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Vaccine Financing and Billing in Practices Serving Adult Patients: A Follow-Up Survey

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Abstract

Background—Financial concerns are often cited by physicians as a barrier to administering routinely recommended vaccines to adults. The purpose of this study was to assess (1) perceived payments and profit from administering recommended adult vaccines and (2) vaccine purchasing practices among general internal medicine (GIM) and family medicine (FM) practices in the United States.

Methods—We conducted an interviewer-administered survey from January–June 2014 of practices stratified by specialty (FM or GIM), affiliation (standalone or ≥2 practice sites), and level of financial decision-making (independent or larger system level) in FM and GIM practices that responded to a previous survey on adult vaccine financing and provided contact information for follow-up. Practice personnel identified as knowledgeable about vaccine financing and billing responded to questions about payments relative to vaccine purchase price and payment for vaccine administration, perceived profit on vaccination, claim denial, and utilization of various purchasing strategies for private vaccine stocks. Survey items on payment and perceived profit were assessed for various public and private payer types. Descriptive statistics were calculated and responses compared by physician specialty, practice affiliation, and level of financial decision-making

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Results—Of 242 practices approached, 43% (n=104) completed the survey. Reported payment levels and perceived profit varied by payer type. Only for preferred provider organizations did a plurality of respondents report profiting on adult vaccination services. Over half of respondents reported losing money vaccinating adult Medicaid beneficiaries. One-quarter to one-third of respondents reported not knowing about Medicare Part D payment levels for vaccine purchase and vaccine administration, respectively. Few respondents reported negotiating with manufacturers or insurance plans on vaccine purchase prices or payments for vaccination.

Conclusions—Practices vaccinating adults may benefit from education and technical assistance related to vaccine financing and billing and greater use of purchasing strategies to decrease upfront vaccine cost.

Keywords

adult immunization; vaccine financing; vaccine billing; survey research

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The Advisory Committee on Immunization Practices (ACIP) recommends routine administration of several vaccines for U.S. adults, based on age and other risk factors. Coverage for adult vaccines is well below Healthy People 2020 targets.(1) Barriers to adult vaccination reported by patients and healthcare providers include not knowing vaccines are needed, other issues taking precedence during brief medical visits, and physicians not recommending vaccination. Cost-related barriers including inadequate payments for vaccination services are the most common barriers to adult vaccination reported by physicians.(2–6) Purchase prices for vaccines routinely recommended for adults range from $16 to over $200 per dose in the private sector.(7)

Physicians providing care to both publicly- and privately-insured patients may receive widely divergent payments for administering the same vaccine depending on the patient's insurance benefits. Generally, private insurance plans establish set payments for vaccine purchase and administration. Providers contracting with the plan agree to accept these rates, although negotiation is possible.(8) Most plans specify provider types and sites of care for which vaccination is covered; payments may vary by provider and site. Payments under original Medicare (Part B), which covers influenza and pneumococcal vaccination, hepatitis B vaccination for certain at-risk persons, and tetanus vaccination for wound care only, are established at the federal level with geographic adjustments.(9) Medicaid fee-for-service payments are determined by each state.(10) For Medicare Part D, a prescription drug benefit that covers all ACIP-recommended vaccines not covered under Part B, the payment structure is similar to private insurance: multiple Part D plans operate in each state and each plan establishes payments for vaccination. Medicaid managed care plans operate similarly.

The Patient Protection and Affordable Care Act of 2010 (ACA) includes several elements designed to increase access to preventive services including vaccines. The ACA requires coverage for ACIP-recommended vaccines with no patient cost-sharing when vaccines are administered by in-network providers to beneficiaries of non-grandfathered private health plans or Medicaid beneficiaries who gained eligibility through ACA program expansions.(11) (In 2016, 77% of workers with employer-based health insurance were covered by non-grandfathered plans.)(12) It also specified a temporary increase in Medicaid payments for

certain primary care services, including vaccine administration, provided by certain types of physicians; services provided from January 1, 2013–December 31, 2014 were paid at the lower of the provider's actual charge for the service or the respective Medicare Part B fee schedule rate, which is substantially greater than Medicaid vaccine administration payments in most states.(10,13–14) The ACA does not include provisions related to private insurance payments to physicians or physician practices for vaccination, nor make any significant changes to vaccination benefits coverage or payment rates for Medicare beneficiaries or persons who were Medicaid-eligible prior to the ACA Medicaid expansion that began in January 2014.

In 2013, we conducted a survey on adult vaccination billing and financing among family medicine (FM) and general internal medicine (GIM) physicians.(15) Significant proportions of respondents reported being unable to answer questions on vaccine purchase and administration payments. Since financial concerns are a commonly-reported barrier to adult vaccination, we designed the current study to better understand vaccine financing issues in physician practices serving adult patients. Our primary objectives were to assess among knowledgeable practice staff (1) perceived payments and profit from administering vaccines routinely recommended for adults and (2) vaccine financing and purchasing practices among FM and GIM in the U.S.

Methods

Study design

The study comprised a telephone survey of personnel working in FM and GIM practices who were considered knowledgeable about vaccine financing and billing. The 553 of 839 physicians (66%) that responded to our previous survey (15) were asked to provide contact information for someone at their practice who had direct experience with vaccine billing and could report the practice's vaccine financing experiences. Overall, 47% of respondents to the previous survey (262/553) provided contact information consisting of at least one of the following: email address, telephone number, or mailing address.

The 262 eligible practices were stratified based on specialty (FM or GIM), affiliation (standalone practice or ≥2 practice sites, hereinafter 'multisite practices'), and level of financial decision-making (independent or system). The latter factors were examined because being one of multiple sites or belonging to a healthcare system may affect the level at which purchasing decisions are made – and thus, respondents' knowledge of these decisions – as well as a practice's ability to obtain more favorable pricing or payments based on volume of vaccines administered. We used a quota sampling approach to select practices similar to those responding to our previous survey. First, we established proportional sampling targets based on the number of responses to the previous survey that fell into each of eight specialty/affiliation/decision-making categories. Then, practices in each category for which contact information was provided were approached at random until the target was reached (two of eight categories) or all eligible practices were exhausted (six of eight categories) (Appendix).

Study participants

Individuals were contacted first via e-mail if provided or U.S. mail otherwise to schedule the interviewer-administered survey. Following the first contact, individuals received up to four contact attempts via telephone interspersed with up to three attempts via e-mail or U.S. mail. (Study personnel looked up telephone numbers and mailing addresses for practices that did not provide this information.) If no response was received after these attempts, the physician who provided the contact information was contacted via U.S. mail to request participation of another staff member. Successfully contacted individuals were asked to provide a telephone number and date/time to complete the survey.

The survey was administered January-June 2014. Participants received $75 for their time. The survey was deemed exempt research by the University of Colorado's Institutional Review Board.

Measurements

The survey asked about the respondent's position and involvement in vaccine purchasing and billing for the practice, whether and how the practice bills Medicare Part D, and what percentage of the practice's annual budget goes to adult vaccines. It also included four sets of questions about respondents' experiences with six payer types: private fee-for-service insurance (FFS), private preferred provider organizations (PPO), private health maintenance or managed care organizations (HMO/MCO), Medicaid, Medicare Part B, and Medicare Part D. For each payer, respondents reported payment relative to vaccine purchase prices (less than, about the same, more than); general administration payment for the first vaccine given in a visit (<$11, $11–$17, $18–$24, >$24, too variable to answer); perceived profit on vaccination services (lose money, break even, make a profit); and frequency of claim denial for any reason (frequently, sometimes, rarely, never). The question on perceived profit was also asked about patients who pay out of pocket for vaccination. Respondents were asked to assess profit margin "taking into account what you pay to purchase vaccines, your administration costs, and what you are reimbursed for vaccine cost and administration". For each question set, respondents could report "don't know" or "don't see patients with this insurance type".

Respondents were asked about methods used to purchase private vaccine stocks and to negotiate with private insurance plans regarding vaccination payments. They were also asked whether the practice had stopped purchasing any vaccines for adults, or had stopped vaccinating patients with a particular type of health insurance, due to financial concerns. For all items, respondents were instructed to answer with respect to vaccines routinely recommended for adults ≥19 years other than influenza (i.e. excluding travel vaccines and those given only to pediatric patients). Respondents reported their overall profit margin for seasonal influenza vaccination and non-influenza vaccines separately.

Analysis

Descriptive statistics were calculated using SAS version 9.4; Mantel-Haenszel chi square and Fisher's Exact tests were used to compare responses by specialty, affiliation, and level of financial decision-making. For most items, responses did not differ significantly between

FM and GIM; therefore, we present results for both specialties combined. Where responses differed by specialty, we present comparisons and p-values. Results were similar whether analyzed by affiliation or decision-making level; we present findings by affiliation. Findings for specific payer types are restricted to practices reporting they saw patients with, and billed, that insurance.

Results

Description of respondents

Based on predetermined recruitment targets, we approached 242 practices for which we had contact information. Of these, 31 (13%) refused participation and 107 (44%) could not be reached. Staff from 104 practices (43%) completed the survey. The majority of respondents (52%) were office managers or health administrators, 25% were billing staff, and 14% were clinicians. (Table 1) The majority reported submitting vaccine claims or supervising individuals who submit claims, or both; slightly under one-third reported participating in contract negotiations for vaccine purchase or insurance payment. Claims submission and negotiation were more commonly reported by standalone versus multisite practices. Sixty-two percent of respondents reported participating in decisions about which vaccines to stock. Only 38% reported billing Medicare Part D for adult vaccines, and only 16% reported using TransactRx, which facilitates Part D claims submission by physicians.

Payments for vaccination

For each private payer type, about half of respondents reported payment “about the same” as vaccine purchase price (Table 2). Smaller proportions reported payment similar to purchase prices for public payers; Medicaid was the only payer for which the majority of respondents (60%) reported payment less than purchase price. Notably, 26% of respondents said “don’t know” when asked about Medicare Part D payments vs. <3% for all other payers. There were no significant differences in response by affiliation.

When asked about vaccine administration payment (Table 3), a payment range of $11–$17 was reported by about one-third of respondents (31%–34%) for each private payer type and by 26% for Medicare Part B. Medicaid was the only payer for which the majority of respondents (54%) reported vaccine administration payment <$11. For Medicare Part D, equal proportions (18%) reported payments of <$11 and $11–$17; however, one-third of respondents reported not knowing about vaccine administration payment. For all insurance types except Medicare Part B and Medicaid, ≥10% of respondents said payments were too variable to answer the question.

Perceived profit and claim denial

Perceived profit from vaccination varied substantially by payer (Figure 1). The largest proportions of respondents perceived making a profit under FFS and PPO plans and from patients paying out-of-pocket; less than one-third of respondents seeing patients in HMO/MCOs, Medicaid, or Medicare reported profiting on vaccinations. PPOs were the only payer for which a plurality of respondents reported making a profit; the most common response was “break even” for FFS, HMO/MCO, out-of-pocket, and Medicare Part B. Equal

proportions of respondents (33%) selected “break even” and “don’t know” when asked about vaccination under Medicare Part D. Over half (55%) of respondents reported losing money administering vaccines to Medicaid patients. Taking into account all payer types, fewer than 10% of respondents said they lost money administering vaccines; 37% reported making a profit administering non-influenza vaccines and 50% on seasonal influenza vaccination.

When asked how profit margin for vaccine delivery changed in the past several years, 40% said it stayed the same and 31% said it decreased, while 17% said it increased and 12% did not know. No differences in perceived change in profit margin were noted by affiliation, but FM were less likely than GIM to report decreased profit margin (21% vs. 40%, $p<0.05$) and more likely to respond “don’t know” (19% vs. 4%, $p<0.05$). About one-third of respondents (31%–38%) reported claims being “frequently” or “sometimes” denied for any reason by most payers. For Medicare Part D, only 24% reported frequent/sometime claim denial, but a higher proportion of respondents (36%) answered “don’t know” than for other payers.

Vaccine purchasing practices

Reported frequency of vaccine purchasing and negotiation activities for privately insured patients varied widely between standalone and multisite practices for all items assessed (Table 4). Strategies most commonly reported by respondents were purchasing from vaccine manufacturers using bulk ordering discounts (60% reported frequently/sometimes doing this), participating in group purchasing organizations for vaccines (59%), and utilizing prompt pay discounts (51%). About one-quarter of respondents reported frequently or sometimes negotiating payments for vaccines or vaccine administration with insurance plans.

Recent changes in vaccine provision

When queried about the past 12 months, 8% of practices reported they stopped purchasing one or more vaccines for adults and 11% reported they stopped giving certain vaccines to patients with particular types of health insurance due to financial concerns, with no differences by affiliation.

Discussion

In this survey of physician practices, perceived payment levels and profit margins for adult vaccination varied widely by payer type. Practices most often reported breaking even on adult vaccination, however the majority perceived financial loss from vaccinating adult Medicaid beneficiaries. Under half of surveyed practices reported billing Part D for vaccinations; less than one-quarter reported routinely negotiating vaccination payments with private insurers. Low utilization of many payment-maximizing strategies, concerns about Medicaid payments, and continued difficulty billing Medicare Part D likely contribute to the perception that vaccinating adults is not profitable for many practices.

Among payer types examined, only PPOs were identified by a plurality of respondents as providing adequate payment to make a profit once vaccination-related costs were taken into account. Although we measured only perceived payments, previous research in pediatric practices found public and private health plans’ payments for vaccine administration often

did not cover the variable costs of vaccination.(16) The financial feasibility of administering vaccines to adults likely depends on the payer mix in a given practice. Simply breaking even may not provide adequate incentive for physicians to stock and administer vaccines, which pose unique challenges and start-up costs to practices.(17) Vaccine acquisition costs and time to administer and record vaccinations also may affect profit, yet few practices reported regularly negotiating with manufacturers or insurers to reduce vaccine purchase costs or increase payments. It is unclear whether practices are unaware of these strategies or previously employed these strategies but ceased due to a failure to obtain cost savings. Access to discounted vaccine pricing via participation in purchasing groups (reported by 59% of respondents) may obviate the need to negotiate directly with manufacturers.(18)

Half of respondents administering influenza vaccine to adults reported making a profit compared with 37% of respondents administering non-influenza vaccines. Influenza vaccines are relatively less expensive than other routinely administered adult vaccines (7), recommended for adults of all ages and health conditions, and ordered and administered annually. Other adult vaccines are less commonly stocked by physicians, particularly GIM, whose patient panels do not include pediatric populations that would routinely receive these vaccines.(4) Physicians may have less experience billing for non-influenza vaccines and may purchase fewer doses for their adult patients, precluding volume ordering discounts. Notably, many vaccine purchasing groups provide discounts even for small-volume purchases; purchasing group participation was common among both FM and GIM respondents.(18)

Previous studies showed a lack of knowledge among physicians about Medicare Part D vaccination benefits, corroborating our findings.(3,15,19) This is troubling as Part D is intended to cover all recommended vaccines not covered by Medicare Part B, including Tdap and zoster, for which uptake among older adults is low.(1) Provider recommendation is an important predictor of vaccination and standardized vaccination offering may reduce persistent racial/ethnic disparities in adult vaccination uptake (20), yet imperfect understanding of vaccination benefits or perceived inadequate payments may discourage physicians from recommending vaccines to their adult patients.(15,21) One study showed FM and GIM prioritize influenza and pneumococcal vaccines over Tdap and zoster and speculated that difficulties billing Medicare Part D accounted for this finding.(22) Although the majority of physicians report stocking vaccines covered by Part D (4), some practices may provide these vaccines only to privately insured patients and refer Medicare beneficiaries for vaccination elsewhere.(22) A 2011 report from the U.S. Government Accountability Office recommended that the Centers for Medicare & Medicaid Services (CMS) take steps to alleviate administrative challenges to physicians related to Medicare Part D vaccination benefits; the following year, CMS changed Part D formulary designs to encourage offering low- or no-cost vaccinations.(19) Nonetheless, our findings indicate continued challenges implementing billing for the pharmacy-focused Part D plans in medical practices.

Strengths of this study include selection of practices to elucidate previous findings (15) and capture variations likely to impact vaccine financing experiences, such as affiliation with multiple sites and membership in a larger organization. Limitations include that data were

self-reported and may not accurately reflect practices' income from payers. For example, 48% of respondents reported vaccine administration payments <$18 from Medicare Part B, but the national average Part B payment for vaccine administration in 2013 was $25.86.(23) Nevertheless, perceived payment and profit are important as this may affect how practices choose to provide vaccines to patients. Our participation rate was suboptimal, and sampling focused on factors of interest rather than generalizability, so respondents may not be representative of all FM and GIM in the U.S. Practices that chose to complete our survey may have different experiences with vaccine financing than those not participating. All practices were part of an existing survey network to explore vaccine-related issues; prior work suggests network physicians' responses are similar to those of randomly-selected physicians. (24) We did not assess respondents' vaccine stocking practices, which may influence their perceptions of vaccine financing and reimbursement. Finally, quantitative data support physicians' general perception of low reimbursement for vaccinating Medicaid beneficiaries, but payment rates are established by states and vary from under two dollars to over $30.(10) Our sample size was insufficient to evaluate perceived payment adequacy at the state level.

These findings generally corroborate those of our prior survey, in which physicians reported some level of dissatisfaction with all payers, but particularly Medicare and Medicaid.(15) Similar findings were observed among pediatricians with respect to vaccine administration payments.(25) A persistent lack of knowledge about Medicare vaccination benefits and perceived financial loss from Medicaid could adversely affect provider willingness to vaccinate publicly insured adults, leading to lower vaccination coverage in this population. (1) CMS issued guidance for physicians in 2007 on how to bill Part D for vaccinations (26), yet our study and others show continued confusion related to Part D. Organizations representing physicians who treat adult patients are well-positioned to disseminate CMS guidance and provide member education on business practices to mitigate financial burdens of vaccination. The National Adult and Influenza Immunization Summit recently released guidance and resources on vaccine coding and billing that includes information from several national physician groups.(27) Studies by academic or government partners could provide valuable data about the cost to vaccinate adults in various public and private settings and geographic regions; physicians may wish to share observations about their costs of vaccination during scheduled negotiations with insurance plans. Without data on practices' costs to vaccinate adults, insurers cannot evaluate whether vaccination services payments are adequate to compensate physicians for their time and expenses. Finally, public and private stakeholders could collaborate to increase physicians' ease of billing Medicare Part D for vaccinations.

Few practices in our study reported ceasing to provide vaccines to adult patients for financial reasons, consistent with a 2009 study.(17) However, physicians who do not stock a given vaccine may also be less likely to assess patients' needs for that vaccine.(4) Even a small reduction in practice-based vaccine access is concerning given suboptimal adult vaccination coverage and the importance of provider recommendations and offers to optimize vaccine uptake.(6, 28) Despite practices' apparent willingness to continue vaccinating adults for limited financial gain, achieving national goals related to improving vaccine access for adults (29) could be facilitated if targeted information regarding vaccine financing and

billing strategies, and assistance implementing the strategies most appropriate to their practices, were available to physicians. Interventions assisting practices to reduce vaccination-associated expenses and obtain full payment for vaccines administered, and to develop referral systems when it is not feasible to offer certain vaccines, could strengthen the U.S. adult vaccination infrastructure and improve access to all ACIP-recommended vaccines for adults.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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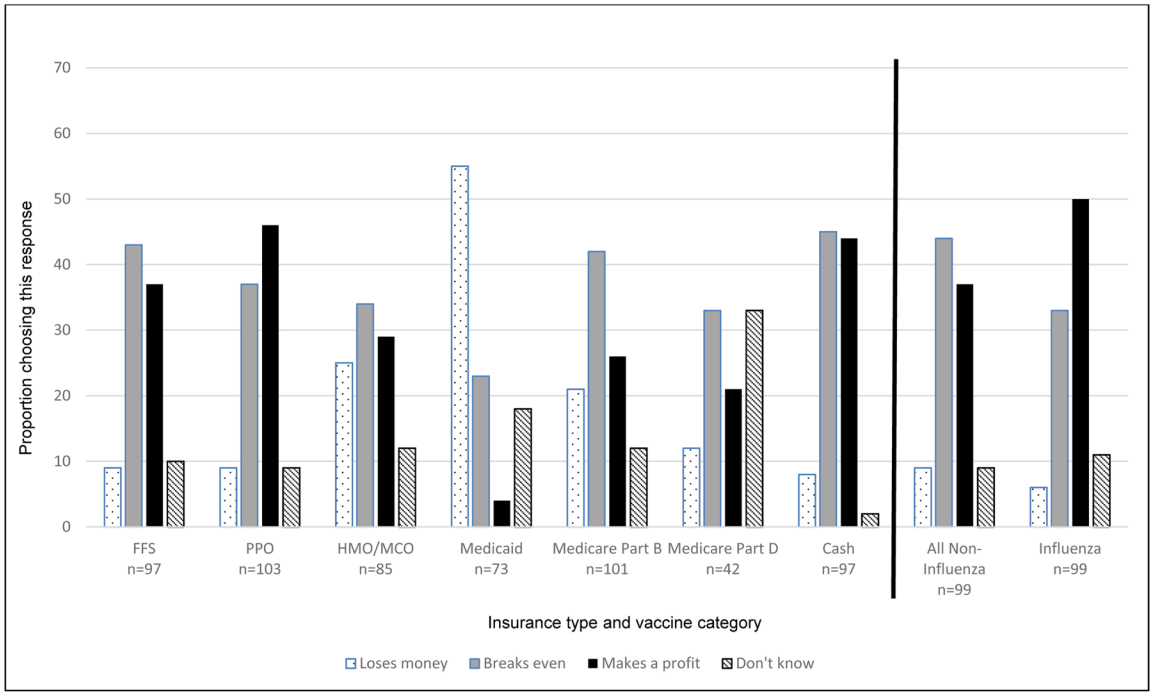

Figure 1. Perceived level of profit for vaccination by insurance type and overall*

FFS: Fee-for-Service; PPO: Preferred Provider Organization; HMO/MCO: Health Maintenance Organization/Managed Care Organization

* For each type of insurance product, responses are restricted to practices reporting seeing patients with that type of insurance and billing that type of insurance.

General internal medicine respondents were more likely than family medicine respondents to report breaking even on Medicare Part B vaccination ($p<0.05$). Multisite practices were more likely than standalone to report breaking even on Medicare Part B vaccinations, while standalone practices were more likely to report making a profit ($p < 0.005$). Multisite practices were more likely than standalone practices to report breaking even, and less likely to report making a profit, on all non-influenza vaccines ($p < 0.005$) and less likely than standalone practices to report making a profit on seasonal influenza vaccination ($p < 0.05$).

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Table 1

Characteristics and vaccine financing and billing activities of respondents

	Total (n=104)	Standalone (n=53)	Multisite (n=51)	p-value*
Position in practice, %				
Office manager/health administrator	52	51	53	
Billing personnel	25	26	24	
Healthcare provider**	14	15	14	
Other	9	8	10	0.97
Vaccine financing-related activities reported by respondents†, %				
Supervise the individuals who submit vaccine claims	67	74	61	0.16
Make/participate in decisions about what vaccines to stock at the practice††	62	62	61	0.88
Submit vaccine claims	50	68	31	<0.005
Participate in negotiating contracts for vaccine purchasing	31	42	20	0.02
Participate in negotiating contracts with insurance companies	27	42	12	<0.005
Are you an owner of this practice	5	9	0	0.06
Practice currently bills Medicare Part D for adult vaccines, %				
Yes	38	34	41	
No	63	66	59	0.45
Practice uses TransactRx to electronically submit claims to Medicare Part D, %				
Yes	16	17	16	
No	19	17	22	
Don’t know	64	66	63	0.84
Estimated proportion of annual practice budget devoted to purchase, storage, and handling of adult vaccines, %				
<5%	24	23	25	
5%–19%	43	51	35	
≥20%	14	11	18	
Don’t know	18	15	22	0.41

* Indicates p-value for difference between standalone and multisite practices using chi-square test or Fisher’s exact, as appropriate, for significance.

** Includes physicians, nurses, medical assistants, and pharmacists.

† Respondents could select multiple activities so columns sum to greater than 100%.

†† Internal medicine respondents were more likely than family medicine to say they make/participate in vaccine stocking decisions for the practice (71% vs. 52%, p=0.04).

Table 2

Perceived adequacy of payment for vaccine purchase by insurance type

		Reported payment relative to vaccine purchase prices		
	n*	Less than, %	About the same, %	More than, %
Private fee-for-service insurance	87	22	49	29
Private preferred provider organizations	93	15	52	33
Private health maintenance organizations/managed care organizations	75	31	51	19
Medicaid	67	60	31	9
Medicare Part B	91	40	42	19
Medicare Part D **	38	18	39	16

* For each type of insurance product, responses are restricted to practices reporting seeing patients with that type of insurance and billing that type of insurance. “Don’t know” responses were excluded from analysis when they comprised <3% of all responses. This was true for all insurance types except Medicare Part D. No significant differences by affiliation or specialty were observed.

** For Medicare Part D, 26% of respondents selected “Don’t know” in response to this question.

Table 3

Perceived payment levels for vaccine administration by insurance type

		Reported payment for the first vaccine administered					
	n*	Less than $11, %	$11–$17, %	$18–$24, %	More than $24, %	Too variable to answer, %	Don't know, %
Private fee-for-service insurance	97	15	31	18	12	10	13
Private preferred provider organizations	92	15	33	22	15	13	2
Private health maintenance organizations/managed care organizations	76	17	32	16	13	18	4
Medicaid**	91	54	14	11	7	1	13
Medicare Part B†	101	22	26	16	17	7	13
Medicare Part D	40	18	18	13	10	10	33

*For each type of insurance product, responses are restricted to practices reporting seeing patients with that type of insurance and billing that type of insurance.

**Distribution of responses differs significantly by affiliation (p=0.007 overall), with standalone practices more likely to report payment less than $11 (68% standalone vs. 40% multisite) and less likely to report "don't know" (2% standalone vs. 23% multisite). No significant differences by physician specialty were observed.

†Distribution of responses differs significantly by affiliation (p=0.008 overall), with standalone practices more likely to report payments $18–$24 (24% standalone vs. 8% multisite) and more than $24 (24% standalone vs. 10% multisite) and less likely to report "don't know" (4% standalone vs. 22% multisite). No significant differences by physician specialty were observed.

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Table 4

Frequency of vaccine financing practices utilized for privately insured patients

	Total (n=104)	Standalone (n=53)	Multisite (n=51)	p-value*
Participation in group purchasing organization for vaccines, %				
Frequently/sometimes	59	49	69	
Rarely/never	32	47	16	
Don't know	10	4	16	0.001
Participation in an Independent Practice Association, %				
Frequently/sometimes	19	25	14	
Rarely/never	69	72	67	
Don't know	12	4	20	0.03
Purchasing through a distributor without negotiating, %				
Frequently/sometimes	30	45	14	
Rarely/never	61	53	69	
Don't know	10	2	18	0.0003
Purchasing through the manufacturer using bulk ordering discounts, %				
Frequently/sometimes	60	58	61	
Rarely/never	29	38	20	
Don't know	12	4	20	0.01
Purchasing through the manufacturer without bulk ordering discounts				
Frequently/sometimes	17	26	8	
Rarely/never	70	70	71	
Don't know	13	4	22	0.003
Purchasing a specific vaccine at a discount as part of an agreement to purchase other vaccines from the same distributor or manufacturer, %				
Frequently/sometimes	42	42	43	
Rarely/never	42	51	33	
Don't know	15	8	24	0.04
Making purchases using prompt pay discounts, %				
Frequently/sometimes	51	64	37	

	Total (n=104)	Standalone (n=53)	Multisite (n=51)	p-value*
Rarely/never	28	26	29	
Don't know	21	9	33	0.005
Making purchases using promotional pricing, %				
Frequently/sometimes	46	57	35	
Rarely/never	36	36	35	
Don't know	18	8	29	0.009
Making online purchases to receive a discounted price, %				
Frequently/sometimes	41	49	33	
Rarely/never	43	47	39	
Don't know	15	4	27	0.003
Negotiating directly with a distributor on vaccine price, %				
Frequently/sometimes	40	42	39	
Rarely/never	47	57	37	
Don't know	13	2	24	0.003
Negotiating directly with the manufacturer on vaccine price, %				
Frequently/sometimes	33	26	39	
Rarely/never	53	70	35	
Don't know	14	4	25	0.0004
Benchmarking prices against CDC's list of vaccine catalogue prices, %				
Frequently/sometimes	24	28	20	
Rarely/never	58	64	51	
Don't know	18	8	29	0.02
Negotiating with insurance plans on payment for vaccine doses, %				
Frequently/sometimes	23	15	31	
Rarely/never	61	79	41	
Don't know	16	6	27	0.0002
Negotiating with insurance plans on payment for vaccine administration, %				
Frequently/sometimes	23	17	29	
Rarely/never	60	75	43	

	Total (n=104)	Standalone (n=53)	Multisite (n=51)	p-value*
Don’t know	17	8	27	0.002
Providing insurance plans with information about how much vaccine purchase and administration is costing your office, %				
Frequently/sometimes	20	19	22	
Rarely/never	61	72	49	
Don’t know	19	9	29	0.02
Extent to which vaccines are a focus of negotiation with insurance plans compared to other services, %				
Not at all/a little	66	81	51	
Moderately/a major focus	20	15	25	
Don’t know	14	4	24	0.002

* Indicates p-value for difference between standalone and multisite practices using chi-square test or Fisher’s exact, as appropriate, for significance. No significant differences by physician specialty were observed.

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