COLORADO CHILDREN'S
IMMUNIZATION COALITION

VaxCare Pilot Study Report

Senate Bill 13-222 Vaccine Access Taskforce
December 12, 2016

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Table of Contents

Executive Summary

BACKGROUND

Colorado Senate Bill 222 (SB13-222), enacted in 2013, authorized the creation of the Vaccine Access Taskforce, a diverse group of state-level healthcare and public health experts convened by the Colorado Department of Public Health and Environment (CDPHE) to identify solutions for improving immunization access, delivery and financing. One strategy implemented by the Taskforce was to oversee a 6-month pilot study of VaxCare Corporation (VaxCare), a company whose business model is to provide vaccines direct from the manufacturer at no cost to the provider, as well as to manage inventory and billing services. The Colorado Children's Immunization Coalition (CCIC), a statewide non-profit dedicated to mobilizing diverse stakeholders to advance children's health through immunizations, served as a member of the Taskforce and oversaw the pilot study.

The study measured VaxCare's ability to work with Local Public Health Agencies (LPHAs) and primary care practices to meet at least one of the following goals: (1) to initiate or restart the provision of vaccinations, (2) to provide all Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommended vaccines relevant to their patient population, and (3) to manage the provision of vaccines through a sustainable business model. In addition, the study aimed to explore methods to increase immunization provider satisfaction in delivering vaccines, reduce administrative burdens, decrease costs, and assure reporting of all administered vaccines into the Colorado Immunization Information System (CIIS), which is CDPHE's population-based, computerized registry that electronically tracks and consolidates immunization information for Coloradans of all ages.

METHODS

Eight LPHAs and family practices from rural and urban areas in Colorado participated in the pilot study to evaluate levels of satisfaction with VaxCare's services. Sites rated their levels of satisfaction using a Likert scale of 1 to 4, or *Very Unsatisfied* to *Very Satisfied*.

RESULTS

Insurance Eligibility

During the pilot study, VaxCare secured insurance agreements with many of the major private health insurance companies in Colorado. Results of the pilot show VaxCare filled in gaps for privately insured patients, especially for LPHAs who previously had few private insurance contracts in place. However, two pilot sites were unable to utilize VaxCare billing services during the study for at least 75% of their claims. This was due to outstanding agreements between VaxCare and some health insurance plans, including two major plans, during the study period. In addition, the study determined that providers with a high portion of adult Medicaid patients may not benefit as much from VaxCare services since providers are responsible for the cost of the vaccine and must bill outside of VaxCare for reimbursement. Pilot sites also experienced some problems with patients with Medicare Part D. Even with these limitations, the pilot sites reported, on average, satisfaction with VaxCare's overall services.

Determining insurance eligibility was an important service of VaxCare. Verifying patient insurance eligibility improved from an average of around 50% of the time prior to the study, to 100% of the time while using

VaxCare's services. Overall, sites were satisfied on average with VaxCare's insurance eligibility process (3.6 out of 4) and overall insurance billing process (3.1). As a result of VaxCare's determination process, 84% of the vaccines considered eligible for insurance coverage payment were administered without financial risk to the providers and the sites collected a fee for vaccine administration through an insurance claim, an average of 80% of the time. One reported drawback was when patients were deemed eligible, but also had some patient cost responsibilities; VaxCare was unable to determine the amount the patient owed.

Customer Service

Pilot sites were generally satisfied with VaxCare's customer service with an average rating of 3.6 for quality of customer service responses and 3.3 for overall satisfaction. When VaxCare, which is headquartered in Florida, hired a local Colorado representative two months into the pilot, some were confused about whom best to contact for questions, but most saw an improvement in customer service. Also, some reported that VaxCare staff could be slow to respond to customer service requests. Experience with VaxCare training was mixed, ranging from "straightforward" to two sites requiring multiple trainings in order to integrate VaxCare into their workflow.

Inventory Management

Except for one site that experienced issues with inventory management, the remaining sites were very satisfied with VaxCare's ability to keep sufficient vaccine stock on hand, to re-order vaccine, and overall inventory management capabilities with an average satisfactory rating of 3.3, 3.6, and 3.2, respectively. Family practices spent a lot less time on inventory management, while LPHAs spent about the same amount of time compared to before the pilot. One family practice stated, "VaxCare makes [inventory management] hassle-free."

Services, Usability, and Financial Impact

Sites reported both advantages and disadvantages to using VaxCare. Key advantages mentioned were the system was user friendly and reduced outlay capitol for vaccine inventory. The system also accurately identified age-appropriate safety parameters for vaccine administration, and made available a wider range of vaccines that were previously cost prohibitive. Finally, VaxCare reportedly allowed an overall greater service to the community by improving vaccine access, delivery and financing.

Most providers felt that VaxCare was likely a sustainable business model and would recommend the service to other providers. Seven of the eight sites reported plans to continue utilizing VaxCare. At the same time, one urban LPHA did not report a successful experience with VaxCare, specifically siting issues with inventory management, poor communication, and confusion in handling private and public stock vaccine. Even so, while they did not recommend VaxCare for large LPHAs, they did suggest it as a solution for smaller agencies. By study end, 62.5% of sites broke even and 25% recorded a profit, while 12.5% recorded a loss regarding the financial impact of VaxCare.

Disadvantages reported included increased time required to check patients into the system, lack of ability to record adverse events following vaccination, and duplicative documentation due to lack of interoperability between VaxCare and CIIS. Two specific drawbacks mentioned were the inability to print full vaccination records from the system and that some data fields in the VaxCare Hub are incongruent with fields required in CIIS. In addition, VaxCare's business model is to, at the start, purchase upfront the providers' existing private vaccine stock. However, pilot sites only learned in an ad hoc manner that VaxCare would not purchase vaccines with less than a 6-month expiration date, requiring them to use up existing stock before fully taking advantage of VaxCare services. Even with these limitations, overall

satisfaction with VaxCare rated an average 3.4, just under *Very Satisfied*. One family practice stated, "The upfront purchase of vaccines saved us significant cost."

STUDY LIMITATIONS AND CHALLENGES

Due to timeline delays, pilot sites entered the study on a staggered basis. Some sites participated in the study during typically high immunizations periods, such as back-to-school and influenza season, while others did not. Additionally, as mentioned, VaxCare did not purchase vaccines with less than a 6-month expiration date. Results from some sites that had to first use up existing vaccine were skewed because full implementation of VaxCare services during the 6-month pilot study was not achieved. Both challenges also impacted the ability to accurately compare the number of immunizations given pre-study versus during the study period. A one-year pilot study, with a single start- and end-date for all sites, may have been able to adjust for these limitations.

In addition, from site recruitment to report finalization, an interface was under development between CIIS and VaxCare. VaxCare took 68 days to complete pre-testing requirements. Numerous programing changes and communication delays caused the interface development to not meet the projected 8-12 week timeline. These issues caused disappointment among the study participants since the interface was promised during recruitment and resulted in some sites performing duplicative data entry. Two sites are currently waiting on interoperability with CIIS to make a final determination about continuing use of VaxCare.

CONCLUSION

Overall, several key immunization delivery barriers were addressed by VaxCare. All sites reported that VaxCare successfully reduced upfront vaccine purchasing costs and at least 75% stated that Vaxcare services removed additional barriers. In addition, most pilot sites reported overall satisfaction and would likely recommend VaxCare to other providers. Most anticipated continuing with VaxCare and that the system is a sustainable business model. Family practices and LPHAs in rural communities found VaxCare services particularly beneficial due to the many additional challenges they face providing vaccine, such as low patient volume. Furthermore, different providers can benefit from VaxCare in different ways. For instance, small practices may benefit from more insurance contracts, whereas larger systems may benefit from efficiencies gained in outsourced inventory management.

However, some challenges were not solved by VaxCare and even added additional layers of administrative duties. For example, because some major health insurance plans are not credentialed with VaxCare, providers were required to establish additional processes for serving those patients. Even more challenging for all the sites is the continuing lack of interoperability between VaxCare and CIIS. Additionally, some initial complaints about slow costumer service were improved by the end of the study period due to the hiring of a local representative in Colorado.

Key Takeaways and Recommendations:

- Developing an operating interface between VaxCare and CIIS should be considered a need of the highest priority.
- The Taskforce should conduct a follow-up evaluation of VaxCare's impact on vaccine utilization rates after one full year of implementing VaxCare services at the pilot sites and after the CIIS-VaxCare interface is complete.

- Potential clients need to know upfront that, while VaxCare purchases a practice's existing vaccine, it will not buy those with an expiration date of less than six months.
- Customer service greatly improves if there is a local VaxCare representative in your state rather than relying on staff headquartered in Florida.

Introduction

Immunizations are one of the most cost-effective ways to promote public health and prevent disease. Immunizations provide children with a healthy start to life, protecting both the child and community. According to the Centers for Disease Control and Prevention (CDC), childhood immunizations have prevented 322 million illnesses and 732,000 deaths and saved nearly $1.4 trillion in total societal costs. In Colorado alone, vaccines prevented 8,600 hospitalizations and averted $400 million in hospital charges in 2014.

SENATE BILL 13-222 & TASKFORCE CREATION

Despite the proven health and economic benefits of immunizations, patients and providers in Colorado continue to experience barriers to access, delivery and financing of immunizations. In 2013, the Colorado General Assembly passed Senate Bill 13-222 (SB13-222) which aimed to improve access to childhood immunizations by addressing challenges in vaccine delivery and financing. The legislation directed the Colorado Department of Public Health and Environment (CDPHE) to convene a diverse coalition of stakeholders to form a Taskforce and address barriers faced by providers in delivering vaccine. *See Appendix C for Taskforce Steering Committee members.*

The overarching goal of the Taskforce was to improve access to childhood vaccines by leveraging public-private partnerships to provide affordable, sustainable, and geographically diverse solutions that address vaccination barriers across Colorado. The law outlined areas of vaccine delivery for analysis: public-private models, just-in-time delivery, inventory management, outbreak response, linkage between Colorado Information Immunization System (CIIS) and vaccine inventory, vaccine delivery in the medical home, and mechanisms for Local Public Health Agencies (LPHAs) to bill third party payors.

In June 2014, the taskforce submitted the *Final Recommendations to Increase Access to Childhood Vaccines Across Colorado* to CDPHE.

Barriers to Vaccine Access Cited in Colorado Senate Bill 13-222

- *High Costs*
- *Fragmented Funding Systems*
- *Administrative Burdens*
- *Geographic Barriers*
- *Changes in Federal Funding*

IMMUNIZATION PROVIDER CHALLENGES

Healthcare providers experience many barriers to financing and delivering vaccines. One major challenge is that immunization providers may offer vaccines through a variety of contracts with third party payors, such as private health insurance companies and federal and state programs. There are five main avenues for financing and delivering vaccines in Colorado. First, immunizations are available to both children and adults through private health insurance. Second, Child Health Plan *Plus* (CHP+) is public low-cost health insurance for certain children and pregnant women. This plan is available to those who earn too much to qualify for Health First Colorado (Colorado's Medicaid Program), but not enough to pay for private health insurance. In Colorado, families who earn a household income under 260% of the Federal Poverty Level (FPL) are eligible for CHP+ coverage. Third, adult vaccines are available through Medicaid, and for some, Medicare Part B and Part D. Fourth, the Vaccines For Children (VFC) Program is a federally-funded entitlement program that provides low or no-cost immunizations to children who are Medicaid eligible, uninsured or underinsured, or American Indian or Alaska Native. VFC vaccine is made available to all

Colorado LPHAs and a voluntary network of nearly 600 private and public health care providers serving eligible children throughout Colorado. Finally, LPHAs and Federally Qualified Health Centers (FQHCs) provide vaccines to uninsured or underinsured adults through the federal section 317 program. During outbreaks or disaster relief, 317 vaccines may also be used for fully insured individuals.

Colorado healthcare providers may offer vaccines through all, some or none of these third-party payor options. Additionally, there are different storage and inventory requirements for each stock of vaccines. Providers offering vaccines through private insurance, Adult Medicaid or CHP+ must purchase immunizations upfront—which can add up to many thousands of dollars—and then be reimbursed by the variety of third party payors after billing for the administration fee and the cost of the vaccine.

For the purposes of the pilot study, the Taskforce sought to evaluate a private sector vendor that offered a comprehensive system for purchasing and managing immunizations reimbursed through private health insurance. In particular, the Taskforce sought to address Strategy 1, Objective 1a and 1b outlined in the SB13-222 *Final Recommendations to Increase Access to Childhood Vaccines Across Colorado*.

> *Strategy 1: Establish infrastructure to support vaccination providers, particularly those that provide vaccinations services at a relatively low volume and/or underserved areas.*
>
> - Objective 1a: Offer optional centralized group (private or public) purchasing solutions that address low volume needs and/or underserved areas, offer competitive pricing, and allow the return and refund of expired vaccines in order to decrease financial barriers associated with offering immunizations.
> - Objective 1b: Offer optional centralized billing, credentialing, and contracting services for LPHAs and other interested providers in order to decrease logistical and financial barriers associated with billing for vaccinations.

IDENTIFYING SOLUTIONS AND VENDOR SELECTION PROCESS

The Taskforce reviewed 11 private sector companies' capabilities for vaccine purchasing, insurance contacting and billing services, inventory management, data management integration with Electronic Health Records (EHRs) and CIIS, available training, and prior experience. A complete list of companies considered can be found in Appendix A. It should be noted that this list is not an exhaustive review of every company that potentially offers these services, nor does the review imply endorsement of any company by the Taskforce.

The Taskforce chose to conduct a more in-depth evaluation of the VaxCare Corporation (VaxCare). VaxCare was the only vendor reviewed that offered a comprehensive service model that was consistent with the needs identified by the Taskforce including the ability to contract with insurance carriers, verify insurance eligibility, eliminate the upfront cost of purchasing vaccine, submit and track insurance claims, order vaccine, and manage inventory. The 6-month pilot study sought to evaluate how VaxCare services operated for both LPHAs and private practices across Colorado.

VaxCare Services

VaxCare, headquartered in Florida, is a technology company focused on automated immunization services. VaxCare provides its clients—immunization providers—with vaccines at no upfront cost, offers real-time

inventory management with automated replenishment, a pathway to compensation for confirmed eligible immunizations provided, and proprietary vaccine tracking technology with barcode scanning capabilities in their VaxCare Hub. VaxCare has experience collaborating with LPHAs in other states, most notably through the CDC's Billable Project, an effort launched in 2009 to improve reimbursement processes for immunization services provided by LPHAs. VaxCare only contracts with private health insurance carriers and, as of yet, does not manage public vaccine such as through VFC or 317 funds. VaxCare's business model is to cover all purchase costs for vaccines, submit claims for private insurance, collect the reimbursement and pay the immunization providers a negotiated vaccine administration fee. VaxCare also charges clients a small monthly fee for the use of the Hub.

VaxCare Proposal Process

During the proposal process, a VaxCare representative presents a User Agreement and a proposal to a client that describes their business model and negotiates a contractual arrangement for services. As was understood by the Taskforce, VaxCare's model is to offer all vaccine brands, except travel vaccines, with no preferential discount pricing for selecting one brand over another.

Training: Portal and VaxCare Hub

After executing a User Agreement, VaxCare schedules an in-person training to accommodate staff needs. At training, VaxCare issues their proprietary technology, the VaxCare Hub, a tablet that allows providers to check-in patients, verify patient insurance eligibility, track inventory through bar code scanning, and verify age-appropriate safety parameters for immunization.

Inventory Management and Vaccine Purchase

When VaxCare performs training, they also take inventory of the client's private stock vaccine with the intent of purchasing it outright. However, VaxCare will not purchase vaccine with a less than 6-month expiration date, a business practice that the Taskforce and the pilot study sites only learned of in an ad hoc manner. Approximately two weeks after the training, VaxCare issues a check to the site and the inventory then becomes property of VaxCare for management purposes. VaxCare also orders any vaccines the site may not have in stock. Over subsequent months, VaxCare tracks inventory and automatically replenishes vaccine stock when needed. The site also has the ability to order additional vaccines, if needed.

Electronic Health Record (EHR) Data Extraction

As of the publication of this report, VaxCare was not interoperable with any Electronic Health Record (EHR) system in Colorado. For pilot sites with EHRs, VaxCare extracted data to collect basic patient demographics and insurance coverage information. This information is used to verify insurance eligibility and submit claims to the private health insurance companies.

Patient Insurance Eligibility Verification

VaxCare offers a voluntary insurance eligibility check through the Hub. Table 1 outlines VaxCare's insurance eligibility classifications.

Table 1: VaxCare's Insurance Eligibility Classifications

Eligibility Classification	**Interpretation of Response**
Eligible	The health insurance plan will cover the vaccine cost and administration fee and is considered "Risk-Free."
Not Eligible	If a health insurance policy is not active, VaxCare requests

	updated insurance information. If the patient does not update the insurance this becomes an "At-Risk" encounter.
Not Available	Not all insurance companies support online eligibility checks. If the patient has insurance that cannot be verified, the eligibility classification is considered "Not Available."
Eligible with Possible Patient Responsibility	The patient has unmet health insurance coverage needs and may receive a bill for a co-payment or deductibles.

Insurance Contracting, Billing and Reimbursement

During the study period, VaxCare contracted with many of the major private health insurance payers in Colorado, except for two. For patients deemed "Eligible," VaxCare submits the insurance claim to the payer on behalf of the provider, keeps the reimbursement for the cost of the vaccine, and reimburses the site for the negotiated vaccine administration fee. However, if a patient has insurance not covered through VaxCare or is deemed "At Risk," the site can choose to bill an insurance carrier independently, termed "partner billing." In this case, the site owes VaxCare for the cost of the vaccine, and does not receive the negotiated administration fee reimbursed through VaxCare. Ineligible patients have the option to self-pay.

If a patient is deemed "Eligible with Patient Responsibility," a co-pay or deductible is due. However, the VaxCare system is unable to determine the amount and the patient receives a bill in the mail with a payment owed to VaxCare. Of note, it is the VaxCare Medical Director that is listed on the bill as the physician of record, rather than the practice that administered the vaccine. This is because the health insurance plans contract directly with a VaxCare Medical Director in each state.

There are two additional requirements for vaccine reimbursement. Within two days of immunization administration, the provider must confirm that the vaccination was given to the patient, as reflected in the VaxCare Hub. The provider must also confirm that the type and dosage delivered was age appropriate, as mandated by the U.S. Food and Drug Administration.

Pilot Study Coordination

The Colorado Children's Immunization Coalition (CCIC), a statewide non-profit dedicated to mobilizing diverse stakeholders to advance children's health through immunizations and a member of the SB13-222 Vaccine Access Taskforce, utilized funds from grants, contracts and donations to hire a contract analyst and oversee the pilot study. These funds came from the Rose Community Foundation, the Colorado Academy of Family Physicians (CAFP), and CDPHE. CCIC informed the Taskforce of study progress through bi-weekly communication during study start up and through monthly meetings during study duration. The Taskforce Steering Committee members approved timelines, key study documents, and study decisions.

EVALUATION GOALS

The pilot study measured VaxCare's ability to work with LPHAs and private practices to meet at least one of the following goals:

- Initiate or re-start the provision of vaccinations
- Provide all, rather than some or none, of the Advisory Committee on Immunization Practices (ACIP) recommended vaccines relevant to their patient population
- Manage the provision of vaccines through a sustainable business model

The goals of the pilot study were to remove barriers for vaccination service delivery including:

- Increase provider satisfaction to deliver vaccinations
- Remove time-consuming process of contract negotiation and credentialing with insurance companies
- Remove upfront costs to purchase vaccines
- Reduce time spent submitting and tracking insurance claims
- Increase the percentage of vaccination claims that are reimbursed by private insurance
- Reduce the burden of vaccine inventory management
- Assure reporting of vaccinations into the Colorado Immunization Information System (CIIS), which is CDPHE's population-based, computerized registry that electronically tracks and consolidates immunization information for Coloradoans of all ages

STUDY START-UP AND RECRUITMENT

The Taskforce sought to identify between 8 and 10 potential pilot sites across both urban and rural areas of Colorado, including LPHAs, family physicians, and pediatric practices. Recruitment occurred through announcements, newsletters and individual outreach.

CCIC hosted an informational webinar in June 2015 for over 30 private practices, LPHAs, and school-based health centers interested in learning about the pilot. Ultimately, some providers chose not to participate in the pilot but requested to stay informed of the outcome of the study. Other practices declined participation for a variety of reasons. In the end, four LPHAs and four family practices across Colorado participated in the pilot study. *See **Graphic 1** for Study Recruitment Process.*

To participate, sites had to**:**

- Be an LPHA, pediatric practice or family practice that administered immunizations, or desired to initiate or re-initiate vaccine administration
- Sign the VaxCare Terms of Service User Agreement, Data Sharing Agreement, and CIIS Letter of Agreement
- Be willing to accept VaxCare and CIIS as documentation sites of administered doses
- Provide EHR access to VaxCare, if applicable
- Complete baseline pre-study questionnaire prior to study initiation
- Complete VaxCare training
- Utilize VaxCare for all privately-funded immunizations for at least six months
- Document changes in processes regarding vaccination delivery
- Participate in a semi-structured post-study interview and questionnaire

Graphic 1: Study Recruitment Process

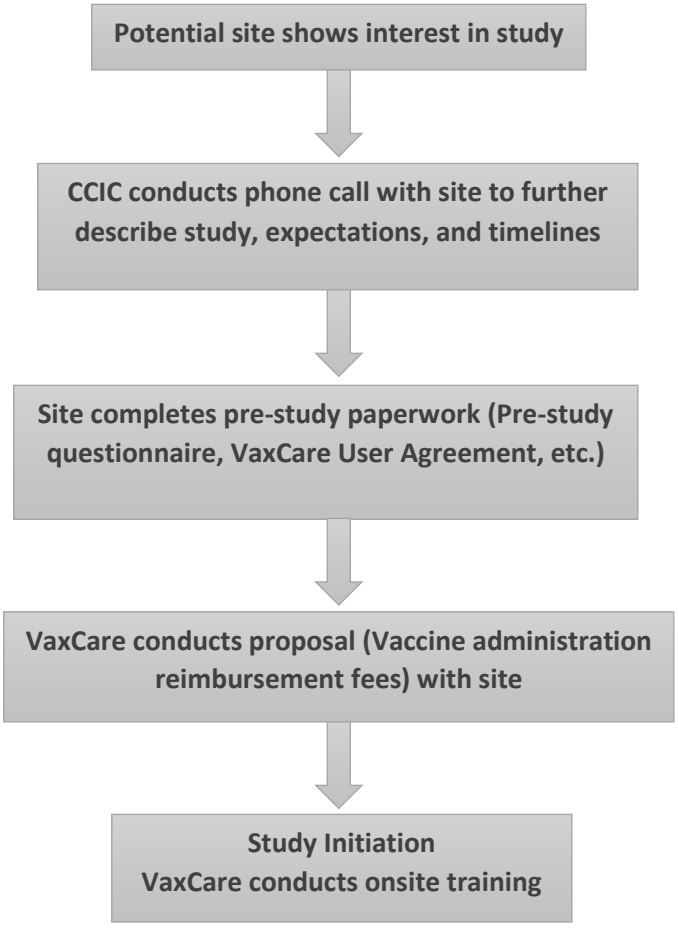


Table 2 outlines the difference between the pilot study proposed timeline and the actual timeline. Delays in recruitment, obtaining signed agreements and scheduling trainings resulted in pilot sites entering the study on a staggered basis over a 6-month period. At the time of the study, the Taskforce understood that the VaxCare interface with CIIS would be operational in the late summer or early fall of 2015 after an 8-12 week development period. When the study commenced, the electronic interface between VaxCare and CIIS was still in development, and at the time of publication of this report (December 2016), has still not been completed.

Table 2 Pilot Study Timeline: Proposed vs. Actual

Activity	Proposed Timeline	Actual Timeline
Taskforce Reviews Vaccine Delivery and Financing Vendors	2014-2015	2014-2105
Taskforce Selects VaxCare for Pilot Study	February 2015	February 2015
Study Design	May 2015	May 2015
Study Start-Up Recruitment	June – August 2015	June – January 2016
Host 1st webinar Host 2nd webinar	June 17, 2015	June 17, 2015 November 17, 2015
VaxCare Insurance contracting	March – July 2015	March – November 2015
Study Initiation/Site Training	August/September 2015	October 2015 - February 2016
Study Maintenance	August 2015 – January 2016	October 2015 – August 2016
Study Close-out	January – February 2016	April – August 2016
Develop VaxCare/CIIS data interface	August/September 2015	Ongoing*

**See Electronic Systems Section for further discussion*

TIMELINE DELAYS

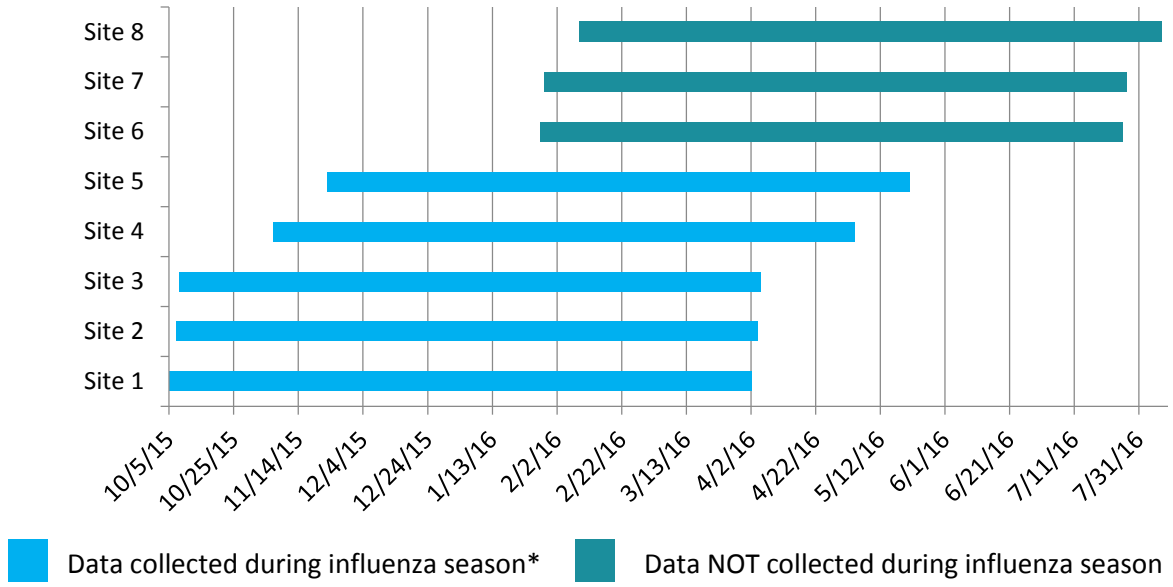
Study recruitment differed between family practices and LPHAs. Some LPHAs required additional approval through their local Boards of Health, which caused delays. In addition, one county attorney needed to review and approve the VaxCare agreement before the LPHA could move forward with the study. Delays in obtaining approvals ranged from 2 to 6 months.

In addition, insurance contracting took longer than anticipated and shifted study initiation from mid-August to October 2015. The delay caused one potential family practice to drop out. Insurance carrier agreements began on September 1, 2015. At the request of the Taskforce, the VaxCare Colorado Medical Director's practice was the first in the state to implement VaxCare in order to ensure that VaxCare had a local physician of record during the pilot study period. The Medical Director's practice was not considered part of the pilot study.

From June to October 2015, all interactions with VaxCare were conducted with personnel from their headquarters in Florida. Site proposals were conducted both in-person and over the phone, while all site trainings were conducted in-person. In October 2015, VaxCare hired a Colorado-based representative to conduct the remaining site proposals and training.

The Taskforce agreed to begin the study once at least eight sites had signed necessary study paperwork and contracts with many major insurance carriers were in place. **Table 3** shows that some sites participated in the study during typically high immunizations periods, such as back-to-school and influenza season, while others did not.

Table 3: Study Start Date and End Date



**Influenza season is defined as October 2015 to May 2016.*

Methods

BASELINE DATA

Prior to VaxCare training, each study site completed a pre-study questionnaire (Appendix E), to describe the demographics of the population served, types of insurance plans accepted, use of the CIIS registry and other electronic systems, financial impact of vaccine delivery, and FTE time dedicated toward inventory management.

POST-STUDY QUESTIONNAIRE

After a site utilized VaxCare services for six months, a semi-structured post-study interview (Appendix F) was conducted. As part of the interview, sites were asked about their level of satisfaction with VaxCare services utilizing a Likert scale from 1 to 4, or *Very Unsatisfied* to *Very Satisfied*.

Electronic Systems

Electronic Health Record (EHR) and Electronic Practice Management (EPM)

EHR systems capture a patient's health file electronically. An EPM system allows a practice to electronically track patient appointments and billing. All of the urban sites had an EHR and EPM system. Only one rural site had an EPM system, none had an EHR system. VaxCare currently does not have an interface with any EHR or EPM vendor system. For pilot sites with EHRs, VaxCare extracted data to collect basic patient demographics and insurance coverage information. This information is used to verify insurance eligibility and submit claims to the private health insurance companies.

Colorado Immunization Information System (CIIS)

CIIS is a confidential, population-based, computerized system that collects and consolidates immunization data for Coloradans of all ages from a variety of sources and provides tools for designing and sustaining effective immunization strategies at the provider and program levels. CIIS is used by LPHAs, healthcare provider offices, schools, child care facilities, pharmacies, health plans and social service entities to assess the immunization status of patients. CIIS is not a mandatory reporting system, although about 95% of the state's pediatric healthcare providers and 75% of family practices are enrolled in CIIS or are currently on a waiting list for an electronic interface with CIIS. At study start, six of eight sites were participating in CIIS. The two sites without access to CIIS were both urban family practices.

Interface Development between VaxCare and CIIS

In parallel with study site recruitment, VaxCare's IT team and CDPHE's CIIS team collaborated to design a comprehensive interface system that would effectively maintain and transfer patient vaccination data between systems. The goal was for data from the VaxCare Hub to automatically be transferred to CIIS on a daily basis. The interface would allow for the direct transfer of data from VaxCare into CIIS, ensuring record accuracy.

By study end (October 2016), none of the sites had an operating interface—impacting six of the eight pilot sites in several ways. The impacted sites were unable to provide a complete vaccination record to the patient, a document often requested for school or employment. One site stated, "The CIIS-VaxCare interface was promised and failed to connect during our study evaluation period, which let us down." Multiple sites expressed concerns about additional time needed to perform duplicative data entry, the need to use more clinic time for administrative duties, and the increased room for error. A few sites noted, "This is the deciding factor on whether to continue using VaxCare." One family practice stated, "Interoperability would greatly benefit our organization." Two sites were not impacted by the lack of an interface because one site did not use CIIS and the other had established a prior interface between their EHR and CIIS. *See Appendix D for details on the interface development.*

Pre-Study Results

PILOT SITE DEMOGRAPHICS

Sites were characterized as being either urban or rural and as a family medicine practice or LPHA. Each study site type serves a unique population. Urban sites serve a population density of at least 1,000 people per square mile and rural sites serve locations with a density less than this (U.S. Bureau of Census). Family practices provide comprehensive health care for all age ranges. Rural family practices tend to see more children, as few or no pediatric offices may exist in the area. Urban family practices tend to see more adults. At a minimum, LPHAs provide immunizations services for children through VFC, the federally funded entitlement program, that provides low or no-cost immunizations to Medicaid-eligible and other underserved children and through the 317 program for uninsured or underinsured adults. However, some LPHAs offer immunizations to privately-insured patients if they have the capacity to bill the health insurance carriers. In Colorado, billing capacity at LPHAs ranges from none to comprehensive billing for every insurance carrier in Colorado. LPHAs administer immunizations and offer other public health services for all ages, but do not provide comprehensive well-child visits. Some rural LPHAs may serve as the only immunization provider in the county or area within 50 or 100 miles.

As shown in **Table 4**, four pilot sites were family medicine practices and four were LPHAs. Three family practices were located in urban areas—Denver, Fort Collins, and Grand Junction—while one was located in Canon City and considered rural. One family practice was also a federally qualified Rural Health Clinic. Of the four local public health agencies, three were in rural areas and one was in an urban area. No pediatric practices participated in the study.

Table 4: Site Demographic Breakdown

Site No.	Urban	Rural	Family Practice	LPHA
1		X	X	
2		X		X
3		X		X
4	X			X
5	X		X	
6	X		X	
7		X		X
8	X		X	

All sites were equipped to provide appropriate immunizations for all ages.

INSURANCE COVERAGE

At baseline, study sites ranged from contracting with most insurance companies to none at all. Prior to the pilot, two rural LPHAs did not accept any private insurance and one urban LPHA accepted only two major health insurance plans. Six sites accepted Medicaid and six sites accepted Medicare.

INSURANCE ELIGIBILITY VERIFICATION

Prior to the study, half the sites performed insurance eligibility checks before administering an immunization. There were no distinguishing factors between urban, rural, LPHA, or family practice regarding insurance eligibility practices.

IMMUNIZATION RATES BASELINE

All but one urban family practice site performed vaccinations prior to study start. All family practices performed well-child visits for all childhood age groups, except one urban family practice who did not conduct any for children <1 year old. **Table 5** outlines types of vaccines administered at each site by study start. At study end, all sites administered all ACIP-recommended vaccines.

Table 5: Vaccine Types Administered by Site at Study Start

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8
DTap	+	+	+	+	+	+	+	+
IPV	+	+	+	+	+	+	+	+
MMR	+	+	+	+	+	+	+	+
Hib	+	+	+	+	+	+	+	+
Hep_B	+	+	+	+	+	+	+	+
Varicella	+	+	+	+	+	+	+	+
Pneumococcal	+	+	+	+	+	+	+	+
Hep_A	+	+	+	+	+	+	+	-
Rotavirus	-	+	+	-	+	+	+	-
Influenza	+	+	+	+	+	+	+	+
Meningogoccal	+	+	+	+	+	+	+	+
HPV	+	+	+	+	+	+	+	+

+ Administered
- Not Administered

Post-Study Results and Discussion

VAXCARE ONBOARDING

Proposal Process

Table 6 summarizes responses from post-study interviews about the VaxCare onboarding process. Due to a change in staff, one site was unable to answer some of the questions as they had not participated in the proposal process. The color coding indicates the average satisfaction rating among the pilot sites. Green indicates an average rating of 3 or greater, or *Somewhat Satisfied* or better. Yellow indicates a neutral rating of greater than 2, but less than 3, or neither satisfied nor unsatisfied. Red indicates an average of 2 or less, or *Somewhat Unsatisfied* or worse. Overall, most sites were satisfied with VaxCare's onboarding process, but rural sites experienced more challenges than others with the process.

The average level of satisfaction with VaxCare's proposal process was 3.625, or leaning toward *Very Satisfied*. While most sites felt the proposal process was quick and easy, one LPHA noted that the transition from utilizing VaxCare staff headquartered in Florida to hiring a local representative in Colorado was difficult and confusing. Another LPHA stated it took too long to get questions answered regarding proposed changes to the VaxCare User Agreement requested by their Local Board of Health.

Table 6: Average Satisfactory Ratings for VaxCare's Onboarding Process

Onboarding Process Satisfaction Queries	All	Urban	Rural	LPHA	Family Practice
Proposal Process (N=8)	3.625	3.5	3.75	3	4
Negotiated Vaccine Administration Reimbursement Rate (N=7)	3.2	4	2.3	3.33	3.25
Ability to Choose among Different Brands (N=7)	2.85	3.5	2	2.6	3
Training Coordination and Set Up (N=7)	3.75	3.75	3.75	3.5	4
Training with Sufficient Content to Understand and Use the System (N=7)	3	2.75	3.25	3	3

Negotiated Vaccine Administration Reimbursement Rate

Table 6 also shows that the sites rated their level of satisfaction with VaxCare's negotiated vaccine administration fee reimbursement rate an average of 3.2, or *Somewhat Satisfied*. All urban sites were *Very Satisfied* (average rate of 4) compared to rural sites which were somewhat less satisfied at 2.3.

Vaccine Manufacturer Preference

As was understood by the Taskforce, VaxCare's model is to offer all vaccine brands (except travel vaccines) with no preferential discount pricing. However, pilot sites enrolled early in the study did not find this to necessarily be the case. Upon hearing complaints about limitations in available brands and preferred manufacturer discount pricing, VaxCare modified their proposal process to increase flexibility in choosing vaccine brands. In the post-study interview some sites mentioned that VaxCare "now carry more vaccines than before."

Table 6 highlights that satisfaction with brand selection varied by type of pilot site. The average level of satisfaction rating for sites ability to choose among different brands of vaccine was, 2.85, or *Somewhat Satisfied*. Of note, rural sites were somewhat unsatisfied with the brand selection, while urban sites and family practices had a more favorable rating. Responses on their mixed experiences ranged from " [We experienced] limitations on vaccines available," to "All previously stocked vaccines are available," and "We now carry more variety of vaccines than before."

VaxCare Training: Logistics

Table 6 also summarizes the sites' level of satisfaction with VaxCare's ability to coordinate and set-up training which averaged 3.75, approaching *Very Satisfied*. VaxCare was reportedly flexible with dates and times so clinic operations were not disrupted and training could be conducted in several groups in a single day. One LPHA suggested that VaxCare be sure to notify sites they would "Go Live" with the software the day after training.

VaxCare Training: Content

The average level of satisfaction with VaxCare's ability to conduct training with sufficient content to understand and use system was 3.0, *Somewhat Satisfied* (Table 6). All commented that the training was conducted verbally with no handouts and only with the VaxCare Hub as a visual. This led to some trial and error when staff started using the VaxCare system on their own. Many would have preferred a more hands-on approach to training and hard copy resources to consult later. Experiences ranged from "Training [was] very simple and straightforward," to "Training was rushed." Two sites requested additional training. One site required multiple trainings to understand the new workflows required for integration. Another reported there were glitches in the system that the trainer was unaware of and the site was unsure who to follow-up with for questions after training. One site commented that "The training should have been conducted by a technical trainer rather than a sales representative." A family practice noted the training was "very succinct and to the point." One site designated a federally qualified Rural Health Clinic suggested that VaxCare hire an expert on rural health for the training.

INSURANCE COVERAGE, BILLING, AND ELIGIBILITY VERIFICATION

Insurance Carrier Contracting

At study start, VaxCare had insurance contracts with nine private health insurance carriers. VaxCare completed three additional contracts during the study period (**Table 7**). Two payer agreements with major carriers were still outstanding upon study completion.

Table 7: Insurance Companies Credentialed For Immunization Billing by Site

Site No.	1	2	3	4	5	6	7	8
Before VaxCare	12	1	7	4	8	10	2	11
After VaxCare	14	10	13	11	10	12	11	13
Difference	+2	+9	+6	+7	+2	+2	+9	+2

Table 7 shows that VaxCare filled in gaps in vaccine private health insurance coverage for all sites. This was particularly advantageous for LPHAs who had few private health insurance contracts in place prior to study start.

Partner Billing (Insurance Billing Outside of VaxCare)

All sites reported that VaxCare did not cover all insurance plans held by their patients and some initiated the study before current contracts were in place. Overall, 62.5% indicated they were impacted when an insurance plan was not covered by VaxCare because they were either required to utilize partner billing, opt not to vaccinate the patient, refer a patient to a pharmacy or other provider, or request self-pay from the patient. **Table 8** shows the variety of types of billing methods utilized by the sites. This table does not

represent or include patients who were referred elsewhere or when the site opted to not immunize the patient. Self-reported rates of partner billing are higher than data pulled directly from the VaxCare Hub, likely because self-reporting included a greater variety of billing scenarios that occurred outside of the VaxCare system.

Table 8: Types of Billing Methods by Site

			Reported by Sites	Reported By VaxCare		
Site No.			Partner billing	Insurance Pay	Partner Billed	Self Pay
1	Family Practice	Rural	75-80%	42%	58%	0%
2	LPHA	Rural	NA	99%	0%	1%
3	LPHA	Rural	25-30%	60%	23%	18%
4	LPHA	Urban	75%	53%	38%	9%
5	Family Practice	Urban	1-5%	85%	11%	4%
6	Family Practice	Urban	40%	51%	47%	2%
7	LPHA	Rural	6-10%	54%	29%	17%
8	Family Practice	Urban	1-5%	87%	13%	0%

Seven of eight study sites utilized VaxCare's partner billing services during the evaluation period. One rural LPHA did not utilize partner billing and instead requested ineligible patients pay out of pocket. **Table 8** also shows that two sites reported using partner billing for 75% or more of their claims, although VaxCare data showed these rates were much lower, between 38% and 58%. Even with this discrepancy, the data imply that, at a minimum, at least 29%—or almost one-third of patients at three sites—had their insurance claim processed outside of the VaxCare system. The wide range of experience with partner billing was a reflection of insurance coverage differences among the sites' patient population. Sites with high rates of partner billing had high populations of Adult Medicaid patients and/or patients with insurance plans not covered by VaxCare.

Average level of satisfaction with VaxCare's partner billing process was rated 3.14, or slightly more than *Somewhat Satisfied*. Some sites thought partner billing was a "clear process" to understand, while others reported the process "was a little confusing."

Insurance Eligibility Verification and Overall Satisfaction with Insurance Billing Process

Table 9 outlines the average level of satisfaction with VaxCare's ability to verify insurance eligibility and with the overall billing process. Verifying insurance eligibility received an average rating of 3.6, or leaning toward *Very Satisfied*, although the pilot sites utilized the eligibility process differently. Most decided to only immunize patients who were considered "Eligible" and "Risk-Free." In contrast, those that proceeded with "Eligible with Possible Patient Responsibility" experienced more issues because VaxCare does not provide details on the amount the patient may be responsible for. Two sites had issues confirming eligibility with Medicare patients. Of note, sites reported that, at baseline, they verified patient insurance eligibility 50% of the time. While using VaxCare services, this rose to almost 100%.

Table 9: Average Satisfaction Ratings for Insurance Eligibility Determination and Billing

Insurance Verification and Billing Process Satisfaction Queries	All	Urban	Rural	LPHA	Family Practice
Insurance Eligibility Determination	3.625	3.5	3.75	3.5	3.75
Billing	3.125	3.25	3	3.25	3

Family practices and LPHAs differed in their insurance billing experiences. Family practices mentioned minimized financial risk with VaxCare's billing process, since they already had ample experience with private insurance claims submission and reimbursement. LPHAs mentioned that their biggest learning curve was billing, because they billed so few patients with private insurance prior to the pilot study. All LPHAs chose to vaccinate patients deemed "Eligible with Patient Responsibility." This meant that the LPHAs would sometimes need to explain to the patient why they received a bill. Prior to the pilot study, some LPHAs would cover the cost of a co-pay or deductible if the patient could was unable to afford it. The green color coding in **Table 9** indicates that, despite some variation, pilot sites rated the insurance verification and billing process an across the board average rating of 3 or greater, or *Somewhat Satisfied* or better.

Table 10 provides a breakdown of doses administered by site and claims data. Blue shading indicates a rural site, gray indicates an urban. Red font color indicates a family practice site and green indicates an LPHA. This data for this table was pulled directly from the VaxCare Hub.

Table 10: Characteristics of Vaccine Insurance Coverage and Claims Data by Doses Administered and Site

Site No.	Vaccine Doses Administered	Doses Considered Eligible for Insurance Coverage Payment	Risk Free Doses	% Risk Free	Admin Fees Paid	% Paid	Claims Collected	% Collection
1 FP, Rural	271	113	112	99%	113	100%	108	96%
2 LPHA, Rural	165	163	156	96%	160	98%	158	97%
3 LPHA, Rural	474	283	217	77%	256	90%	248	88%
4 LPHA, Urban	340	180	161	89%	169	94%	139	77%
5 FP, Urban	47	40	31	78%	34	85%	31	78%
6 FP, Urban	364	185	130	70%	146	79%	120	65%
7 LPHA, Rural	63	34	28	82%	28	82%	27	79%
8 FP, Urban	152	132	109	83%	120	91%	82	62%

Average Total	234.5		141.25	**118**	84%		**128.25**	90%		**114.125**	80%	
Average by Site Type	Rural 206	Urban 225.75			Rural 88.5%	Urban 80%		Rural 72.25 %	Urban 87.25 %		Rural 90%	Urban 71%
	FP 208.5	LPHA 260.5			FP 82.5%	LPHA 86%		FP 94.75 %	LPHA 91%		FP 75.25 %	LPHA 85.25 %

Of doses considered eligible for insurance coverage payment through VaxCare's system, 84%, on average, were deemed "Risk Free" resulting in VaxCare collecting an insurance claim 80% of the time and the pilot sites collecting an administration fee 90%. However, some noticeable differences between sites were observed. Urban and LPHA sites administered more overall doses than rural and family practice sites. This may have been due to a number of reasons including size of the population served, as well as the staggered pilot start- and end-date that included typically high immunization periods for some, such as flu or back-to-school season, and not for others.

Claims data also varied by pilot site, with rural sites averaging almost 89% of doses considered risk-free and 90% of claims collected, while urban sites dropped to 80% considered risk-free and 71% of claims collected. Oddly, even with a higher percentage of claims reimbursed, rural sites were 15% less likely to collect an administrative fee than urban sites (72.25% vs. 87.25%). Little differences were observed between family practice and LPHAs, in terms of percent of doses considered risk-free and percent of administrative fees paid, although family practices experienced a 10% lower claims collection rate than LPHAs. Difference in types of insurance coverage available in urban versus rural communities may explain the differences in claims data.

INVENTORY MANAGEMENT

When VaxCare performs onboarding training, they also take inventory of the client's private stock vaccine, with the intent of purchasing it. However, VaxCare will not purchase vaccine with a less than 6-month expiration date. One site noted, "Until training, we did not know [about this]." In addition, the Taskforce was not informed of this during the initial vetting process. Inventory tracking during the pilot was difficult for some requiring management of both VaxCare and their own stocks of expiring vaccine, along with other stocks they might carry, such as travel vaccines, adult Medicaid, Medicare, VFC, CHP+ or private stock not covered by VaxCare. For one LPHA, this made inventory management especially difficult causing more time to be spent on inventory management, rather than less.

During the post-study evaluation, sites rated their level of satisfaction with VaxCare's ability to keep sufficient vaccine stock on-hand, vaccine reordering, inventory management capabilities and process, and time spent on inventory management. **Table 11** summarizes the responses.

Table 11: Average Satisfaction Rating for Inventory Stocking and Management

Inventory Process Satisfaction Queries	All	Urban	Rural	LPHA	Family Practice
Sufficient Vaccine Stock	3.375	3.25	3.5	3	3.75
Reorder Vaccines	3.625	3.75	3.5	3.25	4
Inventory Management Capabilities	3.25	3	3.5	2.75	3.75

Sufficient Vaccine Stock

VaxCare's ability to keep sufficient vaccine stock on hand was rated an average of 3.375, or just slightly more than S*omewhat Satisfied* (**Table 11**). Family practices had the highest average rating with 3.75, just under *Very Satisfied* while LPHAs average rating was exactly, 3, *Somewhat Satisfied*. Reviews ranged from, "We were never short on stock and we always received new stock within 24 hours," to "Automatic refills never occurred and we always called for refills." One urban practice noted that improper training caused stock outs; however, once this was corrected there were no issues.

Re-Order Vaccines

The average level of satisfaction with VaxCare's ability to reorder vaccines was 3.625, leaning towards *Very Satisfied* (**Table 11**). Most indicated they received vaccine shipments within 24 hours and never had to call for refills. However, it was reported that VaxCare does not provide confirmation before automatically shipping. This was problematic for LPHAs who must notify their front office to expect a shipment. Also noted was that VaxCare was inconsistent in sending a re-supply order invoice documenting which vaccines were shipped. However, if there was an issue with a shipment VaxCare picked up the cost.

Overall VaxCare Inventory Management Capabilities and Process

Table 11 shows that the average satisfactory rating of VaxCare's inventory management capabilities and process is 3.25, just over *Somewhat Satisfied*. Family practices averaged the highest rating at 3.75, just under *Very Satisfied* while LPHAs were less satisfied with an average rating of 2.75, just under *Somewhat Satisfied*. One LPHA had a particularly difficult experience with inventory management including trouble with inventory tracking in the VaxCare Hub, lack of temperatures monitors when sending back vaccine, and managing inventory that VaxCare would not purchase at study start due to expiration dates of less than 6 months. Experiences ranged from "maintenance was excellent," to "we took extra time to ensure inventory was handled properly." One family practice stated, "The upfront purchase of vaccines saved us significant costs." The VaxCare Hub contains less information required in CIIS and sometimes did not include lot numbers or expiration dates. The color coding in **Table 11** shows that for most measures concerning inventory management, responses showed on average a rating of 3 or greater or *Somewhat Satisfied* or better.

Time Spent on Inventory Management

Except for one urban LPHA, all sites reported spending less time on inventory management compared to before using VaxCare's. One site stated, "VaxCare makes it hassle-free." The one LPHA that did not share this experience stated they spent significantly more time on inventory management using VaxCare.

Sustainability

Sites reported on average that VaxCare was likely sustainable (average rating of 3.125 out of 4), however LPHAs average rating of 2.5 was more neutral. Experiences ranged from, "We made a profit by not wasting vaccine," to "Vaccines were expensive to purchase for [Adult] Medicaid." All family practices were very likely to continue using VaxCare Services while LPHAs reported, on average, that they were somewhat unlikely to continue due to one LPHAs poor experience. Others, however, claimed that VaxCare was an asset because of their "willing[ness] to work with us [even with] our low volume." Another stated, "This is the only system that would work for our county compared to the others evaluated by the Taskforce." One family practice stated, "VaxCare met all of our expectations."

Financial Impact

At baseline and post-study, sites were surveyed about the financial impact of VaxCare. **Table 12** shows that, overall, VaxCare improved the pilot sites' ability to provide vaccines through either a breakeven or profitable business model, instead of at a loss (87.5% vs. 12.5%). The color coding in **Table 11** summarizes the financial impact trend with green indicating an average improvement, yellow indicating no impact, and red indicating an average negative financial impact. As the table shows, while the overall financial impact was positive, differences between type of sites resulted in rural and LPHA sites showing more of a positive impact and urban and family practice sites showing less.

Table 13: Financial Impact Pre- and Post-Study (Pre-Study, N=6 and Post-Study, N=8)

Financial Impact	All		Urban		Rural		LPHA		Family Practice	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Breakeven	50%	62.5%	66.7%	50%	33.3%	75%	33.3%	50%	50%	75%
Profit	16.7%	25%	33.3%	25%	0%	25%	0%	25%	33.3%	25%
Loss	33.3%	12.5%	0%	25%	66.7%	0%	67.7%	25%	0%	0%

OVERALL VAXCARE SYSTEM

Overall Satisfaction and Ease of Use

Most sites found the VaxCare Hub easy to use, with the only drawback being an inability to print full records for schools or parents. Overall satisfaction with customer service was rated an average 3.375, or above *Somewhat Satisfied*, with little difference between site types. Two distinct trends in customer satisfaction were noted: response time for inquiries improved throughout the course of the pilot study; and identifying one single point of contact at VaxCare was of great benefit. One family practice stated, "VaxCare is a great asset for primary care practices, especially small ones." An LPHA mentioned, "[VaxCare] opens up care and there is no longer a need to refer patients to a pharmacy. This increases compliance and increases vaccination rates."

Family practices reported that once they fine-tuned workflows, VaxCare would likely be sustainable in the long-term and "interoperability with our EHR would help." One family practice stated, "VaxCare's customer service makes it worth working out the minor details," while one LHPA stated, "VaxCare takes over paperwork which reduces errors made in processing administrative side of immunizations."

Key Reported Advantages and Disadvantages of VaxCare System

Summary of Reported Advantages of VaxCare:	Summary of Reported Disadvantages of VaxCare:
• Lowered costs by reducing outlay of capital for inventory • Increased ease of verifying insurance eligibility • Reduced risk for errors in administration • Improved safety by accurately recommending vaccines for all age groups • Expanded ability to provide vaccines that were previously cost prohibitive • Increased variety of types of vaccines available, including new combination vaccines • Improved LPHAs' ability to vaccinate insured adults who lack primary care provider • Eliminated risk of using expired vaccines • Allowed for timely, automated invoicing	• Lacked clear communication regarding purchase of client's vaccine with less than a 6 month expiration date • Lacked interoperability with EHRs or CIIS • Increased time for patient check-in • Lacked ability to print out full vaccination record • Lacked option to record adverse events • Lacked travel vaccines • Lacked data entry ability to document some body administration site locations • Lacked data entry options available in CIIS for body administration site locations • Did not accept all private health insurances plans • Caused confusion with some patients receiving bills from VaxCare • Caused confusion with some patients about provider of record listed on bill • Slow customer service which did improve

CONCLUSION

Overall, several key immunization delivery barriers were addressed by VaxCare. All sites reported that VaxCare successfully reduced upfront vaccine purchasing costs and at least 75% stated that VaxCare services removed additional barriers, such as for vaccine insurance eligibility determination, inventory management and providing all ACIP-recommended vaccines. In addition, most pilot sites reported overall satisfaction and anticipated that continuing with VaxCare would support a sustainable business model. Family practices and LPHAs in rural communities found VaxCare services particularly beneficial, due to the many additional challenges they face providing vaccine, such as low patient volume.

Conversely, some challenges were not solved, and even added additional layers of administrative duties. Only 50% or fewer stated that the services reduced time submitting and tracking insurance claims and

reimbursements, removed the process for contracting with insurance plans, and increased the ability to choose from different brands of vaccine manufacturers. Even more challenging was the continuing lack of interoperability between VaxCare and CIIS, resulting in the need for duplicative data entry. Two pilot sites are currently awaiting the completion of an interface between VaxCare and CIIS before making a final determination about continuing use of VaxCare.

Recommend VaxCare to Other Providers
On average, all reported they were likely to recommend VaxCare to other providers for a variety of reasons. One site reported "[While] there are some caveats, [VaxCare is] a great way to provide vaccines for a small office, and it's worth it for an LPHA to provide private vaccinations." One family practice reinitiated their immunization program and reported, "[VaxCare] made it easier to start-up the vaccination process again. Picking up the cost of expired vaccines is huge in being able to provide Zostavax and other expensive vaccines." At the same time, one urban LPHA did not report a successful experience with VaxCare specifically citing issues with inventory management, poor communication, and confusion in handling private and public stock vaccine. Even so, while they did not recommend VaxCare for large LPHAs, they did suggest it as a solution for smaller ones.

Study Limitations and Challenges

Due to timeline delays, pilot sites entered the study on a staggered basis. Some sites participated in the study during typically high immunizations periods, such as back-to-school and influenza season, while others did not. Additionally, as mentioned, VaxCare did not purchase vaccines with less than a 6-month expiration date. Two sites had to utilize these vaccines first, delaying the ability to fully evaluate the impact of VaxCare's services. Also, sites that did not previously take patients with private insurance had to market this new service in their community which may have resulted in a delay in impact on utilization. These limitations confounded the ability to accurately compare the immunizations rates pre-and post-study. Thus, immunizations rates are not presented in this report. A one-year pilot study, with a single start- and end-date for all sites, may have been able to adjust for these limitations. A follow-up utilization study, after at least one year of VaxCare services and an operating interface with CIIS, should be better able to fully evaluate whether immunization rates increased.

Finally, from site recruitment to report finalization, an interface was under development between CIIS and VaxCare. VaxCare took 68 days to complete pre-testing requirements. Numerous programming changes and communication delays caused the interface development to not meet the projected 8-12 week timeline. These issues caused disappointment among the study participants since the interface was promised during recruitment and resulted in some sites performing duplicative data entry. Two sites are currently waiting on interoperability with CIIS to make a final determination about continuing use of VaxCare.

Recommendations

Pilot sites offered the following recommendations for VaxCare:

Proposal and Training

- Better understand workflow processes for immunization delivery, as these vary significantly among practices.
- Notify sites that the "Go Live" with the VaxCare software occurs the day after training.

- Ensure sites have WiFi capability as it is required for VaxCare operation.
- Develop and share training documents as handouts during training sessions
- Allow staff to practice using the system during training
- Hire an expert on Rural Health Clinics and other Federally Qualified health care systems to better understand their unique immunization delivery and financing issues.

Inventory Management

- Inform potential clients right away that VaxCare purchases a site's existing vaccines, but not those with a less than a 6-month expiration date.
- Consistently provide re-supply order invoices for vaccines shipped and send confirmations before vaccines automatically ship.
- Ask clients if there are better days to receive shipments to ensure staff are available and the office is open.

System Capabilities

- Once a year, host a user conference to inquire what services work well, what services can be improved upon, and share upcoming service offerings.
- Allow the site to print all vaccination records for the patient.
- Add the ability to record adverse events.
- Integrate VaxCare with Electronic Health Record systems.
- Develop a faster process to integrate VaxCare with state immunization information registries.
- When a bill is issued to a patient, ensure that the provider who administered the vaccine is listed as the provider of record, not just the VaxCare Medical Director.
- Allow VaxCare's patient insurance eligibility function to identify out-of-pocket costs for patients deemed responsible for some payment.
- Include more details in the monthly statements in order to clearly track payments for individuals and allow clients the ability to double check a bill before it is sent to the patient.

Pilot sites offered the following recommendations for potential users of VaxCare:

- If a practice decides to utilize VaxCare to immunize patients with some payment responsibility, inform the patient that they will receive bill with VaxCare Medical Director listed as the provider of record, not the practice.
- Ensure that all relevant site staff learns the VaxCare system. If the site has a large staff, suggest a train-the-trainer approach to ensure all staff is trained properly.
- Determine prior to implementing VaxCare, how patients with insurance plans not covered by VaxCare will be handled.
- Take initiative to contact VaxCare proactively, if issues occur.
- For first few months, track reimbursements and inventory management to ensure accuracy.

Data Analysis

- The Taskforce should re-evaluate vaccine utilization data after one full year of VaxCare services and the CIIS-VaxCare interface is complete.

Vendors	Pediafed	Medical Practice Purchasing Group	PedsPal	AAP Affinity program - Child Health Advantage	Integrated Physician Solutions	MiniBarRX	VaxCare	Upp Technology	AccuVax	RT Welters	Commonwealth Medicine
VACCINE PURCHASE											
Contract only with specific vaccine manufacturers	Yes	Yes	Yes	No	Yes	No	No	NA	No	NA	NA
Any brand available	No	No	No	Yes	No	Yes	Yes	NA	Yes	NA	NA
Brand loyalty discount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Optional	NA	NA
Ability to purchase outside of contract	If there is a failure to supply, off contract purchases are allowed. Any influenza vaccine may be purchased	Yes if manufacturer is unable to supply	Yes	Yes	NA	Yes	NA	NA	NA	NA	NA
Vendor Offers Rebate Program	Yes	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA
Practice orders vaccine	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Vendor orders vaccine	No	No	No	No	No	Yes	Yes	No	No	No	No
Minimum Order required	No - manufacturer may require minimum order to obtain free shipping	No - manufacturer may require minimum order to obtain free shipping	No - manufacturer may require minimum order to obtain free shipping			No - manufacturer or distributor may add a surcharge for small orders	No minimum quantity. We automatically replenish vaccine based on usage. We ship in whole boxes, so the minimum quantity will always be driven by however the manufacturer packages the product	NA	NA - does not supply vaccine	NA	NA
Delivery time for regular order	Vaccine is usually received overnight, or within two days. Vaccine manufacturers do NOT ship on Fridays	Delivery normally available in 2-3 business days delivery from order date, overnight shipping is available (sometimes with a fee). Delivery date estimates can be viewed on-line when orders are placed. Important note: The vaccine manufacturers do NOT deliver on Sundays and Mondays.	Next day delivery			Two-day delivery	Vaccine is delivered via two-day shipping - however, vaccine cannot ship across weekend days.	NA	NA - does not supply vaccine	NA	NA
Delivery time for emergent or outbreak situation	Pediatric Federation has a robust communication platform, with the ability to help in the coordination process, if requested.	In emergent or outbreak situations our vaccine partners Merck, Sanofi and Pfizer would be mostly likely adjust standard protocol to fit the crisis as needed. It is important to note that although rare, supply issues unfortunately do occur from time to time.	Vaccine is delivered next day, if vaccine has to be shipped. In shortage situations, we are such a large purchaser that we can often get limited supplies allocated to our members.			Vaccine can be shipped overnight	Typically vaccine is available from VaxCare immediately when an outbreak occurs, as long as it is available from the manufacturer. Shipping would still be two-day shipping, with overnights possible if needed.	NA	NA - does not supply vaccine	NA	NA
VACCINE INVENTORY MANAGEMENT											
Vendor provides refrigerator/freezer	No	No	No	No	No	Yes	No	NA	Yes	NA	NA
System tracks private versus VFC vaccine stock	No	No	No	No	No	Yes	No	NA	Yes	NA	NA
Ability to return expired vaccine	Most vaccine returnable per manufacturer's terms	Yes per manufacturer's terms	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA
BILLING SERVICES											
Vendor assesses revenue forecast	NA	NA	NA	NA	NA	Yes	Yes	Yes	NA	Yes	Yes
Vendor negotiates insurance contracts	NA	NA	NA	NA	NA	NA	Yes	Yes - provides assistance	NA	Yes	Yes
Vendor sets up insurance credentialing	NA	NA	NA	NA	NA	Yes	Yes	Yes	NA	Yes	Yes - as a single provider
Vendor screens for insurance eligibility	NA	NA	NA	NA	NA	Yes	Yes	Yes	NA	Yes	No
Vendor submits claims directly to insurers	NA	NA	NA	NA	NA	Yes	Yes	Yes	NA	Yes	Yes
Practice receives negotiated administrative fee	NA	NA	NA	NA	NA	Yes	Yes	NA	NA	NA	Yes - recieves all reimbursement minus 10% fee
DATA MANAGEMENT											
Currently integrates with CO immunization registry	NA	NA	NA	NA	NA	No	No	No - Have the capacity to do so	No	NA	No - Have the capacity to do so
Compatible with electronic health record software	NA	NA	NA	NA	NA	Yes	Yes	Yes	Yes	Yes	No

Vendors	Pediafed	Medical Practice Purchasing Group	PedsPal	AAP Affinity program - Child Health Advantage	Integrated Physician Solutions	MiniBarRX	VaxCare	Upp Technology	AccuVax	RT Welters	Commonwealth Medicine
Compatible with practice management software	NA	NA	NA	NA	NA	Yes	Yes	Yes	Yes	Yes	No
System generates patient reminders	NA	NA	NA	NA	NA	Yes	Yes	Unk	NA	Yes	No
TRAINING/SUPPORT											
24/7 help desk support	No. Help Desk is available 8:00 AM-4:30 PM Monday -Friday	Yes	No	No	No	Yes	Yes	Yes	No	No	No
Online training	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
PRIOR EXPERIENCE											
Track record in small practices/rural communities	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Established contracts with public health agencies	Yes	Some	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes

The Senate Bill 222 Taskforce (SB222 Taskforce) has reviewed information provided by each vendor listed in this table. These vendors represent a variety of solutions available to healthcare providers across Colorado who want to strengthen vaccine management and delivery in their practice. This table is meant to serve as a reference tool to support healthcare providers in selecting services and vendors who might best meet their needs. The SB222 Taskforce does not endorse any one vendor on this table and not all vendors may be represented in the table.

Appendix B

Study Sites

(1) Button Family Practice, R, FP
(2) Clear Creek Health Department, R, LPHA
(3) Rio Grande County Public Health Agency, R, LPHA
(4) Pueblo City County Health Department, U, LPHA
(5) Greenwood Village Family Medicine, U, FP
(6) Miramont Family Practice, U, FP
(7) Teller County Health Department, R, LHPA
(8) Grand Junction Family Medicine, U, FP

Appendix C

SB 222 Taskforce Steering Committee Members

Bernadette	Albanese	Tri-County Health Department
Diana	Herrero	Colorado Department of Public Health and Environment (CDPHE)
Lora	Polowczuk	Colorado Children's Immunization Coalition (CCIC)
Lynn	Trefren	Colorado Department of Public Health and Environment (CDPHE)
Martha	Hubbard	Teller County Public Health
Matt	Dorighi	American Academy of Pediatrics (AAP)
Rachel	Herlihy	Colorado Department of Public Health and Environment (CDPHE)
Raquel	Rosen	Colorado Academy of Family Physicians (CAFP)
Ryan	Biehle	Colorado Academy of Family Physicians (CAFP)
Sean	O'Leary	Children's Hospital Colorado
Stephanie	Wasserman	Colorado Children's Immunization Coalition (CCIC)

Appendix D

Interface Development between CIIS and VaxCare

Before an interface can go live, CIIS requires each site to perform specific data validation requirements. The CIIS Data Review process entails two phases: Data Quality Review and Data Validation. During the Data Quality Review, the CIIS Data Interface Specialist reviews incoming data for completeness of demographic and immunization information, as well as charting issues. CIIS requires that demographic and immunization information meets specific thresholds before the site is moved to the Data Validation Phase. During Data Validation, a Data Validation Specialist reviews the data that has been electronically transferred to CIIS against the information that was entered into the VaxCare system. This is largely a chart review. CIIS requires an A rating before a site will be approved for Go Live or ongoing submissions.

Initial interface testing began with a non-participating study site (VaxCare's Medical Director's practice) to allow VaxCare to pre-test Health Level 7 (HL7) message format and ensure that their HL7 message format aligned with the CIIS HL7 specification requirements. VaxCare took 68 days to complete the pre-testing requirement. During the onboarding process with the pilot study site, CIIS staff identified that VaxCare was unable to send Administering Provider. Even with this missing information, the pilot site was moved to ongoing submissions, and the CIIS staff made note of this issue for future VaxCare implementations. While onboarding other study sites, additional concerns were identified, e.g., guardian information was not transferred and body site administration was missing. Every time data issues were identified, VaxCare was

required to perform data programming changes. These programming changes and numerous communication delays caused interface projects for VaxCare study sites to get off the predicted interface development timeline of 8-12 weeks.

Appendix E

VaxCare Evaluation Site Pre-Study Questionnaire

GENERAL INFORMATION

1) Name and Title of person completing questionnaire	
2) Date questionnaire completed	
3) Name of Practice/Local Public Health Agency (LPHA)	
4) Type of Practice (Family medicine, Pediatric, LPHA):	
5) Address of Practice/ Local Public Health Agency	
6) Study Point of Contact (Name, Phone number, and email address)	
7) Has your practice currently identified an immunization champion amongst your staff? a. No b. Yes. Who fills that role?	

BACKGROUND PRACTICE/LPHA

1) Number of providers in your practice or LPHA immunization clinic:
   No.____Medical Doctors
   No.____Physician Assistants
   No.____Nurse Practitioners
   No.____Registered Nurses
   No.____Medical Assistant

2) Do you currently employ an electronic health record system?
   No
   Yes; List system name: _____

3) Do you currently employ an electronic practice management system (for billing, scheduling appointments, etc.)?
   No

Yes. List name of system: _____

4) Do you currently participate (enter in vaccinations) in the Colorado Immunization Information System (CIIS) registry?

No; Describe why you do not participate: _____
Yes

5) What type of insurance plans does your practice/LPHA currently accept? (*Check all that apply*)

Medicaid
Medicare
CHP+
Uninsured/Self-pay
Private insurance (*Check all that apply*):

- Cigna
- Anthem
- United Health Care
- Rocky Mountain Health Plan
- Humana
- Aetna
- Colorado Health Op
- Kaiser
- Other _____

VACCINATION DEMOGRAPHICS

1) Do you currently provide vaccinations? No (*END OF QUESTIONNAIRE*)

No, I expect to start delivering vaccinations as a study participant. If this is the case, answer questions 6a-6c for which age populations and types of vaccinations you hope to offer.
Yes (*COMPLETE REMAINING QUESTIONS*)

6a) Complete the following table about what age groups do you currently provide vaccinations for and indicate the number of well-child visits or adult annual exams?

	What age groups do you currently provide vaccinations for? (Yes/No)	For each age group marked "yes", how many well-child visits or adults annual exams were conducted in 2014?
Under 1 year		
1 to 5 years		
6 to 10 years		

11 to 17 years		
18 to 64 years		
65 years and older		

6b) Complete the following table about vaccinations offered at your practice/LPHA and total number of vaccines given by type:

	Which vaccinations do you offer? (yes/no)	In 2014, provide the total number of vaccines given by type
DTaP		
IPV		
MMR		
Hib		
Hepatitis B		
Varicella		
Pneumococcal		
Hepatitis A		
Rotavirus		
Influenza		
Meningogoccal		
HPV		
Tdap		

6c) Do you have a preference of vaccine manufacturer* for immunizations that have multiple products available? If yes, please select your preference:

Merck
Sanofi Pasteur
GSK

**Note: Neither VaxCare Corp or the SB222 Taskforce recommends any manufacturer preference among vaccines. It is VaxCare's intent to provide choice where there are multiple products for the same antigen group.*

INSURANCE CLAIM EXPERIENCE FOR VACCINATIONS in 2014

7) Do you routinely perform an insurance eligibility check prior to giving an immunization?
No

Yes

8) Please complete the following table:

8a) How many total vaccines did you purchase in 2014?	
8b) How many total vaccinations did you submit a claim to private payers (exclude Medicaid and Medicare) during 2014?	
8bi) What was the percentage of vaccinations for which practice/LPHA received an administration fee in 2014?	
8c) How many vaccines did you give for fee for service?	

9) For non-VFC vaccines - In assessing the financial impact of delivering vaccines in 2014, did your practice/LPHA (*Check one*):

Experience a profit
Break even
Experience a loss

FTE REQUIREMENTS for VACCINATION DELIVERY, MANAGEMENT, AND BILLING

Complete this table. Describe the FTE(s) your practice/LPHA currently utilizes to perform the following functions related to vaccine purchasing, inventory management, and insurance billing.

Administrative function	Current % FTE dedicated to function	Estimated # hours per week spent on function	Not Applicable
Purchase vaccines			
Manage vaccine inventory (such as stock refrigerator, intake new orders)			

Establish a patient's vaccination record (including recording previous history of vaccinations and selecting what vaccines are recommended during office visit)			
Screening for private insurance eligibility			
Screening for Medicaid eligibility			
Preparing and submitting vaccination claims to private insurance			
Preparing and submitting vaccination claims to Medicaid			

Appendix F
VaxCare Evaluation Study Post-Study Questionnaire/Semi-Structured Interview

Purpose:
The purpose of this post-study questionnaire is to evaluate your site's perspective on VaxCare's services and performance during the evaluation study. This post-study questionnaire serves as a tool to collect information about how satisfied your site was with VaxCare's services during study initiation and evaluation periods. Your site's individual responses will remain confidential and will be summarized with other study sites in a final report to be submitted to the Senate Bill 222 Vaccine Access Taskforce (Taskforce) and posted on government and organizational websites affiliated with members of the Taskforce.

Definitions:

- *Site* refers to your office that immunized patients with VaxCare services either a family practice, pediatric practice, or Local Public Health Agency.
- *Study initiation* is defined as the time period from when VaxCare first approached your office about setting up a time for the proposal to when VaxCare trained your site.
- *Study maintenance phase* is the time period from after VaxCare trained your site on how to use their system to six months following that date.

Instructions:

For each question, circle your level of satisfaction for the VaxCare service specified and further describe what your experience was with that service in the space provided.

General Information:

A) Site Name:	
B) Name and Title of Person Completing Questionnaire:	
C) Name and Title of other Personnel Contributing to the Questionnaire:	
D) Date site was trained on VaxCare system:	
E) Date your site began using the VaxCare system:	
F) Date Post-study Questionnaire Completed:	
G) Was there any change in site staff that interacted with VaxCare during the pilot	*Circle No or Yes. If Yes, specify the staff that changed.*

study?	

Study Initiation

1) Overall, how satisfied were you with VaxCare's ability to create a proposal, set-up a date/time for discussion, and conduct proposal discussion?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's proposal process:			

2) Overall, how satisfied were you with VaxCare's ability to extract EMR data if applicable?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4	Not Applicable 5
Describe your experience with VaxCare's EMR data extraction process:				

3) Overall, how satisfied were you with VaxCare's ability to coordinate and set-up training?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's training set-up process:			

4) Overall, how satisfied were you with VaxCare's ability to conduct training with sufficient content to understand and use system?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's training process:			

5) How satisfied were you with the ability to choose among different brands of vaccines (for example, vaccines from different manufacturers such as Boostrix and Adacel) ?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's flexibility and vaccine brands offered:			

6) Overall, how satisfied were you with VaxCare's negotiated vaccine administration reimbursement rate?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's vaccine administration reimbursement:			

Study Evaluation Period – Customer Service

7) How often did you utilize VaxCare's customer service/support? *Fill in the circle that best applies to your answer*.

◯ Daily
◯ Weekly
◯ Monthly
◯ Other, Specify: _____

8) When contacting VaxCare's customer service support, was your question answered?

Never 1	Sometimes 2	Most of the time 3	Always 4
Describe your experience with VaxCare's customer service/support:			

9) Overall, how satisfied were you with VaxCare's customer service?

Very Unsatisfied	Somewhat	Somewhat Satisfied	Very Satisfied

1	Unsatisfied 2	3	4
Describe your experience with VaxCare's customer service:			

Study Evaluation Period: Insurance Billing

10) Did your site utilize VaxCare's insurance eligibility check (risk-free vaccine) before immunizing patients? *Fill in the circle that best applies to your answer*.

◯ No
◯ Yes

(10a) If Yes, how often did you use VaxCare's insurance eligibility check before immunizing patients?

Always	Most of the Time	Some of the Time	Rarely
1	2	3	4

11) Overall, how satisfied were you with VaxCare's ability to verify insurance eligibility?

Very Unsatisfied	Somewhat Unsatisfied	Somewhat Satisfied	Very Satisfied
1	2	3	4
Describe your experience with VaxCare's insurance eligibility check:			

12) Partner billing is when your site independently bills an insurance payer outside of VaxCare. This typically happens when VaxCare does not have a contract with a particular insurance payer. Did your site utilize VaxCare's partner billing process? Fill in the circle that best applies to your answer.

◯ No
◯ Yes

12a) If yes, what percentage of your claims were performed through partner billing?

◯ 1-5%
◯ 6-10%
◯ 11-15%
◯ Other; specify an approximate percentage _____

12b) If yes, how would you rate your level of satisfaction with VaxCare's partner billing?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's partner billing process:			

13) Were there any insurance plans that VaxCare did not cover? *Fill in the circle.*

◯ No
◯ Yes, Specify _____

13a) If yes, did this impact your site's ability to deliver immunizations?

◯ No
◯ Yes

13b) If yes, describe in the space below how the lack of insurance plan(s) impacted your site?

14) Overall, how satisfied were you with VaxCare's insurance billing service?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's insurance billing service:			

Study Evaluation Period: Inventory Management

15) Overall, how satisfied were you with VaxCare's ability to keep sufficient vaccine stock on hand?

Very Unsatisfied	Somewhat Unsatisfied	Somewhat Satisfied	Very Satisfied

1	2	3	4
Describe your experience with VaxCare's ability to keep sufficient vaccine stock on hand:			

16) Overall, how satisfied were you with VaxCare's ability to reorder vaccines?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's reordering process:			

17) Overall, how satisfied were you with VaxCare's inventory management capabilities and process?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your experience with VaxCare's inventory management capabilities and process:			

18) How much time did your staff spend on vaccine inventory management using the VaxCare system compared to before?

◯ A lot more time
◯ A little more time
◯ The same amount of time
◯ A little less time
◯ A lot less time
◯ Not applicable; We previously did not stock vaccines.

Study Evaluation Period: VaxCare System

19) How much do you agree or disagree with the following statement? Overall, The VaxCare system was easy to use.

Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
Describe your experience:			

20) List up to 5 advantages of the VaxCare system

21) List up to 5 disadvantages of the VaxCare system

Colorado Information Immunizations System and VaxCare Interface

22) Did VaxCare successfully develop an electronic interface with the Colorado Immunization Information System (CIIS) to report vaccinations provided by your site? *Fill in the circle that best applies to your answer.*

◯ Yes

If yes, describe your experience with the VaxCare-CIIS electronic interface:

◯ No

If no, describe how not having the interface impacted your site:

Study End

23) Overall, how would you rate your level of satisfaction with VaxCare?

Very Unsatisfied 1	Somewhat Unsatisfied 2	Somewhat Satisfied 3	Very Satisfied 4
Describe your overall experience with VaxCare:			

24) Has your experience with VaxCare addressed any of the following concerns your site previously had about immunizations? *Fill in all circles that apply.*

- ◯ Insurance billing; reduce time submitting and tracking claims
- ◯ Remove process of contracting with insurance plans
- ◯ Verify patient vaccine insurance eligibility
- ◯ Reduce time spent on inventory management
- ◯ Make vaccine ordering easier
- ◯ Reduce upfront vaccine purchasing cost
- ◯ Ability to choose from different brands of vaccines
- ◯ Ability to provide all Advisory Committee on Immunization Practices (ACIP) recommended vaccines
- ◯ Initiate or re-start the provision of immunizations
- ◯ Manage the provision of vaccines through a sustainable business model
- ◯ Assure reporting immunizations into the Colorado Immunization Information System
- ◯ Increase provider satisfaction to deliver immunizations
- ◯ Other; Specify _____

25) How sustainable is VaxCare's system for your site?

Very Unlikely 1	Unlikely 2	Likely 3	Very Likely 4
Describe your experience with VaxCare as a sustainable business model:			

26) How likely would your site be to continue using VaxCare's services?

Very Unlikely	Unlikely	Likely	Very Likely

1	2	3	4
Describe your experience with VaxCare as a sustainable business model:			

27) How likely would you recommend VaxCare's system to other providers?

Very Unlikely 1	Unlikely 2	Likely 3	Very Likely 4
Describe why you would or would not recommend VaxCare's system to other providers:			

28) During the VaxCare evaluation period, specifically related to vaccines, did your site experience a profit, loss, or break even? *Fill in the circle that best applies to your answer.*

◯ Experience a profit
◯ Break-even
◯ Experience a loss

29) What other feedback do you want to share?

Thank you for your time and participation in the Senate Bill 222 Vaccine Access Taskforce VaxCare Evaluation Pilot Study. The study results will evaluate one more solution to tackle immunization delivery in Colorado.

Appendix G
VaxCare Evaluation Study Overview

Background:
To assure greater access to vaccines for Colorado's residents, the Senate Bill 222 Vaccine Access Taskforce is evaluating several private sector solutions designed to remove or alleviate some of the most common barriers in vaccination service delivery. The Taskforce seeks interested local public health agencies (LPHAs), family practices, pediatric practices, or other practice settings to participate in a six month pilot study to evaluate a vendor, VaxCare, a company offering services targeted at reducing or eliminating barriers to vaccination delivery.

VaxCare services include contracting with health plans and insurance credentialing, verifying patient insurance eligibility, eliminating upfront cost of purchasing vaccine, submitting and tracking insurance claims, online vaccine ordering, online training, and 24/7 support.

Evaluation Study Goals:
A successful evaluation study will be measured by VaxCare's ability to work with LPHAs and practices to meet at least one of the following goals on behalf of the practice:

- Initiate or re-start provision of vaccinations
- Provide all Advisory Committee on Immunization Practices recommended vaccines relevant to their patient population rather than just some
- Manage the provision of vaccines through a sustainable business model

The goals will be achieved by removing barriers for vaccination service delivery including:

- Increase provider satisfaction to deliver vaccinations
- Remove time-consuming process of contract negotiation and credentialing with insurance companies
- Remove upfront costs to purchase vaccines
- Reduce time spent submitting and tracking insurance claims
- Increase the percentage of vaccination claims that are reimbursed by private insurance
- Reduce burden of vaccine inventory management
- Assure reporting of vaccinations into the Colorado Immunization Information System (CIIS)

Pilot Study Overview:

- Duration: Six months
- Targeted study initiation: Fall 2015
- Complete study requirements:
  - Study start-up:
    - Sign data sharing agreement for evaluation study
    - Execute contract with VaxCare and meet vendor requirements for initiating services
    - Obtain training on VaxCare software
    - Provide electronic health record (EHR) access to VaxCare, if applicable
    - Complete baseline questionnaire prior to initiating study
    - Participate in CIIS, if not already doing so
  - During study:
    - Utilize VaxCare for all privately-funded immunizations
    - Document changes in processes regarding vaccination delivery

- After study:
  - Complete follow up questionnaire

Acronym List

EHR – Electronic Health Records
EHP – Electronic Practice Management System
FP – Family Practice
LPHA – Local Public Health Agency
SB 222 – Colorado Senate Bill 13-222

References:

http://www.hrsa.gov/healthit/toolbox/RuralHealthITtoolbox/Introduction/defined.html
http://www.aafp.org/about/policies/all/family-medicine-definition.html
https://www.aap.org/en-us/Documents/periodicity_schedule.pdf