

A Comparison of Pneumococcal Vaccination Strategies and the Estimated Public Health and Economic Impact in Kuwait

K. Abd E-Moneim^{1,*}, M. Elsobky¹, M. Safwat², S. Pugh¹

¹ Pfizer

² IQVIA

Background/Objectives: Pneumococcal conjugate vaccines (PCV) have significantly reduced the burden of invasive (IPD) and non-invasive pneumococcal disease, globally. In Kuwait, after 11 years of PCV use (PCV7→2006; PCV13→2010) in the National Immunization Program, disease has declined to negligible levels. The objective of this study was to forecast the clinical and economic impact of maintaining PCV13 compared with switching to a lower, 10-valent vaccine (PCV10).

Methods: A decision-analytic model was adapted to estimate the clinical and economic impact of vaccination strategies in Kuwait. IPD incidence from 2003–2013 was obtained from published literature across 5 age groups (<2, 2–5, 6–50, 51–65, >65 years). Pneumonia (PNE) and acute otitis media (AOM) incidences were estimated from IPD in Kuwait and adjusted based on the proportion of IPD to mucosal disease observed in Canada, a population with similar demographics due to ex-patriot residency in Kuwait. Costs and risk of disease-specific complications were derived from expert interviews. For each vaccination program, health outcomes and health-care costs were estimated. The Netherlands serotype trends were used to model PCV10 impact due to the similar history of PCV7/PCV10 use.

Results: Maintaining PCV13 was estimated to result in fewer cases of invasive pneumococcal disease (–430), pneumonia (–4,559), otitis media (–118,443) and 119 fewer deaths than switching to PCV10 over 10 years. PCV13 was found to be cost-effective at 8,483 KWD per quality adjusted life-year (QALY) (<1x GDP) compared to PCV10 in the base case and was either cost-effective or cost-saving across a number of scenario analyses.

Conclusion: After 11 years of successful PCV use in Kuwait, maintaining PCV13 is estimated to prevent an incremental 123,432 disease cases and save 119 lives at a cost-effective value compared with switching to PCV10.

<https://doi.org/10.1016/j.jiph.2018.10.048>

Ameliorative effect of hydrated sodium calcium aluminium silicates (HSCAS) in Cadmium induced hemato-biochemical changes in male Japanese quail (*Coturnix japonica*)

W. Ahmad^{*}, I. Khan, M. Awais, M. Farooq

University Of Veterinary And Animal Sciences,
Subcampus-jhang, Pakistan

Cadmium (Cd) is an environmental pollutant present in the industrial wastes and known highly toxic to wild and domestic animal species. The objective of the present study was to evaluate the hemato-biochemical effects induced by cadmium and to assess the ameliorative effect of hydrated sodium calcium aluminium silicates (HSCAS) in male Japanese quail (*Coturnix japonica*). A total of 180 male Japanese quails (*Coturnix japonica*) were divided into 9 groups. The HSCAS and Cd were also administered in different doses. Different biochemical enzymes kits and hemato-logical methods were applied to determine serum biochemical and hematological variations. The results of the study revealed that concurrent administration of HSCAS and Cd protected the quail from adverse effects of Cd toxicity. At 20th day of experi-

ment, hemoglobin values of group B, C, F, and H were significantly lower than group A (control), while group D, E, G and I were non-significantly different as compared to group A. Values for packed cell volume of group B, C and F were significantly lower than control group, while groups D, E, G, H and I were non-significantly different as compared to group A. At 60th day of experiment, values for packed cell volume for group B, C and H were significantly lower, while values for other groups remained non significant. At 20th day, values for serum biochemical parameters like serum total protein, serum albumen and globulin were non-significant. However, the concentration of alanine aminotransferase in group B and C and aspartate aminotransferase in group C and F were fairly higher as compared to control. HSCAS proved as useful product in reducing Cd toxicity in quail models.

<https://doi.org/10.1016/j.jiph.2018.10.049>

Molecular and Sero Prevalence of Tuberculosis among children presented with chronic cough in public hospitals of Faisalabad, Pakistan

W. Ahmad^{1,*}, M. Ali², I. Khan¹, M. Awais¹

¹ University Of Veterinary And Animal Sciences,
Subcampus-jhang, Pakistan

² Department of Clinical Sciences, Faculty of
Veterinary Sciences, Bahauddinzakriya University

Tuberculosis is a worldwide zoonotic disease which has been eradicated in most of the developed state. However resource limited countries such as Pakistan is still facing problems of cases. It is caused by *Mycobacterium tuberculosis* which spreads mostly air or direct contact with the infected person. The disease slowly progresses in the form of emaciation or debilitating cough with weight loss, fatigue, fever and pain in the chest during coughing. The present study was designed to reveal the impact of tuberculosis with a focus on chronic cough in Pakistani children with age less than 15 years. Blood samples (n=150) were collected from children under the age of 18 year from district headquarter hospitals of Faisalabad, Pakistan. These samples were tested with Tuberculosis Skin Test (TST) and Tuberculosis Blood Test (TBT). For molecular confirmation and species identification, all samples were subjected to real-time PCR using Tuberculosis gene specific primers and probes. A seroprevalence of 50% was found and from 76 samples using both test. Out of 150 patients 40 (26%) were admitted to hospital presenting with prolonged cough, 24 (16%) reported occasional cough and chest pain, 39 (26%) consumed raw milk, 41 (27%) described the consumption of tap water for cooking and drinking purposes, while only 6 (4%) possessed cows and buffaloes as source of financial income. Tuberculosis seems to be a silent killer in rural and remote area communities where drinking water and perhaps consumption of unboiled milk may offer serious concerns. The outcome of this study alerts health officials to design and implement control strategies for tuberculosis in Pakistan including educational work for adolescents and an awareness campaign for children in their early education.

<https://doi.org/10.1016/j.jiph.2018.10.050>