

# **The American Academy of Pediatrics Response to Vaccine Hesitancy**

**Committee on Infectious Diseases  
& Committee on Practice and  
Ambulatory Medicine**

Report to NVAC June 6, 2017

# Vaccine Delays, Refusals, and Patient Dismissals: A Survey of Pediatricians

Catherine Hough-Telford, MD,<sup>a</sup> David W. Kimberlin, MD,<sup>a</sup> Inmaculada Aban, MS, PhD,<sup>a</sup> William P. Hitchcock, MD,<sup>b,†</sup> Jon Almquist, MD,<sup>c</sup> Richard Kratz, MD,<sup>d</sup> Karen G. O'Connor, BS<sup>e</sup>

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CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

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POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

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## Medical Versus Nonmedical Immunization Exemptions for Child Care and School Attendance

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PEDIATRICS Volume 138, number 3, September 2016

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**CONCLUSIONS:** Pediatricians reported increased vaccine refusal between 2006 and 2013. They perceive that vaccine-refusing parents increasingly believe that immunizations are unnecessary. Pediatricians continue to provide vaccine education but are also dismissing patients at higher rates.

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**TABLE 1** Characteristics of Eligible Respondents in 2006 and 2013

Physician Characteristics	2006	2013	<i>P</i> <sup>a</sup>
All respondents, <i>n</i>	852	854	
Completed surveys, <i>n</i>	852	818	
Excluded respondents, <i>n</i>	223	191	
Eligible respondents, <sup>b</sup> <i>n</i> (%)	629 (73.8)	627 (76.7)	.62
Age, <i>y</i> , mean (SD)	44.5 (11.4)	46.5 (11.9)	.003
Female gender, <i>n</i> (%)	359 (57.3)	387 (62.2)	.08
US region, <i>n</i> (%)			.49
Northeast	138 (21.9)	147 (23.4)	
Midwest	136 (21.6)	153 (24.4)	
South	220 (35.0)	202 (32.2)	
West	135 (21.5)	125 (19.9)	
Practice area, <i>n</i> (%)			.94
Urban, inner city	147 (24.0)	140 (23.0)	
Urban, non–inner city	141 (23.0)	136 (22.3)	
Suburban	249 (40.7)	255 (41.9)	
Rural	75 (12.3)	78 (12.8)	
Practice setting, <i>n</i> (%)			.02
Solo or 2-physician	112 (18.8)	80 (13.2)	
Group or staff health maintenance organization	305 (51.3)	316 (52.1)	
Hospital or clinic practice <sup>c</sup>	178 (29.9)	210 (34.7)	
Patient visits per week, %, mean (SD)	88.7 (62.1)	77.4 (69.8)	.003
Patients with public health insurance, %, mean (SD)	38.0 (32.2)	41.8 (30.0)	.006
Practice ownership (full or part), <i>n</i> (%)			
Yes	n/a	194 (31.3)	
No	n/a	425 (68.7)	

n/a, not applicable.

<sup>a</sup> *P* values compare 2006 and 2013 for each variable; *P* < .05 is considered significant.

<sup>b</sup> Eligible respondents: pediatricians who provide patient care and offer age-appropriate immunizations.

<sup>c</sup> These included medical school–affiliated clinics, hospital clinics, and community health center clinics.

**TABLE 4** Vaccine Refusals in 2006 and 2013: Results of Logistic Regression

Variables	2006 Refusals				2013 Refusals			
	<i>N</i>	Count, <i>n</i> (%)	Odds Ratio (95% CI)	<i>P</i> <sup>a</sup>	<i>N</i>	Count, <i>n</i> (%)	Odds Ratio (95% CI)	<i>P</i> <sup>a</sup>
All	593	442 (74.5%)			601	523 (87.0%)		
Region of the United States				.001				.04
West	124	106 (85.5%)	Reference		119	112 (94.1%)	Reference	
Midwest	131	96 (73.3%)	0.36 (0.19–0.71)		146	130 (89.0%)	0.51 (0.20–1.30)	
South	209	141 (67.5%)	0.30 (0.17–0.56)		194	163 (84.0%)	0.30 (0.13–0.72)	
Northeast	129	99 (76.7%)	0.61 (0.31–1.21)		142	118 (83.1%)	0.36 (0.15–0.91)	
Practice area				<.001				<.001
Urban, inner city	140	74 (52.9%)	Reference		134	100 (74.6%)	Reference	
Urban, non–inner city	136	103 (75.7%)	2.92 (1.70–4.99)		134	117 (87.3%)	2.16 (1.11–4.22)	
Suburban	244	207 (84.8%)	5.66 (3.43–9.34)		255	231 (90.6%)	3.27 (1.82–5.89)	
Rural	73	58 (79.5%)	4.21 (2.14–8.30)		78	75 (96.2%)	8.66 (2.54–29.53)	

All variables included in the logistic model are listed in this table.

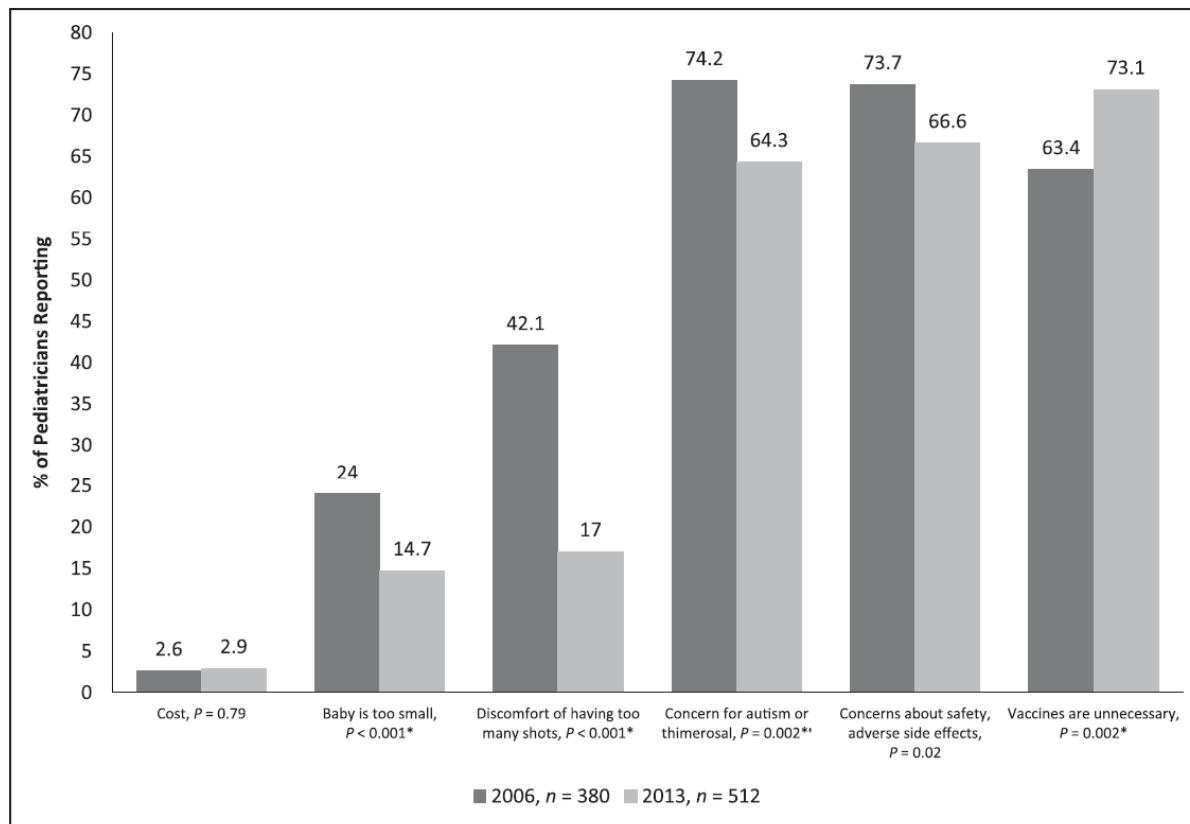
<sup>a</sup> *P* values <.0083 are considered significant.

**TABLE 5** Patient Dismissals for Continued Refusals in 2006 and 2013: Results of Logistic Regression

Variables	2006 Always Dismiss				2013 Always Dismiss			
	<i>N</i>	<i>n</i> or Mean	Odds Ratio (95% CI)	<i>P</i> <sup>a</sup>	<i>N</i>	<i>n</i> or Mean	Odds Ratio (95% CI)	<i>P</i> <sup>a</sup>
All, (%)	397	24 (6.1)			469	55 (11.7)		
Gender, (%)				.99				.16
Male	164	12 (7.3)	Reference		174	29 (16.7)	Reference	
Female	233	12 (5.2)	1.01 (0.40–2.55)		295	26 (8.8)	1.56 (0.84–2.90)	
Age, mean (SD)	397	49.2 (12.5)	1.05 (1.004–1.09)	.03	469	50.7 (11.7)	1.04 (1.01–1.06)	.01
Region of the United States, (%)				.27				.03
West	97	4 (4.1)	Reference		98	4 (4.1)	Reference	
Midwest	86	3 (3.5)	0.94 (0.19–4.61)		114	16 (14.0)	3.51 (1.10–11.18)	
South	123	10 (8.1)	2.32 (0.68–7.93)		148	26 (17.6)	4.62 (1.52–14.06)	
Northeast	91	7 (7.7)	2.66 (0.70–10.1)		109	9 (8.3)	2.01 (0.58–6.98)	
Practice area, (%)				.24				.02
Urban, inner city	64	1 (1.6)	Reference		87	4 (4.6)	Reference	
Urban, non–inner city	93	7 (7.5)	5.07 (0.58–44.24)		104	7 (6.7)	1.18 (0.32–4.39)	
Suburban	185	14 (7.6)	5.00 (0.63–39.74)		213	36 (16.9)	3.33 (1.11–9.96)	
Rural	55	2 (3.6)	1.65 (0.14–19.67)		65	8 (12.3)	1.80 (0.50–6.51)	

All variables included in the logistic model are listed in this table.

<sup>a</sup> *P* values <.05 are considered significant.



**FIGURE 1**

Change in pediatrician perceptions of parental reasons for vaccine refusals between 2006 and 2013. A total of 62 of the 442 respondents who experienced refusals in 2006 and 11 of the 523 in 2013 did not provide reasons for refusal. Reasons for refusal that were consistent between survey years are listed in the figure. \**P*s < .0083 are considered significant. + In 2013, questions were asked separately about parental concerns for thimerosal and autism; in 2006 these questions were combined.

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## **RECOMMENDATIONS**

1. The AAP supports laws and regulatory measures that require certification of immunization to attend child care and school as a sound means of providing a safe environment for attendees and employees of these settings.
2. The AAP supports medically indicated exemptions to specific immunizations as determined for each individual student.
3. The AAP recommends that all states and the District of Columbia use their public health authority to eliminate nonmedical exemptions from immunization requirements.

4. The AAP recommends that all child care centers, schools, and other covered entities comply with state laws and regulations requiring current and accurate documentation of appropriate immunization status and appropriate medical exemptions of attendees and students.
5. The AAP recommends that the appropriate public health authorities provide the community with information about immunization rates in child care centers, schools, and other covered entities and determine whether there are risks to community immunity on the basis of this information.

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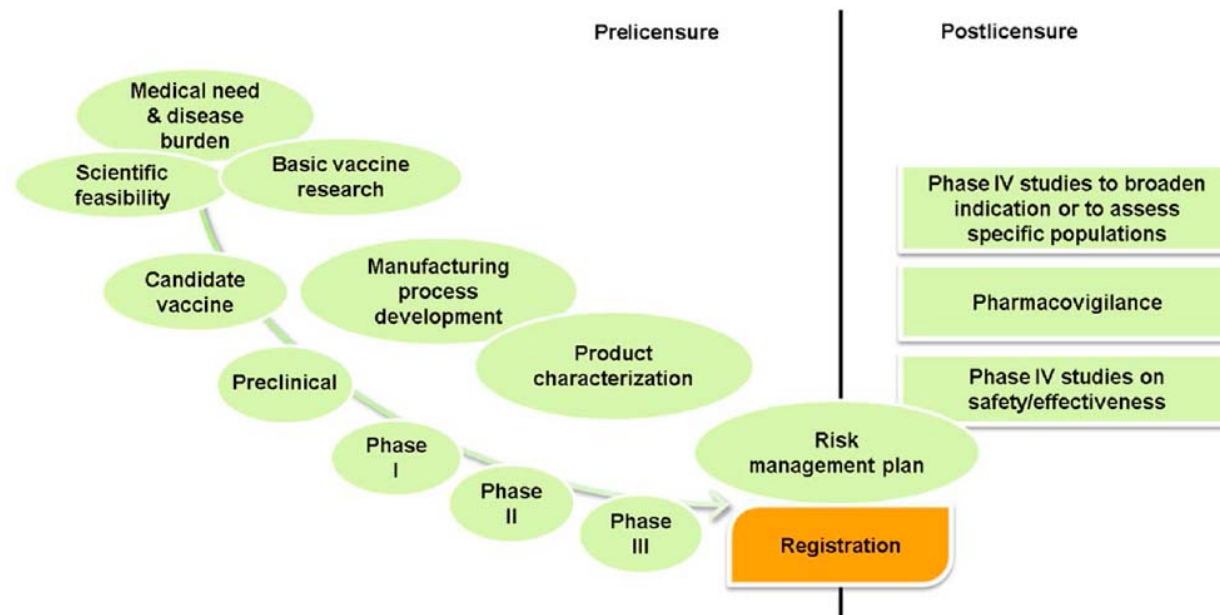
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Immunizations have led to a significant decrease in rates of vaccine-preventable diseases and have made a significant impact on the health of children. However, some parents express concerns about vaccine safety and the necessity of vaccines. The concerns of parents range from hesitancy about some immunizations to refusal of all vaccines. This clinical report provides information about addressing parental concerns about vaccination.

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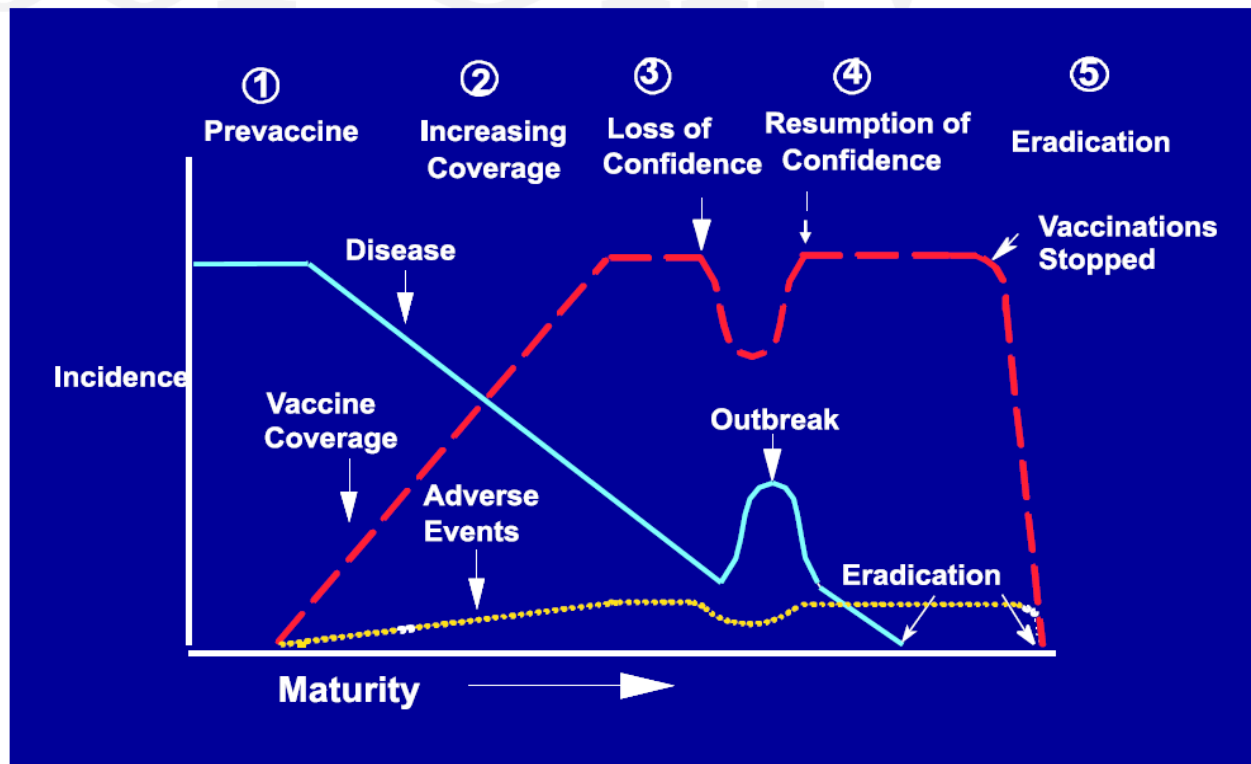
# Highlight the extensive testing of vaccines before and after licensure



**FIGURE 1**

Vaccine pipeline: prelicensure and postlicensure vaccine development activities. From Hardt K, Schmidt-Ott R, Glismann S, Adegbola RA, Meurice F. Sustaining vaccine confidence in the 21st century. *Vaccines*. 2013;1(3):204–224. Copyright © 2013 by the authors; licensee MDPI, Basel, Switzerland. Reproduced under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).

# Evolution of a Vaccine Program



**FIGURE 2**

Evolution of a vaccine program. Reproduced with permission. Chen RT, Orenstein WA. Epidemiologic methods in immunization programs. *Epidemiol Rev.* 1996;18(2):102. Copyright © 1996 by the Oxford University Press.

**TABLE 2** Parental Concerns About Vaccines

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Vaccine safety

- Too many vaccines
- Development of autism
- Vaccine additives (thimerosal, aluminum)
- Overload the immune system
- Serious adverse reactions
- Potential for long-term adverse events
- Inadequate research performed before licensure
- May cause pain to the child
- May make the child sick

Necessity of vaccines

- Disease is more “natural” than vaccine
- Parents do not believe diseases being prevented are serious
- Vaccine-preventable diseases have disappeared
- Not all vaccines are needed
- Vaccines do not work

Freedom of choice

- Parents have the right to choose whether to immunize their child
- Parents know what’s best for their child
- Believe that the risks outweigh the benefits of vaccine
- Do not trust organized medicine, public health
- Do not trust government health authorities
- Do not trust pharmaceutical companies
- Ethical, moral, or religious reasons

**TABLE 3** Number of Immunogenic Proteins and Polysaccharides Contained in Vaccines Over the Past 100 Years

1890		1960		1980		2000	
Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins and Polysaccharides
Smallpox	~200	Smallpox	~200	Diphtheria	1	Diphtheria	1
Total	~200	Diphtheria	1	Tetanus	1	Tetanus	1
		Tetanus	1	WC-pertussis	~3000	AC-pertussis	2-5
		WC-pertussis	~3000	Polio	15	Polio	15
		Polio	15	Measles	10	Measles	10
		Total	~3217	Mumps	9	Mumps	9
				Rubella	5	Rubella	5
				Total	3041	Hib	2
						Varicella	69
						Pneumococcus	8
						Hepatitis B	1
						Total	123-126

Adapted from Offit et al.<sup>52</sup>

AC-pertussis, acellular pertussis vaccine; WC-pertussis, whole cell pertussis vaccine.

## **DISMISSAL OF PATIENTS WHO REFUSE VACCINATION**

The decision to dismiss a family who continues to refuse immunization is not one that should be made lightly, nor should it be made without considering and respecting the reasons for the parents' point of view.<sup>44</sup> Nevertheless, the individual pediatrician may consider dismissal of families who refuse vaccination as an acceptable option. In all practice settings, consistency, transparency, and openness regarding the practice's policy on vaccines is important.



# Communication Highlights: AAP

- Vaccines are safe and effective, and serious disease can occur if your child and family are not immunized.
- Vaccine-hesitant individuals are a heterogeneous group and their individual concerns should be respected and addressed.
- Vaccines are tested thoroughly prior to licensure and vaccine safety assessment networks exist to monitor vaccine safety after licensure.
- Nonmedical vaccine exemptions increase rates of unvaccinated children.
- Unvaccinated children put vaccinated children and medically exempt children who live in that same area at risk.

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# Communication Highlights: AAP

- Pediatricians and other health care providers play a major role in educating parents about the safety and effectiveness of vaccines.
- Strong provider commitment to vaccination can influence hesitant or resistant parents.
- Personalizing vaccine acceptance is often an effective approach.
- The majority of parents accepted the provider's vaccine recommendations when they were presented as required immunizations to maintain optimal disease prevention.
- The current vaccine schedule is the only one recommended by the CDC and the AAP. Alternative schedules have not been studied.