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Using carriage surveillance to show direct and indirect effects of pneumococcal conjugate vaccine

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Pneumonia is the commonest reason why child die worldwide. It is estimated that one-third of all pneumonia deaths are due to the pneumococcus. Few countries in the Aisa-Pacific region have introduced pneumococcal conjugate vaccine (PCV) and there are few data from this region on the direct or indirect effects of PCV. In this study in Lao PDR, PNG, and Mongolia we will assess the direct and indirect effects of PCV13 on the nasopharyngeal (NP) pneumococcal carriage of children hospitalised with acute respiratory infection. Following PCV13 introduction, a reduction in PCV13 serotype NP carriage is likely to translate into a reduction in pneumococcal disease, and be a marker of direct and indirect immunity. We will use NP carriage surveillance amongst children with acute respiratory infection to estimate the PCV13 coverage required to demonstrate direct and indirect immunity by showing a sustained decline in PCV13 serotype carriage. This study will demonstrate how carriage surveillance in children with pneumonia can be used to estimate the PCV coverage required to show evidence of herd immunity, and monitor the vaccine's impact on carriage, and thereby provide information for national planners to maximise the effectiveness of their immunisation programs.

Biography

Associate Professor Fiona Russell is a paediatrician with qualifications in public health and epidemiology. She completed her PhD evaluating alternative pneumococcal vaccination schedules in infants in Fiji. The findings informed the pneumococcal conjugate vaccine (PCV) schedules in the latest WHO PCV position paper. She was awarded both the Chancellor and Dean's Prize for PhD Excellence by The University of Melbourne.

She has undertaken consultancies for WHO, UNICEF, and Australian Aid in the Asia-Pacific region, and Africa on the disease burden of vaccine preventable diseases, new vaccine introduction, and maternal and child health policies to reduce child mortality and improve maternal health.

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