

Adherence to the Advisory Committee on Immunization Practices Recommendation to Prevent Injuries from Postvaccination Syncope

A National Physician Survey

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Background: Little is known about physicians' adherence to the 2006 Advisory Committee on Immunization Practices (ACIP) recommendation that providers strongly should consider observing vaccine recipients for 15 minutes to prevent injuries from postvaccination syncope.

Purpose: To assess physicians' knowledge, attitudes, and practices toward observing adolescents for 15 minutes postvaccination.

Methods: A survey was administered during October 2008–January 2009 to 425 pediatricians (Peds) and 424 family medicine physicians (FPs) from a nationally representative network. Adherence was defined as reporting routinely observing patients for ≥ 15 minutes after vaccination. Data analysis was completed in 2009.

Results: The overall response rate was 73%. A minority of physicians (37% Peds, 24% FPs) were aware that ACIP strongly encourages observing patients for 15 minutes postvaccination, but most physicians (69% Peds, 84% FPs) thought that their practice easily could adhere to this recommendation. Lack of room space (76% Peds, 65% FPs) was the most frequently reported barrier. Seventeen percent of physicians reported adherence to postvaccination observation. Practice in a hospital, university, or community health center compared with private practice (RR=1.64, 95% CI=1.05, 2.40); awareness of the ACIP syncope recommendation (RR=5.55, 95% CI=3.60, 9.37); and believing that postvaccination syncope can result in serious injuries (RR=1.74, 95% CI=1.06, 4.22) were independently associated with self-reported adherence.

Conclusions: Few physicians are aware of recommendations for postvaccination observation for syncope and even fewer adhere to them. Strategies to improve this should be developed and tested.

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Introduction

Vasovagal syncope has been observed after medical procedures, including vaccinations.^{1–4} A review of postvaccination syncope reported to the Vaccine Adverse Event Reporting System (VAERS)⁵ found that 63% of the syncopal episodes occurred within 5 minutes, and 89% occurred within 15 minutes after vaccination.² Postvaccination syncope may result in falls and secondary injuries which, although rarely, sometimes may be life-threatening.^{3,4}

Since 2005, VAERS had received increasing reports of postvaccination syncope, particularly among adolescents, with reports describing serious secondary injuries, including skull fractures and cerebral hemor-

rhage.^{4,6} In 2008, CDC reminded physicians about the 2006 Advisory Committee on Immunization Practices (ACIP) recommendation that vaccine providers should “strongly consider observing patients for 15 minutes after they are vaccinated.”^{4,7} However, little is known about adherence and factors that influence adherence to this recommendation.

The objectives of this study was to (1) describe current practices toward routinely observing patients for 15 minutes after vaccination among U.S. pediatricians (Peds) and family medicine physicians (FPs); and (2) assess knowledge, attitudes, and barriers that can be associated with practices.

Methods

Survey Design and Administration

A survey was developed jointly by the University of Colorado Denver (UCD) and CDC. Physicians were asked about their perceptions and practices regarding observing adolescents after vaccination. Questions pertaining to knowledge and practice were asked prior to reading information on the 2006 ACIP syncope recommendation provided in the survey. Adherence to observing adolescent patients for 15 minutes postvaccination was defined based on survey responses (Appendix A, available online at www.ajpmonline.org).

From October 2008 to January 2009, UCD administered the survey, via mail or an online survey tool, to 425 Peds and 424 FPs participating in the Vaccine Policy Collaborative Initiative research network.⁸ This network was designed to be representative of the American Academy of Pediatrics (AAP) and American Academy of Family Physicians memberships. The UCD human subjects IRB approved the study; CDC IRB approval was not required because CDC was not considered to be engaged in this research.

Survey Analyses

Data analysis was completed in 2009. The analysis excluded physicians who did not provide immunizations to adolescents aged 11–18 years or who did not respond to the adherence questions. Descriptive statistics were computed on physician characteristics, knowledge, attitudes, and barriers, and tests for association with self-reported adherence were performed using chi-square analyses. Factors associated with adherence at $p < 0.25$ in bivariate analyses were evaluated in a multivariate logistic regression model using an approach in which the least-significant predictor in the model was eliminated sequentially; variables that were associated at $p < 0.10$ were retained in the final model. ORs and 95% CIs were converted to risk ratios using regression risk analyses.⁹ Factors were considered to be associated significantly with self-reported adherence at $p < 0.05$. All analyses were performed using SAS, version 9.2.

Results

The overall survey response rate was 73% (620/849), 76% (321/425) among Peds and 71% (299/424) among FPs.

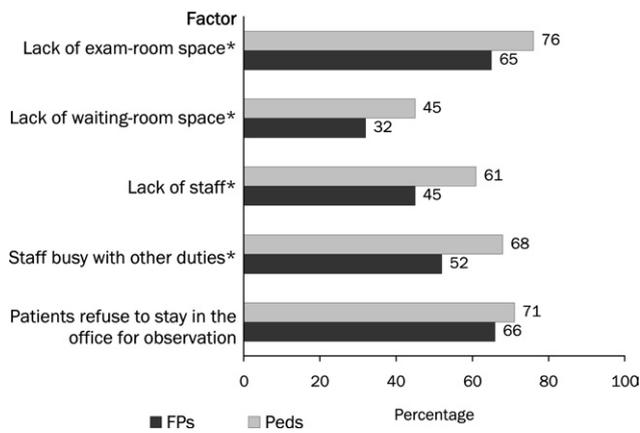


Figure 1. Percentages of physicians who perceived factors as definitely or somewhat a barrier to observing patients for 15 minutes after vaccination

* $p < 0.01$; χ^2 tests used for statistical analyses

ACIP, Advisory Committee on Immunization Practices; FPs, family medicine physicians; Peds, pediatricians

More FP respondents than nonrespondents were women and practiced in a rural location (Appendix A, available online at www.ajpmonline.org). Twenty-six (4%) of the 620 respondents were excluded because they either reported not immunizing adolescents or did not respond to the adherence question, leaving 594 respondents (315 Peds, 279 FPs) for final analyses.

A minority of physicians (37% Peds, 24% FPs, $p < 0.01$) were aware that in 2006, ACIP strongly encouraged observing patients for 15 minutes after vaccination. Most physicians strongly or somewhat agreed that postvaccination syncope can result in serious injuries (82% Peds, 88% FPs, $p = 0.04$); that ACIP syncope recommendation is effective in preventing injuries from postvaccination syncope (87% Peds, 90% FPs, $p = 0.52$); and that their practice easily can adhere to this recommendation (69% Peds, 84% FPs, $p < 0.01$).

Few physicians (18% Peds, 16% FPs, $p = 0.67$) reported adherence to a 15-minute postvaccination observation. The majority of Peds and FPs considered the following factors as definitely or somewhat a barrier to implementing the ACIP syncope recommendation: lack of exam room space, staff busy with other duties, and patient refusal to stay in the office for observation (Figure 1). In multivariate analyses, factors independently associated with self-reported routinely observing patients for ≥ 15 minutes after vaccination included practice in a hospital, university, or community health center compared with private practice; awareness that ACIP strongly encourages observing patients for 15 minutes after vaccination; believing that postvaccination syncope can result in serious injuries; reporting having enough exam or waiting room space; and reporting having enough staff (Table 1).

Table 1. Factors associated with self-reported adherence to routinely observing adolescents for ≥ 15 minutes after vaccination

Factors ^a	Respondents, n	Adherents, %	Bivariate RR (95% CI)	p-value	Multivariate RR ^b (95% CI)	p-value
Gender						
Female	281	20	1.36 (0.95, 1.94)	0.096	1.37 (0.98, 1.96)	0.047
Male	312	14	ref		ref	
Type of practice						
MCO	18	28	1.88 (0.87, 4.09)	0.109	2.02 (1.00, 3.07)	0.188
University/hospital/CHC	101	25	1.68 (1.12, 2.51)	0.012	1.64 (1.05, 2.40)	0.662
Private practice	475	15	ref		ref	
Have observed a syncopal or near-syncopal episode in an adolescent patient after vaccination						
Yes	361	19	1.31 (0.89, 1.92)	0.166	1.35 (0.95, 2.00)	0.086
No	233	14	ref		ref	
Aware that ACIP strongly encourages observing patients for 15 minutes after vaccination						
Yes	185	40	6.29 (4.17, 9.50)	<0.001	5.55 (3.60, 9.37)	<0.001
No	409	6	ref		ref	
Postvaccination syncope and near-syncope can result in serious injuries						
Strongly/somewhat agree	504	18	2.04 (1.02, 4.03)	0.043	1.74 (1.06, 4.22)	0.053
Strongly/somewhat disagree	89	9	ref		ref	
ACIP recommendation should be effective in preventing postvaccination syncope and related injury^c						
Strongly/somewhat agree	524	19	6.27 (1.58, 24.82)	0.009	—	
Strongly/somewhat disagree	67	3	ref		—	
Preventing injury related to postvaccination syncope is a high priority for practice^c						
Strongly/somewhat agree	466	21	8.74 (2.82, 27.12)	<0.001	—	
Strongly/somewhat disagree	126	2	ref		—	
Practice can easily adhere to ACIP syncope recommendation^c						
Strongly/somewhat agree	450	22	15.46 (3.86, 61.91)	<0.001	—	
Strongly/somewhat disagree	142	1	ref		—	
Degree to which lack of exam or waiting room space is a barrier to observing patients after vaccination						
Definitely/somewhat of a barrier	421	12	ref		ref	
A minor/not at all a barrier	168	27	2.22 (1.56, 3.16)	<0.001	1.81 (1.26, 2.56)	0.001
Degree to which lack of staff is a barrier to observing patients after vaccination						
Definitely/somewhat of a barrier	375	11	ref		ref	
A minor/not at all a barrier	214	27	2.54 (1.76, 3.66)	<0.001	1.88 (1.29, 2.80)	<0.001

^aFactors that were assessed for association with self-reported adherence but not retained in the final multivariate model included specialty, location of practices, region of the country, practice size, average number of adolescent patients per week, have observed a traumatic injury related to a syncopal or near-syncopal episode in an adolescent patient, believing that traumatic injuries from postvaccination syncope are very rare, degree to which patient refuse to stay in the office is a barrier to postvaccination observation.

^bMultivariate analyses, controlling for all other variables listed in table

^cVariables were excluded from the multivariate model because of low frequencies, resulting in unstable estimates.

ACIP, Advisory Committee on Immunization Practices; CHC, community health center; RR, rate ratio

Discussion

Although the ACIP policy encourages physicians to routinely observe patients for 15 minutes after vaccination,⁷ the majority of physicians in this study did not adopt this recommendation in their practice. While the majority of respondents believed that the 2006 recommendation should be effective in preventing secondary injuries, this survey highlighted a general lack of awareness among physicians about it. The updated 2011 ACIP recommendation states that “adolescents and adults should be seated or lying down during vaccination. Vaccine providers, particularly when vaccinating adolescents, should consider observing patients (with patients seated or lying down) for 15 minutes after vaccination to decrease the risk for injury should they faint.”¹⁰ Ongoing efforts should be made to inform clinicians of this 2011 recommendation and the preventability of serious injuries from postvaccination syncope in adolescents.⁴

The failure of most physicians to routinely observe patients for 15 minutes after vaccination could also be attributed to the fact that the ACIP recommendation about postvaccination observation is presented as a consideration rather than practice guidance; consideration of postvaccination observation with an ultimate decision not to implement it would be consistent with the recommendation.^{7,10} Lack of sufficient staff and exam room space were reported as major barriers. Given the patient flows in many private practices, the use of exam room as the place to observe patients could put additional burdens on waiting time and slow the vaccinating process. Feasible strategies should be developed and evaluated to implement this recommendation in clinics with limited staff and room space. Many physicians also reported patient refusal as a barrier to adherence. Materials need to be developed to help providers communicate with patients and their parents regarding the importance of postvaccination observation.

Prioritization of this ACIP policy to adolescents would not affect patient flows as much as a recommendation for all vaccine recipients and is considered feasible for practice. The updated 2011 ACIP recommendation described above specifies that a postvaccination observation period is particularly important for adolescents. Consistent with the 2009 AAP Red Book,¹¹ ACIP also stated that adolescents and adults should be seated or lying down during vaccination and the observation period.¹⁰

The study has several limitations. Data on adherence to postvaccination observation were self-reported and actual practice was not verified. Although the overall response rate was high, the fact that FP respondents differed from nonrespondents with respect to gender

and practice location may result in response bias. Demographics, practice characteristics, and survey responses regarding vaccine-related issues of network participants have been shown to be nationally representative of U.S. physicians,⁸ but study physicians may have differed from physicians in general on other unmeasured characteristics.

Conclusion

Efforts should focus on informing providers of the importance of postvaccination observation to reduce risk for syncope-related injuries, helping them communicate this information with patients and parents, and developing and evaluating feasible strategies to implement postvaccination observation, particularly in clinics with adolescent patients.

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Appendix

Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.amepre.2011.04.016](https://doi.org/10.1016/j.amepre.2011.04.016).

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