

Immunizations: Best Business Practices

Russell C. Libby, MD, FAAP, and Richard H. Schwartz, MD, FAAP

The individual and collective health of children in our country relies on a healthcare system that is provided largely by private practice physicians. A major responsibility and economic liability is assumed by these practices to effectively administer the Advisory Committee on Immunization Practices (ACIP) recommended immunization schedules.

In the past 20 years, the complexity and cost of immunizations for children administered in a primary care office have expanded significantly. A child born

Russell C. Libby, MD, FAAP, is Assistant Clinical Professor of Pediatrics, Virginia Commonwealth University School of Medicine; Medical Director, National Physician Care; Chief, General Medicine Section, Inova Fairfax Hospital for Children; and President, Virginia Pediatric Group, Ltd. Richard H. Schwartz, MD, FAAP, is Professor of Pediatrics, University of Virginia School of Medicine and Virginia Commonwealth University School of Medicine, Inova Fairfax Hospital for Children, Advanced Pediatrics, Vienna, VA.

Address correspondence to: Russell C. Libby, MD, FAAP, fax: 703-280-9350; e-mail rlibby@vapg.com.

Dr. Libby and Dr. Schwartz have disclosed no relevant financial relationships.

doi: 10.3928/00904481-20100726-09



SIDEBAR.

Components of Overhead Related to Providing Immunizations

Vaccine Related

- Purchase price
- Excise and other taxes
- Vaccine ordering and inventory
- Storage costs
- Insurance costs
- Wastage and non-payment
- Investment costs

Administration Related

- Physician work
- Practice expense
 - Clinical staff time
 - Supplies
 - Medical and storage equipment
 - Educational materials
 - Documentation
 - Billing and collection

A worksheet for determining a practice specific overhead can be accessed at: practice.aap.org/vaccinecalculator.aspx.

in 2009 will routinely receive 50 or more doses of 12 different vaccines protecting them against 16 infectious diseases by 18 years. Private sector physicians immunize 84% of all children and finance about 50% of the public health effort to immunize all children.¹ In 1995, the federal contract price to fully vaccinate a child with the ACIP-approved immunization schedule was \$223; in 2008, that cost had increased to \$1,105 for boys and \$1,407 for girls, representing an increase of 396% and 531%, respectively.² The cost to immunize children will continue to increase as newer, and usually more expensive, vaccines are introduced into the recommended schedules.

There are a number of government-based payment mechanisms through which immunizations are provided for Medicaid and Children's Health Insurance Program (CHIP) beneficiaries. Children with working parents who have no insurance, or insurance that does not

cover routine immunizations, can obtain immunizations through the Vaccines for Children (VFC) program. Most of these (72%) are provided by private practice physicians, despite the fact that many practices lose money providing VFC vaccines.³ Private insurance generally pays at a better rate, but for many practices, insurance reimbursement still barely covers the cost of providing the immunizations.

In addition to the direct and indirect costs discussed below, immunizations take time to administer and increase examination room occupancy time, thereby reducing office productivity.

For pediatric immunizations to continue to be provided by private practice physicians, this key element of routine well-child care needs to be a profitable endeavor. Profit can be achieved with appropriate operational planning and improved payment from public and private payers. It is not within the scope of this article to delve into all of the elements of a successful business practice, but we examine how to manage immunizations as an important component of a profitable private practice.

UNDERSTAND YOUR COSTS

The cost of purchasing vaccines, maintaining inventory, administering the vaccines, and billing for immunizations can be a major expense, and it is imperative to understand what those costs entail to make sure reimbursements are adequate.

Vaccine Costs

The actual cost per dose of each vaccine is going to be a major investment for the practice, and the variables need to be understood. In addition to the manufacturer's list price, there is an excise tax for the Vaccine Adverse Events Reporting System (VAERS) and, in some states, a sales tax. A basic list of vaccine prices, private and public, is regularly updated and posted by the Centers for Disease Control and Prevention (CDC).⁴ It has been estimated that the vaccine-

related costs identified in the Sidebar increase the actual price by 17% to 28%. The reimbursement for each vaccine should at least exceed this base cost and should provide a margin that reflects the up-front investment of up to hundreds of thousands of dollars for the practice.

It is important to understand the method that each private insurance provider uses to reimburse for the vaccine cost. Some use a percentage of the Average Wholesale Price (AWP), a list that is compiled by various vendors for use by insurance carriers and is usually the manufacturer's list price with a 20% to 25% mark-up plus the VAERS excise tax. Most, however, use the Average Sales Price (ASP), which is based on quarterly sales prices reported by the manufacturers and is usually lower than the AWP because of volume or other discount arrangements. Unfortunately, many payers base their reimbursement for the cost of vaccine on Medicare's formula, which is 106% of the ASP.

None of these payment methods reflect the expense of doses lost to spoilage or unpaid claims, which can be considerable in view of the high cost and low profit margins of many vaccines. It is important to know the exact payment for each vaccine given; pediatricians should not lose money administering immunizations. It is worth negotiating for a better reimbursement or using some other options identified in this article.

Overhead Costs

In addition to the direct cost of vaccine purchase, there are other expenses incurred by providing immunizations that are supposed to be covered by a separate vaccine administration fee. These expenses are diverse and often formidable, and include staff time required to order vaccines and related supplies, organize vaccine storage, explain individual vaccine information sheets to parents, develop and conduct protocols to minimize pain, chart vaccines administered,

schedule new or subsequent vaccine visits, maintain current billing information, and collect payments.⁵⁻⁹ Each physician has developed his or her own efficient routine for discussing immunization with a patient and/or family, but this can become time-consuming, especially if the family is not sure they want to vaccinate their child. Office overhead must be covered and is difficult to calculate, but includes a percentage of office rent, storage equipment, monitoring devices (for temperature and theft), insurance for catastrophic loss of inventory, malpractice and liability insurance, systems for billing and collection, and information/telecommunication technology. The elements of overhead specifically related to providing immunizations are listed in Sidebar (see page 508).

UNDERSTAND PAYMENTS

There are two components of reimbursement for providing immunizations in the physician's office in the United States: the cost of the vaccine and the administration fee. Each vaccine and administration procedure has a specific Current Procedural Terminology (CPT) code, which is attached to an ICD9 code.¹⁰ Vaccine CPT codes may change from year to year or, as in the case for newly designated codes for combination vaccines, may change the way to bill and how to get paid. The American Medical Association (AMA) CPT and ICD9 manuals are updated each year and may be purchased online at catalog.ama-assn.org/Catalog/home.jsp.

Reimbursement for Vaccine Cost

VFC and state-based Universal Purchase programs were created to supply vaccines to Medicaid, CHIP, and uninsured or under-insured children. Vaccines provided through these programs account for about 50% of childhood immunizations in the United States. These vaccines are purchased through special

contracts that are deeply discounted and provided on a dose-use-replacement basis, without any cost or profit. The remainder of childhood immunizations are provided and paid for by the private sector.

Reimbursement for the cost of vaccines given in the private office must not only cover the cost of the vaccine, but also help to cover the expenses associated with the overhead elements described above. Each insurer will reimburse a specific amount for each vaccine. These rates are generally identified in your contract, and updates on the insurance plan's website should reflect changes in cost and payments for new vaccines.

It is imperative to monitor the payment identified on the Explanation of Benefits (EOB) to make sure of being paid the contracted amount. It is also important to negotiate with insurance providers for prompt reimbursement adjustment for any increase in a vaccine price. Sudden and unanticipated price increases for established and newly approved vaccines may not be entered into an insurer's payment software for up to 6 months after routine use. This will definitely hurt the bottom line of all private primary care offices.

The office must have a preset policy on how to handle such situations. Some practices may not give newly approved vaccines until prompt payment is guaranteed by the insurance company with the start date identical to the price increase; others may ask parents or guardians to sign a waiver of insurance benefits and pay at the time of service for the price difference or cost of the new vaccine. The options may be limited by the terms of the provider contract, and it should be reviewed carefully before taking any action. There are also families who will pay the stated fee for a vaccine out-of-pocket or through a qualified Health Savings Account. In this circumstance, it is important to set a price that is in excess of the cost for each vaccine

and at least matches the highest price paid by any insurance company, especially if there are any contracts that base payment on a percentage of charges.

REIMBURSEMENT FOR VACCINE ADMINISTRATION FEES

In addition to adequate reimbursement for vaccine costs, reimbursement for vaccine administration must help cover overhead costs and, ideally, generate a profit. Vaccine administration fees have been assigned a Relative Value Unit (RVU) by Medicare (see Table, page 514) in the range of about \$20.92 for the first and \$10.46 for each additional vaccination, with slight variations because of the Resource-Based Relative Value Scale geographic modifier.¹¹

In the VFC and Universal purchase programs, RVUs are often based upon Medicaid rates, which are extremely variable from state to state and can be as low as \$2 per injection.¹² Payment for CPT administration codes by private insurers may be even more variable. In a recent study of 37 different health insurance plan contracts with seven pediatric practices, the average calculated vaccine administration cost was \$11.51, while reimbursements varied from \$8 to \$24.42. However, many of the health plans paid less for the first vaccine administered, and more than one-third of the plans (13 of 37) paid the practices less than cost when two immunizations were given at the same visit.¹³

There have been several attempts at determining the ideal reimbursement rate per dose for vaccine administration, but Medicare rates should be the base reimbursement. A study of 76 private practices from five states¹⁴ indicated a mean payment of \$16.39 (range \$3.87 to \$26.55) for the first shot and \$11.17 (range \$3.36 to \$37.20) for each additional dose, lower than the average Medicare administration reimbursement rate in all states (range \$18.60 to \$25.61).¹¹ It is also important



to understand the proper use of the nine vaccine administration CPT codes. As an example, pediatricians should understand that the “first” administration codes (see Table, page 514) are not reserved only for use with the first shot in a vaccine series — a “first” administration code can be used for the first diphtheria/tetanus/acellular pertussis (DTaP) shot, as well as for the second, third, or fourth DTaP shots.¹⁵ The first vaccine given at every new encounter qualifies for the “first” administration code. The administration fee may be the most important element of reimbursement for the practice and should be monitored for each payer.

Maximizing the ROI

The operational and financial investments required to implement the recommended immunization schedule in the pediatric office should be prof-

itable and contribute to its overall financial stability. There are a number of operational issues that can help improve efficiency and reduce costs.

Operational Considerations

The office staff should all be familiar with the routine immunization schedules and procedures. It is helpful to have a manual for orientation of new employees or questions that come up from staff or patient families. It should include the current ACIP-recommended immunization schedules,¹⁶ identify who is responsible for giving the vaccinations, and clarify how vaccine information is recorded in the patient chart.

There should be a written protocol for the actual process that describes how to prepare and administer each vaccine.¹⁷⁻¹⁹ There should also be a protocol for dealing with accidental needle sticks.^{20,21}

Each office should have one staff member who is responsible for vaccine and associated supply inventory and reports to the individual responsible for ordering.²² Vaccine information sheets should be available for each vaccine, either in printed form or on the practice website, and evidence of the conveyance of that information must be recorded in the patient chart.⁸

Scheduling

Patient well-child visits are an important component of good care, providing physical, developmental, and emotional health assessments. The immunization schedule is superimposed on these visits and helps keep families on task and office revenues steady. Any office visit is an opportunity to provide an immunization that is due, as long as there is no contraindication.

TABLE.

2009 Medicare Relative Value Units (RVU) for Immunization Administration

CPT Code and Description	Physician Work RVUs	Practice Expense RVUs (non-facility)	Professional Insurance Liability RVUs	Total RVUs	Total RVUs x 2009 Medicare conversion factor (36.0666) = Medicare Fee
90465 Immunization administration younger than age 8 with physician counseling, first injection	0.17	0.40	0.01	0.58	\$20.92
90471 Immunization administration, first injection	0.17	0.40	0.01	0.58	\$20.92
90466 Immunization administration younger than age 8 with physician counseling, each additional injection	0.15	0.13	0.01	0.29	\$10.46
90472 Immunization administration, each additional injection	0.15	0.13	0.01	0.29	\$10.46
90467 Immunization administration younger than age 8 by intranasal/oral route, first administration	0.17	0.20	0.01	0.38	\$13.71
90473 Immunization administration by intranasal/oral route, first administration	0.17	0.20	0.01	0.38	\$13.71
90468 Immunization administration younger than age 8 by intranasal/oral route, each additional administration	0.15	0.12	0.01	0.28	\$10.10
90474 Immunization administration by intranasal/oral route, each additional administration	0.15	0.09	0.01	0.25	\$9.02

It is also important to understand the use of Evaluation and Management (E&M) codes for vaccine-only visits. Some insurers will pay for E&M code 99211 (nurse only) as well as the vaccine and administration CPT codes.²³ It is important to identify how to maximize the reimbursement by understanding how each payer treats vaccine-only visits.

VACCINE PURCHASING

There are a number of ways to purchase vaccines, and it is prudent to explore what works best for your practice. Manufacturers will sell directly to private practices,

sometimes with volume or combination vaccine purchase discounts, and usually base the prices on catalog listings. Medical supply companies also sell vaccines, often with a variety of discount arrangements that may be proprietary or in connection with a vaccine buying group (VBG).²⁴ Medical supply sources may be able to provide vaccines that are hard to obtain because of delays in production or distribution by the manufacturer. The best discounts are going to be available through a VBG, which will set aggregate purchasing discounts for large numbers of practices that are negotiated with the manufacturers.

The greatest benefit may be that the aggregate purchasing arrangement allows a practice to order vaccines as it needs them and still to be eligible for the volume discount. The VBG provides discounts that are based on agreements with the physician office and require a commitment to specific ordering patterns and products. Several sole-source manufacturers, such as Wyeth (Pfizer), do not work with VBGs. However, a VBG may contract with several or all of the manufacturers and have varying discount arrangements. It is worth investigating and comparing VBGs, their

contracts, discounts, and other service and product lines.²⁴

Negotiating

It is possible to negotiate with insurance companies for better payment for vaccines, administration, or E&M codes. It is outside of the scope of this article, but it can make a difference, and it starts with reviewing reimbursements, especially at contract renewal time. If you are getting paid under cost for a vaccine, you need to address it with the insurer; there needs to be an immediate remedy, such as adding an addendum to the insurance payer contract.²⁵ The American Academy of Pediatrics (AAP) offers an online course that guides pediatricians with tips for negotiating more favorable payer contracts.²⁶

ADDITIONAL DISCOUNT AND PAYMENT OPPORTUNITIES

Additional discounts on the cost of vaccines are available by purchasing larger volumes when there are special promotions or sales. The manufacturer's sales rep or a VBG should offer these opportunities. However, purchasing expensive vaccines with a bulk order may require a substantial bank account reserve or a low-cost short-term loan, so make sure to fully understand your payment terms before placing large orders. Additional discounts are often available when ordering vaccines online and paying for them promptly, usually within 60 (occasionally 90) days. Many groups pay with a credit card, which can provide two benefits: extending the payment term another 20 to 30 days, and award points or rebates when using credit cards with those types of programs.

NOVEL APPROACHES THAT MAY HELP THE BOTTOM LINE

There is no foolproof way to make providing vaccines a profit center in a practice, but there are ways to be protected from losses caused by inadequate payment, as well as ways to capitalize on your facility by providing immuniza-

tions to a large cross-section of the community. These considerations are not for everyone, but may have their place in your hierarchy of operational options.

DISCLAIMERS, WAIVERS, AND SPECIAL SCHEDULES

One can create a document that identifies a service to provide only if the insured agrees to waive any claim to an insurance benefit. This might occur when providing a newly recommended vaccine that is not yet reimbursed or for a vaccine that has been reimbursed below cost, and a guarantee of payment is asked from the insured. It may also apply when patients request an alternate immunization schedule that is not the routine for your office, and is not recommended because of illness or some other valid contraindication. In this case, if necessary, charge an additional fee to cover the nonreimbursed work required to schedule and administer the immunization at vaccine-only visits. It is always important to review and understand the terms of the insurance provider contract before implementing this kind of routine.

INFLUENZA VACCINES CLINICS

Providing influenza virus vaccine to a large number of patients can be difficult during routine office hours. Separate influenza vaccine clinics can be an efficient way to vaccinate and an opportunity to improve cash flow. These clinics can be offered either during or after regular office hours or on days and times when the office typically is not open. It is important to advertise starting in July or August with posters around the office and in exam rooms. Efficient scheduling and staffing these clinics can make them successful, especially during a time of year when regular business is often slow. There are a number of ways to bill for this service, and reimbursement can vary with the type of insurance. It is important to bill for the vaccine and the administration CPT codes and, in some cases, to bill for a non-physician E&M code 99211.²³

One of the most difficult tasks in planning influenza vaccine clinics is anticipating the number and types of vaccine required for your patient population. Most manufacturers require preordering at least 6 months before influenza immunizations generally begin and cannot guarantee availability or preferred pricing when ordered during the influenza season.

ADULT VACCINES

It is possible to expand the service and business concept of the clinic by offering influenza and other vaccines, such as tetanus toxoid/reduced diphtheria toxoid/acellular pertussis vaccine (Tdap), human papillomavirus (HPV) vaccine, or Pneumovax to parents and adult relatives of patients. In this situation, get an informed consent signature, charge a fee at the time of service, and use an adult health screening template.^{27,28}

TRAVEL VACCINES

Some practices are located in areas where there may be significant international travel for business or pleasure. It is relatively easy to include routine pediatric vaccines and several others that might be given to patients and parents when they come in for a scheduled office consultation for foreign travel. There are several resources for vaccine recommendations and other types of advice for travelers.^{29,30}

SEPARATE VACCINE CORPORATION

By creating a separate corporation with its own Federal Tax ID number for vaccine purchase and administration, it is possible to legally charge a parent with private insurance (not Medicaid) for the vaccine itself. This has been done in some private offices for influenza, hepatitis A, and meningococcal conjugate vaccines, which were routinely being reimbursed under cost. In this setup, the responsible parent/guardian signs a waiver, which is dated and

witnessed by one of the office nurses or medical assistants. In addition to receiving direct payment for the vaccine itself, post an administration charge to the private insurance company to cover the cost of vaccine administration. This approach may not be permitted in some states. Check with your state AAP or business lawyer before putting such a plan into practice.

CONCLUSION

Immunizations are part and parcel of the practice of pediatrics. They are one of the major success stories in the annals of public health because they help keep children healthy and safe from devastating and debilitating diseases.

The successful integration of immunization schedules into the routine of well-child visits helps keep families on track and permits the primary care physician to monitor the health, growth, and development of patients and their families. The overhead in a private practice can be significant and, with relatively low payment for CPT and E&M codes and few procedures, any provided service needs to be well-organized to be profitable. It is important for private practices to use the most efficient methods to keep their practices financially viable.

REFERENCES

1. Abramson JS. National Vaccine Advisory Committee 2008 Vaccine Financing Recommendations: Different Point of View. *Pediatrics*. 2009;124 suppl 5:S569-570
2. Shen AK, Rodewald LE, Birkhead GS. Perspective of vaccine manufacturers on financing pediatric and adolescent vaccines in the United States. *Pediatrics*. 2009;124 Suppl 5: S540-S547.
3. Coleman MS, Lindley MC, Ekong J, Rodewald L. Net financial gain or loss from vaccination in pediatric medical practices. *Pediatrics*. 2009;124 Suppl 5:S472-S491.
4. Centers for Disease Control and Prevention (CDC). Vaccine prices, private and public. Available at: www.cdc.gov/vaccines/programs/vfc/cdc-vac-price-list.htm. Accessed July 16, 2010.
5. CDC. Vaccine Storage and Handling Toolkit. Available at: www2a.cdc.gov/vaccines/ed/shtoolkit. Accessed July 16, 2010.
6. Immunization Action Coalition. Checklist for Safe Vaccine Handling and Storage Available at: www.immunize.org/catg.d/p3035.pdf. Accessed July 16, 2010.
7. Immunization Action Coalition. Temperature Log for Vaccines. Available at: www.immunize.org/catg.d/p3039.pdf. Accessed July 16, 2010.
8. Immunization Action Coalition. Vaccine Information Sheets. Available at: www.immunize.org/vis/. Accessed March 3, 2010
9. Overview of Immunizations in the Pediatric Office; Immunization Best Business Practices. Available at: immunizations.essentials.courses.aap.org. Accessed July 16, 2010.
10. American Academy of Pediatrics (AAP). Vaccine Coding Table. Available at: practice.aap.org/content.aspx?aid=2334. Accessed July 16, 2010.
11. Medicare. Current Medicare Vaccine Administration Rates by State – January 1, 2009 to December 31, 2009. Available at: www.nysafp.org/immunization/2009%20Medicare%20Vaccine%20Admin%20Rates.pdf. Accessed July 16, 2010.
12. Lindley MC, et al. Financing the Delivery of Vaccines to Children and Adolescents: Challenges to the Current System. *Pediatrics*. 2009;124 suppl 5:S569-S570
13. Glazner JE, Beaty B, Berman S. Cost of Vaccine Administration Among Pediatric Practices. *Pediatrics*. 2009;124 suppl 5: S492-498
14. Freed, GI et al. Variation in Provider Vaccine Purchase Prices and Payer Reimbursement. *Pediatrics*. 2009;124 suppl 5:S459-465
15. AAP. Comprehensive Overview: Immunization Administration. Available at: practice.aap.org/content.aspx?aid=2121&nodeID=3013. Accessed July 16, 2010.
16. CDC. Recommended immunization schedules for children, teens, and adults. Available at: www.immunize.org/cdc/schedules/. Accessed July 16, 2010.
17. Immunization Action Coalition. Dose, Route, Site and Needle Size. Available at: www.immunize.org/catg.d/p3085.pdf. Accessed July 16, 2010.
18. Immunization Action Coalition. Needle safety. Available at: www.immunize.org/needle-safety/. Accessed July 16, 2010.
19. Immunization Action Coalition. Skills checklist. Available at: www.immunize.org/catg.d/2020skill.pdf. Accessed July 16, 2010.
20. OSHA. Guidelines for accidental needle sticks. Available at: osha.gov/needlesticks/needlefact.html. Accessed July 16, 2010.
21. OSHA. Blood borne pathogens and needlestick prevention standards. Available at: osha.gov/SLTC/bloodbornepathogens/standards.html. Accessed July 16, 2010.
22. AAP. The Business Case for Pricing Vaccines and Immunization Administration. AAP, Private Payer Advocacy Advisory Committee, Updated 2009. Available at: www.aap.org/immunization/pediatricians/pdf/TheBusinessCase.pdf. Accessed July 16, 2010.
23. AAP. When is it Appropriate to Report 99211 During Immunization Administration? Available at: www.aap.org/sections/infectdis/Report99211.doc. Accessed July 16, 2010.
24. AAP. Vaccine Purchasing Groups. Available at: practice.aap.org/content.aspx?aid=2381. Accessed July 16, 2010.
25. AAP. Vaccine Addendum to Payer Contracts. Available at: practice.aap.org/content.aspx?aid=1306. Accessed July 16, 2010.
26. AAP. Contract Negotiations With Payers Module. Available at: www.pedialink.org/cmefinder/search-detail.cfm/key/2f65c7bc-b672-46e9-aa8f-155d5c0e7c87/type/course. Accessed July 16, 2010.
27. Immunization Action Coalition. Summary of Recommendations for Adult Immunization. Available at: www.immunize.org/va/va24adultrecs.pdf. Accessed July 16, 2010.
28. Immunization Action Coalition. Screening Questionnaire for Adult Immunization. Available at: www.immunize.org/catg.d/p4065.pdf. Accessed July 16, 2010.
29. CDC. Travelers' health topics. Available at: wwwnc.cdc.gov/travel/default.aspx. Accessed July 16, 2010.
30. CDC. International travel health advice "The Yellow Book." Available at: wwwnc.cdc.gov/travel/content/yellowbook/home-2010.aspx. Accessed July 16, 2010.