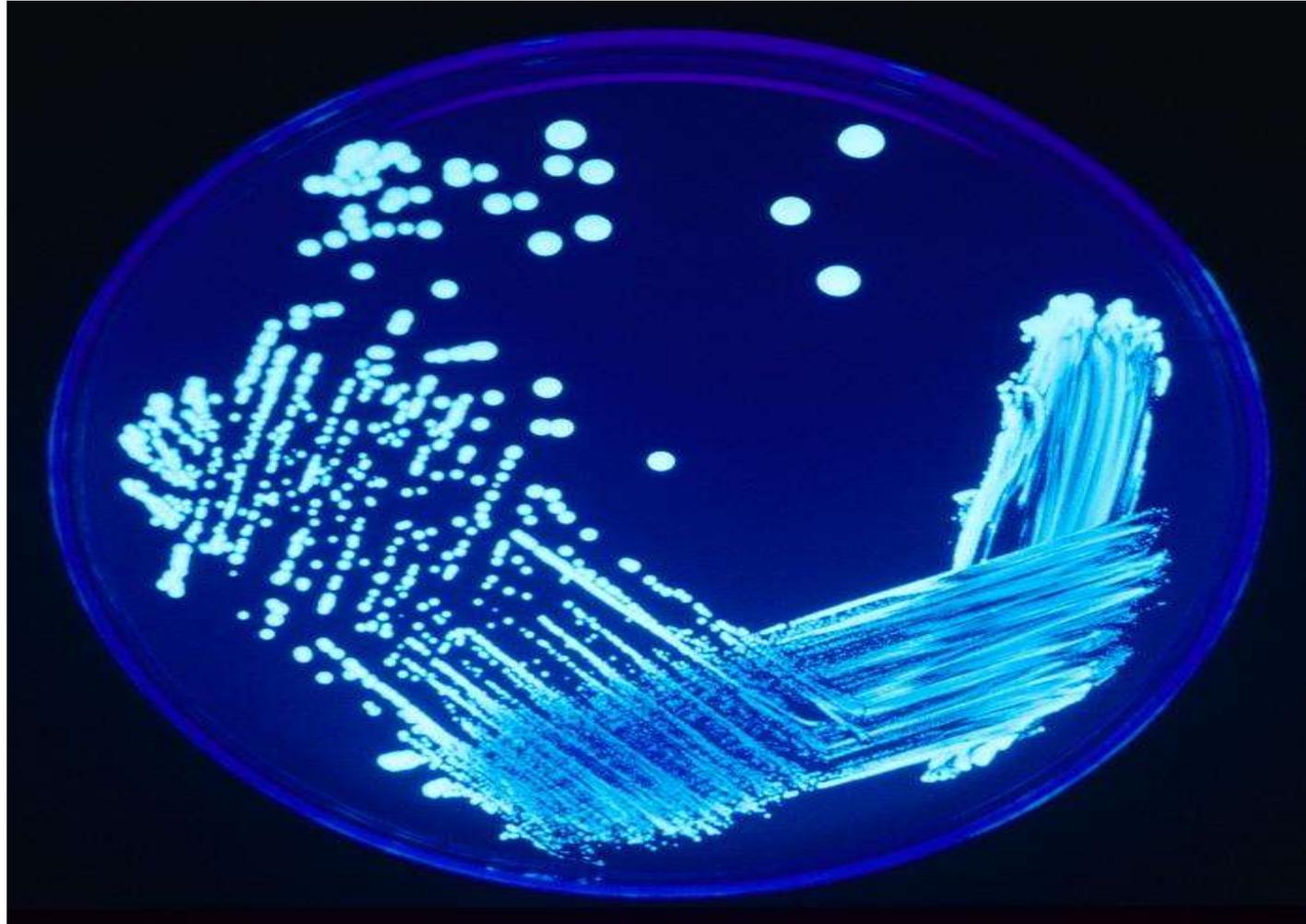
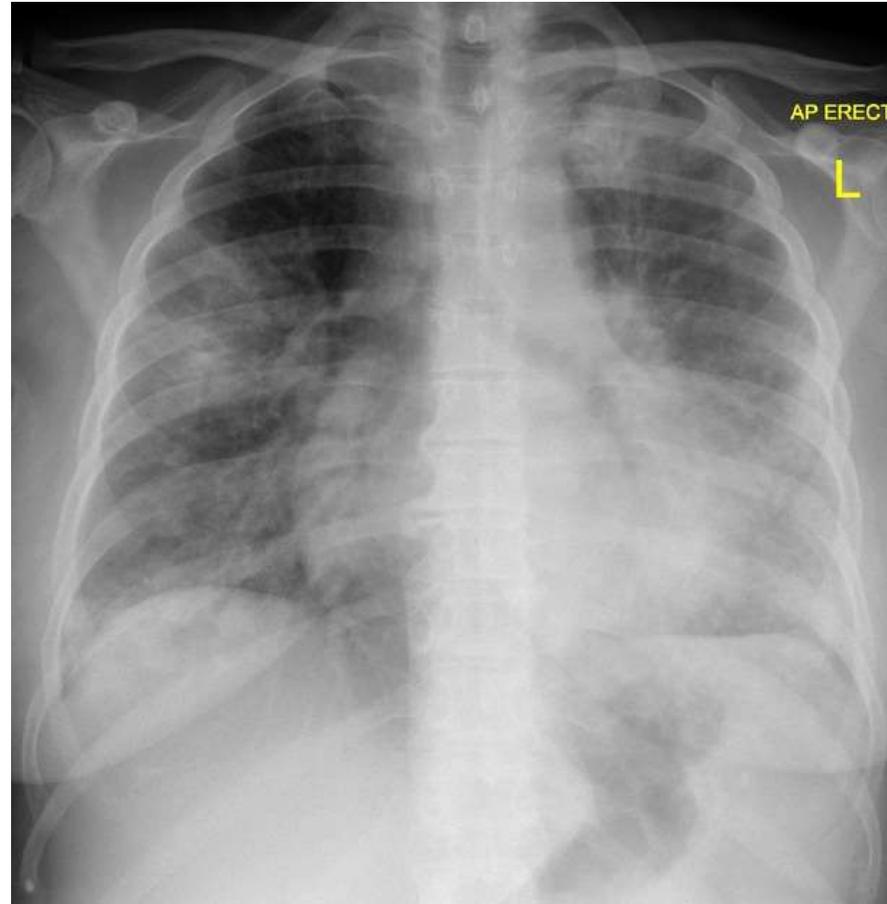
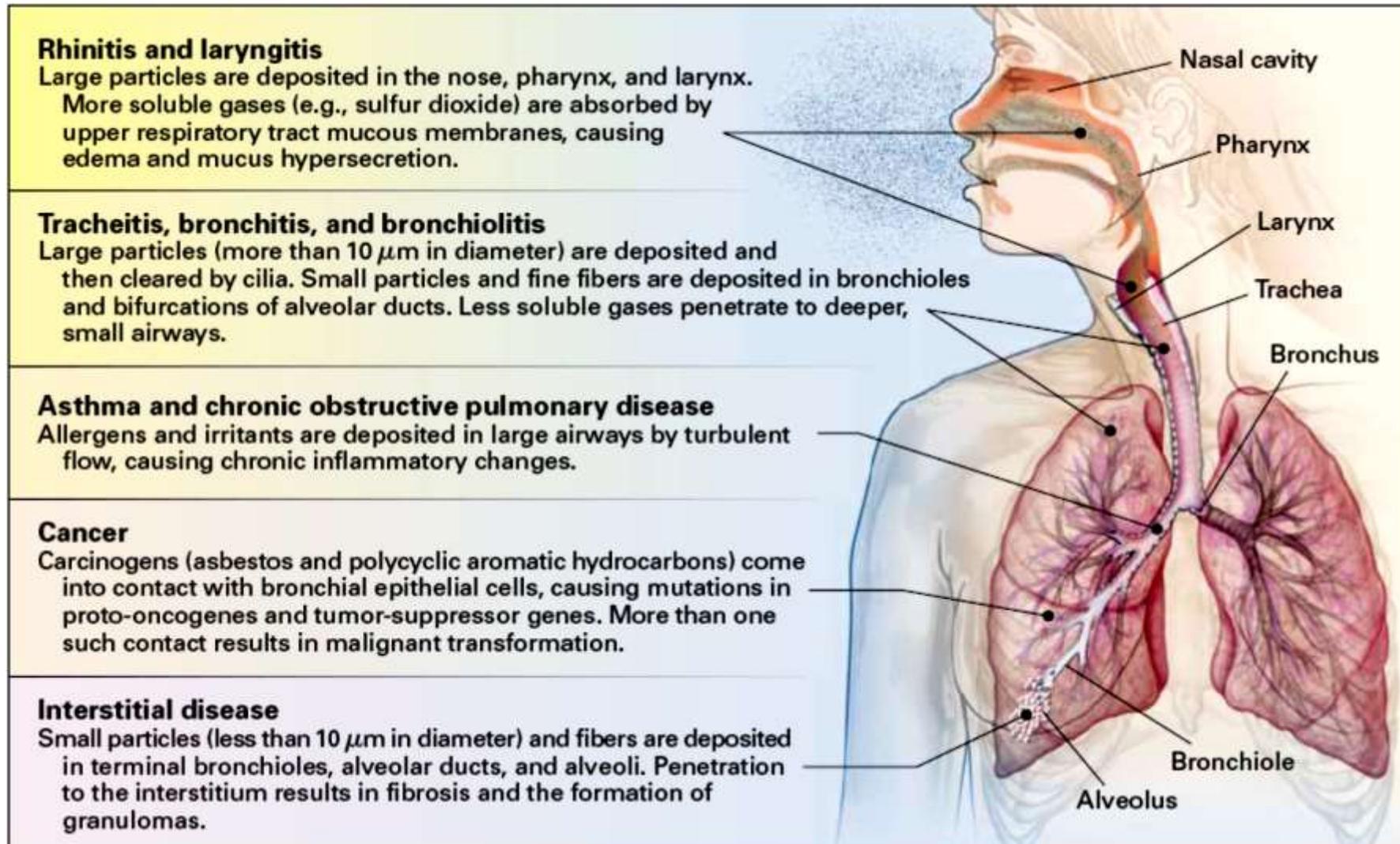


Image credit CDC/James Gathany CDC Public Health Library

Legionnaires Disease

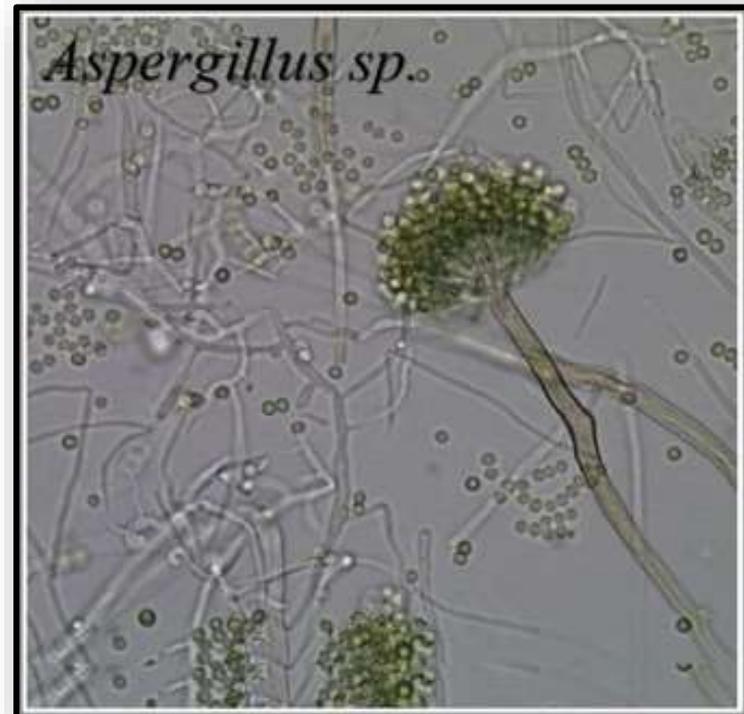
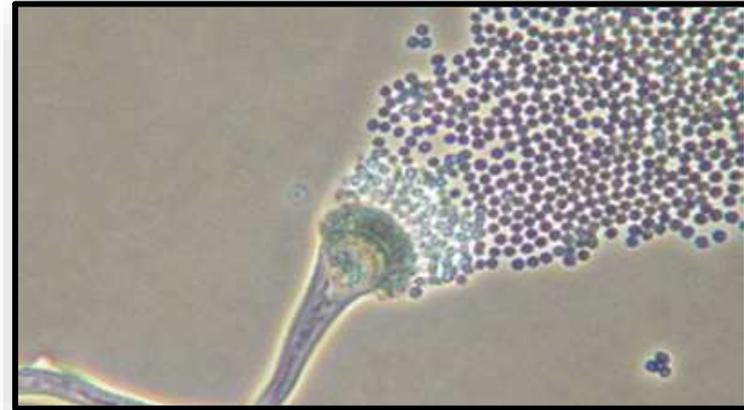


Occupational related respiratory tract illnesses



Clinical manifestations of lung diseases are the same irrespective of the etiology

Mold



Sick Building syndrome

- Strongly suspected when the following conditions have been met:
- -Temporal relationship between symptoms & time spent in a particular building or part of a building.
- Resolution of symptoms when away from the building.
- Seasonal recurrence of symptoms (heating , cooling)
- Co- workers, peers have noted similar complaints.

US Environmental protection agency

Symptoms of Sick building Syndrome

- Headaches
- Nasal stuffiness
- Chest tightness
- Shortness of breath
- Cough – usually dry
- Hoarseness
- Dry or itching skin
- Eye, nose and throat irritation

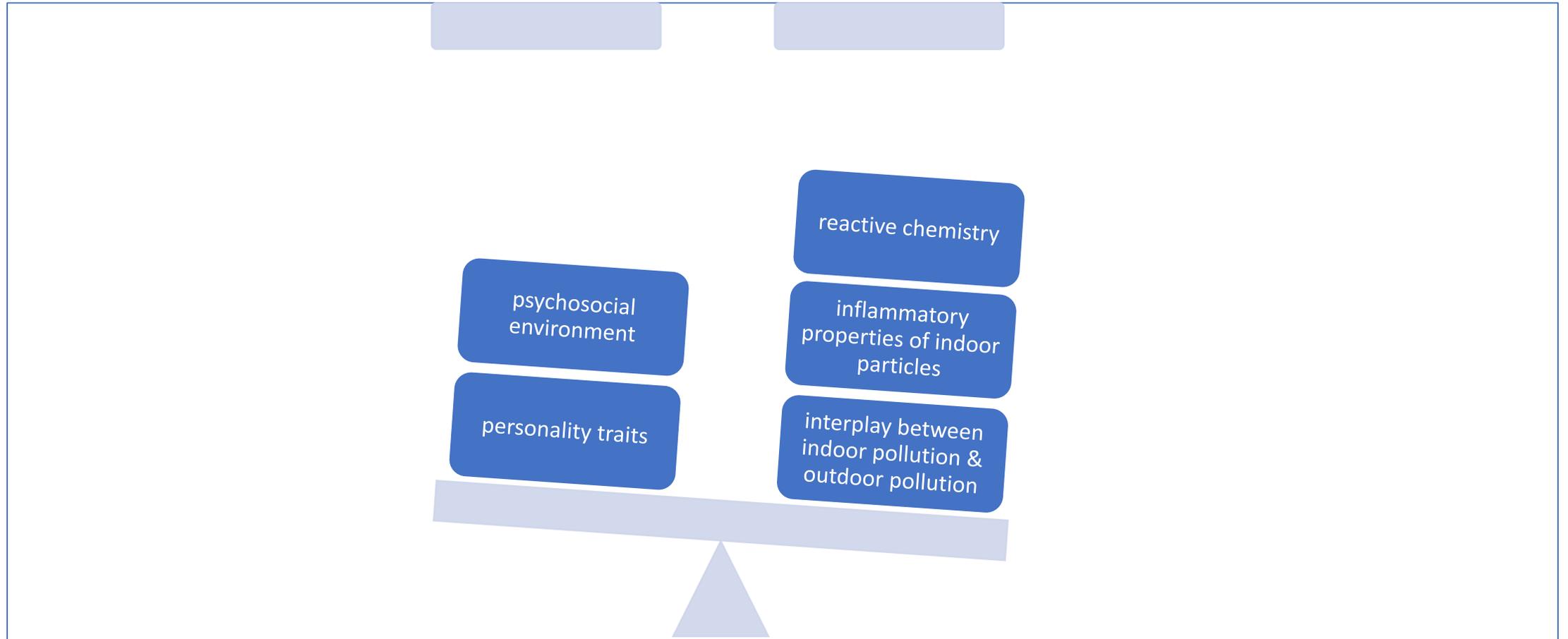
Possible etiologic agents

- Poor indoor air quality
- Mould
- Electromagnetic fields

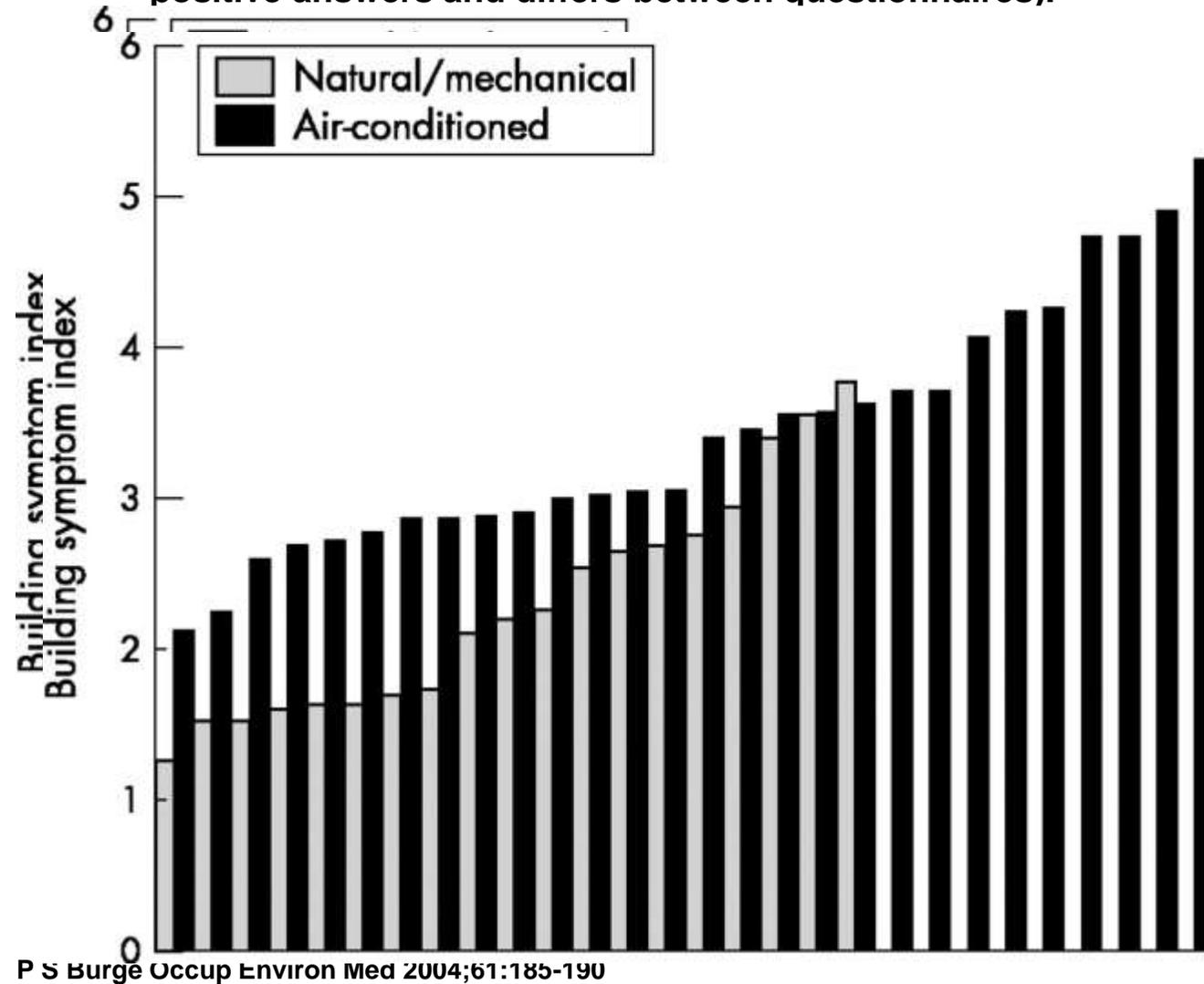
Is there a gender bias?

- FEMALE > MALE

Sick building syndrome



Range of building symptom indices in a group of buildings studied with the same questionnaire with a maximum of 10 symptoms (the actual BSI is dependent on the number of possible positive answers and differs between questionnaires).



Indoor Air Quality (IAQ)- determinants

Carbon dioxide concentrations

Volatile organic compounds (VOCS)

Microbial organisms (Mould, bacteria)

Temperature

Relative humidity

Bioeffluents

Other sources (radon , noise, light , asbestos, lead, vermin)

Concentration of Outdoor air contaminants

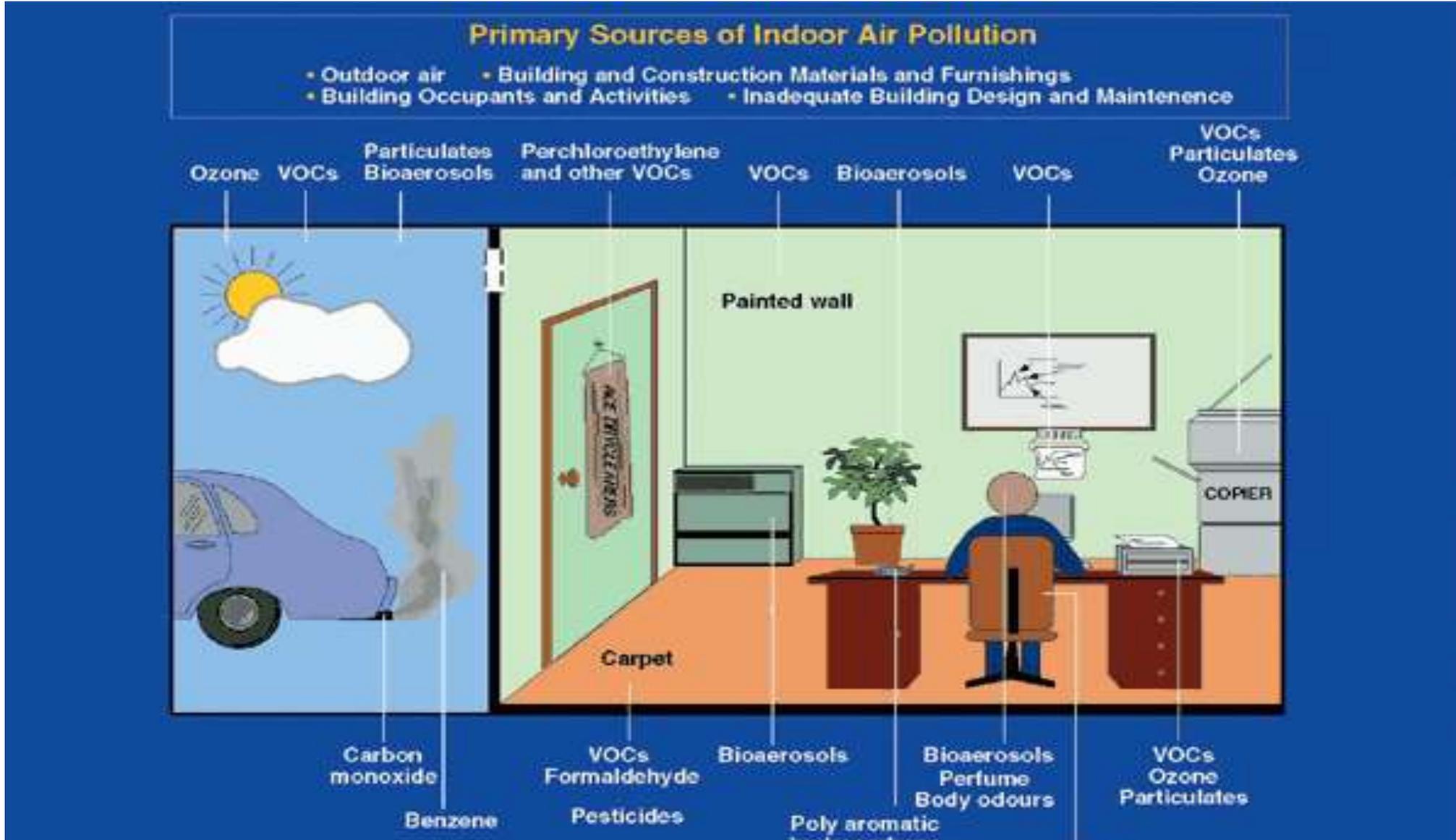
Role of the physician in arriving at the diagnosis

- Careful history taking
- Physical examination
- Ancillary testing to establish a diagnosis

The development of occupational lung disease is dependent on

- The toxic effects of the inhaled substance
- The duration and intensity of exposure
- Individual characteristics

Sources of Indoor Air Pollution in a Typical Office Building



Bringing it home

- PS
- 54 y old bus driver, history of asthma
- Misses work because of sick leave ,on average one week of every month
- Develops severe shortness of breath, chest tightness & wheezing.
- ? What can we do?

Employee #2

- 30 year old woman
- Complaints of chest tightness, itchy and red eyes when she comes to work
- Has worsened to include shortness of breath
- What do you do with her?

Management

- Prevention is always better than the cure!

Management

- Where possible limit exposures!
- Transfer to an alternative worksite may be necessary
- Treatment of symptoms – based on presentation.

Take home points

- A comprehensive history is necessary.
- Diagnostic tools inclusive of imaging , ancillary blood test and lung function testing may be required.
- The physician's role as the patient advocate.
- Complaints should not be dismissed, but seriously addressed.
- The some of the **same** agents which are implicated in building specific illnesses are often implicated in sick building syndrome.

References

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- Thank you