MASSACHUSETTS
HEALTH POLICY COMMISSION

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HPC DATAPOINTS

Not throwing away my shot: Shifts in where people get flu vaccines in Massachusetts

INTRODUCTION

Flu (influenza) vaccines have been found to reduce severity of illness and the risk of flu-associated hospitalization and are widely considered to be an important preventive care service. The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommends that individuals aged 6 months and older should receive a flu vaccine every season. Massachusetts has a higher flu vaccination rate than the national average: during the 2022-2023 influenza season, 64.9% of individuals aged 6 months and older in Massachusetts received a flu vaccine, compared to 49.3% of individuals nationally. The flu vaccination rate in Massachusetts has also increased over time: during the 2010-2011 flu season, only 52% of individuals aged 6 months or older in Massachusetts received a flu vaccine.

Flu vaccines may be administered in a variety of settings, including doctors' offices, hospital outpatient departments (HOPDs), pharmacies and retail clinics, and mass immunization centers. Mass immunization centers include pop-up vaccination sites (e.g., stadiums, convention centers, parking lots, etc.), and may also include existing community-based sites. Importantly, different settings of vaccine administration may have different spending and access implications. Under the Affordable Care Act, for commercially-insured individuals, health insurance plans must provide coverage for vaccines recommended by ACIP without cost-sharing. However, since prices for vaccines are not regulated, health plan payments for vaccines vary by provider. In terms of access, while tools are available to help individuals find vaccine sites, factors such as appointment availability, provider hours, and a site's vaccine supply may affect an individual's ability to receive a vaccine at that location.

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This issue of the HPC's DataPoints series explores where commercially-insured residents in Massachusetts received flu vaccines between 2017 and 2021, and aims to increase understanding of differences in access and spending related to cost of flu vaccines among commercially-insured residents across the Commonwealth. This is a printable version of DataPoints. The online version features interactive graphics that show additional information, and is available on the HPC's website.

FLU VACCINES AMONG COMMERCIALLY-INSURED RESIDENTS

Using medical and pharmacy data from the Center for Health Information and Analysis' Massachusetts All-Payer Claims Database (APCD), the HPC examined the setting of administration and cost (spending) for commercially-insured Massachusetts residents who got a flu vaccine between 2017 and 2021.[1] One important limitation of this analysis is that it only captures vaccines that were billed to insurance. The analysis excludes instances where individuals with commercial insurance may have received flu vaccines covered by other sources, such as work, school, or the state's vaccine program for children.

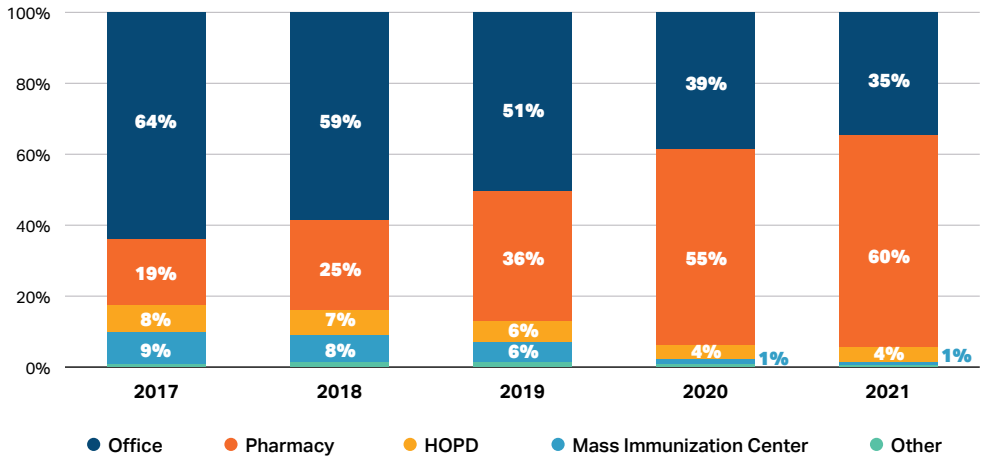
FLU VACCINES BY SETTING

In 2017, 64% of flu vaccines among commercially-insured residents were administered in doctor's offices ("offices"), 19% were administered in pharmacies, and the remainder were administered in other sites of care, such as HOPDs, mass immunization centers, and other sites of care. However, between 2017 and 2021, flu vaccines among commercially-insured residents shifted significantly from offices to pharmacies. In 2021, 35% of flu vaccines were administered in offices, 60% were administered in pharmacies, and the remainder were administered in other sites of care.

Between **2017 and 2021,** flu vaccines among commercially-insured residents shifted significantly from offices to pharmacies.

Although the HPC's analysis is limited to commercially-insured individuals with an insurance claim for the vaccine, these trends are similar to all-payer trends. Research from the CDC shows that during the 2017-2018 flu season, 24.1% of adults in Massachusetts with flu vaccines received their shot in a pharmacy. By the 2020-2021 flu season, 42.1% of adults in Massachusetts with flu vaccines got the vaccine in a pharmacy.

Percent of flu vaccines among commercially-insured Massachusetts residents by setting of administration, 2017 to 2021

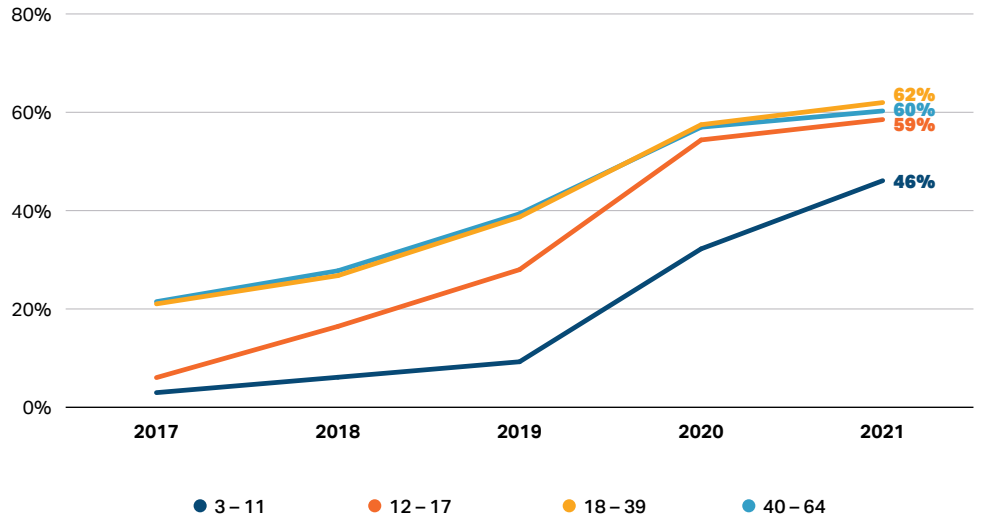


FLU VACCINES BY AGE

While the shift from offices to pharmacies was dramatic among all age groups, the change was largest among children and adolescents. Between 2017 and 2021, the share of commercially-insured children aged 12 to 17 who received their flu vaccine in a pharmacy increased 52 percentage points, from 6% to 59%. For children aged 3 to 11, the share who received their flu vaccine in a pharmacy increased 43 percentage points, from 3% to 46%, with most of the increase occurring between 2019 and 2021.

While the shift from offices to pharmacies was dramatic among all age groups, the change was **largest** among children and adolescents.

Percent of flu vaccines among commercially-insured Massachusetts residents provided in pharmacies by age group, 2017 to 2021



The shift to pharmacies likely reflects a number of factors. As the COVID-19 pandemic began to cause disruption in office-based services and HOPDs and there was an increase patient hesitancy to seek care in medical settings, pharmacies may have emerged for many patients as an alternative site of care. Indeed, the largest jumps in pharmacies' share of vaccine administration sites for all age groups were between 2019 and 2020.

Pharmacies offer **advantages** in access compared to traditional sites of care, such as evening and weekend hours or easier booking systems.

Changes in pharmacists' authorization to administer vaccines to children has also likely played a major role.[2] In 2017, the Massachusetts Department of Public Health (DPH) authorized pharmacists and pharmacy interns in Massachusetts to administer flu (and other) vaccines to individuals 9 years of age and older[3], lowering the eligible age from 18.[4] Beginning in 2020 during the COVID-19 public health emergency, and in accordance with the Public Readiness and Emergency Preparedness (PREP) Act, qualified pharmacy personnel were authorized to administer flu vaccines (and others, including COVID-19) to individuals 3 years of age or older.[5] As of spring 2023, DPH authorizes qualified pharmacy personnel to administer flu vaccines (and others, including COVID-19) to individuals 5 years of age or older.[6] Other earlier changes enabling pharmacies as a site of care for vaccine administration may have contributed to increases in pharmacies' popularity among older age groups.

Pharmacies offer advantages in access compared to traditional sites of care. For example, pharmacies often have evening and weekend hours. Many pharmacies can also administer vaccines to patients without an appointment and may have easier booking systems for patients who need or wish to make an appointment. For many residents, pharmacies may be located closer to them or be more easily accessible by public transportation than physician offices or other settings.

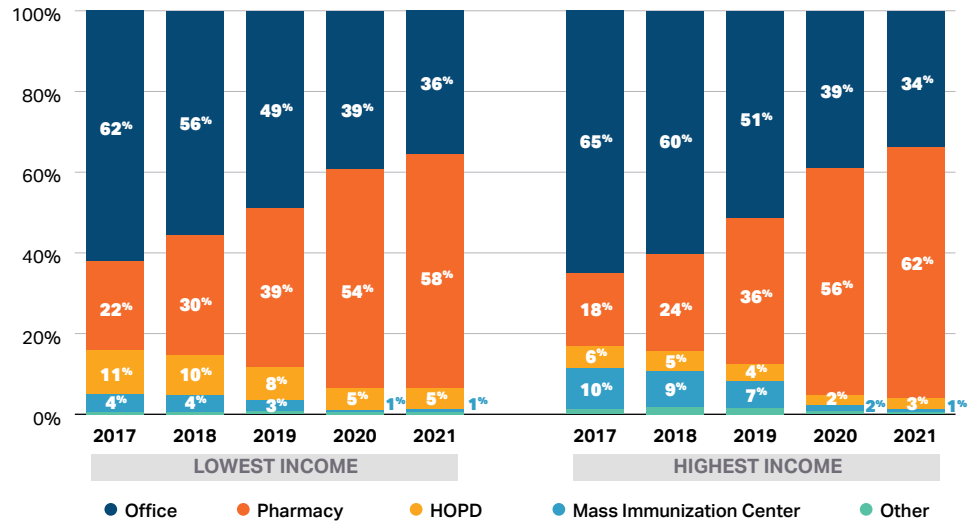
FLU VACCINES BY COMMUNITY INCOME

The percentage of Massachusetts residents who get an annual flu vaccine varies by household income, race, and ethnicity. In 2021, 51% of those with an annual household income less than $50,000 reported receiving a flu shot or spray in the past 12 months compared to 61% among residents with household income greater than $50,000. Vaccination rates also vary by race and ethnicity. For the 2022-2023 flu season, 62% of Black residents, 57% of Hispanic residents, 67% of White residents, and 63% of residents of other or multiple races in Massachusetts received a flu vaccine (data source is not directly comparable with previous source by income). In addition, a national survey found that flu vaccination rates were consistently lower in adults with disabilities compared to those without disabilities.

Yet, at least among commercially-insured residents who got a flu vaccine, the vaccine administration settings did not vary significantly by income. In 2017, the share of residents in the state's lowest income decile who received their shot in pharmacies was slightly higher than in the highest income decile (22% versus 18%). The share of vaccines administered in pharmacies grew faster in the highest income areas, and by 2021, the share was slightly higher in the highest income areas compared to the lowest income areas (62% versus 58%).

By 2021, the share of vaccines administered in pharmacies was **slightly higher** in the highest income areas compared to the lowest income areas.

Percent of flu vaccines among commercially-insured Massachusetts residents by setting of administration and community income decile, 2017 to 2021



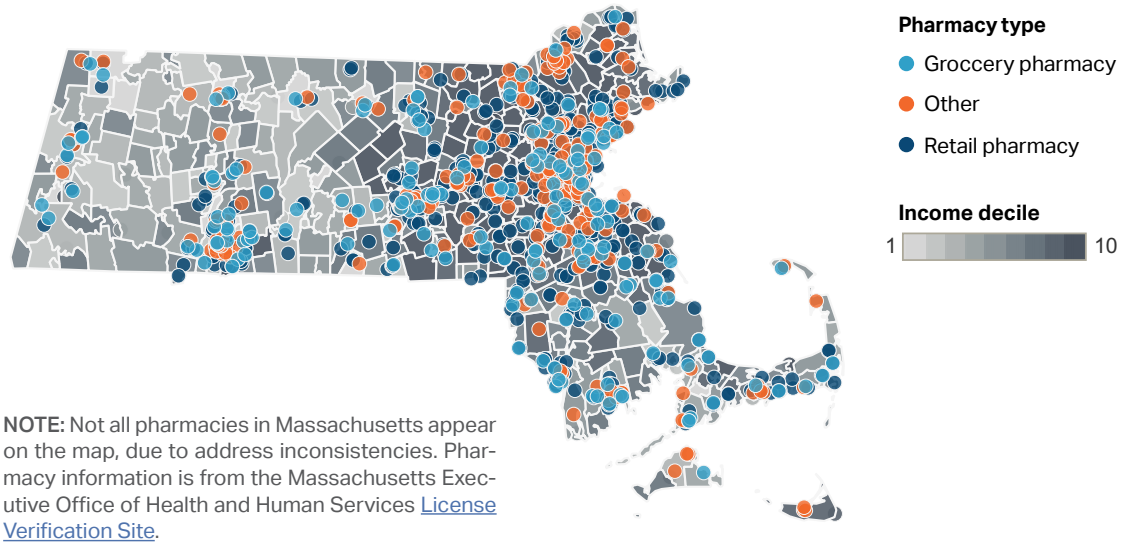
Areas with lower community income are **less likely** to have a pharmacy within the bounds of their zip code.

PHARMACIES ACROSS MASSACHUSETTS

Given the rise of pharmacies as a setting of vaccine administration that has the potential to increase vaccine access and vaccination rates, the HPC analyzed the distribution and characteristics of pharmacies across Massachusetts. As of September 2023, there are approximately 1,100 pharmacies with retail drug store permits in Massachusetts. Based on the organization name, approximately 57% of these pharmacies are retail chain pharmacies (e.g., CVS, Walgreens, Rite Aid) and 16% are pharmacies associated with grocery stores (e.g., Stop & Shop, Big Y, Walmart, etc.). The remaining 26% of permitted pharmacies are independent, associated with a provider group, or have another ownership structure.

Geographic access to pharmacies varies by region and community income in Massachusetts. While pharmacies are largely clustered around population centers, areas with lower community income are less likely to have a pharmacy of any type within the bounds of their zip code. Among zip codes outside the largest metro areas (Boston, Springfield, and Worcester), 42% of zip codes with community incomes in the lower five income deciles did not have a pharmacy within their bounds, compared to 33% with community income in the upper five income deciles. In addition, the average distance to the nearest pharmacy in zip codes outside of the largest metro areas was notably longer (2.2 miles), compared to those zip codes within metro areas (0.35 miles). This may contribute to potential access issues for residents who need to travel a longer distance to their nearest pharmacy than residents in other areas of the Commonwealth.

Pharmacies by type (2023) and zip code income decile (2021) in Massachusetts



NOTE: Not all pharmacies in Massachusetts appear on the map, due to address inconsistencies. Pharmacy information is from the Massachusetts Executive Office of Health and Human Services License Verification Site.

A higher proportion of non-White populations in a zip code was associated with **fewer** pharmacies, when controlling for other factors.

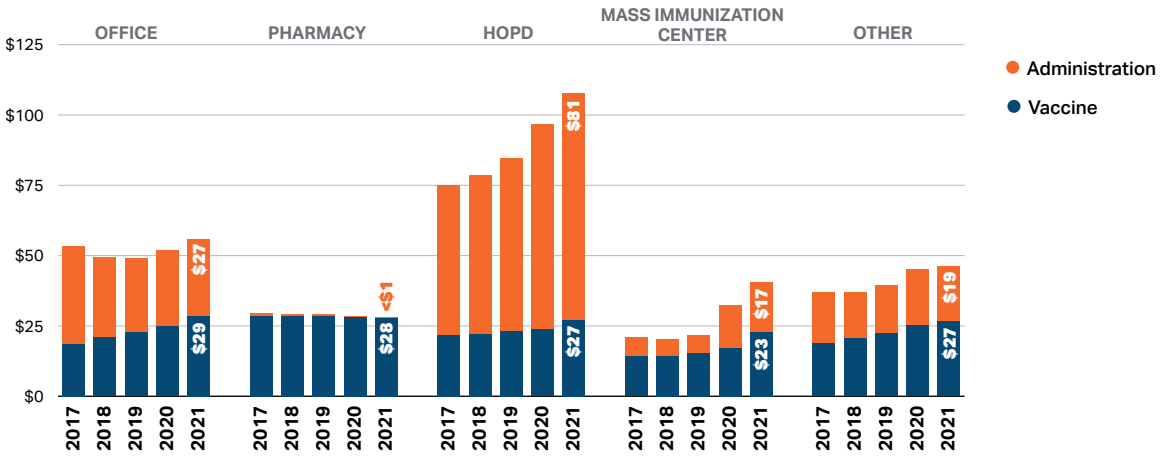
Access to pharmacies may also differ by race and ethnicity. A national study found that, among major cities examined, there were fewer pharmacies in Black and Hispanic/Latino neighborhoods compared to White or diverse neighborhoods. This study also found that Black and Hispanic/Latino neighborhoods were more likely to be pharmacy deserts, with Boston being among the cities with the most pronounced disparities. HPC analysis also found that a higher proportion of non-White populations in a zip code was associated with fewer pharmacies, when controlling for other factors.

AVERAGE COMMERCIAL PRICES FOR FLU VACCINES

In medical settings (i.e., HOPD, physician office), flu vaccines are often billed for two components: a payment for the vaccine itself and a payment to administer the vaccine. While the average commercial price for the vaccine itself is generally similar across settings and has remained relatively stable over time, administration costs differ widely across settings and result in substantial differences in the

total price paid for a patient receiving a flu shot. In 2021, the average total price for a flu vaccine in a HOPD ($108) was almost double the price at an office ($56), and the total price in an office was double the price at a pharmacy ($28).

Average price of flu vaccines among commercially-insured Massachusetts residents by component of price and setting of administration, 2017 to 2021



NOTE: In contrast to medical settings, pharmacies generally bill a single total price for the vaccine itself and the administration.

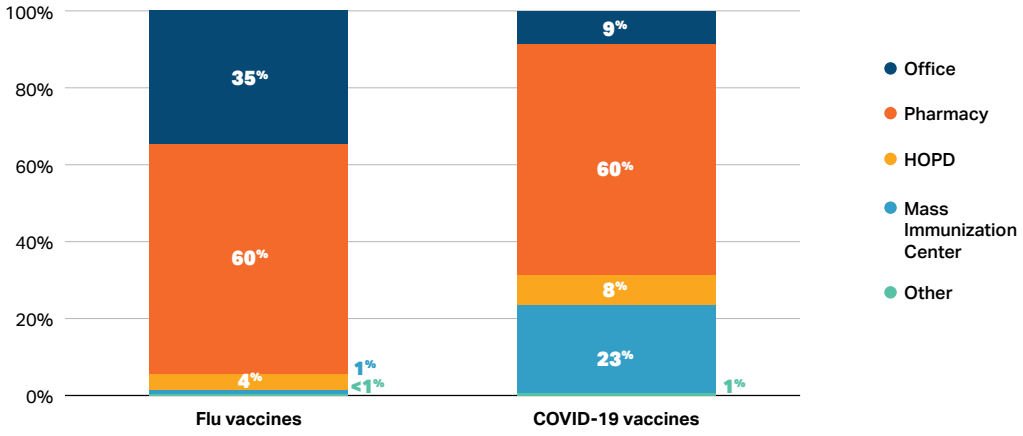
The price for a flu vaccine in a HOPD was **double** the price at an office, and the total price in an office was **double** the price at a pharmacy.

PHARMACIES AS A SETTING OF COVID-19 VACCINE ADMINISTRATION

In addition to flu vaccines, pharmacies may also provide vaccinations against other conditions, including COVID-19, shingles, pneumonia, and other communicable diseases. Pharmacies were an important site for COVID-19 vaccine administration starting at the end of 2020 and into 2021. In Massachusetts, COVID-19 vaccines were administered using a phased approach. Between December 2020 and April 2021, defined priority groups became eligible for vaccination. On April 19th, 2021, all individuals aged 12+ became eligible, followed by children aged 5 to 11 on November 3rd, 2021. During the public health emergency, pharmacists were authorized to administer COVID-19 vaccines to children once the vaccines were recommended for that age group by the ACIP.

Among commercially-insured residents, 60% of COVID-19 vaccines were provided in pharmacies in 2021 — a similar share to the percent of flu vaccines were provided in pharmacies in 2021. However, more COVID-19 vaccines were provided in mass immunization centers (23%) than flu vaccines (1%), and fewer COVID-19 vaccines were administered in offices (9%) than flu vaccines (35%). The HPC will continue to analyze trends in COVID-19 vaccines as more recent data becomes available.

Percent of flu and COVID-19 vaccines among commercially-insured Massachusetts residents by setting of administration, 2021



Among commercially-insured residents, **60%** of COVID-19 vaccines were provided in pharmacies in **2021.**

The Massachusetts Health Policy Commission (HPC) is an independent state agency charged with monitoring health care spending growth in Massachusetts and providing data-driven policy recommendations regarding health care delivery and payment system reform. The HPC's mission is to advance a more transparent, accountable, and equitable health care system through its independent policy leadership and innovative investment programs.

HPC DataPoints is a series of online briefs that spotlight new research and data findings relevant to the HPC's mission to drive down the cost of health care. It showcases brief overviews and interactive graphics on relevant health policy topics. The analysis underlying these briefs is conducted by HPC staff. To view all HPC DataPoints, visit our website.

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CONCLUSION

By 2021, most flu vaccines among commercially-insured residents were administered in pharmacies (60%), followed by offices (35%) and other settings (6%). This represents a dramatic change from previous years where most were administered in offices. An increasing proportion of flu vaccines occurring in pharmacies was observed among commercially-insured residents of all age and community income groups, though particularly for children. In terms of spending, in 2021, the total price for a flu vaccine in a HOPD was double the price in other settings.

Expanded authorization for vaccine administration in pharmacies has expanded access to care and likely contributed to higher vaccination rates throughout the population However, many Massachusetts residents may not have ready access to a pharmacy, as locations vary by region, income, and race/ethnicity, among other factors. Improving equitable access to vaccines at pharmacies could help further increase vaccination rates.

Flu vaccination is an important prevention measure for ensuring the health of Massachusetts residents. While this DataPoints issue highlights trends in flu vaccination by setting among commercially-insured residents, additional study into trends among residents covered by other payers (i.e., MassHealth, Medicare) is warranted. This would help to develop a greater understanding of potential disparities in access between different populations to flu shots and other vaccines, such as COVID-19.

Endnotes

1 The population is commercially-insured Massachusetts residents aged 3 to 64 years of age with 12 months of medical and pharmacy coverage in that year. Vaccines and vaccine administrations were identified using Current Procedural Terminology (CPT) and National Drug Classification (NDC) codes. "Pharmacy" includes walk-in retail clinics. "Other" includes sites such as federal qualified health centers, urgent care facilities, and rural health clinics, among others. Where shown, COVID-19 vaccines include the primary series as well as booster doses. The HPC's APCD analytic files include data from six commercial payers in the state: Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Care, Mass General Brigham Health Plan (formerly AllWays and Neighborhood Health Plan), Health New England, and Anthem (including Unicare, a GIC offering).

2 Compared to commercially-insured children with an insurance claim for the vaccine, the pharmacy setting represents a smaller share of vaccine administration among all children in Massachusetts. However, the growth in pharmacy as a setting is notable among all children as well. According to CDC data, in the 2017-2018 flu season, 3% of Massachusetts children (6 months – 17 years) who received a flu vaccine received the vaccine in a pharmacy; this share grew to 14.3% by the 2020-2021 flu season. The Massachusetts DPH supplies flu vaccine with no cost for residents under 19 via provider offices and certain other sites. Pharmacies do not participate in this state program, although payers may still cover flu vaccines with no cost-sharing.

3 See 105 CMR 700.004(B)(6) as it appeared in the Massachusetts Register (2017-05-05; no. 1338). Available at: https://archives.lib.state.ma.us/handle/2452/684702.

4 See 105 CMR 700.004(B)(6) as it appeared in the Massachusetts Register (2011-09-02; no. 1190). Available at: https://archives.lib.state.ma.us/handle/2452/112593.

5 Massachusetts Department of Public Health Board of Registration in Pharmacy, Drug Control Program, Immunization Program. Policy 2020-11: Vaccine Administration (adopted 9/4/20; revised 10/1/21, 10/29/21). Available at: https://www.mass.gov/doc/2020-11-vaccine-administration-0/download. "Qualified pharmacy personnel" are defined as pharmacists, pharmacy interns, and qualified pharmacy technicians. See also https://www.federalregister.gov/documents/2020/08/24/2020-18542/third-amendment-to-declaration-under-the-public-readiness-and-emergency-preparedness-act-for-medical.

6 See 105 CMR 700.004(B)(6) (effective 2/3/23, corrected 3/3/23), https://www.mass.gov/doc/105-cmr-700-implementation-of-mgl-c94c/download; Massachusetts Department of Public Health, Board of Registration in Pharmacy, Drug Control Program, Immunization Program. Policy 2023-02: Vaccine Administration (adopted 5/4/23; revised 9/7/23). Available at: https://www.mass.gov/doc/2023-02-vaccine-administration-pdf/download.