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Short communication

Midwife attitudes: An important determinant of maternal postpartum pertussis booster vaccination

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ABSTRACT

The study was designed to determine the feasibility of implementing routine dTpa vaccination in the maternity ward to new mothers and to assess midwives' attitudes toward pertussis booster vaccination, their perceived susceptibility and severity of pertussis in their patients' communities, the perceived barriers and benefits of their patients' vaccinations, and their cues to action and self-efficacy in delivering the vaccine.

Method: A self-completed questionnaire was developed to evaluate constructs of the Health Belief Model as well as to measure midwife demographic information. Questionnaires were completed by midwives during in-services at both a public hospital and a private hospital in New South Wales, Australia.

Results: Midwives who perceived ease in integrating booster vaccination into their workload were more likely to have high self-efficacy in delivering booster vaccination, measured through perceived importance of the role as part of their job ($r = .449$, $p < .01$), perceived confidence in delivering vaccination as part of their role ($r = .608$, $p < .01$), and perceived sufficient level of skills to deliver booster vaccination ($r = .528$, $p < .01$).

Conclusions: These results suggest that, of the factors measured, the most important to midwives in terms of providing pertussis booster vaccination to mothers was their own perceived self-efficacy of providing the vaccination. To increase midwives' desire and confidence to provide pertussis booster to mothers, educational materials and skills workshops could be offered.

Australia had the highest number of reported pertussis cases per capita in 2005, according to the World Health Organization. Pertussis deaths still occur in young infants; the youngest infants are the ones more likely to be hospitalised or die.

Cocooning, or vaccinating those in close contact with newborns, has been recommended as an effective strategy by the Global Pertussis Initiative [1] as well as experts in the field [2,3]. Maternal antibodies do not transfer well to a newborn [4], leaving a newborn without protection from pertussis before vaccination. Moreover, the primary source of transmission of pertussis to infants is via family members [5,6], of which a high proportion are mothers [5]. Mathematical models predict that adult vaccination could protect the population in two ways: either through achieving 40% booster vaccination in a universally recommended adult vaccination every ten years, or by achieving 65% booster vaccination of those who come in close contact with newborns [7]. When considering the lowest number of individuals needing to be vaccinated, another mathematical model of pertussis infection demonstrated that cocooning was the most effective way to prevent infection in infants [8]. The efficacy of this strategy has been demonstrated by a prospective population-based study in the Netherlands which suggested that by improving parental immunity, between 35 and 55% of infant pertussis cases could be prevented [9].

Parental pertussis booster vaccination has received increasing attention as a way to protect infants who are not yet fully protected via vaccination. However, ensuring that new parents are vaccinated with the pertussis booster is potentially difficult to do. New parents have many competing demands for their time and, even if the intent to get vaccinated is high, vaccination completion may still be low [10]. The obvious solution is to vaccinate mothers postpartum, while still in the hospital. While this method has been documented as effective for achieving high uptake in one hospital setting [11], the impact on hospital staff of such a process has not been assessed. Part of any program to ensure high uptake in a target group involves the strong support from health professionals required to deliver the vaccine [12]. To this extent, hospital staff who are

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Table 1

Question	Response ($N = 54$)					
How likely is a newborn baby to catch whooping cough?	*Very likely*	*Moderately likely*	*Neither likely nor unlikely*	*Moderately unlikely*	*Very unlikely*	Missing
Public ($N = 37$)	10 (27%)	21 (57%)	4 (11%)	1 (3%)	0	1 (3%)
Private ($N = 17$)	6 (35%)	9 (53%)	1 (6%)	1 (6%)	0	0
Total ($N = 54$)	16 (30%)	30 (56%)	5 (9%)	2 (4%)	0	1 (2%)
How easy or difficult is it to integrate pertussis vaccination into your duties?	*Very easy*	*Moderately easy*	*Neither easy nor difficult*	*Moderately difficult*	*Very difficult*	Missing
Public ($N = 37$)	0	15 (40.5%)	11 (30%)	10 (27%)	0	1 (3%)
Private ($N = 17$)	2 (12%)	9 (53%)	3 (18%)	2 (12%)	0	1 (6%)
Total ($N = 54$)	2 (4%)	24 (44%)	14 (26%)	12 (22%)	0	2 (4%)
I am confident that I can deliver pertussis booster vaccination as part of my midwifery role.	*Strongly agree*	*Moderately agree*	*Neither agree nor disagree*	*Moderately disagree*	*Strongly disagree*	Missing
Public ($N = 37$)	9 (24%)	17 (46%)	6 (16%)	1 (3%)	1 (3%)	3 (8%)
Private ($N = 17$)	11 (65%)	3 (18%)	0	2 (12%)	0	1 (6%)
Total ($N = 54$)	20 (37%)	20 (37%)	6 (11%)	3 (6%)	1 (2%)	4 (7%)
I have the skills needed to give pertussis booster vaccination to mothers.	*Strongly agree*	*Moderately agree*	*Neither agree nor disagree*	*Moderately disagree*	*Strongly disagree*	Missing
Public ($N = 37$)	11 (30%)	8 (22%)	5 (13.5%)	6 (16%)	4 (11%)	3 (8%)
Private ($N = 17$)	11 (65%)	4 (23.5%)	2 (12%)	0	0	0
Total ($N = 54$)	22 (41%)	12 (22%)	7 (13%)	6 (11%)	4 (7%)	3 (6%)
Delivering pertussis booster vaccination is part of my midwifery role.	*Strongly agree*	*Moderately agree*	*Neither agree nor disagree*	*Moderately disagree*	*Strongly disagree*	Missing
Public ($N = 37$)	4 (11%)	8 (22%)	13 (35%)	5 (13.5%)	4 (11%)	3 (8%)
Private ($N = 17$)	6 (35%)	6 (35%)	4 (23.5%)	0	1 (6%)	0
Total ($N = 54$)	10 (18.5%)	14 (26%)	17 (31%)	5 (9%)	5 (9%)	3 (6%)
How important is it for new mothers to receive pertussis booster vaccination?	*Very important*	*Moderately important*	*Neither important nor unimportant*	*Moderately unimportant*	*Very unimportant*	Missing
Public ($N = 37$)	26 (70%)	9 (24%)	2 (5%)	0	0	0
Private ($N = 17$)	17 (100%)	0	0	0	0	0
Total ($N = 54$)	43 (80%)	9 (17%)	2 (4%)	0	0	0

administering the vaccine are important stakeholders in smooth implementation of a ward-based pertussis booster vaccination program.

The current recommendation regarding pertussis booster vaccination in Australia is for the following groups to receive a booster dose: women planning a pregnancy or both parents as soon as possible after the delivery of an infant; other adult household members, grandparents and carers of young children; adults working with young children; all healthcare workers; and any adult who expresses interest in receiving a booster dose [13]. In response to a recent outbreak in New South Wales (NSW), the NSW Department of Health has implemented free pertussis booster vaccinations in general practitioner offices and maternity wards, should the hospital choose to organise the ordering of vaccine and implementation procedures. However, this is limited to new parents and grandparents and, depending on funding and feasibility, these measures may or may not continue in the future.

In Australia, maternity care is mostly delivered in public and private hospital settings. Hospitals are staffed by obstetric doctors and registered midwives who are the mainstays of postnatal care. Since midwives are usually the first health professional to offer immunisation or answer immunisation questions, they may have a significant impact on parental attitudes toward vaccination [14]. Few studies have assessed midwives' attitudes toward vaccination. One study found generally lower confidence in vaccine safety and necessity compared with other hospital nurses and immunisation providers in primary care [14]. A qualitative study conducted in NSW found that midwives' commitment to neonatal hepatitis B vaccination was tempered by reservations about its safety and necessity, making it more easily relegated to a tick box requirement after a baby is born [12]. As part of a study determining the feasibility of implementing routine dTpa vaccination in the maternity ward to new mothers, we assessed midwives' attitudes to pertussis booster vaccination in the context of managing a new requirement within their existing heavy workload.

1. Materials and methods

Questionnaire. A self-completed questionnaire was developed to address the above questions and guided by the Health Belief Model (HBM) [15]. The HBM measures perceived susceptibility, severity, barriers, benefits, cues to action, and self-efficacy. The questionnaire also sought to measure levels of workload and demographic information. We modified it from previously published survey questions that have been extensively field-tested, changing the disease focus of the questions to pertussis. The questionnaire measured factors related to midwives' beliefs and perceptions of their role as a facilitator to mothers, both in decision making about vaccination as well as vaccination completion. We term this "facilitators" when discussing the results of these factors.

Participant recruitment. Midwives at a public tertiary hospital and an adjacent private hospital were given paper-based questionnaires prior to an in-service at their respective hospitals. The in-services were to inform midwives about a new standing order that would require them to administer pertussis booster vaccine to new mothers, if the mother consented to receive it and there were no contraindications. Midwives' completion of the survey was voluntary. Those who were not in attendance were provided with surveys directly in their hospital mailboxes and asked to return them within two weeks. A box located in the same room was provided to enable this to be done anonymously. The study received ethical approval from the Northern Sydney Central Coast Human Research Ethics Committee.

Measurement instrument. The questionnaire given to the midwives asked, "How easy or difficult is it to integrate pertussis booster vaccination into your duties?" and midwives were able to respond within a range of "very easy" to "very difficult." Other topics included: demographic information, whether or not midwives had completed an immunisation course, perceived importance of new mothers receiving pertussis booster vaccination, midwives perceptions about their role in providing pertussis booster