



# COVID-19 Vaccination Rollout: Nova Scotia

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Coronavirus Variants Rapid Response Network (CoVaRR-Net) is a network of interdisciplinary researchers from institutions across the country created to assist in the Government of Canada's overall strategy to address the potential threat of emerging SARS-CoV-2 variants. Pillar 8 of CoVaRR-Net studies the impacts of Coronavirus variants on public health, our healthcare system, and on social policy, and reports these findings to decision-makers and government officials.

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## List of Acronyms and Abbreviations

ADM	Associate Deputy Minister
CMOH	Chief Medical Officer of Health
DHW	Department of Health and Wellness
IWK	Izaak Walton Killam Health Centre
LTC	Long-term care
NACI	National Advisory Council on Immunization
NSCN	Nova Scotia College of Nursing
NSHA	Nova Scotia Health Authority
PT	Provincial and territorial or province and territory

## Executive Summary

This report provides a high-level overview of actions taken in Nova Scotia to distribute and promote the uptake of the primary two-dose COVID-19 vaccination series in the first year of the vaccination rollout (December 2020 – December 2021). It identifies key strategies and activities and highlights initiatives that are otherwise unique to the province. Broken into six sections, this report details Nova Scotia's communications with the general public regarding COVID-19; actions to maintain and enhance health care personnel and infrastructure to support immunization activities; approaches taken for service delivery planning and patient pathways for vaccination clinics; activities taken to support inclusivity and equitable delivery of vaccines; governance of the vaccination rollout, and additional measures to encourage Nova Scotians to get vaccinated. The report also highlights provincial efforts to combat misinformation.

This review draws primarily on publicly available policy documents, news releases, and reports; these are complemented by mainstream media sources and unpublished materials provided by local experts. Thus, a detailed account of all activities taken during the province's COVID-19 vaccination campaign is beyond the scope of this report. In addition, given the complexity of health systems and rollout strategies, there may be some overlap in content across the sections in this report.

Nova Scotia's immunization strategy was to immunize 75% of the population by the end of September 2021. The province had a highly centralized vaccination campaign starting with its leadership structure. In keeping with the highly centralized approach, the province partnered with CANImmunize in late 2020 to develop a single province-wide vaccine booking system used by all clinic types (for example, pharmacy, drive-through, and doctor's offices). Although initially Nova Scotia's vaccination rate was among the lowest in Canada, by mid-June 2021 the province was leading in the delivery of first doses. As of November 6, 2021, 87% of Nova Scotia adults had received two doses compared to the national average of 85%.

*Please direct any questions, suggestions, or comments to the NAO at [naobservatory@utoronto.ca](mailto:naobservatory@utoronto.ca)*

# 1. Health Communication

This section describes how Nova Scotia has advised the general public regarding the availability of and eligibility for COVID-19 vaccines. Examples are also provided to highlight activities taken to increase equity, diversity, and inclusion (EDI), and to address mis- and dis-information.

## 1.1 Public Communications

Since the COVID-19 vaccine rollout began in December 2020, Nova Scotia has implemented a number of health communication strategies to disseminate COVID-19 vaccine-related information to its general public. The provincial government quickly became the lead authority providing consistent COVID-19 updates via their televised and webcasted press updates, dedicated COVID-19 webpages, and news releases on their website, media/outreach campaigns, and social media. Several organizations (such as the Nova Scotia Health Authority) and select individuals also played key roles in communicating vaccine-related information to the public.

Since the first media update on March 13, 2020, the provincial government has relied on news conferences—shared live via online webcasts and television—to provide detailed COVID-19 updates to the public (Nova Scotia Government, n.d.). Nova Scotia’s sitting Premier and Dr. Robert Strang, the Chief Medical Officer of Health (CMOH), jointly delivered every media update. Throughout the period December 2020 to October 2021, the premiership was occupied by three people: Stephen McNeil (January–February 2021), Iain Rankin (February–August 2021), and Tim Houston (August 2021–present) (ibid.). The province varied the frequency of its media updates, generally increasing at times of significant policy change (e.g., introduction of the Atlantic Bubble) or high case counts. During the early vaccine rollout (December 2020–January 2021), the province’s pressers increased from once a week to 2–3 times a week (ibid.). Prior to releasing their complete immunization plan on January 5, 2021, the CMOH and Premier provided preliminary details via news conferences and releases (Government of Nova Scotia, 2020d, 2020e; Nova Scotia Government, 2020b). On rare occasions, guest speakers participated in the pressers, such as Dr. Brendan Carr, former CEO of Nova Scotia Health Authority (NSHA) (Nova Scotia Government, 2021d). Notably, Tracey Barbrick, Associate Deputy Minister (ADM) of the COVID-19 rollout in Nova Scotia, was not one of those guests (Nova Scotia Government, n.d.). All news conferences to date have been delivered with an accompanying sign language interpreter and are archived on the provincial YouTube channel.

The Government of Nova Scotia also used several online tools to provide COVID-19 vaccine campaign updates. Their website included pages dedicated to their vaccination campaign: Approved vaccines, Getting the vaccine, Proof of vaccination, and Vaccine data (Nova Scotia, 2021b). These resources were updated periodically; e.g., in response to updates by the federal-level National Advisory Committee on Immunization (NACI)-recommended dosage interval. The COVID-19/Health and Wellness news release forum—launched February 28, 2020, on the provincial website—was another critical resource for timely COVID-19 updates. This forum included both general (e.g., daily case count updates) and vaccine-specific news (e.g., COVID-19 group eligibility expansion, immunization plan updates, upcoming mobile clinic locations), and was available in both French and English (Government of Nova Scotia, 2020a). Another key component of the provincial website was their COVID-19 data dashboard, launched on April 3, 2020 (Nova Scotia, 2020b). Over time, the components of the dashboard expanded to include “graphs and tables of COVID-19 data by location (health zone or network), age, gender, hospitalizations and number of tests and vaccine doses, updated Monday to Friday” (ibid.). The Department of Health and Wellness (DHW) also

used Twitter and Facebook accounts to deliver frequent COVID-19 updates, including vaccine-related news (Nova Scotia Department of Health and Wellness, n.d.-a, n.d.-b).

## 1.2 Increasing Equity, Diversity, and Inclusion and Addressing Mis/Dis-information

Nova Scotia’s government used targeted YouTube campaigns and COVID-19 frequently asked questions (FAQs) on the provincial website to tackle vaccine misinformation, hesitancy, and bolster vaccine uptake. From March–July 2021, the “Be Part of Our Way Forward” series on the provincial YouTube channel profiled a diverse group of Nova Scotians from a variety of cultural, racial, and religious backgrounds who received the COVID-19 vaccine (Nova Scotia Government, 2021a). Another series on the provincial YouTube channel called, “Know the Facts. Get the Vax.,” featured medical experts in public health, epidemiology, and immunology answering commonly asked questions about the vaccine in lay terms (Nova Scotia Government, n.d.). The COVID-19 vaccine FAQ document, released May 12, 2021, covered general health and safety, appointment booking, vaccine rollout, and clinic questions (Government of Nova Scotia, 2021u). A section of the vaccine FAQ was specifically tailored to members of African Nova Scotian and Indigenous communities (ibid.).

Several notable organizations and individuals outside of the provincial government played a role in communicating general vaccine information and reducing vaccine hesitancy to Nova Scotians. Angela Keenan, the provincial director for Occupational Health and Wellness, was one of eight national recipients of the 2020 Safety Leader of the Year award, thanks to her immense efforts to educate, engage, and support staff throughout the pandemic (Nova Scotia Health, 2021d). Some of these efforts were vaccine focused, including providing registration and booking support to staff and patients (ibid.). Similarly, Dr. Tiffany Richards, engaged with African Nova Scotians on social media to answer questions, ease hesitancy, and ensure her community had access to up-to-date COVID-19/vaccine information (Angus, 2021). The Archdiocese of Halifax-Yarmouth also engaged followers to quell vaccine concerns, releasing an article stating that “the COVID-19 vaccine is morally permissible according to Catholic teachings” (Salterio, n.d.). Other local groups and individuals have also been involved in vaccination communication; however, the inclusion of all parties is outside the scope of this report.

Throughout the vaccine rollout, the province actively engaged communities and considered inclusivity and cultural diversity a vital part of their communication efforts. Certain documents on the government’s website are available in multiple languages. For example, a document titled *COVID-19 vaccine: what you need to know* is available in 14 languages, including Arabic, Mi’kmaq, Simplified Chinese, Somali, and Spanish; the document provides information about the vaccine, how to get it, and the contact details for interpreter services (Government of Nova Scotia, n.d.-b). Interpretation services were available in over 125 languages for those booking a vaccination by phone and in over 240 languages for those wishing to speak to an interpreter during a vaccination appointment at a pharmacy or community clinic (Nova Scotia, 2020a).

To support an equitable rollout, the Vaccine Taskforce (described in more detail in Section 5) regularly communicated with partners representing Indigenous, African Nova Scotian, Muslim, adults with disabilities, and shelter communities (Public Policy Forum, 2021). In Phase 1 of its immunization plan, “the province engaged with First Nations and African Nova Scotian communities to understand the needs of the communities” (Nova Scotia, 2021f). Initially, the province launched numerous community-specific clinics and created an Indigenous consultant position at the NSHA (Nova Scotia, 2021c). Through this role, the consultant looked at new and existing healthcare programs through an Indigenous lens, and ensured

all resources were available in the Mi'kmaw language (Pottie, 2021). Later, the rollout's focus shifted to addressing vaccine concerns in Indigenous and African Nova Scotian communities by providing culturally tailored resources. For example, in June 2021, the Nova Scotia Association of Community Health Centres received \$292,800 from the federal Immunization Partnership Fund (IPF) to develop culturally relevant vaccination promotion resources for both community members and service providers (i.e., the “train the trainer” initiative) (Public Health Agency of Canada, 2021a). In addition, through the IPF, the DHW and their community-based partners received \$430,000 to “implement a culturally relevant education and outreach campaign to promote the benefits of COVID-19 vaccines to African Nova Scotians” (Public Health Agency of Canada, 2021b). For more details regarding vaccine access/removing barriers see Section 4.2.



## 2. Ensuring Sufficient Infrastructure and Workforce Capacity

This section considers the deployment of the health workforce involved in the administration of vaccines, including what is being done to maintain or enhance capacity, the initiatives to train, protect, or support workers, the prioritization of healthcare workers in the vaccination rollout, and vaccination requirements for healthcare workers.

### 2.1 Maintaining/Enhancing Workforce Capacity

At the peak of the vaccine rollout, healthcare workers in Nova Scotia delivered over 20,000 COVID-19 vaccinations a day. The province took numerous steps to boost and maintain its health workforce capacity during the COVID-19 vaccine rollout.

During the typical influenza season, public health staff, physicians, and pharmacists are the predominant providers of publicly funded vaccines (Government of Nova Scotia, 2019). In anticipation of the extra staffing required for COVID-19 vaccinations, the province released a care directive, effective December 14, 2020, granting additional healthcare workers from both acute care and public health the authority to administer COVID-19 vaccines: registered nurses, licensed practical nurses, advanced care paramedics, critical care paramedics, and graduate practical nurses (under the supervision of a registered nurse) (Nova Scotia Health & IWK Policy and Practice Committee, 2020). The province also approached workers from other organizations to further increase capacity. On January 22, 2021, the College of Physicians and Surgeons of Nova Scotia announced that “retired physicians within three years of practice may be eligible for a free Emergency License” to temporarily support COVID-19 immunizations in vaccine clinic settings (College of Physicians & Surgeons of Nova Scotia, 2021; Nova Scotia Government, 2021c). Similarly, on January 21, 2021, the Nova Scotia College of Nursing (NSCN) began granting time-limited emergency licenses to nurses who retired in the last ten years to aid with COVID-19 immunizations (Nova Scotia College of Nursing, 2021). In addition to these immunization-specific licenses, both the College of Physicians and Surgeons of Nova Scotia and the NSCN began offering care delivery emergency licenses for recently retired individuals in March 2020 (College of Physicians & Surgeons of Nova Scotia, 2020a, 2020b; Nova Scotia College of Nursing, 2021). No new NSCN emergency licenses were granted past April 12, 2021 (Nova Scotia College of Nursing, 2020). Finally, additional healthcare workers were recruited via the Canadian Armed Forces and the Red Cross to assist with the COVID-19 vaccine rollout (Rhodes, 2021).

The roles of physician and pharmacist immunizers expanded following agreements made between the DHW, Doctors Nova Scotia, and the Pharmacy Association of Nova Scotia in February 2021 (Nova Scotia, 2021e). Physicians would be paid the general practitioner rate of \$154.80 per hour, while pharmacists would be paid a special service fee of up to \$16.00 per COVID-19 vaccine administered (Government of Nova Scotia, 2021j; Nova Scotia Medical Services Insurance, 2021). The first vaccinations clinics in pharmacies and physician clinics opened March 20, 2021. By June 2021, military healthcare workers, who had already immunized 12,000 service personnel, were redeployed to the Halifax Convention Centre’s mass immunization clinic, which was later run by the Red Cross (Rhodes, 2021). Additional information regarding the role of healthcare workers in the distribution and administration of COVID-19 vaccines is provided in Section 3.2.

## 2.2 Prioritization of Health Care Workers in Vaccination Rollout

To help maintain the supply of frontline healthcare workers, Nova Scotia prioritized this group for vaccine eligibility during the early vaccine rollout. Healthcare workers with the highest risk of exposure or consequences associated with being exposed (e.g., those working directly with COVID-19 patients in acute care or in their homes, and long-term/residential care workers) were the first groups prioritized to receive COVID-19 vaccinations in December 2020 (Phase 0) and January 2021 (Phase 1) (Nova Scotia Health, 2020b). Non-frontline healthcare workers (e.g., dentists, pharmacists, etc.) were prioritized beginning in March 2021 (Government of Nova Scotia, 2021b). For additional details regarding the prioritization of COVID-19 vaccines see Section 3.3.

## 2.3 Vaccination Requirements for Health Care Workers

On September 29, 2021, the Nova Scotia government announced a vaccine mandate for certain healthcare workers. These workers included: those based at the NSHA and IWK Health Centre; workers in long-term care facilities (licensed and unlicensed) and home-care agencies (publicly and privately funded); workers in residential facilities and day programs funded by the Department of Community Services Disability Support Program and adult day programs funded by Department of Seniors and Long-Term Care; paramedics, LifeFlight nurses, and some other staff at Emergency Health Services; physicians and other service providers in the aforementioned areas (Nova Scotia, 2021i). Under this mandate, all healthcare workers needed to submit proof of full vaccination, or a medical exemption letter issued by a nurse practitioner or physician by November 30, 2021. Proof of a negative test was not an option for exemption. Those not fully vaccinated prior to the deadline, were required to participate in a mandatory education program (ibid.). Those still not fully vaccinated by November 30, were placed on unpaid administrative leave (Government of Nova Scotia, 2021ab); no additional government funding was provided to employers to cover the costs of administrative leaves related to vaccine status.

### 3. Principles Underlying Nova Scotia’s Vaccination Campaign

This section describes Nova Scotia’s plans for the COVID-19 vaccination rollout, the distribution and administration of the vaccines, and the prioritization of sub-populations.

#### 3.1 Planning Services

In anticipation of its inaugural vaccine shipment, the Government of Nova Scotia made their first public announcement on December 8, 2020, regarding its vaccination strategy for first three months of the rollout, later referred to as Phase 0 and 1 (Nova Scotia Government, 2020a). However, it was not until January 5, 2021, that the government released the official, three-phased immunization plan, in the form of a news release. According to the plan, Phase 1 (January–April 2021) and Phase 2 (May–summer 2021) would target “high-risk” populations while Phase 3 (late summer 2021) would target the general population, with the goal of fully vaccinating 75% of the entire population by the end of September 2021 (Nova Scotia Government, 2021b). For more information on prioritization see Section 3.3 and the summary table. The plan also highlighted its five proposed models of vaccine delivery: long-term care facilities (e.g., long-term care [LTC] homes, adult residential facilities, residential care homes), healthcare worker clinics, centralized community clinics, distributed provider clinics (pharmacies and physician offices), and outreach clinics (e.g., mobile units, First Nations clinics, African Nova Scotian clinics). The Nova Scotia government stated that their “immunization plan is a phased approach, following the NACI recommendations on vaccine rollout,” which was based on its Ethics, Equity, Feasibility, and Acceptability framework (Government of Nova Scotia, 2021p; Nova Scotia Health, 2021a); however, Nova Scotia did not follow all of the NACI recommendations. According to the CMOH, Dr. Strang, the province aimed to follow the NACI guidance, but there was room to “do our own thinking, our own work” and define priority groups in the local context (Nova Scotia Government, 2021b).

Public health staff from Nova Scotia’s two health authorities, the NSHA and IWK Health Centre, a major pediatric and obstetrics/gynecology hospital, appeared to be primarily responsible for supporting Nova Scotia’s vaccination campaign. From a logistical standpoint, public health staff oversaw vaccine distribution, monitored the cold chain (temperature-controlled vaccine supply chain), communicated with external stakeholders (e.g., the local police were notified of the date(s) and location of vaccination clinics in advance), designed and launched clinic prototypes, and ensured clinic needs were consistently met following launch (staffing, training, adequate internet access, security, etc.) (Nova Scotia Health, 2020a). Public health staff also played a crucial role as immunizers; they provided the majority of vaccinations at healthcare worker clinics, and outreach and mobile clinics. Finally, public health staff provided consults for individuals with contraindications, precautions, or in special populations. A full, detailed list of public health roles is available on the [NHS website](#).

In addition to their direct contributions to vaccine clinics, public health professionals also collaborated with a number of pre-existing specialist teams within the NSHA to provide recommendations on the vaccine rollout (Nova Scotia Health, 2021f). The Health Quality System and Performance team designed the Immunization Distribution Tool that recorded the number of doses allocated/distributed by zone, age group/priority group, distribution type (i.e., community clinic), and product type (i.e., manufacturer). Public health staff used this tool to forecast allocation/distribution needs in groups who were not yet eligible, and to identify real-time vaccine surpluses/shortages, allowing for clear re-allocation planning. Similarly, the Project Services and Performance Enhancement team worked with public health professionals to aid with prototype clinic design (ibid.). All vaccine clinic types—those serving healthcare

workers, LTC workers and residents, First Nations communities, African Nova Scotians, people with mobility problems, and general public community, in-home, etc.—underwent a pilot prior to official launch, wherein the proposed clinic flow and layout were stress tested, and public health staff interviewed clients following their immunizations to help suggest any future improvements (Government of Nova Scotia, 2021d, 2021v; Luck, 2021a). The Project Services and Performance Enhancement team used validated, simulated modelling to provide site-specific recommendations on clinic layout, access, and capacity considerations for over 15 key vaccination sites (i.e., several mass immunization clinics, early healthcare worker clinics). Model parameters (e.g., registration time, recovery time-post immunization) were based on over 100 hours of on-site data collection in January/February 2021 and data from CANImmunize repositories.

Outside of the NSHA, the DHW partnered with CANImmunize, an Ottawa-based technology company focused on immunization software, to develop a centralized system for online COVID-19 vaccine booking, screening, and electronic documentation in late 2020 (for more details see section 3.2). Members of the “vaccination information and technology team” were responsible for implementing public health decisions in CANImmunize (e.g., setting up clinics and doing day-to-day organization) (Public Health Ontario, 2021). Individuals who elected to book their vaccine by phone were connected to public health workers, who would input the necessary information into the CANImmunize system on their behalf (ibid.).

Nova Scotia’s government worked to ensure that their strategies were culturally appropriate and providers were culturally competent. All immunizers were required to complete the Pandemic Immunizer Education checklist, which included a 20-minute module on health equity (Nova Scotia Health, 2021b). Stakeholders representing traditionally underserved communities were members of the provincial Vaccine Taskforce, who met daily to discuss the vaccine rollout (Public Policy Forum, 2021). In the first month of the rollout, the DHW engaged with all 13 First Nations, as well as African Nova Scotian community members and organizations (e.g., the Association of Black Social Workers and the Health Association of African Canadians) to understand their communities’ needs in order to develop culturally safe vaccination clinics (Government of Nova Scotia, 2021x) (Public Policy Forum, 2021). Through these conversations, leaders determined the eligibility criteria for these community clinics should be adjusted to protect language and knowledge keepers, and to recognize that community members may experience disproportionate consequences during an infection due to the impacts of systemic racism (Government of Nova Scotia, 2021p). Accordingly, the initial eligible vaccine recipients were those aged 55 and older in these communities (for more details see Section 3.3). As the rollout progressed, government-based or government affiliated organizations (such as the Nova Scotia Association of Community Health Centres) received funding from the IPF to develop culturally relevant vaccine resources and outreach strategies (for more details on funding provided by the IPF see Section 1.2) (Public Health Agency of Canada, 2021a, 2021b). Another key element used to bolster vaccination endorsement within Indigenous and African Nova Scotian communities was to hold clinics in locations familiar to community members, using trusted immunization teams (Angus, 2021; Global News, 2021).

### 3.2 Distribution and Administration

As previously discussed in Section 2, the government expanded the authorized group of traditional providers of immunization—pharmacists, physicians, and public health workers—in December 2020, to meet the demand for a greater number of vaccine providers (Government of Nova Scotia, 2021d). Under this care directive, registered nurses, licensed practical nurses, advanced care paramedics, critical care

paramedics, midwives, graduate nurses, and graduate practical nurses (under the supervision of a registered nurse) from both primary care and public health sectors were empowered to administer vaccines. Alongside this care directive, recently retired nurses and physicians could apply for emergency licenses to aid in the vaccine rollout. When the provincial immunization plan was updated on February 4, 2021, it was announced it would employ five vaccine delivery models: LTC homes, healthcare worker clinic, community clinic (malls, arenas), provider clinic (pharmacy, physician) and outreach clinics (First Nations, African Nova Scotians, mobile). By mid-March 2021, all five vaccine delivery models were in use (Government of Nova Scotia, 2021d).

Different healthcare professionals were responsible for different vaccine delivery models. In LTC settings, existing staff or contracted health providers (i.e., pharmacists) administered the vaccines. Staff from NSHA or IWK immunized at healthcare worker clinics, while centralized community clinics (mass immunization clinics) were staffed by “an all-hands-on deck approach” (i.e., mix of NSHA, contracted, volunteer—Red Cross and Armed Forces—and other providers). Distributed provider clinics—pharmacies and doctor’s offices—provided immunizations through its existing network of pharmacists or physicians. Lastly, in outreach clinics, NSHA staff performed immunizations. To increase the speed of NSHA healthcare worker immunization, on February 4, 2021, NSHA authorized Occupational Health, Safety and Wellness healthcare professionals to administer vaccinations to NSHA employees (Nova Scotia Health, 2021c). For more details regarding efforts taken to increase the availability of physicians, pharmacists, and other healthcare workers, see Section 2. By early June 2021, the province used drive-throughs, mobile, and at-home vaccination clinic models to vaccinate hard-to-reach or vulnerable individuals across the province.

All COVID-19 vaccines administered in Nova Scotia—regardless of clinic model or health authority—were booked and electronically documented through one centralized digital tool, ClinicFlow, powered by CANImmunize. Unlike other provinces, such as Ontario, vaccination appointments only became available once vaccine shipments were confirmed, eliminating the need to cancel appointments if shipments were delayed or reduced (Doctors Nova Scotia, 2021c). The general population used the ClinicFlow website to book across all private (e.g., pharmacies, general practitioner’s offices) and public (community clinics) providers; contacting clinics (i.e., pharmacies) directly was not an option for the general public (Government of Nova Scotia, 2021g; Public Health Ontario, 2021). In contrast, patients from specific cohorts, for example healthcare workers, First Nations, LTC home residents and workers, were either contacted directly by public health workers or could reach out to their specific clinic to book an appointment (Millbrook Chief and Council, 2021). When an individual from a certain cohort contacted their local clinic, a public health worker booked the appointment on their behalf through the ClinicFlow “Admin console”; this same process was used for members of the general public wishing to book a vaccination by phone. Once individuals arrived at their appointment, greeters verified the appointment and checked in the patient via the ClinicFlow “Admin console”. Immunizers used the “Clinic Mode” console to document the vaccination process (e.g., when taking the patient through the consent steps or describing the possible adverse events following immunization). Following the appointment, patients’ vaccine receipts were saved to a unique ClinicFlow account, which they could access through a customized CANImmunize web portal. All individual ClinicFlow accounts (e.g., demographic information) were stored in a central repository, accessible to only those staff with authorization. This information was used in real time to analyze uptake by age, identify regions with low uptake, update the dashboard, and more. Every night, CANImmunize sent updated digital extracts to Panorama, the official repository for immunization records in Nova Scotia (Public Health Ontario, 2021).

The administration and distribution approach to the COVID-19 vaccination campaign differed in many ways from the typical immunization campaign in Nova Scotia. The influenza vaccine is available to everyone 6 months of age and older. There is no centralized booking system for influenza immunization: Nova Scotians seeking appointments contact the provider (pharmacies and doctors' offices) directly or simply walk-in. Consequently, influenza providers were responsible for uploading their latest immunization records to Panorama once a month; in contrast, the CANImmunize system would upload new immunization records to Panorama at the end of each day (Government of Nova Scotia, n.d.-c; Public Health Ontario, 2021). Historically, providers ordered influenza vaccines from the Nova Scotia BioDepot using a fax system (Government of Nova Scotia, n.d.-c). On September 25, 2021, the NSHA announced that the fax system would be replaced with a Shopify system for the upcoming 2021–2022 influenza season (ibid.). The Shopify system was first adopted in August 2021 to order COVID-19 vaccines. Both COVID-19 vaccines and influenza vaccines are largely administered in pharmacies, physician offices, and public health clinics, though COVID-19 vaccines were also administered in dedicated healthcare worker clinics, LTC homes, and other vaccination sites (Isenor et al., 2016).

### 3.3 Prioritization

Nova Scotia's two overarching goals of its phased vaccine rollout were "to prevent morbidity and mortality, and to prevent the collapse of COVID-19 response by protecting those deemed critical to maintaining the response" (Doctors Nova Scotia, 2021a). As a result, its rollout was based primarily on age, followed by risk factors (likelihood of exposure, consequence of exposure, ability to practice public health protocols) (ibid.). As described in the summary table below, Nova Scotia's phased rollout began on December 16, 2020 (Phase 0); however, the release of the provincial immunization plan and the official start of Phase 1 did not occur until early January 2021. Phase 1 (January–April 2021) and Phase 2 (May–summer 2021) focused on high-risk groups while Phase 3 (summer 2021) targeted the general population by age (Government of Nova Scotia, 2021a). The province always considered its Immunization Plan to be "flexible" and did not provide any concrete dates for the projected end of Phase 2 and start of Phase 3. On March 23, 2021, it announced they were on track to offer first doses to all Nova Scotians by the end of June (Government of Nova Scotia, 2021i). As mentioned in Section 3.1, the phased vaccine rollout strategy and selection of priority groups was based on guidance from the NACI; however, for the sake of speed of vaccination, Nova Scotia did not adopt all priority groups recommended by NACI (such as pregnant women, teachers, or those with underlying health conditions).

The NSHA consists of four geographic zones: Central (Halifax area, Eastern Shore and West Hants), Eastern (Cape Breton, Guysborough and Antigonish areas), Northern (Colchester-East Hants, Cumberland and Pictou areas) and Western (Annapolis Valley, South Shore and South West) (Nova Scotia Health, n.d.). Although Nova Scotia established 10 cold storage sites across all zones by the end of January 2021, when the first Pfizer shipment arrived on December 15, 2020, no ultra-cold freezers were available outside the Central zone (Chrisholm, 2020; Doctors Nova Scotia, 2021a; McPhee, 2021a). This freezer limitation, combined with the strict storage, handling, and transportation requirements of the Pfizer vaccine resulted in Phase 0 (first 9,550 doses) of the rollout being limited to frontline healthcare workers and LTC staff in the Central zone (Government of Nova Scotia, 2021a). By the beginning of Phase 1, ultra-low freezers were available in other provincial regions, so no further regions were prioritized. As the vaccine rollout progressed, vaccines were reallocated to ensure vaccination rates remained equal across the four health zones, according to Allison Bodnar, CEO of the Pharmacy Association of Nova Scotia (MacLean, 2021). Due

to the low case counts throughout the pandemic, there was no need to re-allocate vaccines to hotspot regions (Doctors Nova Scotia, 2021c).

Nova Scotia's three-phase vaccine rollout officially began on January 1, 2021. Phase 1 targeted those with the highest risk of being exposed (frontline healthcare workers, including paramedics and medical first responders), the highest consequence of exposure (residents/staff of congregate settings where the median age was older) and elderly Nova Scotians, beginning with those aged 80 and older. Individuals aged 55 and above in African Nova Scotian and First Nations communities were also prioritized. Initially, regional hospitals and LTC facilities were the only sites of vaccine administration; however, by the end of February, the first prototype community clinic (IWK Health Centre) and First Nations clinic (Millbrook First Nation) had launched. Prototype mobile, pharmacy, physician office, and African Nova Scotian clinics launched by the end of March (Government of Nova Scotia, 2021d). Phase 2 targeted remaining healthcare and allied health workers (doctors, nurses, and continuing care assistants who worked in community practice or provide care in the home, dentists, dental assistants, and dental hygienists; pharmacists, pharmacy assistants, and pharmacy technicians), residents/staff of other congregate settings and employees of certain higher-risk jobs (e.g., rotational workers, food-processing plants, front-line police officers) (Nova Scotia, 2021d). There was still an age-based approach within the priority groups of Phase 1 and 2. For example, frontline healthcare workers aged 60 and above were eligible before younger frontline healthcare workers (*ibid.*). Phase 3 targeted the general population, decreasing in increments of five-year periods.

Nova Scotia's vaccine rollout experienced several changes since its plans for vaccine distribution were announced. Initially, 50% of doses were reserved to ensure individuals would receive their second dose within the NACI-recommended 21–28-day period. As a result of this decision, the provincial vaccination rate was lower than the national average (Luck, 2021b). On March 3, 2021, NACI extended the dosing interval to a maximum of 16 weeks; however, Nova Scotia continued to follow the original dosing interval of three-four weeks until April 2, 2021—maintaining the reserved vaccine commitment until that time (McPhee, 2021b). By the end of April, Nova Scotia had the fastest growth in delivering first doses in the country (Government of Nova Scotia, 2021n). Another major change that occurred during the vaccine rollout were alterations in the priority groups for Phase 2. Frontline police officers, denturists, and dental assistants were added to Phase 2 priority groups mid-March, while rotational workers, long-haul truckers, and employees of large-food processing plants were removed. According to CMOH Dr. Strang, by removing these groups from the priority lists, they would get access to vaccines earlier through community clinics, rather than through logistically time-consuming specialized clinics (CBC News, 2021). Another major change was the earlier start of Phase 2, initially planned for May 2021. Phase 2 priority groups, such as all healthcare workers, became eligible to book vaccinations on March 2, 2021, while shelters, another Phase 2 priority, began vaccinations in early April 2021 (Grant, 2021a; Kaiser, 2021).

Further details regarding specific priority groups for COVID-19 vaccination in Nova Scotia are outlined below.

## Indigenous Populations

Indigenous adult populations living in the community were prioritized in Phase 1, initially focusing on Elders, and Knowledge and Language Keepers, and those aged 55 and above. The first prototype clinic launched on February 25, 2021, in Millbrook First Nation. By the end of April, two doses had been offered to all members of this priority group across all 13 First Nation communities in Nova Scotia (Government of

Nova Scotia, 2021). Following immunization of those 55 and above, Indigenous communities continued to be prioritized in the vaccine rollout. For example, an April 27–28 vaccination clinic was held in Millbrook First Nation for those 16 and older, on and off the reserve, one month before the general population aged 16 and above became eligible (Government of Nova Scotia, 2021r; Millbrook Health Centre, 2021). Indigenous adults who lived in Nova Scotia but were from communities outside of the province were also prioritized for vaccination through clinics offered at the Mi'kmaw Native Friendship Centre beginning in late April (Government of Nova Scotia, 2021p).

### Essential Workers

Nova Scotia prioritized non-medical essential workers in Phases 1 and 2 (Nova Scotia, 2021f). Workers in the Department of Community Services facilities (e.g., adult residential centres, regional rehabilitation centres, residential care facilities) were the only essential workers prioritized in Phase 1. In Phase 2, a larger group of essential workers were initially prioritized: workers in correctional facilities, shelters and temporary workers' quarters; workers involved in food security who cannot maintain social distancing protocols (e.g., large food-processing plant workers); frontline police officers; workers who consistently travel into and out of the province (e.g., truck drivers and rotational workers), excluding those travelling to and from New Brunswick. However, as previously discussed, truck drivers, rotational workers, and food-processing plant workers were removed from the prioritization list in early April 2021. In addition, it is unclear whether temporary foreign workers were also removed from the prioritization list, or whether they were prioritized as planned (Migrant Worker Rights Working Group, 2021; Xu, 2021). Other NACI-recommended essential workers, such as teachers and grocery store employees, were never included as priority groups (Canada, 2021; Government of Nova Scotia, 2021c). For information on the prioritization of medical essential workers, see Section 2.

### Congregate Living Settings

Residents of congregate settings were prioritized in Phases 1 and 2 of the vaccine rollout. Those living in LTCs in the Central zone were among the first individuals to receive the vaccine in the very beginning of Phase 1, in January 2021. In Phase 1, residents of LTC across all health zones continued to be the main focus, followed by those living in facilities under the Department of Community Services (adult residential centres, regional rehabilitation centres, residential care facilities). By the end of April, all LTC residents had been offered both doses (Government of Nova Scotia, 2021i). In Phase 2, residents living in correctional facilities, shelters, and temporary foreign work quarters were prioritized. NSHA mobile units began providing immunizations at shelters in early April 2021 (Kaiser, 2021); vaccinations in correctional facilities began on May 3, 2021 (Ouellet & Gilchrist, 2021).

### Populations at Risk of Severe Illness due to Medical and Other Factors

Nova Scotia did not follow NACI guidelines to prioritize individuals at risk of severe illness due to medical factors during Phases 1 and 2 of the vaccine rollout. For example, pregnant women or those with underlying health conditions were not included in priority groups (Pace, 2021; Stoodley, 2021). According to a COVID-19 FAQ released by the province, the rationale was that “making specific medical conditions or occupations a priority would result in a much slower building of population immunity and therefore, for the collective good of all Nova Scotians, we have chosen to follow an age-based approach to COVID vaccine eligibility” (Government of Nova Scotia, 2021h). However, individuals who are moderately to



severely immunocompromised were the first group eligible to receive the third dose (Government of Nova Scotia, 2021y).

### African Nova Scotians

Adult African Nova Scotians were prioritized in Phase 1 of Nova Scotia’s vaccine rollout strategy. In early January 2021, the province began engaging with African Nova Scotian community members to develop and fund culturally sensitive vaccine clinics. In late March, the first African Nova Scotian prototype clinic was launched in partnership with the Health Association of African Canadians and the Association of Black Social Workers (Government of Nova Scotia, 2021o; Nova Scotia, 2021f). Initially, eligible vaccine recipients began with those aged 55 and above (Government of Nova Scotia, 2021p). According to an FAQ released by the government, the initial eligible age was adjusted for this community to:

“recognize that African Nova Scotians have been impacted significantly by systemic racism, therefore communities are disproportionately affected by the social and economic factors that influence people’s health. Based on evidence from other jurisdictions, we know that Black communities often experience the adverse consequences of COVID-19—regardless of age” (ibid.)

#### Box 1. Booster Doses

On October 4, 2021, third doses became available for moderately to severely immunocompromised individuals (Government of Nova Scotia, 2021y). On October 25, 2021, third dose eligibility was expanded to include individuals living in LTC and other congregate settings. NACI expanded their third dose recommendations on October 29, 2021, to include healthcare workers who received their primary series less than 28 days apart, anyone aged 70 and above, and individuals who received one dose of Janssen or two doses of AstraZeneca. On November 5, the province announced they would adopt the new NACI recommendations, and begin offering third doses to eligible healthcare workers, followed by those 80 years of age and older at the end of November (Nova Scotia Government, 2021e). Third dose appointments are offered through ClinicFlow (ibid.).

### 3.4 Strategies to Increase Uptake

Nova Scotia employed numerous strategies to increase vaccine uptake. As previously mentioned, the expansion of the number of centralized community clinics (mass-immunization clinics), and provider clinics (pharmacies and doctor’s offices) greatly increased the number of vaccines able to be administered (Government of Nova Scotia, 2021i). Furthermore, the rollout of the AstraZeneca vaccine in March and April 2021 allowed middle-aged groups the option to be immunized far earlier than planned (Government of Nova Scotia, 2021f). For example, individuals aged 60–64 were eligible to receive the AstraZeneca vaccine on March 18, 2021, but only became eligible to receive the Pfizer or Moderna vaccine a month later, on April 19 (Government of Nova Scotia, 2021f, 2021m). As mentioned in Section 3.3, Nova Scotia initially reserved 50% of their vaccine supply to ensure that individuals received their second dose on time, regardless of shipping delays or shortages. As of April 2, the province stopped holding back second doses, allowing younger age-groups to become eligible sooner (DHBC1, n.d.). All these aforementioned factors, combined with the greater-than-anticipated vaccine supply enabled the final age bracket of Phase 3, those 12–19, to become eligible on May 27, 2021, a month earlier than initially forecasted (Government

of Nova Scotia, 2021r). As the rollout progressed into June, the province began transitioning to a more flexible vaccination approach: opening more clinics, extending the hours of operation in clinics on both weekdays and weekends, offering up to four vaccinations in a single appointment slot at drive-through clinics, and inviting individuals who received their first shot to move their second dose appointment forward (Nova Scotia, 2021h).

On May 12, 2021, Nova Scotia introduced its first vaccine incentive, the COVID-19 Sick Leave Program. Under this program, the provincial government covered the costs of up to four paid sick days, a maximum of \$160 per day, between May 10 and July 31, for those who could not work remotely (Nova Scotia, 2021g). The four sick days do not need to be taken consecutively and could be applied in the following circumstances: if feeling unwell, if time-off was needed to take a test or get vaccinated, if waiting for a test result, and if self-isolating (ibid.). On May 28, the province announced their 5-Phase re-opening strategy, which was tied to COVID-19 activity, hospitalizations, and vaccination rates. For example, the Phase 1 to Phase 2 transition required 60% of the population to have one dose (this was achieved on June 16, 2021), while the transition into the final phase required 75% of the entire population to have both doses (Government of Nova Scotia, 2021t). Initially, the final phase transition date was set for September 15, 2021 (Government of Nova Scotia, 2021w); however, as of September 14, only 72.7% of the entire population was fully vaccinated (Kaiser, 2021). Remaining steadfast in their decision, the province delayed the re-opening until the 75% vaccination target was achieved on October 4 (Government of Nova Scotia, 2021t).

Although vaccination rates were tied to the re-opening phases, fully vaccinated individuals were not exempt from masking, physical distancing, and other mandates. The only rules relaxed for fully vaccinated individuals were for self-isolation. As of June 30, 2021, fully vaccinated individuals travelling from a province or territory outside the Atlantic Bubble did not need to self-isolate, but were required to complete the [Safe Check-in Form](#). Travellers who were partially vaccinated could leave self-isolation after 7 days if they received two negative tests, while those who were unvaccinated had to self-isolate for 14 days (Government of Nova Scotia, 2021s). The same vaccination-based rules applied to those travelling from within the Atlantic Bubble; however, they did not need to complete the Safe Check-in Form if they had not travelled outside Atlantic Canada in the last 14 days (ibid.). Under some circumstances, individuals who were not fully vaccinated were eligible for modified self-isolation. For example, fish harvesters travelling from within Canada but outside the Atlantic Bubble only needed to self-isolate when not working; fish harvesters could stop self-isolating after 7 days if they received two negative tests (Office of the Chief Medical Officer of Health, 2021c). In contrast, rotational workers travelling from within Canada but outside the Atlantic Bubble had to fully self-isolate for the 7 days (Office of the Chief Medical Officer of Health, 2021b). Rotational workers and fish harvesters travelling within the Atlantic Bubble—and following the [Protocol for Atlantic Canada Travel](#)—did not need to self-isolate when returning to Nova Scotia, but needed to minimize close contact with other people for 14 days (Office of the Chief Medical Officer of Health, 2021a).

On September 8, 2021, Nova Scotia announced a COVID-19 Protocol for Proof of Full Vaccination effective October 4, 2021 (Government of Nova Scotia, 2021w). Under this mandate all individuals wishing to enter the following locations needed to provide a digital, card, or paper proof of full vaccination certificate and a government-issued photo identification: restaurants, liquor licensed establishments, casinos; fitness and recreation facilities; businesses and organizations offering indoor and outdoor recreation and leisure activities (e.g., climbing facilities, music lessons); indoor and outdoor sports practices, games,

competitions, and tournaments (participants and spectators), etc. As previously discussed in Section 2, on September 29, 2021, a vaccine mandate was announced for Nova Scotians in the healthcare and education sectors (Nova Scotia, 2021i). On October 4, 2021, the province expanded the mandate to include employees in provincial correctional services and the regulated child-care sector—a detailed list of the jobs covered in this mandate can be found on the Government of Nova Scotia [website](#). Under this mandate, employees must show proof of at least one dose by November 30, 2021, and must show proof of full vaccination 70 days after their first dose (Government of Nova Scotia, 2021z). Employees who do not report their vaccination status must complete a mandatory educational program. Employees without their first dose by November 30, 2021, will be placed on unpaid administrative leave (ibid.). Other federally employed workers, such as those operating Marine Atlantic ferries, also implemented vaccine mandates effective October 30 (Transport Canada, 2021).

In Nova Scotia, individuals are exempt from providing a proof of vaccination certificate if they have a medical condition that prevents them from getting vaccinated or they are a clinical trial participant for a COVID-19 vaccine that has not yet been approved by Health Canada or the World Health Organization (Nova Scotia, 2021j). Individuals with medical exemptions must request a Valid Medical Contraindication for COVID-19 Vaccination letter signed by a physician or nurse. In place of a vaccine passport, these individuals must present their signed letter along with a piece of identification (ibid.). Individuals participating in clinical trials do not need to request this exemption, instead they will be sent authorized exception letters from the DHW. In place of a vaccine passport, these individuals must present their authorized letter along with a piece of identification (ibid.).

## 4. Vaccines Insurance Coverage and Access

This section describes the entitlements and insurance coverage for vaccines, and approaches to increase access to vaccines and overcome barriers to access.

### 4.1 Entitlement and Coverage

All individuals residing in Nova Scotia are eligible to receive a free COVID-19 vaccine, regardless of residency status or medical insurance coverage (Nova Scotia, 2020a). There is no circumstance in which an individual must pay out-of-pocket to receive the vaccine (ibid.). Individuals who are not permanent residents or do not have a Nova Scotia Health Card can book an appointment by phoning the toll-free line 1-833-797-7772. Once the individual connects with a public health worker, only their name, email, and birthdate are needed to schedule an appointment (Fitting, 2021). Health cards from other provinces may also be used to book by phone. All eligible individuals (ages 5 and above as of November 24, 2021) can book a COVID-19 vaccination appointment as there is no minimum age of consent for immunizations in Nova Scotia. According to the province's Mature Minor Consent for COVID-19 Immunization document, "adolescents who are able to understand the benefits and the possible reactions of the COVID-19 vaccine and the risk of not getting immunized, can legally book an appointment and consent to receive or refuse immunizations. Parental/guardian consent is not required for mature minors"<sup>1</sup> (Government of Nova Scotia, 2021q).

### 4.2 Access

Nova Scotia made numerous efforts to support an accessible and equitable vaccine rollout; however, barriers still exist for vulnerable populations and those with poor internet/phone access. The convenience of the vaccine booking process is biased towards those with Nova Scotia Health Cards. A Nova Scotia Health Card is required to book through the ClinicFlow internet page; therefore, those without a provincial health card can only book by calling the toll-free number (Nova Scotia, 2020a). During the peak of the vaccine rollout between May and July 2021, callers were often placed on hold due to high call volume or would not be able to connect at all (ibid.). According to one report, by the time the caller was connected to the operator, the desired appointment times were booked, particularly in rural areas with limited availability (Fitting, 2021). Those requiring an interpreter faced even longer wait times. Once appointments were booked, individuals could still encounter barriers. At their appointment, non-permanent residents needed to provide a piece of government-issued identification (such as a driver's license or health card) from their home province, territory, or country to match the name and birthdate provided at the time of booking. In some circumstances, non-permanent residents may be asked for a supporting document proving their Nova Scotia address, such as a utility bill, letter from an occupant of the residence where one is staying in Nova Scotia to confirm their stay, proof of work in Nova Scotia, work permit, student identification card, letter showing proof of school enrollment in Nova Scotia, etc. (Government of Nova Scotia, n.d.-a). Individuals not aware of these documentation requirements in advance, might not be able to receive their COVID-19 vaccination.

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<sup>1</sup> Mature minors are defined as individuals under the age of 19 who, in the judgement of the immunization provider, are able to appreciate the purpose and circumstances of the immunization and the consequences of giving (or refusing) consent (Government of Nova Scotia, 2021q).

As mentioned in Section 3.2, all vaccine records are stored in ClinicFlow’s repository. After the appointment, individuals received an email from [noreply@canimmunize.ca](mailto:noreply@canimmunize.ca) with a link to their vaccine receipt; however, the link requires a Nova Scotia Health Card to open (Nova Scotia, 2021b). Unless the individual knew in advance to request a print-out of the vaccine record at the appointment—and had the English proficiency skills to do so—they needed to contact the same high-volume toll-free number to get access to their proof of vaccination receipt (Fitting, 2021; Nova Scotia, 2021b). Notably, the toll-free number is only accessible to those calling from a Canadian phone number within Canada, representing another potential barrier for temporary foreign workers or newcomers (Nova Scotia, 2021b). For more information on vaccine passports in languages other than English and French, see Section 6.

The province eventually offered in-home vaccinations for “people with significant health-related challenges who are not able to leave their homes to get the COVID-19 vaccine” in June 2021 (Nova Scotia, 2021b). Individuals wishing to use this service, first had to call 211 to confirm eligibility. Once confirmed, it took between 2–3 weeks for the Continuing Care team to call back and book an in-house appointment (ibid.).

As the vaccine rollout progressed, the province addressed some of these barriers. For example, the province opened drive-through vaccination clinics to reduce barriers for individuals with mobility or sensory issues (Government of Nova Scotia, 2021k). To decrease booking barriers, they increased the number of walk-in appointments at community clinics, pharmacy clinics, and touring outreach clinic across Nova Scotia (Nova Scotia, 2021b; Nova Scotia Health, 2021e). To further reduce barriers associated with booking or access to healthcare services, public health launched ten mobile vaccination units (Government of Nova Scotia, 2021e). These mobile units were largely responsible for delivering and administering vaccinations in isolated/hard-to-reach communities, shelters, correctional facilities, and LTC facilities (Grant, 2021b).

To further aid those with transportation barriers—such as temporary foreign workers who often only had access to transportation through their employer—the provincial government launched the Rural Rides project. This project offered an accessible ride service available to all individuals across the entire province. For \$5 roundtrip, the individual could book a ride to their COVID-19 vaccination clinic and back (RTA, 2020). However, it is important to note that the service must be booked at least 24 hours in advance and the website is only available in English (ibid.). Furthermore, the DHW partnered with the Immigrant Services Association of Nova Scotia and the Halifax Refugee Clinic to arrange a vaccine clinic for newcomers at the Newcomer Health Clinic in Halifax (Nova Scotia, 2021h). Aside from their role in the newcomer clinic, Immigrant Services Association of Nova Scotia workers have also been involved in reaching out to over 700 newcomers to help them book appointments, arrange transportation, and secure an on-site interpreter at the time of their appointment (MacIvor, 2021). For additional details regarding measures taken to enhance access to specific vulnerable populations and increase the speed of the vaccine rollout, see Section 3.4.

## 5. Governance and Authority

This section describes the governance of the COVID-19 vaccination rollout, including who is leading the vaccination rollout, the composition and role of advisory bodies, and the level of coordination of the Nova Scotia strategy across the province, and across actors.

Nova Scotia's collaborative effort between public health, government, health organizations, and advisory groups helped contribute to a smooth vaccination campaign. The strong partnership between the provincial government and the public health sector was established prior to the vaccine rollout. According to CMOH Dr. Strang, "the former Premier McNeil recognized the need to lean very heavily on the CMOH and public health expertise very early on" (CanCOVID, 2021). As result, Dr. Strang and his public health team became key pandemic decision makers, and Dr. Strang himself became the public health communication lead throughout the pandemic. In December 2020, Tracey Barbrick, the former Associate Deputy Minister (ADM) of Community Services, was selected to lead the COVID-19 vaccine rollout. Although Dr. Strang and his public health team continued to play a decision-making and communication role in the vaccine rollout, ultimately, ADM Barbrick and her team were responsible for the management of vaccine strategy, supply, delivery, and "getting people to the clinics" (Doctors Nova Scotia, 2021b). ADM Barbrick's vaccine task force was comprised of representatives from the Pharmacy Association of Nova Scotia, the NSHA, Doctors Nova Scotia, CANImmunize, LTC leadership, the Emergency Management Office, a consultancy firm, logistics specialists from the Canadian Armed Forces, and stakeholders representing traditionally underserved communities (Avery, 2021). The Taskforce did not specify the roles and responsibilities of these groups to the public. Both ADM Barbrick, Dr. Strang, and their respective teams, were advised by an 11-member vaccine expert panel, established in December 2020. The panel was co-chaired by Dr. Gaynor Watson-Creed, former Deputy Chief Medical Officer of Health and Dr. Shelly McNeil, senior medical director of COVID-19 Planning and Implementation at the NSHA (Government of Nova Scotia, 2020c). The co-chairs, supported by other experts in infectious disease, immunology, vaccinology, vaccine safety, allergy, and public health, provided science-based advice on issues such as prioritization and vaccine passport exemptions (Government of Nova Scotia, 2020c; Nova Scotia Government, 2020b). The panel was also responsible for providing vaccine-related guidance to healthcare professionals involved in the rollout (Doctors Nova Scotia, 2021b; Nova Scotia College of Pharmacists, 2021).

Other members of the vaccine expert panel included:

- Dr. Lisa Barrett, clinician scientist and viral immunologist, NSHA
- Dr. Maureen Carew, medical officer of health, LTC, and COVID-19 response, DHW
- Dr. Jeannette Comeau, paediatric infectious disease physician, IWK Health Centre
- Dr. Scott Halperin, paediatric infectious disease physician, IWK Health Centre
- Dr. Lynn Johnston, adult infectious diseases physician, NSHA
- Dr. Gina Lacuesta, allergy and clinical immunology physician, NSHA
- Dr. Joanne Langley, paediatric infectious diseases physician, IWK Health Centre
- Dr. Noni MacDonald, paediatric infectious diseases physician, IWK Health Centre
- Dr. Karina Top, paediatric infectious diseases physician, IWK Health Centre

Nova Scotia's COVID-19 vaccination strategy was characteristic of a highly centralized leadership approach (Snowdon, 2021). All key stakeholders—public health, health organizations (e.g., Doctors Nova Scotia, Pharmacy Association of Nova Scotia), government (e.g., Emergency Management Office), and advisory

bodies (e.g., logistics specialists, community partners) were represented in the Vaccine Taskforce, ensuring collaborative problem-solving, engagement in decision making, clear allocation of responsibilities, and stream-lined plans of action (Avery, 2021). This group met daily, guaranteeing timely decisions and a coordinated response to the fast-evolving pandemic situation (Public Policy Forum, 2021). As a result of this whole-of-government approach, the vaccine response was uniform across the province, throughout the entire vaccine rollout (CanCOVID, 2021).

## 6. Measures in Other Sectors

Many measures in other sectors beyond the immediate scope of the health system are being taken to encourage individuals to get vaccinated. This section contains information on some of these measures, including in educational (kindergarten - grade 12 [K-12] and university) settings and workplaces.

The provincial government has also made efforts to boost vaccination rates in the education sector. The Nova Scotia Department of Education and Early Childhood Development developed a kindergarten–grade 12 Back to School plan for the 2021–2022 school year that encouraged all eligible staff and students to be fully vaccinated (Nova Scotia Department of Education and Early Childhood Development, n.d.-a). On October 4, 2021, Nova Scotia implemented a proof of vaccination protocol for non-essential services and activities. As part of this protocol, middle school and high school students eligible for vaccination are required to show proof of one dose to participate in school-related extracurriculars and other activities that occur outside of the regular school day (including indoor/outdoor sports)—proof of two doses is required as of November 9, 2021 (Nova Scotia Department of Education and Early Childhood Development, n.d.-b). To further increase vaccination rates, the province included public school teachers, pre-primary and other school-based staff, regional and board office staff, and those providing services in schools (e.g., cafeteria and school bus services), in their vaccine mandate announced on September 28, 2021 (Nova Scotia, 2021i).

The provincial proof of vaccination policy does not apply to post-secondary institutions except when hosting events or activities that involve the general public (Nova Scotia, 2021a). Despite this, the following post-secondary institutions implemented proof of vaccination requirements for students, staff and faculty effective mid-October 2021: Atlantic School of Theology, Cape Breton University, Dalhousie University, Mount Saint Vincent University, Nova Scotia College of Art and Design University, Nova Scotia Community College, Saint Mary's University, Université Sainte-Anne and University of King's College (Atlantic School of Theology, 2021; Cape Breton University, 2021; Dalhousie University, 2021; Mount Saint Vincent University, 2021; Nova Scotia College of Art and Design (NSCAD), 2021; Nova Scotia Community College, 2021; Saint Mary's University, 2021a; Université Sainte-Anne, 2021; University of King's College, 2021). Notably, Acadia University and Saint Francis Xavier University did not mandate proof of vaccination (Acadia University, 2021; StFX University, 2021). To aid students in meeting vaccination requirements, some universities, such as St. Mary's, held multiple vaccination clinics on campus (Saint Mary's University, 2021b)

On November 19, 2021, Health Canada authorized the use of the Pfizer vaccine in children aged 5–11 (Health Canada, 2020). On November 26, 2021, vaccination booking opened for this age group on the ClinicFlow website; the first pediatric doses were administered on December 2, 2021 (Government of Nova Scotia, 2021aa). Although no prioritization occurred within the 5–11 age group, pediatric vaccine administration was prioritized over third dose delivery (Nova Scotia Government, 2021e) The majority of pediatric COVID-19 vaccines will be delivered through pharmacies and the IWK Health Centre (Government of Nova Scotia, 2021aa). Unlike other provinces who began receiving and administering pediatric COVID-19 vaccines in late November 2021, Nova Scotia decided to delay shipments until December 2021 (Nova Scotia Government, 2021f). According to Dr. Strang, this shipment lag was intentional, as the province has requested that the manufacturer repackage bulk shipments into smaller ones, so vaccines can be shipped directly to pharmacies rather than central warehouses (ibid.).



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## Tables

**Table 1.** Summary of Vaccine Eligibility, by Priority Group

Priority Group	Eligible phase of vaccine rollout	Date eligible/ Scheduling opened	Other notes
<b>Vaccines first available</b>	Phase 0	Dec 16	All of Phase 0 (December 2020) confined to the Central zone. First shipment of doses given to frontline healthcare worker in the Central zone
<b>Common priority groups</b>			
Residents of LTC	Phase 1	Jan 2021	Began with three largest LTC facilities in the province (all in the Central zone) using the Moderna vaccine
LTC staff	Phase 0/1	Dec 2020 - Jan 2021	<b>Dec 16:</b> first healthcare worker clinic (Central zone) <b>Jan 11:</b> first healthcare worker clinic (Other zones)
Frontline health care workers	Phase 0/1	Dec 2020 - Jan 2021	Starting with those who work in COVID-19 units, emergency departments, critical care units, birth units, regional care units. <b>Dec 16:</b> first healthcare worker clinic (Central zone) <b>Jan 11:</b> first healthcare worker clinic (Other zones)
Residents and staff of other congregate living facilities (e.g., shelters)	Phase 1/2	Apr–June 2021	Early April: shelters in the Halifax area
Adult residents of remote or isolated communities	N/A	N/A	Were not prioritized in the rollout
Adults in First Nations, Métis, and Inuit populations	Phase 1	Feb-March 2021	<b>Feb 25:</b> prototype First Nations clinic launched in Millbrook First Nation for those aged 55+ living in the community. <b>March:</b> First Nations clinics were held in the remaining 12 communities.
Agri-food production workers	Phase 2	N/A	Removed as a priority group
People living or working in hotspot communities	N/A	N/A	Were not prioritized in the rollout
Diagnosis of high-risk medical condition(s)	N/A	N/A	Were not prioritized in the rollout
<b>Age-based eligibility (based on age in 2021)</b>			
Children, <12 years	Phase 3	Nov 2021	<b>Nov 26:</b> ages 5–11, pharmacies, IWK Health Centre, Pfizer Comirnaty vaccine only. <i>Note that as of Nov 2021, the vaccine is not available to children under 5 years.</i>
Youth, 12–17 years	Phase 3	May 2021	<b>May 27:</b> ages 12+, community or pharmacy clinics, Pfizer reserved for those 12–17, Moderna for 18+

Young adults	Phase 3	May 2021	<b>May 20:</b> ages 25+, community or pharmacy clinics <b>May 25:</b> ages 20+, community or pharmacy clinics
Adults	Phase 3	Apr-May 2021	<b>April 30:</b> ages 40-64, physician or pharmacy clinics (AstraZeneca only) <b>May 7:</b> ages 45+, community or pharmacy clinics (Moderna or Pfizer) <b>May 11:</b> ages 40+, community or pharmacy clinics (Moderna or Pfizer) <b>May 14:</b> ages 35+, community or pharmacy clinics <b>May 17:</b> ages 30+, community or pharmacy clinics
Older adults	Phase 2	Apr-May 2021	<b>April 6:</b> ages 55+, pharmacy or physician clinics (AstraZeneca only) <b>April 19:</b> ages 60+, community, pharmacy or physician clinics (Pfizer or Moderna) <b>April 26:</b> ages 55+, community or pharmacy clinics (Pfizer or Moderna) <b>May 3:</b> ages 50+, community or pharmacy clinics (Moderna or Pfizer)
Seniors	Phase 1	Feb-Apr 2021	<b>Feb 25:</b> ages 80+ and born between Jan 1 - Apr 30, community clinics <b>March 12:</b> 8 ages 0+ and born between May 1 - Aug 31, community clinics <b>March 19:</b> ages 80+ and born between Sept 1 - Dec 31, community clinics and pharmacies (Moderna only) <b>March 16:</b> ages 63 and 64, pharmacies and physician offices (AstraZeneca only) <b>March 18:</b> ages 60-62, pharmacies and physician offices (AstraZeneca only) <b>March 26:</b> ages 75+, community or pharmacy clinics <b>April 1:</b> ages 70+, community or pharmacy clinics <b>April 9:</b> ages 65+, community clinics, pharmacy, and physician clinics (Moderna or Pfizer only)
All ages	--	Nov 26, 2021	All individuals aged 5+ eligible for vaccination
<b>Other groups</b>			
Pregnant persons	N/A	N/A	Were not prioritized in the rollout
Migrant workers	Phase 2	N/A	Removed as a priority group
Essential caregivers	Phase 0/1	Dec 2020-Mar 2021	<b>Dec 16:</b> essential caregivers in the Central zone <b>Jan-Mar:</b> essential caregivers in all zones
Those who cannot work from home	N/A	N/A	Were not prioritized in the rollout
First responders	Phase 1/2	Jan-Mar 2021	Paramedics and medical first responders only.
Allied health (e.g., dentists)	Phase 2	Mar 2021	<b>March 2:</b> allied health staff began receiving invitations to schedule appointments
Teachers	N/A	N/A	Were not prioritized in the rollout
Grocery store workers	N/A	N/A	Were not prioritized in the rollout

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Frontline police	Phase 2	Mar 18, 2021	Was not initially included in the Phase 2 priority groups; however, it is unclear whether they were prioritized
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**Table 2.** Summary of key dates of policies regarding, and eligibility for, vaccination

Item	Date(s)	Notes
<b>Vaccination Passports</b>		
Announced	Sep 8, 2021	
Implemented	Oct 4, 2021	
<b>Eligibility for Vaccination</b>		
Vaccines first administered	Dec 16, 2020	
Highest Risk (i.e., front line HCWs, LTC residents)	Dec 2020 – Jan 2021	Dec 2020: Central Jan 2021: Other health zones
Seniors (60/65+ years old)	Mar 18, 2021 Apr 6, 2021 Apr 19, 2021	Ages 60+ (AstraZeneca vaccine) Ages 65+ Pfizer or Moderna vaccines
General adult population (18+)	May 25, 2021	Ages 20+
Youth (12+)	May 27, 2021	When the 12-19 age group became eligible
Children (5-11 years old)	Nov 26, 2021	



## Appendix A. Key Information and Links

### Key Information

- > Public health measures in response to COVID-19 are the shared responsibility of the federal government and PT governments, provincially-delegated health authorities, as well as local governments.
- > The first case in Canada was confirmed January 25, 2020 in Ontario (originated in Wuhan, China). As of April 13, 2020 there were 25,680 confirmed cases in Canada.
- > The number of total cases, confirmed cases, and mortality from COVID-19 are tracked nationally by the Government of Canada: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>
- > Federal government measures introduced in response to COVID-19 are summarized on this site: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html?topic=tilelink#wb-auto-5>

Each PT tracks its COVID-19 cases with daily updates, e.g., Nova Scotia's is [here](#)

### Links

CANVAX COVID-19 Resources on Immunization	<a href="https://canvax.ca/covid-19-resources-immunization">https://canvax.ca/covid-19-resources-immunization</a>
CIHI COVID-19 Intervention Scan	<a href="http://www.cihi.ca/en/covid-19-intervention-scan">www.cihi.ca/en/covid-19-intervention-scan</a>
CIHI COVID-19 Intervention Timeline	<a href="http://www.cihi.ca/en/covid-19-intervention-timeline-in-canada">www.cihi.ca/en/covid-19-intervention-timeline-in-canada</a>
NACI Recommendations on the use of COVID-19 vaccines	<a href="http://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines.html">www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines.html</a>
Nova Scotia's COVID-19 Website	

Visit the NAO's webpage for more key links and resources, including detailed PT reports: <https://ihpme.utoronto.ca/research/research-centres-initiatives/nao/covid19/>

Visit the CoVaRR-Net's Pillar 8 recommendations to policymakers, public health officials, and the public: <https://covarnet.ca/knowledge-commons/>



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