**Project Title:** Prevention of invasive pneumococcal disease in individuals with medical risk factors

**Code:** CHW17

**Host School/ Institute:** The Children's Hospital at Westmead Clinical School

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**Project Type:** Literature Review, Data Analysis

**Project Category:** Public Health, Immunology & Infection, Respiratory, Epidemiology

**Project Keywords:**
1. Invasive pneumococcal disease
2. Risk factors
3. Pneumococcal vaccines
4. Systematic review

**Project Description:**
Invasive pneumococcal disease (IPD) is severe infection due to Streptococcus pneumoniae (pneumococcus) where the organism is isolated from normally sterile sites such as blood, cerebrospinal fluid or pleural fluid. The more common clinical manifestations of IPD include septicaemia, meningitis and pneumonia with or without pleural fluid. Some underlying medical conditions are associated with a greatly increased risk of IPD – these include compromised immunity (HIV infection, absent spleen, leukaemia and post solid transplantation), cochlear implants, inherited conditions such as sickle cell disease and chronic conditions such as severe heart and/or lung disease, renal disease and diabetes.

Persons with underlying medical conditions may need more doses or different types of pneumococcal vaccine. This study proposes to systematically review the available evidence to inform the best use of pneumococcal vaccines to prevent IPD in people at high risk of severe disease. The methods may include applying statistical methods appropriate for meta-analysis if the studies meet appropriate criteria. In addition to literature review, the proposed study may be extended to also examine the prevalence of selected underlying medical conditions in Australian cases of IPD and in the general Australian population. For prevalence of selected risk factors among cases, at NCIRS, we have access to the national notifiable disease surveillance data, which includes information about risk factor status among identified cases of IPD in Australia. For population prevalence of selected risk factors, a range of data sources exist, including the 45 and Up study (a cohort study based in NSW), the Bettering the Evaluation and Care of Health (BEACH) program (a national study of patients attending general practices) and the National Health study conducted by the Australian Bureau of Statistics. The anticipated outputs from this project include a report for journal submission and input into the Australian Immunisation Handbook clinical recommendations for use of pneumococcal vaccines in individuals with underlying medical conditions.