**Project Title:**
The effect of long-acting bronchodilators on expiratory flow limitation in chronic obstructive pulmonary disease (COPD)  

**Code:** WOOL3

| Host School/ Institute | Address: Woolcock Institute of Medical Research  
431 Glebe Point Road, Glebe, 2037 & Concord Hospital |
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**Project Type:** Design, Data Analysis, Clinical

**Project Category:** Chronic Diseases/Illness, Physiology, Respiratory

**Project Keywords:**
1. bronchodilators
2. chronic obstructive pulmonary disease
3. lung disease
4. long acting beta-2 agonists
5. long acting muscarinic antagonists

**Project Description:**

Chronic obstructive pulmonary disease (COPD) is a common condition in adults often caused by cigarette smoking. Pathologically, the small airways are affected early in the disease. Clinically, patients present with variable severity of breathlessness. COPD is diagnosed by the presence of airflow limitation using spirometry, and the efficacy of treatment with inhaled long acting bronchodilators is based on changes in spirometric parameters. However, spirometry is insensitive to changes in small airway function. The forced oscillation technique (FOT) is a method that assesses lung function during normal breathing and is able to detect changes in small airway function. In particular, FOT can detect expiratory flow limitation in COPD, i.e. where the maximum flow of air out of the lungs is limited during normal breathing, most likely due to pathological narrowing or tendency to closure in the small airways.

We are interested in understanding the acute effects of inhaled long-acting bronchodilators on small airway function, specifically expiratory flow limitation in COPD. The successful candidate will assist in measuring lung function with spirometry and FOT before, during and after the inhalation of a long acting bronchodilator. He/she will also analyse the collected data to compare the changes in small and large airway function over time. He/she will learn about conventional and state-of-the-art techniques to measure lung function, methods of statistical analyses, and gain insight into clinical and scientific research. This work will form part of a larger project undertaken by a postgraduate student examining the role of small airway function in COPD.