American Journal of Infection Control ■■ (2016) ■■-■■

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Original Research Article

Parents' and staff's support for a childcare agency employee mandatory vaccination policy or agency certification program

Terri Rebmann PhD, RN, CIC [a,*], Jing Wang PhD [b], Kristin D. Wilson PhD, MHA [c], Philip G. Gilbertson BS [a], Mary Wakefield MPH, BA [a]

[a] Institute for Biosecurity, Saint Louis University, College for Public Health & Social Justice, St Louis, MO
[b] Department of Biostatistics, Saint Louis University, College for Public Health & Social Justice, St Louis, MO
[c] Department of Health Management and Policy, Saint Louis University, College for Public Health & Social Justice, St Louis, MO

Key Words:
Immunization
Vaccine
Pediatric
Uptake
Daycare

Background: Vaccine-preventable diseases pose a significant risk to children in childcare. However, few regulations exist regarding childcare staff vaccination. This study aimed to assess support for a childcare agency staff mandatory vaccination policy.

Methods: Surveys were distributed to staff and parents at 23 St Louis, Mo, childcare agencies during fall 2014. Staff and parents' support for a mandatory vaccination and/or agency certification program were compared using χ^2 tests. Multivariate logistic regression was conducted using a 2-level nested design and controlling for gender, race, age, and income to determine predictive models for support for a mandatory staff vaccination policy and/or agency certification program.

Results: Overall, 354 parents and staff participated (response rate, 32%). Most supported a mandatory staff vaccination policy (80.0%; n = 280) or agency certification program (81.2%; n = 285), and there were no differences between parents versus staff. Determinants of support for a mandatory policy included willingness to receive influenza vaccine annually, belief that vaccines are safe and effective, and support for the policy only if there were no costs.

Conclusions: There is strong support for some type of childcare agency staff vaccination policy. Implementing such a policy/program should be a collaborative endeavor that addresses vaccine cost and access.

Vaccine-preventable diseases continue to cause morbidity and mortality in the United States due to a lack of herd immunity stemming from the antivaccination movement and the influence of disease importation.[1] For example, during 2014, the United States experienced the largest measles outbreaks of the past 15 years.[1] January 1-July 24, 2015, there were 183 measles cases in the United States, almost all of which stemmed from what was believed to be an imported case who exposed unvaccinated children at Disneyland.[1] Outbreaks of other vaccine-preventable diseases have also been reported in the United States during recent years, such as the 2014 pertussis outbreak involving incidence rates 5 times higher than the annual average rate.[2]

Young children are at increased risk of morbidity and mortality from vaccine-preventable diseases, with infants younger than age 1 year being at highest risk for hospitalization or death related to these diseases.[3] This increased risk is due to immature immune systems and the inability to receive partial or full vaccine series for pertussis, hepatitis A, and/or influenza. For example, children aged younger than 2 months, 6 months, and 1 year cannot receive the diphtheria, tetanus, and pertussis; influenza; and hepatitis A vaccine, respectively. Many of these high-risk infants and young children receive childcare from nonrelatives outside of their home. According to the US Census Bureau, approximately 6.7 million US children younger than age 5 years receive care in some type of nonrelative, out-of-home childcare,[4] and many of these children are younger than age 1 year. Although all US states legally mandate that clients attending licensed childcare agencies be vaccinated,[5,6] not all vaccines fall under these laws. For example, hepatitis A and influenza are not usually required for daycare attendance,[7] although 2 states have recently started requiring child attendees to receive influenza vaccine annually.[8] Protection of high-risk children can be provided by immunizing adult caregivers, but there are few regulatory requirements

* Address correspondence to Terri Rebmann, PhD, RN, CIC, Institute for Biosecurity, Department of Environmental and Occupational Health, Saint Louis University, College for Public Health & Social Justice, 3545 Lafayette Ave, Rm 463, St Louis, MO 63104.
E-mail address: rebmannt@slu.edu (T. Rebmann).
Conflicts of Interest: None to report.

0196-6553/
http://dx.doi.org/10.1016/j.ajic.2016.01.033

related to immunizing childcare agency staff in the United States (Scherer N. Personal communication October 4, 2012). In addition, research indicates that childcare agency staff uptake of vaccine is low.[9,10] Studies have found that fewer than 15%, 25%, and 50% of childcare agency staff have received hepatitis A,[9,11] influenza,[3] and pertussis[10] vaccine, respectively.

One potential approach to increase childcare staff vaccine uptake is the use of a mandatory vaccination policy, such as 2015 California Senate Bill 277, which eliminates many exemptions from the school admission vaccination policy[12]; health care system policies mandating employee vaccination[13,14]; and the St Louis-wide mandatory hepatitis A policy for all food handlers.[15] Anecdotally, Missouri public health professionals have reported that parents of children in childcare have demanded that childcare staff be vaccinated before providing care (Settle J. Personal communication August 4, 2013) Local public health departments have considered implementing a mandatory vaccination policy for childcare agency staff and/or a certification program for agencies that agree to vaccinate their employees, but health department directors have hesitated to create such an ordinance without evidence that it would be supported by staff and parents (Peters E.B. Personal communication, August 5, 2013). The purpose of this study was to assess parents', staff members', and administrators' attitudes and beliefs surrounding a childcare agency staff mandatory vaccination policy or agency certification program.

METHODS

A questionnaire was administered to parents of children in daycare and childcare agency staff in the St Louis city and county region during September-December 2014. The questionnaire was available online and in paper format. In all, 23 childcare agencies assisted with subject recruitment (a list of participating organizations/agencies is available upon request). The Saint Louis University Institutional Review Board approved this study.

Instrument

Questionnaire items were developed using instruments from previous studies examining vaccine compliance.[16-18] Additionally, items specific to this study, such as interest in a mandatory vaccination policy, were developed. A group of 10 infection prevention (IP) and public health professionals who have published research in the field of vaccine uptake provided feedback on content validity. The content validity index was calculated for each question.[19] All items had content validity index scores above 0.80, so none were deleted. In addition, a group of 10 parents and 10 childcare agency staff members pilot-tested the questionnaires for clarity and ease of use. The final questionnaire contained 28 items plus demographic questions. The questionnaire assessed attitudes regarding a proposed staff mandatory vaccination policy and/or agency certification program, including which exemptions should be allowed (18 items); perceptions related to staff vaccination (2 items); immunization status related to pertussis, hepatitis A, and seasonal influenza vaccine (3 items); and agency vaccine exemption policies (5 items). The full instrument is available upon request.

A staff mandatory vaccination policy was defined as a policy requiring all staff except those with a medical contraindication to receive all Centers for Disease Control and Prevention (CDC)-recommended vaccines. A childcare agency vaccination certification program (hereafter referred to as an agency certification program) was defined as a program managed through the local health department that would certify agencies in regard to vaccination if they provide evidence that all staff except those with a medical contraindication have received the CDC-recommended vaccines. This agency vaccine certification would not be tied to agency licensing, but would allow agencies to advertise to parents that the health department confirms that all staff members have been vaccinated. Under a mandatory policy, licensed agencies would be required to comply. Under an agency certification program, agencies could opt in or out of being certified, but all staff at any participating agency would need to comply.

Data analysis

The Statistical Package for the Social Sciences version 23.0 (IBM-SPSS Inc, Armonk, NY) and Statistical Analysis Software (SAS Institute, Inc, Cary, North Carolina) were used for all analyses. Staff versus parents' support for a mandatory vaccination and/or agency certification program, and all other comparisons of dichotomous categorical variables, were compared using χ^2 test. A z score was calculated to assess the difference between staff members' support for a mandatory policy and/or an agency certification program versus administrators' perceptions of whether staff would support such a policy. Multivariate logistic regression was conducted using a 2-level nested (individual and agency) design and controlling for gender, race, age, and income, to determine predictive models for support for a mandatory staff vaccination policy and/or agency certification program. Nonsignificant variables were not included in the final models; only final models are reported.

RESULTS

Overall, 354 parents, staff, and agency administrators from 23 childcare agencies participated in the survey. The overall response rate was 32%: 32.9% response rate for staff (96 out of 292) and 29.9% (255 out of 852) for parents. Three surveys were removed due to excessive missing data, leaving 351 usable surveys. Almost three-quarters of respondents (72.6%; n = 255) were parents or guardians, 22.2% (n = 78) were staff, and 5.1% (n = 18) were administrators. The majority were women (86.6%; n = 304) and white (74.2%; n = 245). Almost half (48.4%; n = 170) were aged 31-40 years, another quarter (23.6%; n = 83) were aged 21-30 years, and 16.5% (n = 58) were aged 41-50 years. Most were employed full time (73.2%; n = 257) and hold a bachelor's degree or more formal education (65.7%; n = 230). About half (54.1%; n = 190) reported having a household income > $39,000. Almost all agencies (81.5%; n = 286) were licensed by the State of Missouri. Agencies of all sizes participated, with three-quarters (75.5%; n = 265) providing care for 51 or more children. Only 1.1% (n = 4) were from a smallest-size agency (ie, 10 or fewer children) or a smaller agency (ie, 11-25 children in the agency) (10.3%; n = 36).

Attitudes toward a childcare staff mandatory vaccination policy

Participants were asked attitudinal questions regarding a proposed agency staff mandatory vaccination policy. The vast majority of respondents (88.3%; n = 309) reported a belief that staff vaccination is an issue of perceived fairness; vaccination is required for children attending childcare, and therefore staff should also be required to receive certain vaccines. Parents and staff were equally likely to hold this belief (Table 1). Most respondents (80.0%; n = 280) reported that they would support a staff mandatory vaccination policy, and all groups (ie, parents, staff, and administrators) were equally likely to support such a policy (Table 1). When asked about the influence of vaccination cost on support for a mandatory policy, half (50.1%; n = 175) indicated they would support a policy only if it did not cost them anything. Staff members were significantly more likely than parents to report that their support would be contingent on vaccine cost (93.8% vs 33.6%; $\chi^2 = 100.7$; $P < .001$) (Table 1). From multivariate logistical regression controlling for gender, race,