

## Using Claims-based Data for Covid-19 Vaccine Reporting

With the approval of two highly anticipated Covid-19 vaccinations, America has entered into a long-awaited new phase in battling the Covid-19 pandemic: vaccination. The Pfizer - BioNTech<sup>1</sup> Covid-19 vaccine and the Moderna<sup>2</sup> Covid-19 vaccine were both approved for use last week. Thanks to decades-long advances in health care infrastructure and technology, we have never been better equipped to distribute a vaccine safely, efficiently and effectively<sup>3</sup>. However, this new phase will not be without its own set of challenges. This will be the largest vaccination response in the history of the United States. In addition to continuing to manage the Covid-19 related patient care at every level, health care organizations around the country must now prepare for additional complications: distributing Covid-19 vaccines to their patient populations as effectively as possible.

Regarding these possible complications, the Centers for Disease Control and Prevention (CDC) has emphasized several areas crucial<sup>4</sup> to vaccine distribution, population outreach and proper administration, including:

- Pharmaceutical and provider agreements and reporting<sup>5</sup>
- Vaccine prioritization<sup>6</sup>
- Dose sequence<sup>7</sup>

Central to these tenets will be the overarching need for population health reporting leveraging claims-based data. Claims data provides a more comprehensive view of a patient's health care than, for instance, data from a single Electronic Medical Record (EMR). It can be used to understand and plan for potential Covid-19 vaccination challenges as well as to monitor impacts on vaccinated (or unvaccinated) populations over time. Patient records and EMR, while informative, can be limited in the ability to provide a full scope of the health services and costs rendered by an individual. Claims data provides a detailed patient history across providers and specialty types, whether in or out of a medical group, health system or health plan network, and includes cost and pharmacy data. This data fills gaps generally encountered when using EMR and other data. This paper shares some ways in which providers and health care systems can utilize claims data to monitor vaccine distribution and compliance.

### Ensure compliance with pharmaceutical and provider agreements

Providers and pharmacies must sign an agreement that demonstrates a provider/pharmacy's ability to meet the Covid-19 vaccine conditions of use. Key aspects of the provider agreement are items such as the ability and willingness to follow recommended protocol for safe immunization practice, proper recipient/caregiver education, compliance (and ability) to properly store and handle vaccinations and reporting. To meet the reporting requirement, providers must report vaccine administration data to the CDC, report error and adverse reactions, and report documentation and demographic detail to the patient record within 24 hours of vaccine administration.

While these may be crucial steps in reporting, the reporting need does not end with documentation into national databases and patient records via an EMR. Utilizing claims-based data will be paramount to identifying the vaccinated population and will be instrumental in tracking long-term health implications that may result from vaccination. Indicators, such as whether a Healthcare Common Procure Coding System code (HCPCS) or National Drug Code (NDC) were notated on the patient record, can help to define vaccine place of service. Another example of claims-based use is the tracking of outpatient utilization and diagnosis codes, which informs adverse reactions and identifies trends relating to vaccinated cohorts. Monitoring



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“Claims-based data can be used to plan as effectively as possible for Covid-19 vaccination challenges and to monitor vaccinated (or unvaccinated) populations over time.”

patient populations within claims will allow providers and health systems to identify patient utilization patterns and cost trends over time and across service categories, with the ability to compare cohorts of the population based on vaccination status.

## Facilitate vaccine prioritization

Current recommendations by the Advisory Committee on Immunization Practices (ACIP) and the CDC have targeted two groups to receive the first distribution of Covid-19 vaccinations as they become available: health care workers and individuals in long-term care facilities (LTCF), such as nursing homes. Secondary consideration has been given to individuals at the highest risk of death should they contract Covid-19: the aging population and essential workers. These subsets of the population represent only the initial phases of vaccine administration, and the vaccination priority lists are expected to be updated frequently as production increases.

As production of the vaccine increases, state and hospital systems will have more autonomy over vaccine prioritization. This eventuality further emphasizes the need for health systems to have readily available patient lists to recommend incremental cohorts for vaccination, critical for organized and systematic distribution. In order to make the best-informed triage list as possible, providers can leverage claims data. Claims data will allow health systems to consider the myriad of factors that may relate to individual vaccine need and consideration. Claims data offers the ability to conduct deeper, multi-factorial analyses for comprehensive patient health status reporting by considering demographic and health care cost and utilization detail. Organizations should look at variables such as age, risk score, chronic illness diagnostic codes and utilization patterns to form priority lists.

## Manage dose sequence

Currently available vaccines require two doses. The Pfizer vaccine has a 21-day dosing interval while the Moderna vaccine has a 28-day dosing interval. These vaccines are not interchangeable, meaning the second dose must be the same vaccine as given in the first dose. Non-compliance with either dosing interval or dose sequence severely impacts vaccine efficacy. With this in mind, robust reporting and tracking individuals receiving the first dose of the vaccine will be of paramount importance. Reporting allows health care systems to be proactive and ensures patient populations receive the correct second dose in the correct window of time.

While claims data can operate on a lag due to adjudication and therefore have limitations in the ability to capture more real-time second dose needs, it can aid in post-hoc analyses to interpret vaccine compliance successes. Claims-based analyses can also track key factors like vaccine type and vaccine dosage administration codes that identify which dose of the vaccine a patient has received. Anomalies, such as individuals with dose two but not dose one, individuals with more than two vaccine codes, or individuals who do not receive their second dose, will be important to identify, track and engage with population management to ensure proper vaccinations are administered. Long-term cohorts with varying levels of non-compliance can also be monitored.

## Metrics to keep an eye on

With the above facts in mind, identifying key metrics in claims data to track and monitor patient populations will help ease burdens in understanding health systems' patient populations relative to the Covid-19 vaccine. One important consideration when creating metrics is properly defining the base population/eligible population known as the metric denominator. Excluding individuals ineligible for the vaccine is necessary to depict vaccine distribution accurately. Prevalence for each metric should be evaluated in proportion to the population eligible to receive the vaccine. As recommendations evolve, the denominator will need to be adjusted to reflect the total vaccine eligible population at the time of reporting. Possible considerations for

establishing the denominator will be age, presence of comorbidities, individuals with severe allergies and/or pregnancy status. Claims data has the demographic, diagnostic and service codes necessary to create the following Covid-19 vaccine reporting metrics.

### **1. General vaccinated population**

This metric represents the population with a HCPCS or NDC code for the Covid-19 vaccine. Data for this metric should be filtered for individuals with any of the codes representing vaccination (see Table 1). The purpose of this metric is to get a very general sense of vaccine prevalence within a population. The data can be broken out by NDC or HCPCS in order to facilitate understanding of vaccine administration place of service rates. Aggregating HCPCS and NDC codes for the vaccine by member can highlight possible error for members with multiple vaccine types or more/less than the two dose vaccine requirement. This metric should be evaluated in proportion to the population eligible to receive the vaccine. The inverse of this metric highlights individuals who are in need of vaccine engagement. Pulling demographic information for these individuals can aid in prioritizing who to contact first.

### **2. Vaccinated population, received first dose**

For this metric, drill-down from the general population metric by aggregating patients with the first dose of the vaccine indicated by the HCPCS Administration code or dose specific NDC code (Table 1). Generating a first dose patient list with date-of-service can be a useful tool for targeted provider engagement. This analysis will likely need to be undertaken on a retrospective basis when using claims data due to claims adjudication lag. While claims-based data may not facilitate identification of patients approaching their dose interval deadline, claims-based data will inform vaccination patterns. With this metric health care systems can observe the vaccine that is being administered, the providers administering the vaccine, and vaccine response from those administered.

### **3. Vaccinated population, received both required doses**

This metric demonstrates the percent of the population considered fully vaccinated. This will be the population with an administration code or NDC for dose one and a follow up, second dose, at the appropriate dosing interval of either 21 or 28 days (Table 1). The vaccine type must match for both doses. Identifying this population has several implications. Fully vaccinated individuals will be crucial to reopening the industry and economy and easing burdens within health care systems. These individuals can be tracked long-term for Covid-19 diagnoses (or lack thereof) compared to non-vaccinated populations. Additionally, these vaccinated individuals can be excluded from provider chase lists. The inverse of this metric, patients who did not receive their follow up dose or had incorrect dosing, informs providers and health systems of their non-compliant population that will need to be managed further.

For each of these metrics, the ability to create a drill-down rendering of provider and place of service may be a good place to start for identifying populations with lower or higher rates of compliance (depending on distribution setting). Additionally, breaking out a report by attributed primary providers and practices can help inform panel engagement and can highlight cohorts to better educate and engage with in relation to the Covid-19 vaccine. Other important considerations include place of service and Covid-19 risk level identifiers such as age.

Flagging patients with the highest risks related to Covid-19 can help to develop a patient chase list. Part of this process may include identifying risk factors for vaccine priority such as age, Hierarchical Condition Category (HCC) or the Centers for Medicare and Medicaid Services (CMS) risk scores, chronic conditions, high inpatient/outpatient utilization patterns and high gross individual spend. Similarly, identifying patients by Covid-19 risk can help to prioritize patients for vaccination as subsequent phases of vaccine distribution occur.

**Table 1: Covid-19 Vaccine Administration Codes**

	VACCINE CODE	VACCINE CODE DESCRIPTOR	VACCINE ADMINISTRATION CODE	NDC CODE	DOSING INTERVAL
<b>Pfizer-BioNTech Covid-19 Vaccine</b>	91300	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV - 2) (Coronavirus disease [Covid-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30mcg/0.3mL dosage, diluent reconstituted, for intramuscular use	001A (1st Dose) 0021 (2nd Dose)	59267 - 1000 - 1 (1st dose) 59267 - 1000 - 01 (2nd dose)	21 days
<b>Moderna Covid-19 Vaccine</b>	91301	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV - 2) (Coronavirus disease [Covid-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30mcg/0.3mL dosage, diluent reconstituted, for intramuscular use	0011A (1st Dose) 0012A (2nd Dose)	80777 - 273 -10 (1st dose) 80777 - 0273 - 10 (2nd dose)	28 days

As vaccine production continues and the vaccine becomes more widely available for public use, aggregated claims-based data will inform short-term and long-term implications of the Covid-19 vaccine and its effect throughout a population. Like the influenza and HPV vaccines, Covid-19 vaccines could be an important component to the future of quality reporting. Establishing in-depth reporting from the beginning of vaccine rollout will give health care systems the early ability to operationalize vaccine administration complications and/or successes. Understanding these early phases of the Covid-19 vaccine will help to identify distribution patterns and target cohorts within a population that may need more engagement or support. The more data and information available to health systems and populations, the better equipped they will be to navigate future potential challenges.

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*Analytics for Risk Contracting (ARC) is a SAAS platform that enables health care providers and payers to determine total cost of care and understand the net financial effect of specific care improvement, population health management and other quality and cost initiatives. ARC aggregates data from numerous sources across the continuum of care and populations, including claims, pharmaceutical, provider financials, and social determinants of health (SDOH) to identify problems or variations within populations, service lines, clinicians or locations.*

## Footnotes

<sup>1</sup> <https://www.pfizer.com/health/coronavirus/updates>

<sup>2</sup> [https://www.modernatx.com/sites/default/files/content\\_documents/mRNA-1273-Update-11-16-20-Final.pdf](https://www.modernatx.com/sites/default/files/content_documents/mRNA-1273-Update-11-16-20-Final.pdf)

<sup>3</sup> <https://www.kff.org/report-section/distributing-a-covid-19-vaccine-across-the-u-s-a-look-at-key-issues-issue-brief/>

<sup>4</sup> <https://www.cdc.gov/mmwr/volumes/69/wr/mm6949e1.htm>

<sup>5</sup> <https://www.cdc.gov/vaccines/covid-19/vaccination-provider-support.html>

<sup>6</sup> <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations-process.html>

<sup>7</sup> <https://www2.cdc.gov/vaccines/ed/covid19/SHVA/30060.asp>