Epidemiology of pertussis in children under 5 in a Niamey hospital

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Background
Whooping cough, or pertussis, caused by Bordetella pertussis, is estimated to cause as many as 170,000 deaths annually in Sub-Saharan Africa. Although vaccination programs have reduced the burden over the past several decades, recently a resurgence of whooping cough has been observed. In Niger, vaccine coverage of DTP is low yet notified pertussis cases are few. Nevertheless, notified cases of coughs and colds of unknown aetiologies represent the second reported cause of morbidity nationwide.

Aims of the study
Through a prospective cohort study, we aimed to estimate the prevalence of B pertussis in children under 5 in a pediatric ward, identify circulating subtypes and provide recommendations for improved disease control.

Study design
Between 6 December 2010 and 30 April 2011, children under 5 consulting the paediatric screening unit of the National hospital of Niamey with at least one of the following symptoms were recruited after informed parental consent: persistent cough lasting ≥ 1 week; clinical suspicion of pertussis or pneumonia by a physician; or a child with a cold or who has a family member with persistent cough. Nasopharyngeal aspirates (NPA) were collected from all children and tested by culture and PCR.

Results
342 suspected cases were recruited. Clinically, only 5 (1.46%) subjects presented with the typical “whoop” and 63 (18.42%) with coughing paroxysms. Almost all children reported having been previously vaccinated (320 children (93.57%)) and 234 (68.42%) had taken antibiotics before consulting the hospital. Results of culture and PCR are forthcoming.

Conclusions
These results highlight the need to improve awareness among clinicians, integrate laboratory diagnosis in the existing surveillance system, and strengthen immunisation to limit resurgence. Clinical diagnosis of whooping cough is problematic because of the wide range of manifestations (both in those with partial immunity due to past vaccination and in unimmunised infants) and variable awareness among clinicians. The sensitivity and specificity of laboratory tests can be influenced by the use of antibiotics early in the course of infection, mixed infections, recent immunisation and time since symptom onset.

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