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Whitepaper

VaccineView℠ 2011: Improving Reimbursement Transparency

athenahealth, Inc.
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Executive Summary

> "There is no bigger expense with a lower return on investment for a medical practice than immunizations. In fact, you can even lose money giving vaccines."
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> —Robert Lamberts, MD, "Shot Through the Heart with Vaccines," Physicians Practice, July 2009

Two years after this statement was published, the situation for physicians who regularly provide vaccinations—pediatricians being the most affected—is worse instead of better. The cost of vaccinations has gone up, and some vaccine distributors are requesting payment faster. But the direct cost of the vaccine itself is only the tip of the iceberg. Physicians must also deal with associated indirect costs that include:

- Personnel costs for ordering and inventory
- Storage costs
- Insurance against loss of the vaccine
- Recovery of costs attributable to inventory shrinkage, wastage, and nonpayment
- Lost opportunity costs

Managing these costs is so burdensome for practices—to the point where some providers actually suffered financial losses for providing vaccinations—that some consider not providing them at all. In fact, some have already stopped providing them, sending their patients to public health clinics.

Inspired by PayerView®, athenahealth's ground-breaking annual analysis of payer performance, VaccineView℠ looks at the trends in vaccine reimbursement to pediatricians from a distribution of payers across the nation. If the estimated minimum indirect cost (as reported by The American Academy of Pediatrics) is factored into the full cost of the vaccination, then the rate of underpayment is 47.2%.

Given that vaccinations represent a substantial portion of pediatricians' out-of-pocket expenses, this underpayment threatens to compromise the financial viability of pediatric practices. This could have an impact on public health given the vital role that pediatric practices play in primary care.

To help resolve this problem, we recommend that payers index vaccine reimbursement to ensure it covers not only the CDC-published (Centers for Disease Control and Prevention) direct cost of the vaccine—the only benchmark for vaccine prices—but also a percentage of indirect costs. We also recommend increased transparency and collective oversight of vaccine cost and reimbursement where it is currently sorely lacking.

Shedding New Light on Vaccine Reimbursement

A child receiving a shot from the family physician is a time-honored image in health care. It is part of virtually everyone's experience in the US, and it evokes the kind of health maintenance we expect from our physicians. Unfortunately, underpayment for vaccinations for children who are privately insured is currently creating financial difficulties for pediatricians and GPs who serve children.[1]

A December 2010 article in *Health Policy Solutions*[2] describes how the cost of vaccines is affecting practices in the state of Colorado:

> Only payroll exceeds the cost of the vaccines. Last year, Cherry Creek physicians spent more than $1.2 million purchasing vaccines. The doctors have to pay up front for the doses and hope that insurance reimbursements will flow in fast enough to keep the practice in the black. "That alone is like running a small business. It's a huge expense, but not a moneymaker. If you have any waste, it can become a money loser," said Dr. Steve Perry, an owner-physician at Cherry Creek.
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> "The cost of vaccines is the single largest medical supply item that we have. It runs us thousands a month," [Dr. Martin] Pirnat [of Durango Family Medicine] said. "We run an awfully tight ship, so we haven't taken loans yet. But, it affects our bottom line."

Another 2010 article in *VaccineNewsDaily*[3] outlines the problem faced by California doctors coping with the mounting costs for whooping cough vaccinations:

> The problem, MercuryNews.com reports, stems from how little insurance companies are willing to reimburse doctors for providing the vaccine. The companies will cover the cost of vaccines but not the cost of storing or administering them, California Academy of Family Physicians spokesman Tom Reilly told MercuryNews.com.
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> One round of vaccines for a child can cost a doctor's office as much as $450, Reilly said, MercuryNews.com reports.
>
> "Even doctors who work hard to purchase the vaccine at the best available rate often cannot match the low reimbursement that insurance pays for that vaccine," Dr. Sumana Reddy, a doctor with a rural practice in Salinas, California, told MercuryNews.com.

In December 2008, *Pediatrics* reported that 11% of respondents to a survey of pediatricians and family physicians "have seriously considered whether to stop providing all vaccines to privately insured patients."[4] And some have actually done it, reports CNN.Money.com[5]:

> The family physician [Dr. G. Andrew McIntosh], who has a solo practice in Uniontown, Ohio, doesn't offer [chicken pox vaccine] because he can't afford it. Most insurers won't sufficiently cover the cost. "It doesn't do me any good. I am losing money on [them]," he said. The chicken pox vaccine runs about $115, but insurers only cover between $68 to $83 of that. McIntosh has also cut back on a handful of other critical childhood vaccines for the same reason.
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> Dr. Jim King, a family physician in Selmer, Tenn is another medical professional who is dropping expensive vaccines because of "insufficient" reimbursement from insurers. "The vaccine for shingles is fairly expensive, about $75 to $150 per vaccine," said King, who is also board chair of the American

Academy of Family Physicians. "The profit margin on it is very small, so we're not giving that. If we lose money on one, we need to administer nine to break even," he said. Like McIntosh, doctors at King's practice are referring patients to public clinics for shots that they no longer administer.

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Dr. Lance Rodewald, head of the Immunization Services Division at the Centers for Disease Control and Prevention, points to the consequences this trend has had on public health in the past. "Between 1989 to 1991, a number of doctors stopped providing vaccinations to children because of financing issues," he said. Instead, doctors referred patients to public health clinics for shots like the MMR. But many parents failed to follow up on those shots, Rodewald said, and their toddlers were never immunized.

In a 2009 Pediatrics study, more than one half of the respondents said they broke even or suffered financial losses from vaccinating patients.[6] The study concluded that the vaccination portion of the business model for primary care pediatric practices that serve private-pay patients results in little or no profit from vaccine delivery.[7] When losses from vaccinating publicly insured children are included, most practices lose money.[8]

Clearly, the financial implications of underpayment for physicians who provide immunizations regularly are significant—as are the implications for the level of health care they are able to provide their patients.

The Full Cost of Buying and Administering Vaccines

In January 2011, The American Academy of Pediatrics (AAP) published an article entitled "The Business Case for Pricing Vaccines and Immunization Administration."[9] It describes the AAP's goal as being to "promote maximum immunization coverage for all infants, children, adolescents, and young adults" and states that, "If that goal is to be achieved, physicians must be reimbursed for the full costs (direct and indirect) of providing the immunization."[10]

Between a Rock and a Hard Place

An Interview with:

Thomas Mohr, MD
Founder of Pediatric Partners, Temecula, California

"Two recent changes in how vaccine manufacturers are doing business have impacted pediatrics greatly. First is the escalating cost of vaccine. Seven years ago, the costliest vaccine was about $50, now we have five vaccines that range from $60–140 per dose. Where we used to make a small profit on each vaccine, we are now finding that we are close to cost on several vaccines.

The second change has been the billing cycle for the [vaccine] manufacturers. We used to get a 120-day grace period until we had to pay our bills. This took into account the time spent storing the vaccine until we administered it, billing the payer, and waiting for payment. Now some of the vaccine manufacturers have lowered this to 60-day payment, and if not paid at 60 days, they will not ship any further vaccine. We now have a retail business for vaccines. The payment cycle change resulted in a one-time loss of revenue for our practices last year of $400,000."

What are the "full costs"? The AAP article outlines them as follows[11]:

1. **Purchase price of the vaccine.** What a practice pays for a vaccine, not including discounts, which are not always available and sometimes are only available for a certain period of time. The most accurate public source for private payer vaccine prices is the CDC private sector list (http://www.cdc.gov/vaccines/programs/vfc/cdc-vac-price-list.htm—see sidebar). The price of a vaccine on this list should be used as the acquisition/invoice cost.

2. **Personnel costs for ordering and inventory.** The cost to have staff keep track of vaccines (they need to maintain separate records for publicly and privately purchased vaccines); put in orders; negotiate prices, shipping, and terms of payment; and store the vaccines in a secure place with safeguards such as temperature controls, locks, and alarm mechanisms.

Lack of Transparency into Vaccine Costs

The CDC private sector list is the only benchmark for vaccine prices, because vaccines, like any other commodity, are subject to discounts. There is a significant and concerning lack of visibility into what they actually cost and the degree of variation in what providers are paying. Manufacturers use a highly complex structure to price vaccine products based on:

- Provider contract type (i.e., Group Purchasing Organization, Physician Buying Group, or Integrated Health Network)
- Volume discounts
- On-line discounts
- Loyalty programs
- Prompt Pay discounts
- Rebates

3. **Storage costs.** The price of storing vaccines at required temperatures in units that must be constantly monitored. Part of the storage cost is paid under the practice expense part of codes, but some expenses—such as locked and alarmed freezers and backup generators—are not covered. Vaccines must be stored at very specific temperature ranges and, therefore, require special monitoring and storage equipment. (The CDC provides a checklist for practices on how to manage vaccine stock: http://www.immunize.org/catg.d/p3035.pdf.)

4. **Insurance against loss of the vaccine.** The additional insurance coverage required for vaccines, which is not covered by malpractice insurance.

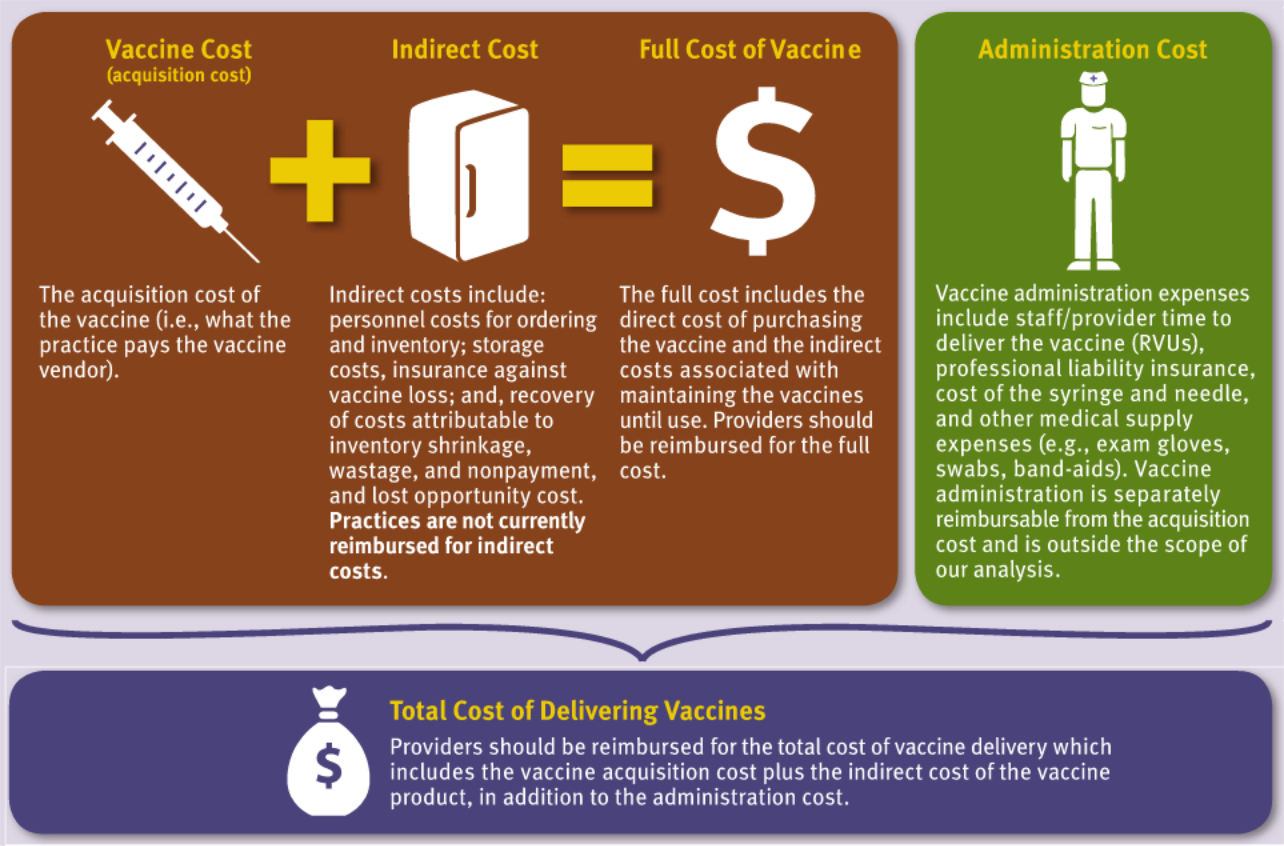
5. **Recovery of costs attributable to inventory shrinkage, wastage, and nonpayment.** Loss of vaccine due to theft, vendor error, or administrative error; waste of vaccine through patient refusal after vaccine is drawn; loss of vaccine value when a patient or third-party payer refuses to pay for vaccination.

6. **Lost opportunity costs.** The lost return on the purchase price of an inventory of vaccine—estimated at $10,000–$15,000 per individual provider; practices need a return on investment just as every business needs on its investment in product inventory.

The AAP article concludes that direct and indirect expenses add up to 17–28% beyond the price of the vaccine.[12] For VaccineView, athenahealth has chosen to

use the AAP's findings as a lens through which to examine vaccine reimbursement against total costs to the provider.

Figure 1. The Full Cost of Vaccinations



How VaccineView Works

Inspired by PayerView®, athenahealth's ground-breaking annual analysis of payer performance[13], VaccineView looks at the trends in vaccine reimbursement to pediatricians from a distribution of payers across the nation. Like PayerView, the objectives of VaccineView are:

Discovery. We will continuously assess and refine the metrics represented in VaccineView data, ensuring that it reflects the dynamics that create this health care supply chain problem.

Continuous Improvement. VaccineView data provides a framework to inform initiatives aimed at creating transparency between providers and payers on the issue of vaccine reimbursement.

Transparency. We provide our client base and payers at large with insight into the interdependency of payers and providers in regard to vaccine use, helping both to improve.

VaccineView is a natural outcome of the unique data that athenahealth continuously compiles and manages on behalf of its clients. To uncover the actual financial impact on practices of vaccine use, athenahealth analyzed vaccine payments posted in its athenaNet® network from January 2009 to December 2010. (Each of our tens of thousands of providers shares a single web-based instance of software, enabling pooled data and intelligence. This means that vaccine reimbursement is captured electronically across our national

network of providers.) Thanks to our cloud-based network, we were able to analyze payments for 158,983 individual charges lines from 1,427 physicians, billed to 48 payers. Our goal was to understand insurance reimbursement to pediatricians for the direct and indirect costs of vaccines.

The chart below delineates the eight vaccines included in our analysis, vaccines for which we were able to obtain consistent price data and that are required or recommended in most states. We removed state-supplied vaccines (see the Appendix to this paper for a list of state-supplied vaccines) with a state-supplied modifier and an allowable of less than $5. In our analysis, we reviewed only vaccine codes, not vaccine administration codes. Vaccine administration is a separate expense, outside the scope of our analysis, which athenahealth believes ought to be covered separately.

Figure 2. Vaccines Addressed by VaccineView Study

Procedure Code	Description	Volume	Unique Medical Groups*	Group Payer Months**	CDC Cost	% Below CDC Cost***	% Below CDC Cost +17%****	% Below CDC Cost +28%****
90660	Flu Vaccine Nasal	45,900	74	882	$20	1.8%	50.7%	79.3%
90716	Chicken Pox Vaccine SC	36,506	78	1,189	$81	3.4%	45.6%	75.9%
90680	Rotovirus Vacc 3 Dose Oral	23,679	46	905	$70	3.0%	50.3%	78.7%
90707	MMR Vaccine SC	18,988	51	759	$48	5.1%	52.8%	83.7%
90698	DTAP-HIB-IP Vaccine IM	15,318	38	591	$75	11.7%	46.0%	76.8%
90649	HPV Vaccine 4 Valent IM	9,226	35	330	$130	2.1%	47.3%	80.3%
90723	DTAP-HEP B-IPV Vaccine IM	6,647	18	312	$71	0.0%	37.2%	84.3%
90696	DTAP-IPV Vacc 4-6 YR IM	2,719	16	154	$48	1.9%	20.1%	64.3%
		158,983	**105**	**5,122**		**3.9%**	**47.2%**	**78.7%**

*Unique Medical Groups Count represents the number of medical groups included for this vaccine.
**Group Payer Month Count is the number of observations over the sample period.
***% Below CDC Cost represents percent of Group-Months in which allowable were below CDC published costs.
****% Below CDC Cost +17% or 28% represents percent of Group-Months in which allowable were below CDC published costs plus the 17% or 28% recommended by the AAP
NOTE: A Vaccine Trade Name glossary is located in the appendix on page 12.

To approximate **direct cost**, we compared a payment's amount to the lowest CDC-published direct cost in any given month. Vaccine manufacturers report this cost to the CDC, and it represents the undiscounted purchase price for vaccines.

To approximate **indirect costs**, we compared the same allowed amount to the AAP's minimum total vaccine cost estimate of 17%–28% over CDC-published direct costs. We defined allowable amount as payments plus transfers—the amount the provider is allowed to collect, accounting for patients with deductibles, coinsurance, etc.—and used the most frequently occurring allowed amount for each medical group, payer, and month.

A medical group was considered below the acquisition cost of a vaccine only if its allowable cost was at least 1% below that cost. A medical group was considered below the acquisition cost plus 17% only if its allowable cost was at least 1% below that cost.

What VaccineView Tells Us about Vaccine Reimbursement

After analyzing the data, athenahealth found that **47.2% of vaccine reimbursements were below the AAP's CDC-published direct cost plus the 17% minimum in indirect costs,** and 78.7% of reimbursements were below AAP's CDC-published direct cost plus 28%. athenahealth decided to take a conservative approach and focus its analysis on the "cost+17%" figure, which was considered the most accurate and fair "pulse-check" on the market. For example, if a vaccine's CDC cost was $100, reimbursement was less than $117 47.2% of the time. This data supports the AAP's contention that when the total cost of vaccines is taken into account, a significant number of pediatricians are being underpaid for providing vaccinations, imposing a financial burden on them.

Another observation gleaned from the data is that payers, for the most part, are reimbursing at least at the CDC acquisition cost. We saw less than 4% below, which could be expected due to changes in acquisition price, industry changes, payer behavior, etc.

Figure 3 shows the parameters of small, medium, and large practices as we defined them for the purposes of VaccineView, and how many practices within each group were included in the study.

Figure 3. Demographics of Small, Medium, and Large Practices

Practice Size	Payers	Medical Groups	Providers	Charges
Small	29	35	81	11,692
Medium	34	36	259	68,133
Large	30	35	1,087	79,457
Overall	48	105	1,427	158,983

Tips for Saving on Vaccine Costs

Until all payers bring reimbursements in line with the total cost of buying, storing, and administering vaccines, here are some tips for providers from the American Association of Family Physicians about cutting vaccine costs[14]:

- Order vaccines more often, but in smaller quantities, to avoid waste.
- Communicate with parents if your supplies are depleted after a run on a pediatric vaccine.
- Use an electronic health record.
- Pay your bill on time.
- Take advantage of promotions and special offers made by manufacturers.
- Protect your investment (e.g., add automatic notification of a power outage that affects refrigeration).

Consistent with what one might expect, VaccineView statistics demonstrate that large practices, which administer a higher volume of vaccines, have more bargaining power and are generally able to secure a higher rate for the cost of those vaccines. The data also shows that smaller practices, which have less negotiating leverage, are more likely to have difficulty delivering vaccinations in a cost-effective way. As Figure 4 below shows, small and medium practices were more likely to be reimbursed below "cost + 17%" than larger practices. They are getting squeezed from both sides because they are less able to get the best purchase price for vaccines and are not being fully reimbursed by payers.

Figure 4. Vaccine Costs & Payments by Practice Size

Size	Procedure Code	Description	Volume	Unique Medical Groups*	Group Payer Months**	CDC Cost	% Below CDC Cost***	% Below CDC Cost +17%****	% Below CDC Cost +28%****
Small	90660	Flu Vaccine Nasal	6,713	25	211	$20	0.0%	55.0%	84.4%
	90716	Chicken Pox Vaccine SC	1,809	19	118	$81	5.1%	51.7%	91.5%
	90680	Rotovirus Vacc 3 Dose Oral	996	10	71	$70	0.0%	23.9%	97.2%
	90698	DTAP-HIB-IP Vaccine IM	978	8	65	$75	3.1%	43.1%	90.8%
	90723	DTAP-HEP B-IPV Vaccine IM	558	6	42	$71	0.0%	23.8%	92.9%
	90707	MMR Vaccine SC	462	8	35	$49	0.0%	37.1%	91.4%
	90696	DTAP-IPV Vacc 4-6 YR IM	81	3	6	$48	0.0%	0.0%	83.3%
	90649	HPV Vaccine 4 Valent IM	71	4	6	$130	0.0%	83.3%	100.0%
			11,668	**34**	**554**		**1.4%**	**45.1%**	**89.5%**
Medium	90660	Flu Vaccine Nasal	18,555	29	440	$20	3.2%	60.2%	87.7%
	90716	Chicken Pox Vaccine SC	15,581	30	664	$81	3.6%	52.7%	85.4%
	90680	Rotovirus Vacc 3 Dose Oral	11,808	21	570	$70	1.2%	61.9%	89.8%
	90707	MMR Vaccine SC	8,514	24	460	$48	7.0%	65.4%	94.1%
	90698	DTAP-HIB-IP Vaccine IM	6,387	15	283	$74	9.5%	56.2%	92.2%
	90723	DTAP-HEP B-IPV Vaccine IM	4,300	6	177	$71	0.0%	39.0%	85.9%
	90649	HPV Vaccine 4 Valent IM	2,087	14	132	$130	5.3%	72.7%	96.2%
	90696	DTAP-IPV Vacc 4-6 YR IM	705	5	52	$48	0.0%	17.3%	92.3%
			67,937	**36**	**2,778**		**4.0%**	**57.7%**	**89.5%**
Large	90716	Chicken Pox Vaccine SC	19,116	29	407	$81	0.9%	28.6%	58.4%
	90660	Flu Vaccine Nasal	20,632	20	231	$20	2.5%	32.2%	56.0%
	90707	MMR Vaccine SC	10,012	19	264	$49	7.6%	32.2%	49.6%
	90649	HPV Vaccine 4 Valent IM	7,068	17	192	$130	2.7%	33.0%	64.4%
	90680	Rotovirus Vacc 3 Dose Oral	10,875	15	264	$70	16.5%	35.0%	55.1%
	90698	DTAP-HIB-IP Vaccine IM	7,953	15	243	$75	0.0%	28.6%	68.8%
	90696	DTAP-IPV Vacc 4-6 YR IM	1,933	8	96	$48	3.1%	22.9%	47.9%
	90723	DTAP-HEP B-IPV Vaccine IM	1,789	6	93	$71	0.0%	39.8%	77.4%
			79,378	**35**	**1,790**		**4.6%**	**31.7%**	**58.5%**

*Unique Medical Groups Count represents the number of medical groups included for this vaccine.
**Group Payer Month Count is the number of observations over the sample period.
*** % Below CDC Cost represents percent of Group-Months in which allowable were below CDC published costs.
****% Below CDC Cost +17% or 28% represents percent of Group-Months in which allowable were below CDC published costs plus the 17% or 28% recommended by the AAP
NOTE: A Vaccine Trade Name glossary is located in the appendix on page 12.

Conclusion: It Is Time for Transparency and Change

VaccineView findings indicate that **vaccines were reimbursed below the AAP's "full costs" (direct cost plus the 17% minimum) 47.2% of the time**. This finding exposes a reimbursement gap and makes it clear that there is a need to reassess current payment models within the industry. When pediatricians are regularly reimbursed below the full (direct and indirect) costs, their financial health is compromised, as is their ability to fully serve their young patients.

athenahealth strongly recommends that payers index vaccine reimbursement directly to the CDC-published direct cost plus a percentage for indirect costs—ideally the 17% minimum recommended by the AAP. The CDC Private Sector cost acts as a national benchmark for vaccine pricing that providers and payers can use to structure their contracts. Indexing in this manner would provide more accurate and equitable compensation to pediatric practices, many of which are struggling under the status quo, thereby strengthening their ability to care for their patients and safeguarding public health. **We also believe there is a need for greater transparency and oversight in vaccine cost and reimbursement where it is currently lacking.**

athenahealth: Putting the power of the cloud to work for providers

VaccineView is made possible thanks to athenahealth's unique cloud-based service model. Our cloud-based, centrally hosted network gives us unique visibility into how practices on our network are doing. We use that data to advocate for providers' financial and clinical interests, as well as to drive efficiencies and transparency throughout the healthcare supply chain.

In addition, we produce consistently superior business results over traditional software by centralizing scale-intensive work into a massive, high-performance back office for network members. Through centralization, they tap into a "comparative advantage" that is impossible for them to achieve on their own. Because of their scale, highly evolved workflow, and expert systems, network-based services get the complex tasks done faster, with more efficiency and higher quality outcomes. Furthermore, as the network membership grows, the service becomes "smarter," increasing the benefits to members over time. Network members boost profitability, get paid faster, and gain the time and capacity needed to focus on patient care.

We provide practices with comprehensive business services, including claim submission, insurance package management, electronic eligibility verification, payment posting, claim follow-up, denial management, and more—all executed for the practice by athenahealth. Practices spend less time on administrative tasks and more time doing what they want to do—treating patients and planning for the future of the practice.

athenahealth's approach not only benefits providers. We also drive improvement in the processes around health care billing and practice management—benefiting payers as well as physicians. Costs go down, inefficiencies and breakdowns are revealed, and payers and providers can improve the way they work together and focus on the overall improvement of health care. To learn more about athenahealth's practice management, EHR, patient communication, and care coordination services, and our approach to making health care work as it should, visit **www.athenahealth.com.**

Appendix

States with Universal State-Supplied Vaccine

State with Universal State Supplied Vaccine	State Supplied Vaccine List	
Alaska	-DTAP / DT	- Polysaccharide
Connecticut	- DTAP / IPV / HEP B	- Rotavirus
Idaho	- DTAP–IPV / HIB	- TDAP
Maine	- DTAP–IPV	- Varicella (Chicken Pox)
		- Seasonal Influenza (2011–2012)
Massachusetts	- Hepatitis A	
Nevada	- Hepatitis B	
New Hampshire	- HEP B - HIB	
New Mexico	- HIB	
North Carolina	- HPV — Gardasil	
North Dakota	- IPV (Polio)	
Rhode Island	- Meningococcal (MCV-4)	
South Dakota	- MMR	
Vermont	- MMRV (mumps, measles, rubella, varicella combination vaccine)	
Washington	- Pneumococcal Conjugata (PCV)	
Wyoming	- Pneumococcal	

Vaccine Trade Name Glossary

Vaccine CPT	Vaccine	Trade Name
90649	HPV VACCINE 4 VALENT IM	Gardasil
90660	FLU VACCINE NASAL	FluMist
90680	ROTOVIRUS VACC 3 DOSE ORAL	RotaTeq
90696	DTAP-IPV	Kinrix
90698	DTAP-HIB-IP VACCINE IM	Pentacel
90707	MMR VACCINE SC	MMR II
90716	CHICKEN POX VACCINE SC	Varivax
90723	DTAP-HEP B-IPV VACCINE IM	Pediarix

Endnotes

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14. "Managing Vaccine Costs Ensures FPs Can Offer Patients Access to Needed Immunizations" by Sheri Porter, AAFP News Now, August 4, 2009, http://www.aafp.org/online/en/home/publications/news/news-now/vaccine/20090804vacc-costs.html.

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About athenahealth At athenahealth we offer the leading cloud-based practice management, EHR, and care coordination services that help medical groups get more money and more control of patient care. To learn how our services can help your organization, contact us at **866.817.5738** or **athenahealth.com.**