



Should professionals caring for children be vaccinated? Community perspectives on health care and child care worker immunisation



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ABSTRACT

Objective: Several immunisations including influenza and pertussis are specifically recommended for healthcare workers (HCW) and childcare workers (CCW). This study aimed to assess community attitudes to HCW and CCW immunisation recommendations for pertussis and seasonal influenza.

Methods: A cross-sectional study was conducted by Computer Assisted Telephone Interviewing (CATI) from April to May 2011. Statistical analyses used data weighted to the South Australian population by probability of selection, age, gender and geographical location using benchmarks derived from the 2009 Census population figures.

Results: Almost all respondents supported vaccination of HCWs and CCWs against pertussis and influenza. For pertussis, 95.3% agreed nurses, 94.9% agreed doctors and 94.7% agreed CCWs have an obligation to be vaccinated. For influenza, 91.4% agreed nurses, 90.7% agreed doctors and 89.9% agreed CCWs have an obligation to be vaccinated. We identified higher support for protection against pertussis compared to influenza for all three groups of workers ($p < 0.001$). There were higher concerns if CCWs compared to HCWs were not vaccinated against pertussis (OR = 2.78) and influenza (OR = 1.99). Young (18–30 years) and older age (60+ years) and lower educational attainment were predictors of support for HCWs and CCWs to be vaccinated against influenza. For pertussis, lower educational attainment was a predictor of support for HCWs immunisation.

Conclusions: Community support for CCW and HCW immunisation is strong with CCW immunisation was considered a priority. Pertussis immunisation was considered a higher priority than influenza immunisation for HCWs and CCWs. CCW immunisation should be considered for inclusion in public health immunisation programmes.

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1. Background

Australian immunisation recommendations for protection against influenza and pertussis include both a pertussis,

Abbreviations: HCW, health care worker; CCW, childcare worker; NHMRC, National Health and Medical Research Council; SA, South Australia; EWP, Electronic White Pages; CATI, Computer Assisted Telephone Interviewing; ABS, Australian Bureau of Statistics; SEIFA, Socio Economic Index for Areas; SAS, Statistical Analysis System; GEE, generalised estimating equation; LDC, long day care; ACIR, Australian Childhood Immunisation Register.

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diphtheria and tetanus booster vaccine (dTpa) and the seasonal influenza vaccine annually for all healthcare workers (HCWs) and people working with children [1]. These recommendations are supported by evidence of the transmission of infection of both influenza and pertussis from HCWs to young infants [2–6]. In addition, the National Health and Medical Research Council (NHMRC) produces the guidelines [7] “*Staying Healthy in Child Care*”, which outline measures including immunisations for childcare workers (CCWs) to help control the spread of childhood infections. Although vaccination is recommended for CCWs, it is not currently a requirement for accreditation or licensing.

Pertussis (whooping cough) is an acute respiratory infection with increased morbidity and mortality in infants less than 12 months of age [8]. Epidemics occur in Australia every three to four years, with notification rates reaching a peak of 450/100,000 in 2010 in South Australia [9]. Influenza infection in young infants can

also be more severe than in adults [10] with pregnant women also at an increased risk of serious complications [12,13]. The highest rates of hospitalisation are in children <5 years of age [11].

Infection with pertussis or influenza among HCWs or CCWs is of concern because of the potential for exposure to vulnerable patients in their care, such as pregnant women, infants too young to be vaccinated, immunocompromised patients or work colleagues. Many infected adults do not have the classic pertussis symptoms, and for this reason, mild or asymptomatic infections in HCWs or CCWs pose the greatest risk to paediatric patients or infants in their care.

In Australia, while the influenza vaccine is recommended annually for all HCWs, the provision for a free influenza vaccine is a policy decision for each hospital or jurisdiction and it is not uniform across the country [14]. Pertussis vaccination is also recommended for all HCWs. Some maternity and paediatric hospitals provide the vaccine at no cost for employees if they have not previously received a pertussis booster vaccination in the past 10 years.

Infections in HCWs and CCWs are common with pertussis outbreaks in childcare difficult to control [15]. An Australian study [16], amongst HCWs who had clinical contact with infants, found 85% who had experienced a cough lasting two or more weeks in the last 12 months, had continued to work.

Uptake of influenza vaccine, in particular, has been poor amongst HCWs worldwide [17–21]. While less is known about the uptake of influenza vaccine in CCWs, studies have reported uptake to be around 22–30% [22–24]. Some healthcare institutions have enforced recommendations for HCWs by making the annual influenza vaccination compulsory with an opt out mechanism for conscientious objectors [25]. Compulsory vaccination is a contentious issue and eliciting community support or lack of, for immunisation recommendations, is an important priority.

As community members are consumers of healthcare, and with increasing use and duration of children in care in Australia [26], understanding the community's attitudes and views for HCW and CCW immunisation is important in informing HCW and CCW recommendations. The aim of this study was to assess community attitudes to HCW and CCW immunisation recommendations for pertussis and seasonal influenza.

2. Methods

A cross-sectional telephone survey of randomly selected households in South Australia (SA) was conducted from April to May 2011. The Population Research and Outcomes Studies Unit, University of Adelaide, performed the survey as part of the 'Health Monitor' program. The random sampling process used the South Australian Electronic White Pages (EWP) telephone listings of metropolitan and rural households in SA. The adult in the household, 18 years or older, with the most recent birthday were selected for an interview. The interviews were conducted by an independent external research survey company using the Computer Assisted Telephone Interviewing (CATI) methodology, which permits data obtained from the interviewer's screen to be entered directly into a database. At the beginning of the survey, the interviewer stated that they were calling on behalf of The University of Adelaide to conduct a survey on a range of health issues. An introductory sentence for each health topic covered in the survey was given. For questions on views of HCWs and CCWs, the following introductory sentence was provided, "These questions are about healthcare and childcare workers who have direct contact with children and adults". A pilot study of 50 randomly selected households conducted on 31 March 2011, tested question format and sequence.

Participants were asked questions about their views of HCW and CCW immunisation programmes.

Table 1
Sampling strategy.

Study population	Household participants
Initial sample	4400
Reasons for sample loss	Sample loss
Non residential numbers	58
Message bank/disconnected	890
Fax/modem	34
Did not reside in South Australia	33
Contact could not be established after six calls	261
Remaining sample	3124
<i>Non responders</i>	
Refusal (not interested/too busy)	877
Unable to speak English	99
Illness/hearing impaired	129
Terminated interview	18
Deceased	3
Respondent unavailable for duration of survey	31
Total interviews	1967/3124 (62.9%)

The survey data were weighted to the age, gender and geographical area profile (metropolitan or rural) of the population of SA (2009 Census) and the probability of selection within a household. Individual data were weighted by the inverse of the individual's probability of selection and the number of times their telephone number was listed in the white pages, then reweighted to age group by gender by section of state (rural/metropolitan) benchmarks derived from the Australian Bureau of Statistics (ABS) estimated resident population for 30 June 2009. For questions regarding households rather than individuals, records were weighted by the inverse probability of the selection of the household then reweighted to benchmarks derived from the ABS 2009 Census of Population and Housing for occupied private dwellings by location. Weighting corrected the distributions in the sample data to approximate those of the SA population. This is partly an expansion of the data and partly a matter of adjustment for both non-response and non-coverage, resulting in data that is representative of the population rather than limited to the households that responded. The SEIFA (Socio Economic Index for Areas) Index of Relative Socio-economic Disadvantage was used as a measure of socio-economic status.

Statistical analyses were performed using SAS Version 9.3. Frequencies, percentages, and 95% confidence limits incorporating the survey weights were calculated. Vaccination attitudes towards childcare workers, nurses, and doctors and between whooping cough and influenza were compared using logistic generalised estimating equations (GEEs). A GEE approach was chosen to account for the dependence in repeated attitudes from the same respondent.

The study protocol was reviewed and approved by the Women's and Children's Health Network, Human Research Ethics Committee, Adelaide, South Australia.

3. Results

3.1. Study population

3.1.1. Health Monitor survey

From 4400 households randomly selected to participate (from 727,676 households in South Australia), 1276 households could not be contacted or were non-residential telephone numbers. From the remaining 3124 telephone numbers, 1967 interviews were conducted, with a participation rate of 62.9% (Table 1).

3.2. Description of study sample (raw data)

The mean age of the household interviewees was 54.5 (SD=18.41) years with an age range of 18–93 years. Of those

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