

# APSR Respiratory Research Review

Making Education Easy

Issue 8 - 2007

## In this issue:

- *Invasive pneumococcal disease caused by nonvaccine serotypes*
- *Sublingual immunotherapy for hayfever*
- *Smoking and response to asthma therapy*
- *Trends in hospital admissions and mortality from asthma and COPD*
- *ICS and lung cancer risk in COPD*
- *Detection of extra-pulmonary lesions with integrated PET/CT*
- *Automatic detection of sleep-disordered breathing*
- *A baculovirus-expressed hemagglutinin influenza vaccine*
- *Pleurodesis with talc poudrage in malignant pleural effusion*
- *Long-term follow-up of thoracoscopic talc pleurodesis*

## Welcome to APSR Respiratory Research Review.

APSR Respiratory Research Review is a unique publication providing topical, relevant and accessible information for healthcare professionals working in the area. In each edition our independent reviewers hand-pick some of the most important studies from key international and local journals. The Review summarises each study in an easy to read format, and provides commentary on the importance of the work and implications for clinical practice in the Asia Pacific region. Web links to the abstract or fully published papers are also provided where possible so you can make your own judgements.

We hope you enjoy the latest edition and welcome your feedback.

## Invasive pneumococcal disease caused by nonvaccine serotypes among Alaskan native children

**Authors:** Singleton R et al

**Summary:** This study utilised longitudinal surveillance of invasive Streptococcus pneumoniae infections in Native Alaskan Children (younger than 2 years), to determine whether a decline in invasive pneumococcal disease is associated with replacement disease caused by serotypes not contained in the heptavalent conjugate vaccine. Invasive pneumococcal disease decreased by 67% in Alaskan Native children ( $p < .001$ ) in the three years following the introduction of routine vaccination with heptavalent pneumococcal conjugate vaccine. However in the periods between 2001-2003 and 2004-2006 there was an 82% increase in invasive disease to 244.6/100,000 ( $p = 0.02$ ). The invasive pneumococcal disease rate caused by nonvaccine serotypes had increased by 140% since 2004 compared with the prevaccine period ( $p = 0.001$ ) and there was a 96% decrease in heptavalent vaccine serotype disease. Of the invasive pneumococcal disease reported, 28.3% was serotype 19A. No significant difference in nonvaccine disease was noted.

**Comment:** A warning from Alaska about the emergence of serotypes not covered by the heptavalent pneumococcal conjugate vaccine. It is likely that this experience may occur in countries in the Asia Pacific region. These findings demonstrate the importance of ongoing surveillance and development of expanded valency vaccines.

<http://jama.ama-assn.org/cgi/content/abstract/297/16/1784>

**Reference:** JAMA. 2007; 297:1784-1792.



12th CONGRESS OF THE APSR/  
2nd JOINT CONGRESS OF THE APSR/ACCP  
30 November - 4 December 2007

Gold Coast Convention Centre  
& Exhibition Centre  
Queensland, Australia

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

apsr  
2007  
ASIAN PACIFIC SOCIETY OF RESPIROLOGY

## Sublingual immunotherapy with grass pollen in symptomatic youngsters

**Authors:** JRoder E et al

**Summary:** The authors sought to determine the efficacy of sublingual immunotherapy (SLIT) for 168 children aged 6-18 years with hayfever. Subjects received placebo or grass pollen mix (verum) for 2 years, and were assessed for hayfever symptoms using a 15 point symptom scale during May to August of the second year. There were no significant between-group differences in mean total daily symptom score ( $p = 0.78$ ), rescue medication-free days, or disease-specific quality of life. Adverse event rates were significantly higher in the verum group (39%) than with placebo (17%;  $p = 0.001$ ). The authors concluded that grass pollen sublingual immunotherapy is not effective for the treatment of hayfever in children and cannot be recommended as a therapeutic modality for general practitioners in this regard.

**Comment:** An important negative study reporting that sublingual immunotherapy (SLIT) with grass pollens is not effective in children and adolescents with hayfever. This is disappointing as SLIT is generally considered preferable to subcutaneous immunotherapy, due to its convenience of use and safety profile. Further data on the efficacy of SLIT will need to be critically examined, particularly its use in adults.

<http://www.jacionline.org/article/PIIS0091674907000036/abstract>

**Reference:** *J Allergy Clin Immunol.* 2007; 119:892-8

*Independent commentary  
by Professor Richard Beasley*

*Research Review  
publications are intended for  
Medical Professionals*

## Impact of smoking on the response to asthma therapy

**Authors:** Lazarus S et al

**Summary:** This multicentre, placebo-controlled, double-blind, double-dummy, crossover trial ( $n = 83$ ) aimed to determine whether the benefits of inhaled corticosteroids or a leukotriene receptor antagonist were attenuated in individuals with asthma who smoked. Mild asthmatics who smoked lightly or were non-smokers were randomised to treatment with inhaled beclomethasone (bid) or oral montelukast (od). Smokers were found to have significantly more symptoms, worse quality of life, and lower daily peak flow than non-smokers, despite similar FEV<sub>1</sub>, bronchodilator response and sensitivity to methacholine at baseline. There was no significant difference between non-smokers and smokers with respect to adherence to therapy. Sputum eosinophils and eosinophil cationic protein (ECP) were significantly reduced by beclomethasone for both groups, however FEV<sub>1</sub> (170 ml,  $p = 0.0003$ ) was increased for non-smokers. Morning peak flow was significantly greater following treatment with montelukast for smokers (12.6 L/min,  $p = 0.002$ ), but not for non-smokers. The attenuation of response by smokers to corticosteroids suggests that standard therapy may require modification to attain asthma control. The greater improvement seen with montelukast suggests that leukotriene receptor antagonists may be beneficial.

**Comment:** The attenuated response to ICS therapy in smokers with asthma is well recognised, although whether the preferred therapeutic response is to use higher doses of ICS or alternative medications is uncertain. This study suggests that montelukast may have preferential efficacy in smoking asthmatics and that LTRAs may represent a therapeutic option.

<http://ajrccm.atsjournals.org/cgi/content/abstract/175/8/783>

**Reference:** *Am J Respir Crit Care Med.* 2007; 175:783-90

## Trends in hospital admissions and mortality from asthma and COPD

**Authors:** Wilson D

**Summary:** This retrospective analysis considers trends in the treatment and outcomes for asthma and COPD including hospital admissions, ventilatory support, burden-of-disease rankings and mortality data. During the decade of data gathering, hospital admissions for asthma declined, however those for COPD increased significantly. Mortality rates declined for both males and females with asthma and males with COPD, however mortality increased for women suffering from COPD. Hospitalisation rates for men with COPD have fallen but those for women are still increasing. The authors suggest that there is a need for greater prioritization of COPD including initiatives to support prevention, reduction in smoking in women, pulmonary rehabilitation and relevant drug therapies.

**Comment:** Congratulations to all those involved in the public health programmes that have markedly reduced morbidity and mortality from asthma in Australia. The asthma programmes serve as a model for other countries within the region. However this study also highlights the huge public health burden from COPD and the requirement for additional public health strategies.

[http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&list\\_uids=17437395&cmd=Retrieve&indexed=google](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&list_uids=17437395&cmd=Retrieve&indexed=google)

**Reference:** *MJA.* 2007; 186:408-11

**Privacy Policy:** APSR will record your email details on a secure database and will not release it to anyone without your prior approval. APSR and you have the right to inspect, update or delete your details at any time.

**Disclaimer:** This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.

## 2nd Asia-Pacific Congress of Bronchology

Singapore

12th – 16th July 2007

- Latest developments in bronchology and thoracoscopy
- World-renowned experts perform training procedures
- Best video, oral and poster competition with prizes
- Learn flexible diagnostic and therapeutic bronchoscopy, rigid bronchoscopy and thoracoscopy

visit [www.apcb2007.com](http://www.apcb2007.com) today!

## Inhaled corticosteroids and risk of lung cancer in patients with COPD

**Authors:** Parimon T et al

**Summary:** This cohort study assessed the impact of inhaled corticosteroids on lung cancer risk in patients with COPD. The cohort comprised 10,474 US veterans enrolled in primary care clinics, with a median follow-up of 3.8 years. The analysis controlled for confounding factors including age, smoking status, smoking intensity, previous history of non-lung cancer malignancy, coexisting illnesses, and bronchodilator use. Inhaled corticosteroid use was associated with a dose-dependent decrease in the risk of lung cancer. Hazard ratio for lung cancer with inhaled corticosteroid use was 1.3 (95% CI, 0.67–1.90) at doses of < 1,200 µg/d, and 0.39 (95% CI, 0.16–0.96) at doses of > 1,200 µg/d. The authors conclude that whilst further confirmatory research is needed, these results suggest that “inhaled corticosteroids may have a potential role in lung cancer prevention among patients with COPD.”

**Comment:** The findings of this study have major public health significance, when one considers that lung cancer is the most common cause of cancer-related death, that the most common cause of death among subjects with COPD is lung cancer, and that inhaled corticosteroids have now been shown to have efficacy in the treatment of moderate to severe COPD.

<http://ajrccm.atsjournals.org/cgi/content/abstract/175/7/712>

**Reference:** *Am J Respir Crit Care Med.* 2007; 175:712-9]

## Detection of extrapulmonary lesions with integrated PET/CT in the staging of lung cancer

**Authors:** De Wever W et al

**Summary:** This retrospective study (n=217) considered the value of positron emission tomography (PET)/computed tomography (CT) compared to CT and PET used alone, in the detection of unexpected extrapulmonary lesions in the staging of patients with a malignant pulmonary lesion. Overall 108 lesions were detected, with PET/CT being significantly more effective than CT or PET alone. The sensitivity, specificity, positive and negative predictive values and accuracy of the PET/CT was 100, 81, 71, 100 and 87% for the detection of extrapulmonary lesions and 92, 98, 89, 98 and 97%, respectively, for the detection of malignant extrapulmonary lesions.

**Comment:** This study highlights the limitations of conventional CT scanning for lung cancer, and the potential advantages of integrated CT/PET scanning. Greater access to PET scanning represents yet another priority for respiratory medicine in the Asia Pacific region.

<http://www.erj.ersjournals.com/cgi/content/abstract/29/5/995>

**Reference:** *Eur Respir J.* 2007; 29: 995-1002

## Automatic detection of sleep-disordered breathing from a single-channel airflow record

**Authors:** Nakano H et al

**Summary:** The investigators sought to design and validate a novel computer algorithm to aid in the performance of single-channel airflow monitors for screening of sleep-disordered breathing (SDB). The algorithm was developed to obtain a time series (flow-power) using power spectral analysis, which represents fluctuation in the airflow signal amplitude. One hundred of the 399 polysomnography records were used for the algorithm development and 119 were used for validation. For the validation group, areas under the receiver operating curves in the diagnosis of SDB (apnoea/hypopnoea index >5) for the thermal sensor, thermocouple and nasal pressure system records were 0.96, 0.95 and 0.95 respectively whilst diagnostic sensitivity/specificity ratios of the flow-RDI were 96/76, 88/80 and 97/77%, respectively. Use of an optimised analytical algorithm may enable use of a single-channel airflow monitor to automatically detect sleep disordered breathing.

**Comment:** Reliable, simple and inexpensive methods to diagnose sleep disordered breathing (SDB) are urgently required if population-based screening is to be attempted. This study provides evidence that SDB can be detected utilising a computer-based algorithm of airflow records derived from either thermal or nasal pressure sensors. The system needs no manual edit and is relatively accurate. The findings raise the possibility that simple portable monitors may be developed for population-based screening for SDB.

<http://www.erj.ersjournals.com/cgi/content/abstract/29/4/728>

**Reference:** *Eur Respir J.* 2007; 29:728-36

*Research Review is an online medical publication company.*

*Research Review electronic journals are independent, free to recipients and delivered by email. To enrol a colleague or to unsubscribe please contact :*

*Secretariat, Asian Pacific Society of Respiriology, Yoshikawa Bldg. No. 2, 2-9-8 Hongo, Bunkyo-ku, Tokyo, Japan 113-0033 email: kyu00671@nifty.com*

*Research Review acknowledges the kind support of*



> **advertise your conference,  
job or service here**

**Contact:** [office@researchreview.co.nz](mailto:office@researchreview.co.nz)

## Long-term follow-up of thoracoscopic talc pleurodesis for primary spontaneous pneumothorax

**Authors:** Györök S et al

**Summary:** This follow-up study (n =63) evaluated the long-term outcome of patients with spontaneous pneumothorax who underwent talc pleurodesis for prolonged air leak or recurrence using thoracoscopy. Four patients had died since the procedure however causes of death were unrelated to pleurodesis and no episodes of acute respiratory failure were reported. Of the 59 patients 95% were considered a long-term success with 5% of patients requiring surgical pleurectomy for persistent air leak. At follow up those patients with successful talc pleurodesis had a median forced vital capacity (FVC) of 102% and median total lung capacity of 99%. The forced expiratory volume in one second (FEV1) was significantly lower for smokers with a tendency for a lower FEV1/FVC ratio compared to non-smokers. For non-smokers thoracoscopic talc pleurodesis in patients with primary spontaneous pneumothorax was found to be an effective procedure associated with normal lung function.

**Comment:** Reassuring data regarding the short-term and long-term safety and efficacy of thoracoscopic talc pleurodesis in patients with primary spontaneous pneumothorax. The accompanying editorial is worth reading (Eur Respir J 2007; 29: 619-21).

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>

**Reference:** *Eur Respir J.* 2007; 29:757-60

## Safety of pleurodesis with talc poudrage in malignant pleural effusion

**Authors:** Janssen J

**Summary:** This prospective, multicentre, open-label, cohort study (n =588) sought to establish whether use of large-particle-size talc is safe for patients with malignant pleural effusion. There were no reports of acute respiratory distress syndrome following thoracoscopy and talc poudrage (95% CI 0-0.54%). Patient mortality within 30 days of the procedure was 2% and 1.2% of patients suffered non-fatal complications including one case of respiratory failure due to unexplained bilateral pneumothorax. The authors conclude that "use of large particle talc for pleurodesis in malignant pleural effusion is safe and not associated with the development of acute respiratory distress syndrome".

**Comment:** This study should put to rest the concerns regarding the safety of thoracoscopic talc pleurodesis – at least with the regime used in this study. As discussed in the accompanying editorial (Lancet 2007; 369; 1494-5) the crucial issue is likely to be the size of the particles of talc. Thoracoscopic talc poudrage can now be recommended as the Gold standard treatment for malignant pleural effusions.

[http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tmpl=NoSidebarfile&db=PubMed&cmd=Retrieve&list\\_uids=17482984&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tmpl=NoSidebarfile&db=PubMed&cmd=Retrieve&list_uids=17482984&dopt=Abstract)

**Reference:** *Lancet* 2007; 369:1535-9

## Safety and immunogenicity of a baculovirus-expressed hemagglutinin influenza vaccine

**Authors:** Treanor JT et al

**Summary:** This randomised, double-blind, placebo-controlled clinical trial in 460 healthy adults assessed the safety, immunogenicity, and efficacy of an experimental influenza vaccine. The vaccine, a trivalent influenza virus hemagglutinin (rHA0) vaccine, was produced in insect cells using recombinant baculoviruses. Subjects received a single injection of 75 µg of an rHA0 vaccine (15 µg of hemagglutinin from influenza A/New Caledonia/20/99[H1N1] and influenza B/Jiangsu/10/03 and 45 µg of from influenza A/Wyoming/3/03[H3N2] virus) or 135 µg of rHA0 (45 µg of hemagglutinin from each of the 3 strains) or placebo. Pre and 28-day post-vaccination serum samples were assessed for rates of 4-fold or greater increases in serum hemagglutinin inhibition antibody. There were no between-group differences in rates of local or systemic adverse effects. H1 component hemagglutinin inhibition antibody responses were observed in 3, 51 and 67% of subjects receiving placebo, 75 and 135-µg vaccine respectively. Response rates to the B and H3 components were 4, 65 and 95%, and 11, 81 and 77% respectively. Influenza-like illness occurred in 4.6% of placebo patients and 1.3 and 0% of the 75 and 135-µg vaccine recipients respectively.

**Comment:** The development of alternative methods for influenza vaccine production is considered a high public health priority. This study investigates the use of recombinant DNA techniques, a similar approach to that used in the production of the highly effective vaccines for the prevention of hepatitis B virus and human papillomavirus. Clearly there is a major research effort in this field – watch this space.

<http://jama.ama-assn.org/cgi/content/abstract/297/14/1577>

**Reference:** *JAMA.* 2007; 297:1577-82

> advertise your conference,  
job or service here

Contact: [office@researchreview.co.nz](mailto:office@researchreview.co.nz)