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Outbreak of *Bordetella pertussis* and *Bordetella holmesii* in Mexicali, Baja California, México

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Introduction: *Bordetella pertussis* is a significant cause of morbidity and mortality in children under the age of one year. In Baja California, México, there has been a gradual increase in recent years, with a significant increase in 2016; in its first seven months the amount of confirmed cases was four times higher than the previous year, with a rate of approximately 1 case per 100,000 inhabitants.

Detection of Outbreak: A month old female with a case of coqueluchoide syndrome was detected in Hospital of Mexicali, with cough of eight days of evolution, in accesses, paroxysmal, spasmodic, cyanosis, also an antecedent of acute respiratory infection in previous 25 days, without previous vaccine due to age, the case presented a positive result for *Bordetella pertussis*, with four positive contacts to *Bordetella*, one for *B. pertussis* and three for *B. holmesii*, a peridomiliary epidemiological siege was performed for the five confirmed cases, studying 26 exposed individuals, 17 of which were symptomatic, two more cases of *B. pertussis* and one of *B. holmesii* were confirmed.

Outbreak Characterization: An outbreak of seven cases of *Bordetella* was reported in a population of 26 exposed individuals, four were diagnosed with *B. pertussis*, three cases with *B. holmesii* with an attack rate of 27%, and a lethality of 14% when a casualty was recorded. 57% of the cases were female with *Bordetella pertussis* present in children under five years of age regardless of the antecedent vaccine and *Bordetella holmesii* alone in those over 16 years. Symptoms included cough on access in 57% of cases, paroxysmal cough in 43%, spasmodic cough in 43%, fever in 29%, coughing cough in 14%, conjunctival bleeding, rhinorrhea and sneezing in 14% each.

Analysis: Whooping cough is a priority disease that can cause significant outbreaks even in populations with optimal vaccination coverage. During the outbreak, two species of *Bordetella* could be identified, where the rate of attack of *Bordetella pertussis* in children under 5 years was 50%. Regarding the presented symptomatology, we found a 95% confidence interval with a P value of 0.0006, 57 times higher chance to present a respiratory picture due to *B. pertussis* when a cough on accesses was presented, 19 times higher than *B. pertussis* when there is a respiratory tract with spasmodic cough, and vaccination has a protective factor of almost 95% to suffer from *B. pertussis*, with a P value of 0.008.

Conclusion of the Outbreak: The transmission chain was stopped after the application of measures and treatment of the cases, the elevation of the odds ratio for whooping cough in the presence of access cough and spasmodic ratifies the sensitivity of the operational definitions used today. The presence of another *Bordetella* species, within the outbreak causing disease, did not have a significant impact on the lethality unlike the *pertussis* and, when not present in children under fifteen years of age, the frequency of severe symptoms was lower. The state of immunological vulnerability of the newborn makes the vaccination in pregnant women mandatory in order to give a degree of immunological protection to the newborn to prevent deaths from this disease.

Biography

Franco Esquivel Teresa is an indefatigable public health worker in Baja California, Mexico. She was responsible for the influenza monitoring unit in Mexicali, Baja California during the 2009 influenza epidemic; responsible for field brigades in the response to the outbreak of spotted fever in Mexicali, in 2009 and; responsible for epidemiological surveillance of emerging diseases in Baja California 2010-2015. Currently, she is the Coordinator of epidemiological surveillance of communicable diseases in Baja California.

Notes:

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