Highlights from this issue

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The Triumvirate

HOME IS WHERE THE REHAB IS

Pulmonary rehabilitation is a central non-pharmacological therapy for the treatment of COPD. However lack of access limits therapy in many cases. In this issue of *Thorax*, Hollande and colleagues use a cheap and effective strategy to bring pulmonary rehab into peoples homes showing it to be as good as centre-based programs (***see page 57***). Now the challenge for both home and centre based programs is to maintain this success for the long term.

TAXI DRIVER

Scorsese's classic movie shows the destructive potential of a rogue taxi driver. In Acute Lung Injury and Acute Respiratory Distress Syndrome neutrophils are delivered to the lung by chemical taxi's where they wreak havoc. Williams and colleagues identify a couple of rogues, CCL2 and CCL7, which work with another inflammatory cytokine CXCL8 to promote ARDS (***see page 1***). However, in contrast with many a Scorsese offering the identification of the bad guys raises hope for a happy ending in ARDS.

THE BIG SHORTENING

The Big Short describes how a group of bankers, including an ex-doctor with an understanding of big data, managed to remodel their pockets following the sudden contraction of the housing market. Contraction of the airways can cause disasters on a much more personal scale. In this issue, doctors (Faiz et al; ***see page 74***) again used big data to identify a new set of receptors, the widow-spider venom binding latrophilin receptors, which promote airway smooth muscle cell proliferation and mediate bronchial contraction. Will Spiderman be able to cure asthma?

NELSON MEETS ITS WATERLOO

The Napoleonic wars were a source of iconic battles from the Battle of Trafalgar to Waterloo. One of the heroes of these wars was Sir Admiral Nelson who famously won the Battle of Trafalgar and his legacy can be seen in central London. The NELSON lung cancer trials have been equally successful demonstrating the value of low dose CT screening. Yousaf-Khan and colleagues describe the fourth round of screening after a 2.5 year interval (***see page 48***). Compared with the previous rounds, the 2.5 year interval reduced the effect of screening with higher rates of interval disease which was more advanced when detected. My my, at Waterloo Nelson did surrender?

EVOLVING EFFLUX

In patients with cystic fibrosis (CF) and chronic pulmonary infection with *Pseudomonas aeruginosa,* the organism tends to become more antibiotic resistant over time and effective treatment is difficult. The CF lung is the ideal environment to promote resistance – antibiotics are administered regularly and yet the infection persists, allowing selective pressure for resistance. Aminoglycoside antibiotics are frequently used to treat *P. aeruginosa* infection in CF and resistance to these antibiotics may arise through efflux pumps, which remove aminoglycosides from the bacterial cell. In this month's journal, Jain and colleagues describe how mutations in the *mexZ* gene (which regulates an important efflux pump) are less common in isolates from newly infected children but become progressively more common in children with chronic infection and chronically infected adults. Efflux pump inhibitors are in development and may be a future treatment option (***see page 40***). Timely eradication of *P. aeruginosa,* to defer chronic infection, is the only available option at present.

IMAGING THE PLEURA – LESS IS MORE

Historically, ultrasound has not been the favoured modality for the respiratory physician because the lungs are usually full of air and ultrasound works better in fluid filled cavities. However, evaluating pleural effusions is an ideal application for ultrasound and specifically determining whether a pleural effusion is complex and needs a chest drain. Complex effusions contain pus or micro-organisms or one of a number of biochemical markers (low pH, raised lactate dehydrogenase or low glucose). Svigals and colleagues compare chest ultrasound, CT and plain radiograph (***see page 94***). Ultrasound comes out top, with a sensitivity of 69.2% and specificity of 90% for detecting complex effusions. CT is a little more sensitive but less specific. For further reading see the BTS pleural infection guideline (*Thorax* 2010;65 Suppl 2: ii41–53).

UNINTENDED CONSEQUENCES

Drugs often have unintended consequences which may be beneficial or harmful. Macrolides are a good example – witness the benefits seen with macrolides in diffuse panbronchiolitis in Japan and more recently with azithromycin in CF. These effects cannot be fully explained by antimicrobial properties. Segal and colleagues describe the effects of azithromycin in an 8 week randomised controlled trial (RCT) in COPD (***see page 13***). They show that, in the azithromycin arm, the lung microbiome alters and there are increased levels of microbial metabolites which have anti-inflammatory actions. An accompanying editorial attempts to untangle the web of causation and makes a plea for analysis of the microbiome to be included as a secondary outcome in future RCTs (***see page 10***).

SOMETHING FISHY FROM NORFOLK

Fish scales have no place in the respiratory tract. This month's image shows how a surprising biopsy appearance made an unexpected diagnosis crystal clear (***see page 98***).