

## ORIGINAL ARTICLE

# Risk Perceptions and Acceptance Towards the Uptake of Pertussis Vaccine Amongst the Healthcare Workers in Sabah and Sarawak

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## ABSTRACT

**Introduction:** The incidence of pertussis is increasing amongst adolescents and adults. Therefore, adults require booster vaccination for protection against pertussis infection. Vaccination among healthcare workers (HCW) should be prioritized when a country implements an adult vaccine. However, the coverage of pertussis vaccination is still deficient among HCW due to low-risk perception. **Method:** This was a cross-sectional study using Survey Monkey (online). A total of 920 HCWs comprising of doctors, assistant medical officers (AMO), nurses, and environmental health officers (EHO) working at the hospitals and district health offices in Sabah and Sarawak were selected to partake in the study using a multistage sampling method. The website containing the questionnaire was given to the participants using either email or WhatsApp. **Results:** A total of 853 responders of whom 22.2% were doctors, 58.1% were nurses, 10.1% were medical assistants, and 9.6% were environmental health officers responded to the questionnaire. Most of the respondents (81.5%) are willing to receive the pertussis vaccine. The Protection Motivation score was significantly different between those willing and those not willing to take the vaccine ( $p$ -value $<0.001$ ). Robust path analysis showed that sociodemographic factors (age, the institution of working and prior pertussis vaccination) ( $p=0.004$ ), threat ( $p<0.001$ ) and coping pathway ( $p<0.001$ ) were linked with the willingness to uptake vaccine. **Conclusion:** The sociodemographic factors of the HCW can affect the willingness of the HCW to uptake the pertussis vaccine directly and indirectly through their risk perception towards pertussis.

**Keywords:** Healthcare workers, Risk perception, Acceptance, Pertussis vaccine

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## INTRODUCTION

Pertussis is a vaccine-preventable disease (VPD) caused by *Bordetella pertussis*. Pertussis is still a significant public health concern despite high vaccine coverage. Pertussis has been re-emerging in many countries (1). World Health Organization (WHO) reported that there are 151 074 cases of pertussis worldwide in 2018, despite having 86% of DTP3 vaccine coverage (2). The number of reported incidents in the Western Pacific Region increased to 53 208 cases in 2018, with nearly 93% increase compared to the number of cases reported in 2017 (3). An increase of the reported pertussis cases is also seen in Malaysia in 2018, whereby 298 cases were reported in 2016, while 353 cases reported in 2017 and 892 cases published in 2018 even though Malaysia has maintained high vaccine coverage for pertussis since 2000 (4).

The resurgence of pertussis could be due to the waning of immunity in the population, improvement in diagnostic tests, better recognition of the pertussis symptoms by health care workers (HCWs) and mutation of *B. pertussis* (5). A study in China showed that the level of the antibody of pertussis Immunoglobulin G among children (age day 1 to 13 years old) is generally at a low level throughout all age groups, indicating the waning of immunity post-vaccination (6). The waning of immunity either following immunization or natural infection contributes to the persistent circulation of *B. pertussis* (7). The most important way to prevent infant pertussis is by encouraging adult vaccination (8).

When a country implements adult vaccination, vaccination of healthcare workers (HCWs) should be prioritized especially those with direct contact with pregnant mothers and infant patients (9). The Centres for Disease Control and Preventions (CDC) Advisory Committee on Immunization Practices (ACIP) recommends that all HCWs with direct patient contact should receive tetanus, diphtheria and acellular pertussis (Tdap) vaccination (10). Despite lack of data to support