

## ENVIRONMENTAL SCAN

# (ARCHIVED) COVID-19 Immunity Status and Community Public Health Measures

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### ARCHIVED DOCUMENT

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## Key Points

- Some jurisdictions have implemented public health measures specific to individuals who have acquired immunity to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), either through vaccination or prior infection (i.e., United States (US), Israel, Denmark, Ireland), while others do not have public health measures based on immunity status (i.e., Finland, Germany). Some jurisdictions are exploring public health measures that are specific to individuals who have immunity, but have yet to fully implement changes (i.e., England, Italy, France).
- Examples of public health measures specific to individuals with immunity to SARS-CoV-2 include: allowing fully vaccinated individuals to gather together indoors, and allowing access to certain public venues such as stadiums, hotels, etc.
- There remain unknowns regarding the real-world protection and duration of immunity from vaccination or natural infection, as well as how immunity affects onwards viral transmission. These are important scientific considerations when exploring public health measures based on immunity status of individuals.
- When implementing public health measures specific to an individual's immunity or vaccination status, it is important to consider the epidemiological context in which these measures are occurring. This includes taking into account the incidence and burden of disease, pathogen transmissibility, the proportion of the population that has been vaccinated, and vaccine effectiveness, especially given the variants of concern (VOC).

- Ethical considerations for adjusting measures based on immunity status and/or the use of ‘immunity passports’ include the potential to increase stigmatization and exacerbate existing inequalities, particularly among marginalized groups, including racialized populations who have been disproportionately impacted by the Coronavirus Disease 2019 (COVID-19) pandemic. An equity lens is needed in the risk-decision framework when considering public health measures based on immunity status.

## Purpose and Scope

As jurisdictions continue rolling out their COVID-19 mass immunization programs, decision-makers and their communities are examining how the progress of vaccination programs will impact the need for, and use of, community-based and individual public health measures in the short and medium term, given the individual and societal disruptions resulting from these preventive health measures. Thus, it was of interest to review which countries have implemented adjustments to public health measures based on individual COVID-19 immune status. Countries that have public health measures specific for individuals who have natural or vaccination-induced immunity to SARS-CoV-2 were included as well as those countries that have a similar context to Ontario in terms of COVID-19 caseload, variants of concern (VOCs) and/or vaccination programs. As the global pandemic evolves, countries may be added or removed as this report is updated.

Immunity is defined in this document as some level of immune protection conferred through an authorized COVID-19 vaccine or conferred through infection with SARS-CoV-2, since it was not possible to separate immunity from vaccination as opposed to immunity from natural infection for some of the jurisdictions examined. While several countries are discussing COVID-19 vaccination status in the context of international travel, this was deemed out of scope for the current scan which focuses on local public health measures relevant to the provincial Ontario context. Literature related to case and contact management was also deemed out of scope. Literature related to specific health-care settings, including long-term care facilities, was also deemed out of scope, based on the current request.

## Methods

This environmental scan done up to April 27, 2021, was informed by previous Public Health Ontario (PHO) reports and keyword searches in the Google search engine for literature related to COVID-19 epidemiology, vaccination programs, and public health measures based on immune status. A formal database search was not conducted due to time constraints; thus, some relevant articles may have been missed.

## Findings

This section provides an overview of COVID-19 epidemiology, vaccination programming, and changes to public health measures based on COVID-19 immunity status (where relevant) for select jurisdictions. Findings are organized into: 1) jurisdictions that have public health measures specific to immunity status; 2) those that are exploring potential public health measures specific to immunity status; and 3) those that currently do not have any public health measures specific to immunity status.

# Jurisdictions with Public Health Measures Specific to Immunity Status

## UNITED STATES

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100 000 people was 20.3.<sup>1</sup>
- As of April 19, 2021 the cumulative number of cases in US was 31.7 million (equivalent to 9588.4 cases per 100 000 people).<sup>2</sup>
- As of April 20, 2021, the US had 171.8 deaths per 100 000 people.<sup>3</sup>
- As of April 12, 2021, the US has reported the presence of the following variants of concern: B.1.1.7, B.1.351, and P.1, and the following variants of interest: B.1.427 and B.1.429.<sup>4</sup> The most prevalent variant in the US (as of March 27, 2021) is the B.1.1.7 variant which accounted for 44.7% of variant cases.<sup>5</sup>

### VACCINATION CONTEXT

- The US immunization campaign started on December 14, 2021.<sup>6</sup> Currently, there are three vaccines being administered (i.e., Pfizer-BioNTech BNT162b2, Moderna mRNA-1273 and J&J/Janssen Ad26.COV2.S).<sup>7</sup>
- The majority (>95%) of fully vaccinated individuals received their second dose within the time period recommended by manufacturers,<sup>8</sup> which is different from the extended intervals being used for the general population in Canada.
- As of April 22, 2021, 215,951,909 doses (65 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 41% of the population had received at least one dose of a COVID-19 vaccine and 26% were fully vaccinated.<sup>9</sup>
- The percentage of the population over 65 years of age that was fully vaccinated as of April 21, 2021 was 65.6% (and 33.8% of the population of those aged 18 years and older).<sup>10</sup>
- The first group prioritized for vaccinations included healthcare personnel and residents of long-term care facilities (group 1a), followed by frontline essential workers (e.g., police officers, grocery store workers, public transit workers), and individuals aged 75 years and older (1b). The next group includes individuals aged 65–74 years, individuals 16–64 years with underlying medical conditions, and other essential workers (e.g., housing construction, law, media) (1c).<sup>11</sup>

### PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- The US Centers of Disease Control and Prevention (CDC) defines an individual as ‘fully vaccinated’ against COVID-19 two or more weeks after their second dose in a two-dose series, or two or more weeks after a single-dose vaccine of a Food and Drug Administration (FDA)-authorized vaccine for SARS-CoV-2.<sup>12</sup>
- The CDC recommends that fully vaccinated people continue to follow public health measures when in indoor settings (e.g., wear a mask that fits snugly against the sides of your face and doesn’t have gaps, cover coughs and sneezes, [wash hands](#) often, and follow any applicable workplace or school guidance).<sup>12</sup> However, new interim guidance (April 27, 2021) from the CDC

for non-healthcare settings describes how fully vaccinated individuals may begin engaging in the following activities:<sup>12</sup>

- Gather indoors with other fully vaccinated individuals without wearing a mask or physical distancing.
  - Gather indoors with unvaccinated individuals from one other single household without wearing a mask or physical distancing, unless any of the other unvaccinated household members has an increased risk for severe illness from COVID-19.<sup>13</sup>
  - Gather or conduct activities outdoors without wearing a mask (except in certain crowded settings and venues)
  - As of April 2, 2021, fully vaccinated individuals can resume domestic travel and do not need to get tested before or after travel, nor self-quarantine after travel.
- The CDC also recommends that vaccinated individuals wear a mask for the following activities: attend a crowded, outdoor event, like a live performance, parade, or sports event, visiting a barber or hair salon, going to an uncrowded, indoor shopping center or museum, riding public transport with limited occupancy, attending a small, indoor gathering of fully vaccinated and unvaccinated people from multiple households, going to an indoor movie theater, attending a full-capacity worship service, singing in an indoor chorus, eating at an indoor restaurant or bar, and participating in an indoor, high intensity exercise class.<sup>14</sup>
  - On April 6, 2021, the White House ruled out implementing any form of vaccine passport system in the US. However, private businesses were free to explore the idea. The US government further states that there will be no federal vaccination database and no federal mandate requiring individuals to obtain vaccination credentialing.<sup>15</sup>

## ISRAEL

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100 000 people was 1.8.<sup>1</sup>
- As of April 19, 2021, the cumulative number of cases in Israel was 837,218 (equivalent to 9672.6 cases per 100 000 people).<sup>2</sup>
- As of April 20, 2021, Israel had 73.3 deaths per 100 000 people.<sup>3</sup>

### VACCINATION CONTEXT

- On December 20, 2020, Israel launched its COVID-19 vaccination campaign using the Pfizer-BioNTech BNT162b2 COVID-19 vaccine.<sup>16</sup>
- Israel's vaccination program is using the standard interval between first and second doses for the Pfizer-BioNTech vaccine, different from the extended interval being used for the general population in Canada.
- As of April 22, 2021, 10,367,696 doses (117 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 60% of the population had received at least one dose of the COVID-19 vaccine and 56% were fully vaccinated.<sup>9</sup>

- As of February 6, 2021 (the most recent data available), the percentage of adults aged 60 years and older who had received one dose of the vaccine was 89.9% (80.0% had received two doses). The percentage of adults aged 16 to 59 years of age who had received one dose of the vaccine was 36.6% (19.9% had received two doses).<sup>17</sup>
- The initial target groups for vaccination included individuals aged 60 years and over, nursing home residents, other people at high risk due to serious medical conditions, and front-line health care workers.<sup>16</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- On February 4, 2021, the Israeli government launched a campaign issuing vaccine certificates that confer upon its holder the exemption from many isolation requirements.<sup>18,19</sup> Vaccination certificates are available to any person who receives both doses of a COVID-19 vaccine.<sup>20</sup> In addition to vaccination status, a certificate of recovery is available for individuals who qualify as having recovered from SARS-CoV-2 which confers the same exemptions from isolation requirements, as does a vaccination certificate.
  - **Vaccine Certificates:** The certificate takes effect one week after receiving the second dose and expires after six months.<sup>20</sup> Vaccine certificate holders are not exempt from the requirement to isolate if they have tested positive for SARS-CoV-2 and have not recovered, or have developed symptoms associated with COVID-19 after contact with a confirmed case.<sup>19</sup> Vaccine certificate holders are exempt from isolation after close contact with a confirmed case of SARS-CoV-2.
  - **Certificate of Recovery:** In order to qualify as recovered, an individual must meet the following criteria:<sup>20</sup> 1) At least 10 days elapsed since the date of the first positive (or borderline positive) coronavirus test and within 7 days following the test, AND In the last three days, no symptoms are present including fever of 38 degrees Celsius or higher, difficulty breathing or shortness of breath, cough or any other respiratory symptom, which is not improving, vomiting or diarrhea. Nose discharge as a single symptom, loss of taste or smell and ongoing cough do not prevent assignment as a recovered patient.
- Public health measures that remain in place for vaccinated individuals include wearing a mask in public settings and physical distancing, as well as abiding by restrictions on gatherings.<sup>21</sup> For example, currently, masks are required everywhere outside of one's home (with some exceptions (e.g., for physical activity, children under seven, those giving lectures, at the beach if physical distancing observed)).<sup>22</sup>
- On February 21, 2021, the Israeli government announced opening of various sectors using a 'Green Pass' operation strategy.<sup>23</sup> A Green Pass is required to enter premises using the Green Pass operation strategy.<sup>24</sup> Holding a vaccination certificate or a certificate of recovery makes an individual eligible to apply for a Green Pass. For vaccinated individuals, the Green pass is valid for six months and for recovered individuals it is valid until June 30, 2021. Vaccinated or recovered individuals with a Green Pass are the only ones who can enter a place that operates under the Green Pass strategy. Children may be eligible to receive a Green Pass and are listed on their parents' pass if they recovered from COVID-19.
  - Examples of business that require a green pass include: Gyms and studios, swimming pools, restaurants and cafes, hotels, stadiums, pitches, sporting events and venues, theaters, cinemas and cultural venues, cultural events, exhibitions (outside of museums), event gardens, and attractions.

## DENMARK

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 12.5.<sup>1</sup>
- As of April 19, 2021, the cumulative number of cases in the Denmark was 244,067 (equivalent to 4213.7 cases per 100 000 people).<sup>2</sup>
- As of April 20, 2021 Denmark had 42.5 deaths per 100,000 people.<sup>3</sup>
- Unlike much of Europe, Denmark successfully avoided a third wave after implementing lockdown measures in December 2020.<sup>25</sup>
- Denmark has been a leader in tracking VOCs and does whole genome sequencing (WGS) on all positive samples. On March 3, 2021, the first case of the P.1 VOC was reported in Denmark. At the time, the B.1.1.7 VOC was the dominant strain.<sup>26</sup>
- On March 7, 2021, Denmark reported 31 cases of new variants, including the B.1.351 and P1.<sup>27</sup>

### VACCINATION CONTEXT

- Currently, there are four COVID-19 vaccines authorized for use in Denmark (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Janssen/Johnson & Johnson Ad26.COVS.2 and Oxford/AstraZeneca ChAdOx1 (rebranded as Vaxzevria).<sup>28</sup> On April 14, 2021, the Danish Health Authority announced it would remove the AstraZeneca vaccine from its vaccination program but that the vaccine would remain authorized for use.<sup>29</sup>
- As of April 22, 2021, 1,655,909 doses (29 doses per 100 people) of COVID-19 vaccine had been administered. As of April 22, 2021, 19% of the population had received at least one dose of COVID-19 vaccine and 9.3% were fully vaccinated.<sup>9</sup>
- Denmark's vaccination program is using a 3-4 week, possibly up to 6 week interval between first and second doses, different from the extended interval of 16 weeks, currently being used for the general population in Canada.<sup>30</sup>
- For more details on Denmark's vaccination program, please see the PHO report titled *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>

### PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- For the full account of national public health measures in Denmark, see *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>
- Effective April 6, 2021, Denmark introduced the Coronapas (Corona Passport), which provides proof that an individual has either had a negative COVID-19 test result within the last 72 hours, or has a certificate of vaccination or has proof of a previous infection two to 12 weeks earlier.<sup>32</sup>
- The Coronapas is linked to the Danish ID system and can access digital health records. The Coronapas works off a smartphone app, but paper copies are also accepted. Children are exempt from the Coronapas system. The Coronapas is presented in order to enter non-essential

businesses (e.g. zoos, hairdressers etc.), and will apply to other locations (e.g. indoor dining), as Denmark lifts public health measures.<sup>33</sup>

- Denmark has public health measures specific for individuals who are fully vaccinated (after 14 days from their last vaccination).<sup>34</sup> The protection of full vaccination permits individuals to:
  - socialize with other fully vaccinated individuals without keeping any distance or wearing a face mask.
  - socialize with family or close friends who are not vaccinated without keeping any distance or wearing a face mask. However, this does not apply if the person they are with has not been fully vaccinated and is at higher risk of severe illness from COVID-19.
  - forego regular [routine] testing; however, they must still get tested if they are a close contact of an infected person.
- Fully vaccinated individuals are asked to continue to comply with Denmark's general guidance for public spaces and to self-isolate and test if they develop symptoms of COVID-19.
- For people who are fully vaccinated but at high risk of severe illness from COVID-19, full vaccination permits them to:
  - behave like other fully vaccinated individuals, including not needing to take special precautions, such as wearing a face mask in private settings.
  - participate in activities where several other people are present, such as attending leisure activities.
  - use public transport and go shopping at any time of day.
  - return to their usual duties. They no longer have to be reassigned to other tasks. However, they should still not participate in the care or treatment of suspected or confirmed COVID-19-cases. Furthermore, relatives of someone at higher risk do not have to be reassigned to other tasks – if either the person at higher risk or the relative has been fully vaccinated.

## IRELAND

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100 000 people was 7.5.<sup>1</sup>
- As of April 19, 2021, the cumulative number of cases in Ireland was 243,911 (equivalent to 4939.7 cases per 100 000 people).<sup>2</sup>
- As of April 20, 2021 Ireland had 98.1 deaths per 100 000 people.<sup>3</sup>
- As of April 3, 2021, 32 cases of the South African B.1.351 variant had been detected, 12 of the P.1 variant, 14 of P.2 variant, and 15 cases of the B.1.525 variant.<sup>35</sup> The B.1.1.7 variant was first identified in Ireland in mid-December 2020, and as of April 25, 2021, it accounted for approximately 94% of cases.<sup>36</sup>

## VACCINATION CONTEXT

- Currently there are four COVID-19 vaccines authorized for use in Ireland (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Janssen/Johnson & Johnson Ad26.COVS and Oxford/AstraZeneca ChAdOx1 (rebranded as Vaxzevria).<sup>37</sup> On April 12, 2021, Ireland's National Immunisation Advisory Community (NIAC) issued an update recommending the AstraZeneca vaccine be restricted to individuals 60 years and older.<sup>38</sup>
- As of April 22, 2021, 1,240,965 doses (26 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 18% of the population had received at least one dose of the COVID-19 vaccine and 7.5% were fully vaccinated.<sup>9</sup> Ireland plans for 80% of the adult population to be offered or to have had a first dose by the end of June 2021 and around 55% to be fully vaccinated by then.<sup>39</sup>
- Ireland's vaccination program is using an 8-12 week interval between first and second doses of the AstraZeneca vaccine.<sup>40</sup> As of April 13, 2021, Ireland's NIAC was considering extending its current recommended four week interval for Pfizer/BioNTech and Moderna, which would make it more similar to the extended interval dosing schedule currently being used in Canada.<sup>41</sup>
- As of April 22, 2021, there were seven groups eligible for vaccination:<sup>42</sup>
  - people aged 65 years and older who live in long-term care facilities (group 1)
  - frontline healthcare workers (group 2)
  - people aged 70 and older living in the community (group 3)
  - people aged 16 to 69 who are at very high risk (group 4)
  - people aged 65 to 69, including those at high risk (groups 5 and 6)
  - people aged 16 to 64 who are at high risk (group 7)
- For more details on Ireland's vaccination program, please see PHO report titled *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- Ireland has specific public health measures for individuals who are fully vaccinated.<sup>43</sup> Fully vaccinated is defined as 15 days after the second AstraZeneca dose, 7 days after the second Pfizer-BioNTech dose, or 14 days after the second Moderna dose.
- Fully vaccinated individuals:
  - are permitted to meet with another fully vaccinated individual indoors
  - should not visit a household where there are unvaccinated people
  - self-isolate and get tested if they have symptoms of COVID-19
- As of April 17, 2021, there was no immunity passport or certificate equivalent in use in Ireland. Individuals do receive a record of immunization, but it is not a legal document.<sup>44</sup>



# Jurisdictions Exploring Public Health Measures Specific to Immunity Status

## ENGLAND

### EPIDEMIOLOGICAL CONTEXT

- As of April 16, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 25.2.<sup>45</sup>
- As of April 21, 2021, the cumulative number of cases in England was 3.8 million.<sup>45</sup>
- As of April 22, 2021, England had 129,048 deaths.<sup>45</sup>
- As of reporting on April 22, 2021, there has been a cumulative total of 218,169 confirmed and probable cases of the B.1.1.7 variant in England (an increase in 8,677 cases since the last update on April 14, 2021).<sup>46</sup> Additionally, there have been 670 confirmed and probable cases of the B.1.351 variant and 60 confirmed and probably cases of the P.1 variant.<sup>46</sup> Additionally, B.1.617 cases in England are doubling weekly, with 103 cases as of April 19, 2021.<sup>47</sup>

### VACCINATION CONTEXT

- Currently, there are three vaccines authorized for use in England (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, and Oxford/AstraZeneca ChAdOx1).<sup>48</sup>
- As of April 20, 2021, 36.8 million doses<sup>49</sup> (65.4 doses per 100 people)<sup>50</sup> of the COVID-19 vaccine had been administered. As of April 20, 2021, 49.4% of the population had received at least one dose of the COVID-19 vaccine<sup>51</sup> and 16% were fully vaccinated.<sup>52</sup>
- Great Britain (including England) has been extending the interval between the first and second doses of the COVID-19 vaccine to 12 weeks.<sup>53</sup>
- As of April 22, 2021, the vaccine is currently being offered to: people aged 45 and over, people at high risk from COVID-19 (clinically extremely vulnerable), people who live or work in care homes, health and social care workers, people with a condition that puts them at higher risk (clinically vulnerable), people with a learning disability and people who are a main carer for someone at high risk of disease severity from COVID-19.<sup>55</sup>

### PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- At this time, there are no public health measures specific to individuals who are vaccinated with the COVID-19 vaccine. However, the United Kingdom (UK) Government is exploring the potential use of vaccine passports in the interim.<sup>54</sup>
- The UK government is looking into how individuals can easily show their COVID-19 immunity status, aside from the vaccination card they receive upon receipt of the vaccine. On April 6, 2021, the UK government reported that they were working with colleagues in Scotland, Wales and Northern Ireland to agree on a "consistent approach".<sup>54</sup> However, presently all individuals who have been fully vaccinated are still encouraged to follow England's social distancing guidance and wear a face covering when it is difficult to follow social distancing.<sup>55,56</sup>
- As of April 22, 2021, COVID-19 passports are not legally required for individuals to attend a pub or restaurant, for example; however, it will be legal for businesses to ask customers for proof of

vaccination status as long as they do not break equality laws. Individuals could be asked to provide a vaccine certificate when going to a pub at the end of July (when all eligible adults will have been offered a vaccine).<sup>54</sup>

- The government has also reported that some settings such as essential services and public transit will not require COVID-19 passports, and that there will be exemptions for those individuals who are advised to not get the vaccine.<sup>54</sup>
- The UK has also announced plans to test the vaccine passports at large events in the upcoming weeks to see if they can allow people to safely return to mass gatherings.<sup>57</sup> Test events include the World Snooker Championship in central England, a club night at a warehouse and a comedy club event in Liverpool, and three marathon races involving thousands of runners.<sup>57</sup>

## ITALY

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 23.5.<sup>1</sup>
- As of April 19, 2021, the cumulative number of cases in the Italy was 3.88 million (equivalent to 6415.6 cases per 100 000 people).<sup>2</sup>
- As of April 20, 2021 Italy had 194.6 deaths per 100,000 people.<sup>3</sup>
- As of March 8, 2021, the most prevalent variant of concern in Italy was the B.1.1.7 variant, accounting for over a third of variant cases followed by the P.1 and B.1.351 variants.<sup>58</sup> Data from the government of Italy's website as of April 23, 2021, reports that the prevalence of B.1.1.7 variant was 54%, the P.1 variant 4.3% and the B.1.351 variant was 0.4%.<sup>59</sup>

### VACCINATION CONTEXT

- Currently, there are four vaccines approved for use in Italy (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Janssen/Johnson & Johnson Ad26.COV2.S and Oxford/AstraZeneca ChAdOx1 (rebranded as Vaxzevria)).<sup>60</sup> The AstraZeneca vaccine is restricted to those 60 years and older.<sup>61</sup>
- For the two dose vaccines, two doses are scheduled a few weeks apart (interval unspecified).<sup>62</sup>
- As of April 1, 2021, Italy became the first country in Europe to make vaccination mandatory for healthcare workers.<sup>63</sup>
- As of April 22, 2021, 16,271,272 doses (27 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 19% of the population had received at least one dose of the COVID-19 vaccine and 7.9% were fully vaccinated.<sup>9</sup>
- As of April 23, 2021, the greatest proportion of vaccines have been distributed to the 80-89 year age group, followed by the 70-79. Lower proportions of individuals under 70 years have been vaccinated.<sup>64</sup>
- For more details on Italy's vaccination program, please see PHO report titled *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- On April 20, 2021, Italy's prime minister announced that a travel "pass" system will soon be implemented that will allow people to enter or exit Italy's higher-risk COVID-19 zones.<sup>65</sup> The pass or document "will certify that the holder had either been fully vaccinated, had tested negative for coronavirus within the past 48 hours, or had already contracted and recovered from Covid-19".<sup>65</sup> The pass is first expected to be a paper document and later converted to an electronic form (e.g., app or QR code). The certificate is expected to be valid for six months and can be obtained from a vaccination clinic or in the case of recovery, by a hospital, family doctor or pediatrician. Certificates obtained by testing negative, meanwhile, will be valid for 48 hours and can be issued by testing centres or pharmacies.
- The passes will be needed to board at airports or train stations, and if stopped by police at a checkpoint if travelling by car.<sup>65</sup> The government is also considering their use at certain cultural and sporting events (e.g., concerts and football matches).

## FRANCE

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 48.0.<sup>1</sup>
- As of April 19, 2021 the cumulative number of cases in the France was 5.36 million (equivalent to 7861.2 cases per 100,000 people).<sup>2</sup>
- As of April 20, 2021, France had 149.3 deaths per 100,000 people.<sup>3</sup>
- Media reports from April 13, 2021 report that the B.1.1.7 variant is responsible for 80% of cases in France with the P.1 and B.1.135 variants accounting for less than 4%.<sup>66</sup>

### VACCINATION CONTEXT

- The following four vaccines are authorized for use in France (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Janssen/Johanson & Johnson Ad26.COV2.S and Oxford/AstraZeneca ChAdOx1 (rebranded as Vaxzevria).<sup>67</sup> The Janssen vaccine was the most recent vaccine to receive approval and it will be administered to individuals over 55 years old starting April 24, 2021. The AstraZeneca vaccine is also restricted to individuals 55 years and older.<sup>61</sup>
- As of April 14, 2021, France will be extending the interval between the mRNA COVID-19 (i.e., Pfizer/BioNTech, Moderna) vaccines from four weeks to 6 weeks in order to accelerate the vaccination campaign (e.g., get the first dose to more individuals faster).<sup>68</sup>
- As of April 22, 2021, 17,868,688 doses (27 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 19% of the population had received at least one dose of the COVID-19 vaccine and 7.2% were fully vaccinated.<sup>9</sup>
- As of April 23, 2021, the greatest proportion of individuals vaccinated with at least one dose were those ages 75 and older (>70%) followed by those 65 to 74 years of age (>55%) and those 50 to 64 years of age (>25). Less than 10% of individuals under 40 years have been vaccinated.<sup>69</sup>
- At this time (April, 2021) the following groups are eligible for COVID-19 vaccinations in France:<sup>67</sup>

- Health professionals, professionals working with vulnerable elderly and disabled people, and fire brigade staff.
- People aged 55 and over (with or without co-morbidities)
- People aged 50 to 55 inclusive suffering from a very high-risk pathology of severe form of COVID-19 or one or more comorbidities
- People aged 18 to 49 inclusive suffering from a very high-risk pathology of severe form of COVID-19
- Pregnant women (from second trimester onwards)
- Adults with disabilities
- Adults living in the same household as a severely immunocompromised person.
- As of April 17 and 18, 2021, some professionals over the age of 55 became eligible for vaccinations including teachers, police, prison guards, and customs officers among others.
- For more details on France’s vaccination program, please see PHO report titled *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- Following an announcement in April 2021 of a ‘special pass’ that would allow vaccinated Americans to travel to France this summer and changes to the countries’ ‘COVID tracker’ app, it appears that France is moving in the direction of vaccine passports.<sup>70</sup> There are proposals for France to have its own health pass; however, the EU is already working on a ‘Green Pass’ which would be used for travel within the EU.<sup>70</sup> Changes to the COVID tracker app, called ‘TousAntioCovid’ will initially be used for travel and not for everyday activities such as going to a restaurant or store; however, it is unclear if it will be used for larger events such as concerts and festivals. There is no current launch date at this time.<sup>70</sup> The app was originally developed to trace the spread of COVID; test result certificates have recently been added and vaccination certificates will be added soon.<sup>70,71</sup> It is currently being pilot tested for travel between France and Corsico.<sup>70</sup>

## Jurisdictions without Public Health Measures Specific to Immunity Status

### FINLAND

#### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 5.2.<sup>1</sup>
- As of April 23, 2021 the cumulative number of cases in the Finland was 85,344 (equivalent to 1521.2 cases per 100,000 people).<sup>2</sup>

- As of April 23, 2021 the number of patients in hospital was 136 and the cumulative deaths associated with COVID-19 is 903.<sup>72</sup>
- As of April 20, 2021 Finland had 16.1 deaths per 100,000 people.<sup>3</sup>
- As of April 23, 2021 a total of 4,716 cases caused by COVID-19 variants have been identified in Finland including 4,022 cases of the B.1.1.7 variant, 693 cases of the B.1.135 variant and 1 case of the P.1 variant.<sup>72,73</sup>

## VACCINATION CONTEXT

- There are currently four vaccines approved for use in Finland (i.e., Moderna mRNA-1273, Pfizer/BioNTech BNT162b2, Janssen Ad26.COVS and AstraZeneca/Oxford AZD1222).<sup>74</sup> The AstraZeneca vaccine is restricted to those 65 years and older.<sup>73</sup>
- As of April 22, 2021, 1,570,979 doses (28 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 26% of the population had received at least one dose of the COVID-19 vaccine and 2.5% were fully vaccinated.<sup>9</sup>
- The Finnish Institute for Health and Welfare has recommended delaying the second dose of all COVID-19 vaccines to 12 weeks after the first dose of administration.<sup>73,75</sup>
- The Finnish Institute for Health and Welfare recommends that COVID-19 vaccinations are offered to different groups in the following order:<sup>76</sup>
  - Health care personnel caring for coronavirus patients as well as personnel and residents in round-the-clock care facilities;
  - The elderly and persons with underlying conditions that predispose to severe COVID-19 (e.g., immunosuppressive drug therapy, organ transplant, obesity etc.);
  - Social welfare and health care personnel;
  - Other underlying disease shown through research to contribute to most severe COVID-19 disease.<sup>73</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- Finland has not outlined new measures or recommendations for those that are partially or fully vaccinated.<sup>77</sup> As of April 23, 2021, based on the current evidence regarding the vaccine effectiveness in preventing transmission, it is recommended that social distancing and good hand hygiene is still maintained.<sup>73</sup> When not possible to social distance, vaccinated individuals are encouraged to continue to wear a mask and get tested when symptoms emerge.<sup>77</sup> These recommendations will be amended as new information emerges but at this time, precautionary principles apply to both vaccinated and unvaccinated individuals.<sup>77</sup>

## GERMANY

### EPIDEMIOLOGICAL CONTEXT

- As of April 19, 2021, the 7-day rolling average number of daily new COVID-19 cases per 100,000 people was 24.3.<sup>1</sup>
- As of April 19, 2021, the cumulative number of cases in the Germany was 3.17 million (equivalent to 3780.1 cases per 100,000 people).<sup>2</sup>

- As of April 20, 2021 Germany had 47,958 deaths, or 96.3 deaths per 100,000 people.<sup>3</sup>
- VOC B.1.1.7 is now the dominant SARS-CoV-2 variant in Germany. Analysis of the 7-day incidence shows an exponential increasing trend.<sup>78</sup>
- A survey of the laboratory network (April 15, 2021) shows a detection rate of the B.1.1.7 variant in 93.1% (54,361) of samples.<sup>78</sup>

## VACCINATION CONTEXT

- As of April 21, 2021, there are four vaccines authorized for use in Germany (i.e., Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Janssen/Johnson & Johnson Ad26.COVS and Oxford/AstraZeneca ChAdOx1 (rebranded as Vaxzevria).<sup>79</sup> The AstraZeneca vaccine is restricted to those 60 years and older.<sup>61,81</sup>
- As of April 22, 2021, 23,656,941 doses (29 doses per 100 people) of the COVID-19 vaccine had been administered. As of April 22, 2021, 22% of the population had received at least one dose of the COVID-19 vaccine and 6.9% are fully vaccinated.<sup>9</sup>
- Currently, approximately 492,867 vaccinations per day are being administered in Germany.<sup>80</sup>
- As of March 2021, Germany will lengthen the interval between administering the first and second dose to its maximum as recommended by the manufacturer.<sup>80</sup>
  - Pfizer/BioNTech: 42 days.
  - AstraZeneca/Oxford: 12 weeks.
- For more details on Germany's vaccination program, please see the PHO report titled *Public Health Measures, Vaccination Programs and Epidemiological Context: An Updated Scan of European Jurisdictions*.<sup>31</sup>

## PUBLIC HEALTH MEASURES BASED ON IMMUNITY STATUS

- With regards to travel and public health restrictions for vaccinated individuals, there are no specific freedoms or reductions in public health measures in place at this time for those who are fully vaccinated.<sup>81,82</sup> The Federal Government will permit exemptions or special arrangements for those that have been vaccinated or have up-to date negative results following consent from the German parliament. Considerations for further freedoms for vaccinated individuals is ongoing.<sup>81,83</sup>

## Implications for Practice

Some jurisdictions have implemented public health measures specific to individuals who have acquired immunity to SARS-CoV 2 either through vaccination or past infection (i.e., US, Israel, Denmark, Ireland), while others have not (i.e., Finland, Germany). Other jurisdictions are moving in the direction of having public health measures for individuals who have SARS-CoV-2 immunity with a system in place for implementing those public health measures, but have yet fully implemented these changes (i.e., England, Italy, France). Examples of public health measures include allowing fully vaccinated individuals to gather together indoors, and allowing access to certain public venues such as stadiums, hotels etc.

Scientific considerations for policies relating to immunity status include: 1) no vaccines are 100% effective;<sup>84</sup> 2) the protection offered from vaccination or previous SARS-CoV-2 infection is not yet well-

understood;<sup>85,86</sup> 3) the duration of immunity conferred from vaccination or previous infection is not known at this time;<sup>87</sup> 4) there is still a paucity of data regarding an individual's ability to transmit the virus despite being immune themselves;<sup>87</sup> and 5) as more of a population becomes vaccinated, and the testing rate goes down, a high quality surveillance system and strategy is needed to detect new infections, which can be asymptomatic and therefore undetected.

It is also important to consider overall vaccination coverage in the Canadian context. As of April 26, 2021, 24.2 % of the Canadian population had received at least one dose of a COVID-19 vaccine,<sup>88</sup> and only 2.4% have been fully vaccinated.<sup>88</sup> This is significantly lower than vaccination coverage in jurisdictions with public health measures specific for individuals with immunity to SARS-CoV-2, such as the US and Israel. Therefore, it may not be appropriate to apply guidance related to fully vaccinated individuals in other jurisdictions with higher one and two dose vaccine coverage, such as the US and Israel, to fully vaccinated individuals in Canada, where both the one and two dose coverage are much lower.

When implementing public health measures specific to an individual's immunity or vaccination status, it is important to consider the epidemiological context in which these measures are taking place. This includes taking into account the incidence and burden of disease in the jurisdiction, pathogen transmissibility and the proportion of the population that has been vaccinated that will be able to protect those individuals who are not immune (i.e., herd immunity), especially given the VOCs.

Ethical considerations for the use of immunity passports include the potential to increase social stigmatization and exacerbate existing inequalities, particularly among marginalized groups.<sup>89,90</sup> There have been reports of disparities in early uptake of COVID-19 vaccination by racialized groups in the US and the UK.<sup>91-93</sup> An understanding of vaccine uptake in Ontario based on socio-demographic information is important in order to understand if inequities experienced in Ontario during the COVID-19 pandemic persist in vaccination coverage,<sup>94</sup> and how the subsequent relaxation of public health measures based on vaccination status could potentially exacerbate existing inequalities. An equity lens is needed in the risk-decision framework if considering public health measures based on immunity status.

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