

Contagious respiratory tract infection: whooping cough

Submitted: 25 April 2021; Accepted: 12 May 2021; Published online: 18 May 2021

Anette Jacobs*

Introduction

Editorial Office, Clinical Investigation,
London, UK

*Author for correspondence:
clininvest@journalres.com

Pertussis (whooping cough) is one of the most common vaccine-preventable diseases, claiming the lives of approximately 300,000 children each year. In 1990, the UK launched an accelerated schedule of primary pertussis immunizations at 2, 3, and 4 months, and primary vaccine coverage has been over 90% since 1992. Immunity following vaccination, on the other hand, is only thought to last 4 years-12 years, but immunity following infection is thought to last 7 years-20 years. Pertussis is a known source of socioeconomic stress in youth. Pertussis was linked to a mean medical price of \$242 (£144; €177) in the United States and was found to induce school absenteeism in 83% of teenagers for an average of 5.5 days over the course of two years. Between 2001 and 2005, 37% of school-aged children in primary care in the United Kingdom had evidence of recent pertussis infection. The United Kingdom introduced a pertussis booster vaccine for pre-schoolers in October 2001. According to current UK recommendations [6, children should have a preschool pertussis booster immunization with a three-component (Infanrix-IPV) or five component (Repevax) acellular pertussis vaccine three years after completion of the original immunization course or soon after. When compared to children who only receive a three-dose course of primary vaccines, children who also receive the preschool pertussis booster vaccination had an approximately halved risk of pertussis (vaccine efficacy 46%, 95% confidence interval 7% to 71%). Adolescent pertussis booster vaccination has yet to be introduced in the United Kingdom. The adoption of an adolescent pertussis booster vaccination in a number of countries, including Australia, Canada, France, Germany, and the United States, was prompted by modeling of its potential cost-effectiveness and observed increases in the incidence of pertussis among teenagers and adults. In the United States, the adolescent pertussis booster vaccine Tdap (Tetanus, Diphtheria, and Pertussis) has only been partially effective in preventing pertussis-related hospitalizations, owing to low vaccination coverage. However, since the introduction of the Tdap vaccine for teenagers in 2005, the

ratio of pertussis incidence in adolescents relative to other age groups has steadily decreased. Both before and after the introduction of the preschool pertussis booster vaccine, the incidence of pertussis among older children and adults in the United Kingdom has steadily increased. This is due in large part to the introduction of serology testing in 2002. There were no notable changes in pertussis-related hospital admissions over the same time period. However, beginning in the fourth quarter of 2011, there was an increase in pertussis activity among teenagers and older adults, which continued into 2012 and expanded to all age groups, eventually leading to the proclamation of a nationwide outbreak in April 2012. Despite a decrease in pertussis incidence in 2013, sickness levels in non-infant age groups continued to grow in comparison to pre-2012 levels in 2013. Because the evidence to support their introduction to reduce severe pertussis in infants is still insufficient, the World Health Organization recommends that decisions about the implementation of national adolescent booster vaccination programs be based on the likelihood of these being cost-effective. The validity of these findings is limited by a great deal of uncertainty about crucial factors including the incidence of symptomatic and asymptomatic cases of pertussis, as well as the costs associated with clinical pertussis in various age groups. The Joint Committee on Vaccination and Immunisation in the United Kingdom is evaluating the necessity for an adolescent pertussis booster vaccination and has concluded that further research is needed to evaluate the projected disease burden in this age group. The goal of this study is to quantify the prevalence and clinical severity of pertussis in UK school-aged children who present to primary care with a persistent cough after receiving the preschool pertussis booster vaccine.