Pneumococcal Vaccination Practices Among Private Physicians

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In NOVEMBER 1977, the Food and Drug Administration licensed a 14-valent pneumococcal polysaccharide vaccine (PPV) for administration to persons over 2 years old who are considered to be at high risk for invasive pneumococcal disease. The high-risk categories include people with chronic cardiac, pulmonary, hepatic, renal, metabolic, or immune system conditions, and the elderly (*1–3*). The number of people in the United States in these categories was estimated at more than 48 million in the 1979 Immunization Survey by the Centers for Disease Control.

Since the time of licensure, PPV has not gained wide acceptance in the medical community. Only about 4 million doses had been administered as of January 1981, almost exclusively by private practitioners. To further define the attitudes and immunization practices of private physicians and to determine whether some high-risk groups are more likely than others to be immunized with PPV, a nationwide survey of private, primary-care physicians was conducted.

Methods

A random sample of general and family practitioners, internists, and pediatricians was drawn from the American Medical Association's directory of all physicians practicing in the United States. Questionnaires were administered, primarily by telephone during August and September 1980, to 1,002 of 2,100 physicians (47 percent) in the original sample. A minimum of four attempts were made to contact each physician. Of 893 respondents included in the study, 299 were general and family practitioners, 289 were internists, and 305 were pediatricians. When responses to a given question were aggregated and presented as a single total, the data were weighted to bring each of the three specialty samples into proper proportion with the total population of primary-care physicians practicing in the United States. Weight coefficients were derived by treating each sample as a fraction of the specialty group from which it was drawn.

To assess the validity of the sample, data from respondents were compared with data from all other

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Table 1. Number and percentage of respondents who usually administer pneumococcal vaccine (APV) and who think pneumococcal vaccine is indicated (PVI), by patient category

Patient category	General and family practitioners				Internists				Pediatricians			
	APV		PVI		APV		PVI		APV		PVI	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Age 65 or older	141	47	[1]194	65	136	47	156	54	...	...	137	45
Age 50–64	66	22	81	27	52	18	40	14	...	...	24	8
Age 2 or older with:												
Splenic dysfunction	132	44	[1]221	74	145	50	[1]217	75	171	56	[1]284	93
Anatomic asplenia	129	43	[1]221	74	145	50	[1]220	76	165	54	[1]287	94
Diabetes mellitus	135	45	[1]197	66	142	49	162	56	76	25	[1]116	38
Cardiorespiratory disease	182	61	[1]242	81	188	65	[1]225	78	101	33	[1]174	57
Liver disease	120	40	[1]170	57	113	39	[1]142	49	46	15	[1] 98	32
Renal impairment	126	42	[1]185	62	133	46	153	53	76	25	[1]140	46
Conditions requiring institutionalization	129	43	[1]194	65	124	43	[1]156	54	18	6	[1] 85	28
Chronic neurological impairment	120	40	[1]164	55	113	39	[1]150	52	49	16	[1] 85	28
Retardation	78	26	[1]114	38	72	25	84	29	21	7	[1] 40	13
Pregnancy	9	3	15	5	6	2	12	4	3	1	9	3

[1] Statistically significant difference between APV and PVI ($P < 0.05$, chi-square test).

U.S. physicians in those specialties (*4*). Chi-square analysis was used to test significance.

Results

Sample validity. General and family practice respondents were more likely to have urban practices ($P < 0.01$) and more likely to be located in the north-central region of the country rather than the West ($P < 0.05$) than all other general and family practitioners. No significant differences were observed for the internists and pediatricians.

Patient populations. Of the internists' patients, 56 percent were ≧ 50 years old and 31 percent were ≧ 65 years old. Patients of general and family practitioners were equally distributed in all age groups. An estimated 63 percent of the patients ≧ 65 years and 26 percent of those < 65 years had chronic diseases for which PPV administration had been suggested. Only 7 percent of the pediatricians' patients reportedly had such diseases.

Table 2. Sources of information cited by 641 physicians who administer pneumococcal vaccine

Source	Physicians	
	Number	Percent
Personal review of medical literature	423	66
Advice of manufacturer	333	52
Public Health Service guidelines	224	35
Local and State health department guidelines	186	29
Past experience	103	16
Don't know or no response	13	2

Physicians' attitudes and practices regarding PPV administration. Of all the respondents, 72 percent (75 percent of the general and family practitioners, 79 percent of the internists, and 62 percent of the pediatricians) usually administer PPV to at least some of their patients. When asked which patients should receive the vaccine, the respondents most commonly indicated persons with cardiorespiratory diseases and those with asplenia (table 1). However, the proportion of respondents who usually immunize patients within these and other categories was often significantly lower (table 1). Information regarding PPV, including indications for its use, was obtained from a variety of sources, but most often from the medical literature (table 2).

Of the 28 percent of the respondents who did not administer PPV, 45 percent thought it was unnecessary, and another 21 percent expressed lack of familiarity with the vaccine. Patient refusal, reservations about safety, and lack of consensus for the indications of PPV were cited infrequently (8 percent, 7 percent, and 1 percent of the respondents, respectively).

Discussion

In view of the relatively low completion rate, and significant differences in location between general and family practice respondents and all other general and

family practice physicians, this survey may not be entirely representative of private, primary-care physicians who practice in the United States. Nevertheless, the results suggest that these physicians fail to pursue an active PPV program for patients in all high-risk categories, even though they generally agree with current published guidelines (*1–3*). This observation is consistent with a study of PPV use in a single locality, as well as with studies of the use of other vaccines (*5–7*).

The observed discrepancy between attitudes and practices in this survey could not be explained by any single factor. Many respondents had reviewed the medical literature to learn more about PPV, and they may have been influenced by reports of vaccine failures (*8–10*) and potentially low (*11*) or inadequately studied efficacy among high-risk groups (*12*). However, respondents vaccinated patients with cardiorespiratory diseases more often than patients in other categories, despite a lack of sufficient data on efficacy of the vaccine to support this practice (*13*). Physician apathy and poor public awareness, factors proposed by others (*14,15*), may also help to explain the discrepancy. But, the safety of PPV and patient refusal—reservations expressed by only 18 respondents—do not appear to be important. The relatively low rate of PPV administration to some high-risk groups (for example, patients with asplenia) may reflect small numbers of such patients in the practices of some respondents, particularly pediatricians.

Although at least several factors may contribute to the consistent underuse of PPV, the individual importance of each factor remains unknown. When recommendations become more clearly defined for each high-risk group, careful assessment of these factors as well as dissemination of accurate information to both physicians and the public will become increasingly important.

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SYNOPSIS

PATRIARCA, PETER (Centers for Disease Control), SCHLECH, WALTER F., III, HINMAN, ALAN R., CONN, JUDITH M., and GUNN, WALTER J.: *Pneumococcal vaccination practices among private physicians. Public Health Reports, Vol. 97, September–October 1982, pp. 406–408.*

It is estimated that less than 10 percent of patients thought to be at high risk of invasive pneumococcal diseases have received 14-valent pneumococcal polysaccharide vaccine. To determine if any of these groups are more likely to be vaccinated than others, 893 private, primary-care physicians were surveyed nationwide. Although there was general agreement that the vaccine is indicated for the high-risk groups, patients with cardiorespiratory diseases were the only ones usually immunized by more than half of the survey respondents. The discrepancy between attitudes and practices could not be attributed to any specific factor.