

# Evidence brief on attitudes and acceptance of COVID-19 booster doses: update 1

April 2022

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## Introduction

### What is the evidence on the attitudes and acceptance of booster (third/additional) doses of the COVID-19 vaccine in Canada, Australia, New Zealand, UK, and the US?

Canada has one of the highest vaccination rates of the primary series (2 doses) of COVID-19 in the world, with 89.1% of those over the age of 5 having received two doses as of March 2022 <sup>1</sup>. The UK and Australia approved COVID-19 booster doses for those over 18 years old in September and October 2021, respectively <sup>2</sup>. <sup>3</sup>. By November 2021 booster doses of COVID-19 vaccines were approved for those over 18 in Canada, New Zealand, and the US <sup>4, 5, 6</sup>. As of March 2022, 47% of the total population and 56.8% of those 18 years and older in Canada were fully vaccinated with a third dose <sup>1</sup>. As of March 2022 a second booster (fourth dose) has been approved for individuals who are immunocompromised, living in long-term care or >50 in the US, >65 in Australia, >70 years of age in Canada, >75 in the UK <sup>7, 8, 9, 10</sup>.

Understanding the facilitators, barriers, and hesitancy to accept or refuse COVID-19 booster doses among those who have already accepted two doses is important for encouraging recommended vaccination among both partially vaccinated and unvaccinated populations in the face of waning immunity and more transmissible variants. This evidence brief summarizes literature on the intention to accept a booster dose of vaccine among the general population and factors associated with the intention to accept or reject additional

doses. The focus of this evidence brief is on the Five Eyes countries (Canada, Australia, New Zealand, UK, and US) as these countries tend to have similar trends. This brief contains literature up to April 1, 2022.

## What's new

This update identified eight new studies or updates to existing cross-sectional or longitudinal studies since January 31, 2022 and each is identified in the tables as "**new**". Overall the trends and findings were consistent with the previous version of this review <sup>11</sup>. Intentions to get a booster dose continue to decline <sup>12, 13</sup>, however none of the studies explore why intentions have declined. Intentions vary across specific groups; LGBTQ+ have higher intentions and indigenous populations have lower intentions to get boosted than non-indigenous populations <sup>14</sup>. About a third of parents expect there to be booster vaccines required similar to the flu in one study <sup>15</sup>. Two studies reported high support for donating vaccines allocated for boosters to low income countries <sup>16, 17</sup>.

## Key points

There were 20 studies identified that evaluated attitudes and acceptance of a COVID-19 booster dose in Canada (n=6), UK (n=5), US (n=6), New Zealand (n=1), Canada and US (n=1) and globally (13 countries including Australia, Canada, UK, and US, n=1) ([Table 1](#)). Fourteen of the studies were conducted since the approval of the COVID-19 booster dose in their respective countries, and the remaining 6 were conducted prior to the approvals in early to mid-2021.

Intentions to accept COVID-19 booster doses have decreased between late 2021 and early 2022 in Canada and the UK <sup>12, 13, 18, 19</sup>.

- The most recent Canadian studies from February-March 2022 report among those with two doses, 69% of those in British Columbia and 23% of those in Quebec intend to receive a COVID-19 vaccine booster dose <sup>12, 20</sup>. In Quebec, this has decreased from 43% in January <sup>21</sup>. Intention to accept a booster was highest in Atlantic Canada and lowest in the Prairies <sup>14, 22</sup>.
- A longitudinal study in the UK showed that intention to receive a COVID-19 vaccine booster remained steady from 88-95% between August-December 2021 but decreased to 72% in January 2022 and 53% in March 2022 <sup>13, 23</sup>. This study also reported that 75% were likely to get a booster dose for COVID-19 at the same time as their flu shot, which has steadily decreased from 85% since Aug 2021 <sup>23</sup>.
- The three most recent studies in the US conducted between August – November 2021 reported that 79-81% of the general population and 96.2% of university students/staff intended to receive a booster <sup>19, 24, 25</sup>.

Barriers and facilitators to accepting a COVID-19 booster were similar to accepting first and second doses of the vaccine <sup>11</sup>.

- Two studies showed that hesitancy about initial COVID-19 vaccination may be a strong predictor for hesitancy about booster doses of the vaccine <sup>26, 27</sup>.

- Compared to White respondents, Black respondents were less likely and Asian respondents were more likely to accept a COVID-19 booster <sup>14, 25, 28</sup>.
- In Canada, LGBTQ+ respondents were more likely than non-LGBTQ+ to intend to get a booster (91.8% vs 86.0%) <sup>14</sup>.
- Canadian First Nations (79.3%) and Métis (79.3%) respondents were less likely to intend to get a booster compared to non-Indigenous respondents (86.3%) <sup>14</sup>.
- The most common factors positively associated with intention to receive a booster were older age <sup>12, 14, 18, 21, 22, 23, 26, 28, 29, 30</sup>, higher education <sup>12, 14, 21, 26, 28, 31</sup>, having longer-term health conditions <sup>23, 26</sup>, being a past voter for the Liberal/Democrat parties <sup>26, 28, 29</sup>, living in a larger more populated area <sup>12, 21, 28</sup>, and higher trust in science and COVID-19 information <sup>25, 26</sup>,
- Four studies showed that women were more likely to accept a booster dose <sup>13, 14, 17, 20</sup> and two showed that men were more likely <sup>22, 26</sup>.
- The main reasons for those unlikely to accept a COVID-19 booster vaccine includes concern about short and long term side-effects <sup>13, 18, 20, 24, 30, 32</sup>, belief that a booster dose would not offer extra protection <sup>13, 20, 30</sup>, the belief that the first and second dose would keep them safe <sup>13, 17, 20, 30</sup>, and belief that they already had COVID-19 <sup>12, 32</sup>.

COVID-19 booster attitudes in the general public were explored in eleven studies ([Table 1](#)). Seven of the studies were conducted since the approval of booster doses in their respective countries.

- Across Canada, UK, and US, 63-89% believed that getting a booster dose (including receiving additional booster doses of the vaccine when necessary) was effective at providing protection from the virus or important to slowing the spread of virus <sup>18, 23, 33</sup>.
- In January 2022, those who had received three doses in Canada believed the current restrictions were appropriate or that it was not yet time to reduce restrictions. The desire to keep restrictions was higher for those who had been vaccinated, particularly those with third doses, compared to those who had not been vaccinated <sup>34</sup>.
- While both unvaccinated and third dose recipients in Canada believed they will be exposed to and infected by Omicron no matter what they do (53% vs 54%), third dose recipients were more likely than unvaccinated to believe that if they caught COVID-19 it could be severe/deadly (17% vs 7%) <sup>34, 35</sup>.
- Overall support for vaccine donations to low-income countries (LICs) was high in both Canada and the UK <sup>16, 17</sup>.
  - In a survey conducted in March 2022 in Quebec, 66% were in favour of Canada giving vaccines to LICs before giving third doses to Canadians, 26% disagreed, and 8% were unsure <sup>17</sup>.
  - On average, respondents in the UK were willing to donate 65% of vaccines allocated for boosters in the UK to LICs instead in a survey conducted in August 2021 <sup>16</sup>.

- When asked how many vaccines they thought they would need to keep their children safe from COVID-19, 33% of parents in New Zealand thought they would need booster shots at a similar frequency to flu shots <sup>15</sup>.

## Overview of the evidence

Twenty studies evaluating the attitudes of the general public toward booster doses (third doses) of COVID-19 vaccine were identified and included in this review. Of these, seven were published articles. One was a preprint and twelve were reports which had not completed the peer-review process. Many of the reports are on-going longitudinal surveys that have been conducted at regular intervals, with a report after each data collection point. The publications reporting on third dose vaccine attitudes are all observational studies (e.g., cross-sectional study using an online survey).

A formal risk of bias evaluation was not conducted. Across observational studies the reliability of the outcome is based on obtaining a representative sample of the target population that is sufficiently large to obtain a representative spectrum of results. Studies frequently did not demonstrate the representativeness of their samples to the target population in both grey literature or government reports published online (not indexed), preprints, and published journal articles. Longitudinal studies where a population was sampled more than one time to monitor changes in vaccine intentions and attitudes over time were the strongest observational study design identified. Most observational studies were cross-sectional online surveys at a single point in time. These study designs are at moderate/high risk of bias and thus, are considered medium-low quality depending on the sample size and whether the sample represents the target population as well as how well the survey tool can measure the outcome(s) of interest (e.g., was it informed by formative research, validated and pretested prior to implementation). For most of the included studies the outcomes are self-reported, which can be biased by response and social desirability biases. Other biases considered in these studies include response rate and missing data. While there are many studies that show similar trends, the conclusions could change with additional research, larger sample size, different sampling strategies, data collection tools, and progression through the pandemic.

A key knowledge gap in this research are studies that address booster dose intentions and reasons for hesitancy and refusal rates in high-risk and underserved populations, and studies which identify factors that would encourage individuals to receive a booster dose. None of the studies explore why intentions to get boosters decreased during the winter 2022. The majority of studies used online surveys, and to a lesser extent telephone surveys, which may limit participation from segments of population due to lack of access. Given the variable access to booster doses, understanding intention to vaccinate and hesitancy for accepting a booster dose remains crucial to encouraging vaccination in the face of waning immunity and more transmissible variants.

## COVID-19 booster intentions and attitudes of the general public

Attitudes and acceptance of a booster dose of the COVID-19 vaccine in the general public were explored in 20 studies. There were six studies specific to Canada, five in the UK, six in the US, one in New Zealand, one

that looked at both Canada and the US, and one global study that included Australia, Canada, UK, and US. High level points from all studies are listed below followed by more detailed outcomes ([Table 1](#)).

**Intention to accept COVID-19 boosters** decreased between late 2021 and early 2022 <sup>12, 13, 18, 19</sup>.

- The most recent Canadian studies from February-March 2022 report among those with two doses 69% of those in British Columbia and 23% of those in Quebec intend to receive a COVID-19 vaccine booster dose <sup>12, 20</sup>.
- Canadian studies from January 2022 report those who intend to receive a COVID-19 vaccine booster varied between 70-77% in the general public <sup>18, 21</sup>. Four studies conducted between August-December 2021 show a range of intention to receive a booster between 62-89% <sup>14, 19, 22, 29</sup>. In a December 2021 survey, intention to accept a booster was highest in Atlantic Canada (93.3%), Quebec (90.1%), and Ontario (90%), followed by British Columbia (85.2%) and the Prairies (82.5%) <sup>22</sup>.
- In a global survey of 13 countries conducted in August 2021, the highest intentions to get a booster vaccine if it were available to respondents that day in the countries relevant to this review were in Australia (82%), UK (82%), US (81%), and Canada (77%) <sup>19</sup>.
- A longitudinal study in the UK showed that intention to receive a COVID-19 vaccine booster remained steady from 88-95% between August-December 2021 <sup>23</sup>. This decreased to 53% in the most recent study conducted in March 2022 <sup>13</sup>. This study also reported that 75% were likely to get a booster dose for COVID-19 at the same time as their flu shot, which has steadily decreased since Aug 2021 <sup>23</sup>.
- The two most recent studies in the US conducted between August – September 2021 reported that 79-81% of the general population intended to receive a booster <sup>19, 24</sup>. In California between August – November 2021, 96.2% of staff and students from a university were willing to receive a COVID-19 booster at least once per year, and 64% were willing to get boosters as often as necessary <sup>25</sup>.
- A study conducted from May to June 2021 in the US reported that the overall acceptance for a combination influenza-COVID-19 vaccine was 50%. This was slightly higher than a stand-alone COVID-19 booster (45%) and lower than a stand-alone influenza vaccine (58%) <sup>28</sup>.
- None of these studies explored why intentions to get boosters were decreasing during winter 2022. It is possible that the discrepancy between booster dose coverage in 2022 and intentions in late 2021 is related to the surge in cases due to Omicron or a perception that vaccines are not protecting against new variants, but this has yet to be explored.

**Barriers and facilitators to accepting a COVID-19 booster** were similar to accepting first and second doses of the vaccine <sup>11</sup>.

- Two studies showed that hesitancy about initial COVID-19 vaccination may be a strong predictor for hesitancy about booster doses of the vaccine <sup>26, 27</sup>.
  - In the UK, those who were initially uncertain about receiving a vaccine (first and second doses) were more likely to be uncertain or unwilling to receive a booster (uncertain: RR 4.92, 95%CI: 2.98- 8.11; unwilling: RR 5.29, 95%CI: 3.07- 9.09) compared to those who were initially willing. Initial unwillingness about receiving a vaccine (first and second dose) was also associated with a higher

- risk of booster uncertainty and unwillingness (uncertain: RR 6.40, 95%CI: 3.94-10.41; unwilling: RR 11.29, 95%CI: 6.79-18.78) <sup>27</sup>
- In the US, those who had already received the primary series of COVID-19 vaccine were more likely to accept booster doses (OR 3.32, 95%CI: 2.20–5.01) <sup>26</sup>.
  - Intentions to get boosted were different across groups.
    - Compared to White respondents, Black respondents were less likely and Asian respondents were more likely to accept a COVID-19 booster <sup>14, 25, 28</sup>.
    - In Canada, LGBTQ+ respondents were more likely than non-LGBTQ+ to intend to get a booster (91.8% vs 86.0%) <sup>14</sup>.
    - Canadian First Nations (79.3%) and Métis (79.3%) respondents were less likely to intend to get a booster compared to non-Indigenous respondents (86.3%) <sup>14</sup>.
  - The most common factors positively associated with intention to receive a booster were older age <sup>12, 14, 18, 21, 22, 23, 26, 28, 29, 30</sup>, higher education <sup>12, 14, 21, 26, 28, 31</sup>, having longer-term health conditions <sup>14, 23, 26</sup>, being a past voter for the Liberal/Democrat parties <sup>26, 28, 29</sup>, living in a larger more populated area <sup>12, 21, 28</sup>, and higher trust in science and COVID-19 information <sup>25, 26</sup>.
  - Four studies showed that women were more likely to accept a booster dose <sup>13, 14, 17, 20</sup> and two showed that men were more likely <sup>22, 26</sup>.
  - The main reasons for those unlikely to accept a COVID-19 booster vaccine included concerns about short and long term side-effects <sup>13, 18, 20, 24, 30, 32</sup>, belief that a booster dose would not offer extra protection <sup>13, 20, 30</sup>, or the first and second dose would keep them safe <sup>13, 17, 20, 30</sup> and belief they did not need the booster if they already had COVID-19 <sup>12, 32</sup>.
  - In a January 2022 study, 56% of Canadians were concerned about long term side-effects from a third dose and this concern was more prevalent among younger respondents compared to older respondents (66% among those aged 18-34, 57% in those aged 35-54, and 47% among those aged 55+) <sup>18</sup>.
  - In the UK, 63% reported that no vaccine incentives would increase their motivation to get a third dose. Among those who could be motivated, the top motivator was helping life get back to normal (34%) <sup>30</sup>.

### **Attitudes towards COVID-19 boosters were explored in eleven studies.**

- Across Canada, UK, and US, 63-89% believed that getting a booster dose (including receiving additional boosted doses of the vaccine when necessary) was effective at providing protection from the virus or important to slowing the spread of virus <sup>18, 23, 33</sup>.
- In August 2021, 69% of Canadians, 68% of Americans, 70% of Australians, and 77% of those in the UK agreed that they will need a booster at least every year for COVID-19 <sup>19</sup>. Acceptance for a hypothetical yearly booster was lower in those who were vaccine-hesitant <sup>36</sup>.
- In January 2022, those who had received three doses in Canada believed that current restrictions were appropriate or that it was not yet time to reduce restrictions. The desire to keep restrictions was

higher for those who had been vaccinated, particularly those with third doses, compared to those who had not been vaccinated <sup>34</sup>.

- While both unvaccinated and third dose recipients in Canada believed they will be exposed to and infected by Omicron no matter what they do (53% vs 54%), third dose recipients were more likely than unvaccinated to believe that if they caught COVID-19 it could be severe/deadly (17% vs 7%) <sup>34, 35</sup>.
- Overall support for vaccine donations to low-income countries (LICs) was high in both Canada and the UK <sup>16, 17, 21</sup>
  - In a survey conducted in March 2022 in Quebec, 66% were in favour of Canada giving vaccines to LICs before giving third doses to Canadians, 26% disagreed, and 8% were unsure <sup>17</sup>. This has increased from 63% in January 2022 <sup>21</sup>
  - On average, respondents in the UK were willing to donate 65% of vaccines allocated for boosters in the UK to LICs instead in a survey conducted in August 2021 <sup>16</sup>. Those who preferred to donate a larger percentage of vaccines to LICs included women, younger individuals, those who were not fully vaccinated, believed that COVID-19 is a global rather than national problem, believed that vaccine donation is more effective in containing COVID-19 than booster shots, and cared about those living outside the UK just as much as UK residents <sup>16</sup>.
- In a UK study in January 2022, 75% would be likely to get a booster dose for COVID-19 at the same time as their flu shot. This has steadily decreased from 85% since August 2021 <sup>37</sup>.
- When asked how many vaccines they thought they would need to keep their children safe from COVID-19, 33% of parents in New Zealand thought they would need booster shots similar to the flu shot <sup>15</sup>.

## Methods

### Publications and Preprints

A daily scan of the literature (published and pre-published) is conducted by the Knowledge Synthesis team in the Emerging Science Group, Public Health Agency of Canada. The scan has compiled COVID-19 literature since the beginning of the outbreak and is updated daily. Searches to retrieve relevant COVID-19 literature are conducted in Pubmed, Scopus, BioRxiv, MedRxiv, ArXiv, SSRN, Research Square, and cross-referenced with the COVID-19 information centers run by Lancet, BMJ, Elsevier, Nature and Wiley. The cumulative scan results are maintained in a Refworks database and an excel list that can be searched. Targeted keyword searching is conducted within these databases to identify relevant citations on COVID-19 and SARS-COV-2. Search terms used included: ("vaccin\*" OR "immuni\*") AND ("third dose\*" OR "booster"). This review contains research published up to April 1, 2022.

### Grey Literature

A grey literature search was conducted to compliment the database search. The grey literature search focused on targeted governmental and academic institutions. A detailed list of websites searched is available upon request. The grey literature search was last updated on April 1, 2022.

Each potentially relevant reference was examined to confirm it had relevant data and relevant data was extracted into the review.

### Acknowledgements

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## Evidence tables

**Table 1: Evidence on the attitudes and acceptance of COVID-19 vaccine booster doses among the general public (n=20)**

Study	Method	Outcomes
<b>Canada (n=7)</b>		
<p><a href="#">INSPQ (2022)</a> <sup>12, 17, 21, 38, 39, 40</sup> grey literature  Longitudinal study  Canada Jan-Mar 2022</p>	<p>Analysis of the acceptability of vaccination against COVID-19 was evaluated using an online survey of adults and HCWs in Quebec. Number of participants was not clearly stated (~3300 each collection period). Articles in French. There were multiple collection periods:  <a href="#">Jan 11<sup>th</sup>, 2022</a>  <a href="#">Jan 25<sup>th</sup>, 2022</a>  <a href="#">Feb 8<sup>th</sup>, 2022</a> <b>new</b>  <a href="#">Feb 22<sup>nd</sup>, 2022</a> <b>new</b>  <a href="#">Mar 8<sup>th</sup>, 2022</a> <b>new</b>  <a href="#">Mar 22<sup>nd</sup>, 2022</a> <b>new</b></p>	<p><b>March</b></p> <ul style="list-style-type: none"> <li>71% (up 2% in mid February to early March) of respondents have received three doses.</li> <li>62% of those who had received two doses do not intend to get vaccinated (up 6%), 23% intend to get a third dose (down 6%), and 14% were unsure (down 1%).</li> <li>Not intending to get a third dose was higher among those aged 25-44, those with less education, and those living in rural areas.</li> <li>The top three reasons for not intending to get a third dose were believing that there were too many doses required and they didn't want receive them on a regular basis (17%), they already had COVID-19 (16%), and feeling protected by two doses (13%).</li> </ul> <p><b>February</b></p> <ul style="list-style-type: none"> <li>67% (up 8% from late January to early February) of respondents had received three doses.</li> <li>42% of respondents who had received two doses did not intend to get a third dose (up 11%), 43% plan to receive a booster (down 13%), and 15% were unsure (up 1%).</li> <li>Not intending to get a third dose was higher among men, those aged 24-44, those with less education, and those living in rural areas.</li> </ul>

Study	Method	Outcomes
		<ul style="list-style-type: none"> <li>The top reasons among for not getting a third dose among those who had two doses was believing they were well protected by two doses (30%), and they already had COVID-19 (24%).</li> <li>66% were in favour of Canada giving vaccines to developing countries before giving third doses to Canadians, 26% disagreed, and 8% were unsure.</li> <li>20% were afraid they won't be protected from COVID-19 until they have three doses, 72% were not afraid, and 7% were unsure.</li> </ul> <p><b>January</b></p> <ul style="list-style-type: none"> <li>42% of respondents have received three doses.</li> <li>Most (70%) of respondents who have had two doses intend to get a third dose, 13% do not intend to, and 10% were unsure.</li> <li>Not intending to receive a third dose among those with two doses was higher among men, those aged 25-44, those with less education (college or less), and those living in small towns (smaller than 10,000) compared to their counterparts.</li> <li>80% agreed that a third dose should be offered to all people aged 18+, 14% disagreed, and 6% were unsure.</li> <li>63% would be in favor of Canada sending vaccines to developing countries before offering third doses to Canadians, 29% disagreed, and 9% were unsure.</li> </ul>
<p><a href="#">Ipsos (2022)</a> 20 grey literature <b>new</b></p> <p>Cross-sectional study</p> <p>Canada Jan-Feb 2022</p>	<p>Intention to receive a booster dose was evaluated using an online survey in 801 adults (18+) in British Columbia.</p>	<ul style="list-style-type: none"> <li>44% of those with two shots responded they plan to get the booster as soon as it is available, 25% will get the booster but not right away, 18% say will not get the booster, and 13% were undecided.</li> <li>Men were much less likely than women (35% vs 54%) intend to get their booster as soon as it is available.</li> <li>The top reasons to not get the booster as soon as it is available included feeling that two shots is enough (41%), concerns about potential long-term effects (33%), wanting to get on with normal life (27%), not believing the vaccine will be effective against Omicron and other future variants (23%), not believing the vaccine has been adequately tested (20%), and feeling the booster is not needed (18%).</li> <li>22% reported their trust in the effectiveness of COVID-19 vaccines has decreased in the last few months whereas 15% reported their trust has increased and 57% reported no change. Those aged</li> </ul>

Study	Method	Outcomes
		<p>35-54 (30%) and residents of the Interior/North (30%) were more likely to say their trust has decreased.</p> <ul style="list-style-type: none"> <li>The top reason among those with decreased trust in vaccines is knowing that vaccinated people are still getting COVID (38%), feeling there is too much misinformation and conflicting information (17%), they are not seeing enough positive change with high vaccination rates (12%), and worry that vaccines won't protect against variants (10%).</li> </ul>
<p><a href="#">Ipsos (2022)</a> <sup>18</sup> grey literature</p> <p>Cross-sectional study</p> <p>Canada Jan 2022</p>	<p>An online survey of 1001 adults across Canada (18+) were recruited from the Ipsos I-say panel as well as non-panel sources to understand vaccination in the time of Omicron.</p>	<ul style="list-style-type: none"> <li>77% would receive a third dose without hesitation (or have already received their third dose), and 23% were hesitant. This was up from a survey conducted in May 2021 where 34% of those aged 18-34 would not get a third dose, followed by 28% of those aged 35-54, and 10% of those aged 55+.</li> <li>68% and 76% agreed that getting a third dose will reduce the likelihood of getting COVID-19 and the likelihood of ending up in hospital, respectively.</li> <li>56% were concerned about long term side-effects from a third dose and this concern was more prevalent among younger respondents compared to older respondents (66% among those aged 18-34, 57% in those aged 35-54, and 47% among those aged 55+).</li> </ul>
<p><a href="#">Angus Reid (2021)</a> <sup>29, 34, 35</sup> grey literature</p> <p>Longitudinal study</p> <p>Canada Sep 2021 – Jan 2022</p>	<p>Intentions for getting a third dose of the COVID-19 vaccine were analyzed in a sample of the general population using an online survey across a representative randomized sample who are members of the Angus Reid Forum.</p> <p><a href="#">Sep 29 – Oct 3, 2021</a> (n=5011)</p> <p><a href="#">Jan 7-1, 2022</a> (n=3375)</p> <p><a href="#">Jan 7-12, 2022</a> (n=5002)</p>	<p><b>Jan 2022</b></p> <ul style="list-style-type: none"> <li>69% of those who have received three doses disagreed with the statement that it is time to end restrictions and let people self-isolate if they are at risk (5% unsure and 25% agreed). This was higher than those who have not been vaccinated yet (89% agreed) or the average across Canada (39% agreed).</li> <li>Most respondents who received three doses felt that restrictions in their community were about right (44%) compared to the 85% of unvaccinated who felt restrictions were too strict.</li> <li>54% of third dose recipients believed that they will be exposed to and infected by Omicron no matter what they do.</li> <li>31% of those who received three doses thought if they got COVID-19 they would have relatively mild symptoms, 52% thought it would be serious but manageable, 13% thought it would be very severe, and 4% thought it may be deadly. In comparison only 6% of the unvaccinated and 14% of those with two</li> </ul>

Study	Method	Outcomes
		<p>doses believed if they caught COVID-19 it would be severe or deadly.</p> <p><b>Sep-Oct 2021</b></p> <ul style="list-style-type: none"> <li>• Among those who had already received at least one dose (n=4527), 62% reported they would get a booster vaccine as soon as it was available to them, 20% would get one but would prefer to wait, 9% would not get a booster, 8% were not sure, and 1% have already received a booster.</li> <li>• Canadians aged 18-24 (15%) and 35-44 (13%) were the least likely to get a booster compared to the average of 9%. In contrast, 75% of those aged 65+ would get a booster as soon as possible.</li> <li>• 15% of past voters for the Conservative Party of Canada and 10% of past voters for the Bloc Québécois report they will not get a booster compared to 2% of past Liberal voters and 3% of past NDP voters.</li> </ul>
<p><a href="#">Leger (2021)</a> <sup>33, 41, 42</sup> grey literature  Longitudinal study  Canada &amp; US Aug 2021-Jan 2022</p>	<p>An online survey of Canadian and American adults (18+) was conducted to evaluate vaccine perceptions and intentions to vaccinate. Canadian data is summarized here and data from the US is found in the US section.</p> <p><a href="#">Aug 2021</a>, 1,515 Canadians, 1,005 Americans <a href="#">Dec 2021</a>, 1,547 Canadian, 1,004 Americans <a href="#">Jan 2022</a>, 1,547 Canadian, 1,014 American</p>	<p><b>Jan 2022</b></p> <ul style="list-style-type: none"> <li>• 81% believed that getting vaccinated, including receiving additional doses of the vaccine when necessary is effective for providing protection against COVID-19.</li> <li>• Belief in the effectiveness of vaccination including receiving booster doses was highest in those aged 55+, those living in sub-urban areas, and those already fully vaccinated (two doses).</li> </ul> <p><b>Dec 2021</b></p> <ul style="list-style-type: none"> <li>• 78% were in favour of speeding up the introduction of third doses to certain populations and 22% were opposed.</li> <li>• Support for speeding up the introduction of third doses was higher in Quebec, in those aged 55+, and those already fully vaccinated (two doses).</li> </ul> <p><b>Aug 2021</b></p> <ul style="list-style-type: none"> <li>• 58% agreed that if studies show that a third dose is required for those that initially received AstraZeneca they would get a third dose, 7% felt comfortable as they were, and 35% did not receive AstraZeneca.</li> </ul>
<p><a href="#">Nanos (2021)</a> <sup>22, 43</sup> grey literature</p>	<p>A hybrid telephone and online survey of adults (18+) across Canada was conducted to evaluate</p>	<p><b>Dec 2021</b></p> <ul style="list-style-type: none"> <li>• 89% would receive a third dose when it becomes available to them, 9% would not, and 2% were</li> </ul>

Study	Method	Outcomes
<p>Longitudinal study</p> <p>Canada</p> <p>Sep-Dec 2021</p>	<p>interest in receiving a third dose of the COVID-19 vaccine.</p> <p><a href="#">Sep-Oct 2021</a> (n=1017)</p> <p><a href="#">Dec 2021</a> (n=1005)</p>	<p>unsure. Intention to get a third dose is up from Sep-Oct 2021.</p> <ul style="list-style-type: none"> <li>By province the highest level of interest to receive a third dose was found in the Atlantic Canada (93.3%), QC (90.1%), ON (90%), BC (85.2%), and the Prairies (82.5%).</li> <li>Those aged 55+ (96.6%) were more interested in a third dose compared to those aged 35-54 (88.1%) and 18-34 (76.5%).</li> <li>Men were slightly more interested in receiving a booster compared to women (89.7% vs 86.8%).</li> </ul> <p><b>Sep-Oct 2021</b></p> <ul style="list-style-type: none"> <li>84% were interested in getting a third dose, 10% were not interested, 3% were unsure, and 3% were unvaccinated.</li> <li>By province the highest level of interest was found in BC (87.9%), ON (86.1%), QC (82.7%), Atlantic Canada (81.3%), and Prairies (78.5%).</li> <li>Those aged 55+ (89.8%) were more interested in a third dose compared to those aged 35-54 (83.2%) and 18-34 (76.1%).</li> <li>Men were slightly more interested in receiving a booster compared to women (84.2% vs 83.5%).</li> </ul>
<p><a href="#">Statistics Canada (2022)</a></p> <p><sup>14</sup></p> <p>grey literature</p> <p><b>new</b></p> <p>Longitudinal study</p> <p>Canada</p> <p>Sep 2020- Nov 2021</p>	<p>An online survey conducted by Statistics Canada as part of the Canadian Community Health Survey (CCHS) assessed Canadians behaviors to safeguard their own health as well as the health of others. Starting in September 2021 respondents were asked about their likelihood of getting a booster. Approximately 130,000 Canadians aged 12+ are surveyed in each survey cycle, with one resident per household being asked to complete the survey.</p>	<ul style="list-style-type: none"> <li>85.8% of Canadians over 12 report they are very or somewhat likely to get a booster dose.</li> <li>Those aged 29-35 were the least likely to intend to receive a booster (81.9%) compared to 84.1% of those aged 12-17 and 18-34, 86.6% of those aged 50-64, and 92.1% of those over 65.</li> <li>Slightly more women than men would be likely to get a booster (86.8% vs 84.7%).</li> <li>Intention to get a booster was highest in PEI. (92.7%), followed by NL (92.5%), NS (91.0%), ON (88.5%), NB (87.9%), BC (87.1%), SK (86.8%), MB (86.2%), AB (81.1%), and QC (81.0%).</li> <li>More people living in multi-person households intended to get boosters compared to single-person households (86.2% vs 84.4%).</li> <li>87.2% of immigrants that have been living in Canada intend to get a booster compared to 86.4% of non immigrants and 81.6% of immigrants that have been in Canada less than 10 years.</li> <li>Among visible minorities the highest intentions to receive a booster was among South East Asians</li> </ul>

Study	Method	Outcomes
		<p>(97.5%) followed by Japanese (95.6%), Latin Americans (95.4%), Chinese (91.7%), West Asians (91.3%), Filipino (89.8%), Arab (88.9%), Other (82.8%). Southeast Asians (82.4%) of South East Asians, and Black (71.2%) compared to 86.2% of non visible minorities.</p> <ul style="list-style-type: none"> <li>• 86.3% of non Indigenous respondents intended to get a booster dose compared to 79.3% of those with First Nations identities or 79.3% of Métis.</li> <li>• Those with post secondary education were more likely to intend to get a booster (87.6%) compared to those with high school (83.5%) or less than high school (79.7%) education.</li> <li>• LGBTQ+ respondents were more likely than with non-LGBTQ2+ to intend to get a booster (91.8% vs 86.0%).</li> <li>• Those with underlying conditions were more likely to want a booster than those without (88.3% vs 84.3%).</li> </ul>
<b>United Kingdom (n=5)</b>		
<p><a href="#">Office for National Statistics (2022)</a> 32</p> <p>grey literature <b>new</b></p> <p>Cross-sectional study</p> <p>UK Feb-Mar 2022</p>	<p>An online survey of a group of 719 university students from the Student Covid-19 Insights Survey was conducted to evaluate their acceptance or intention to accept of booster dose.</p>	<ul style="list-style-type: none"> <li>• 71% of respondents who had a least one dose had received a booster dose compared to 61% of students overall.</li> <li>• More students that lived in a property they own or privately rent had received a third dose compared to those in residence halls or those that lived with parents/family members.</li> <li>• Among those who had not received a booster, 67% reported they were likely to get a booster dose, 13% were unlikely, and 11% were unsure.</li> <li>• The top reasons reason among those unlikely to get a booster dose were concerns about side effects (39%), not believing that they need a booster because they already had COVID-19 (32%), and worry about long term effects (30%).</li> </ul>
<p><a href="#">Office for National Statistics (2022)</a> 13, 23, 37, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59</p> <p>grey literature</p> <p>Longitudinal study</p>	<p>Intention to accept a booster dose of the COVID-19 vaccine was collected as part of the online Opinions and Lifestyle Survey.</p> <p><b>2021</b> <a href="#">Jul 28 – Aug 1</a> (n=3,860) <a href="#">Aug 11 – 15</a> (n=3,130) <a href="#">Aug 18 – 22</a> (n=2,900)</p>	<p><b>March 2022</b></p> <ul style="list-style-type: none"> <li>• 82% of respondents had received a booster dose (down 4% from late February).</li> <li>• Among those who had received two doses, 53% were likely to get a booster (down 8%), 29% were unlikely (up 5%), 10% were neither unlikely nor likely (down 1%), and 8% were unsure (up 6%).</li> <li>• The top reasons for those who had two does for not intending to get a booster were that a booster dose will not offer any extra protection (46%), worry for</li> </ul>

Study	Method	Outcomes
UK Jul 2021-Mar 2022	<p> <a href="#">Aug 25 – Sep 5</a> (n=3,170)  <a href="#">Sep 8 – 19</a> (n=3,350)  <a href="#">Sep 22 – Oct 3</a> (n= 3,140)  <a href="#">Oct 6 – 17</a> (n= 3,760)    <a href="#">Oct 20 – 31</a> (n= 4,210)  <a href="#">Nov 3- 14</a> (n=1,860)  <a href="#">Nov 18 – 28</a> (n= 1,390)    <a href="#">Dec 1 – 12</a> (n=1080)  <a href="#">Dec 15 – 19</a> (n= 670)  <a href="#">Dec 15 - Jan 3</a> (n = 4,700)  <b>2022</b>  <a href="#">Jan 6 - 16</a> (n= 3,290)  <a href="#">Jan 19 – 30</a> (n = 3,440) <b>new</b>  <a href="#">Feb 3 – 13</a> (n=3,130) <b>new</b>  <a href="#">Feb 16 -27</a> (n= 3,170) <b>new</b>  <a href="#">Mar 3 -13</a> (n= 3,040) <b>new</b>  <a href="#">Mar 16 – 27</a> (n= 3,100) <b>new</b> </p>	<p>                     long term effects (39%), and that they had bad reaction to a previous dose (25%).                 </p> <ul style="list-style-type: none"> <li>• More men compared to women and respondents aged 30-49 compared to other age groups were either fairly or very unlikely to receive a booster.</li> </ul> <p><b>February 2022</b></p> <ul style="list-style-type: none"> <li>• 86% of respondents had received a booster dose (up 4% since late January).</li> <li>• 90% of all respondents felts booster doses were important to slowing the spread of COVID-19 (down 2%), 7% felt they were neither important nor unimportant (no change), and 4% did not believe they were important (up 2%).</li> <li>• Among those who had received two doses 61% were likely to get a booster (down 3%), 24% were unlikely (up 6%), 11% were neither likely nor unlikely (down 4%), and 2% were unsure (down 1%).</li> <li>• The top reasons among those with two doses for not intending to receive a booster were the first two doses will keep them safe (73%), worry for the long term side-effects (35%), and having had a bad reaction to a previous dose (20%).</li> </ul> <p><b>January 2022</b></p> <ul style="list-style-type: none"> <li>• Among all respondents, 89% felt booster vaccines were important to slow the spread of COVID-19, 7% were undecided, and 4% believed they were not important.</li> <li>• Among those who have received two doses of vaccine, 72% were likely to get a booster dose (down 17% since December), 13% were unlikely (up 7%), 10% were neither unlikely or likely (up 6%), 4% were unsure (up 3%), and 2% preferred not to say (up 1%).</li> <li>• Top reasons among those who were unlikely to receive a booster dose were that the primary series will keep them safe (47%), the booster dose will not offer extra protection (39%), and worry about a bad reaction to a booster dose (27%).</li> <li>• 75% were likely to get a booster dose for COVID-19 at the same time as their flu shot, 13% were neither likely nor unlikely, and 5% were fairly unlikely.</li> <li>• Older respondents were more likely agree that booster vaccines are important to slow the spread of COVID-19 and to be likely to get a booster dose.</li> <li>• More men than women were likely to get a booster dose (77% vs 67%).</li> </ul>

Study	Method	Outcomes
		<ul style="list-style-type: none"> <li>87% of those who were clinically extremely vulnerable were likely to get a booster dose.</li> </ul> <p><b>July - December 2021</b></p> <ul style="list-style-type: none"> <li>Results can be found in the first version of this report <sup>11</sup>.</li> </ul>
<p><a href="#">Paul (2022)</a> <sup>27</sup></p> <p>Cross-sectional study</p> <p>UK</p> <p>Nov-Dec 2021</p>	<p>Factors associated with COVID-19 booster vaccine intentions were evaluated in 22,139 fully vaccinated (two doses) adults in the UK.</p>	<ul style="list-style-type: none"> <li>4% of the weighted sample were unwilling to receive a COVID-19 booster vaccine and 4% were uncertain.</li> <li>Those who were initially uncertain about receiving a vaccine (first and second doses) were more likely to be uncertain or unwilling to receive a booster (uncertain: RR 4.92, 95%CI: 2.98-8.11; unwilling: RR 5.29, 95%CI: 3.07- 9.09) compared to those who were initially willing. Initial unwillingness was also associated with a higher risk of booster uncertainty and unwillingness (uncertain: RR 6.40, 95%CI: 3.94-10.41; unwilling: RR 11.29, 95%CI: 6.79-18.78).</li> <li>Low compliance with COVID-19 guidelines during strict restriction periods was a predictor of unwillingness (RR 2.45, 95%CI: 1.65-3.65) and uncertainty (RR 1.51, 95%CI: 1.04-2.19). Low levels of current stress about getting or becoming seriously ill from COVID-19 also predicted unwillingness (RR 1.91, 95%CI: 1.19-3.07) and uncertainty (RR 1.80, 95%CI: 1.19-2.72) about boosters.</li> <li>Unwillingness to receive a booster was associated with being aged 18-29 (RR 5.74, 95%CI: 2.82-11.68), having less education (RR 2.50, 95%CI: 1.31-4.79), and being healthy (RR 1.52, 95%CI: 1.00-2.30) compared to those who were older, had more education, and longer-term physical health conditions. These trends were also seen with those who were uncertain about receiving a booster.</li> <li>Three additional predictors of uncertainty were also identified. Those who were uncertain about receiving a booster were more likely to be unemployed (RR 3.25, 95%CI: 2.11-5.02) have lower levels of income (RR 2.43, 95%CI: 1.06-5.59), and have low self-reported knowledge of COVID-19 (RR 1.78, 95%CI: 1.19-2.67).</li> </ul>
<p><a href="#">Office for National Statistics (2021)</a> <sup>30</sup></p> <p>grey literature</p>	<p>In this COVID-19 Vaccine Opinions Study (VOS) respondents who previously reported being vaccine hesitant in the Opinions and Lifestyle Survey (OPN) and</p>	<ul style="list-style-type: none"> <li>6% of all previously hesitant respondents reported that they were unlikely to receive a booster dose.</li> <li>50% of previously hesitant respondents who received two doses of the vaccine (n=750 total) were likely to get the booster, 11% were neither likely nor unlikely,</li> </ul>

Study	Method	Outcomes
<p>Cross-sectional study</p> <p>UK</p> <p>Sep 2021</p>	<p>consented to follow-up (n=2480) were asked about motivations and barriers to vaccination.</p>	<p>22% were fairly unlikely, 13% were unsure, and 4% did not want to say.</p> <ul style="list-style-type: none"> <li>• Those aged 30-49 were more unlikely (26%) to get a booster dose compared to 16% of those aged 18-29 and 17% of those aged 50-69.</li> <li>• The main reasons for being unlikely to accept a booster dose included believing that a booster dose would not offer more protection (60%), the first and second dose would keep them safe (47%), and worry about the long term effects (46%).</li> <li>• Those who were not likely to get a booster indicated they will not be motivated to get a booster (55% reported no potential informational and socio-psychological motivators, 44% reported no motivation to get access to daily activities, and 63% reported no interest in vaccines incentives for getting a booster dose).</li> <li>• Top motivators across all categories included helping life return to normal (34%), making it easier to go abroad (30%), to protect others from COVID-19 (26%), to protect themselves (23%), and vouchers or discounts (23%).</li> <li>• Of those that would be motivated by vouchers, 97% reported discounts for food or clothes would make them more likely to get a booster.</li> </ul>
<p><a href="#">Lee (2022)</a> 16</p> <p><b>new</b></p> <p>Cross-sectional study</p> <p>UK</p> <p>Aug 2021</p>	<p>Public preferences over booster shots for domestic use versus vaccine donations to low-income countries (LICs) was evaluated using an online survey of 1,527 residents aged 18+ across the UK.</p> <p>Participants were told that the UK government had already ordered 60 million Pfizer-BioNTech vaccines for booster shots in 2021. They were then asked if they should be distributed randomly to LIC or residents in the UK, and how they should be distributed.</p>	<ul style="list-style-type: none"> <li>• Overall support for vaccine donations to LICs was generally high. The average and median percentage of vaccines participants were willing to donate to LICs was 65% and 72%, respectively. There was substantial variation in opinions with 1 in 3 participants who chose to donate 90% or more of the vaccines and 1 in 10 who chose to donate fewer than 10% of the vaccines.</li> <li>• Preferred vaccine donations were nearly 5 percentage points (pp) higher for females compared to males (<math>p &lt; 0.01</math>). It was also higher among participants who strongly believed that COVID-19 is a global rather than national problem (3.10pp, <math>p &lt; 0.01</math>), believed that vaccine donation is more effective in containing COVID-19 than booster shots, both globally (8.00pp, <math>p &lt; 0.001</math>) and in the UK (6.42pp, <math>p &lt; 0.001</math>), cared about or trust people living outside the UK as much as UK residents (4.48pp, <math>p &lt; 0.001</math>), and were more inequality averse (1.71pp, <math>p &lt; 0.05</math>).</li> </ul>

Study	Method	Outcomes
		<ul style="list-style-type: none"> <li>Those who were fully vaccinated or older were less supportive of vaccine donation. Compared to those aged 18–24, the preferred percentage of vaccines donated was 13–15 pp lower among study participants aged 40+ on average (<math>p &lt; 0.001</math>).</li> </ul>
<b>US (n=7)</b>		
<p><a href="#">Leger (2021)</a><sup>33, 41, 42</sup> grey literature Longitudinal study Canada &amp; US Aug 2021-Jan 2022</p>	<p>An online survey of Canadian and American adults (18+) was conducted to evaluate vaccine perceptions and intentions to vaccinate. Data from the US is summarized here and Canadian data is in the Canada section.</p> <p><a href="#">Aug 2021</a>, 1,515 Canadians, 1,005 Americans <a href="#">Dec 2021</a>, 1,547 Canadians, 1,004 Americans <a href="#">Jan 2022</a>, 1,547 Canadians, 1,014 American</p>	<p><b>January 2022</b></p> <ul style="list-style-type: none"> <li>63% believed that getting vaccinated (including receiving additional booster doses of the vaccine when necessary) was effective at providing protection from the virus.</li> </ul> <p><b>December 2021</b></p> <ul style="list-style-type: none"> <li>63% were in favor of speeding up the introduction of third doses to certain populations and 37% were opposed.</li> </ul>
<p><a href="#">Lee (2021)</a><sup>25</sup> preprint Cross-sectional study US Aug-Nov 2021</p>	<p>COVID-19 booster vaccine attitudes and behaviors among 3,668 university students and staff at the University of Southern California were evaluated using an online survey.</p> <p>Willingness to receive a booster was coded as “unwilling” (never) and “willing” (any response other than “never”).</p>	<ul style="list-style-type: none"> <li>96.2% were willing to receive a COVID-19 booster at least once per year, and 64% were willing to get boosters as often as necessary.</li> <li>In bivariate analyses, those without prior COVID-19 infections had higher odds of booster willingness compared to those with self-reported prior COVID-19 infection (OR 1.99, 95%CI: 1.24-3.07).</li> <li>In multivariate analyses, Asians had higher odds of booster willingness (at least one COVID-19 booster) compared to Whites (OR 2.45, 95%CI: 1.46-4.18). A higher trust in science was also associated with having higher odds of booster willingness (OR 8.73, 95%CI: 6.29-12.30).</li> </ul>
<p><a href="#">Hahn (2022)</a><sup>24</sup> Longitudinal study US</p>	<p>Residents from remote communities in Alaska participated in three online surveys to evaluate residents’ early vaccine acceptance, vaccine uptake and motivations, risk perceptions and knowledge</p>	<ul style="list-style-type: none"> <li>Of those who had received two doses of a COVID-19 vaccine (n = 340), 79.7% said they would probably or definitely accept a COVID-19 booster when it became available.</li> <li>Most respondents (68-75%) would probably or definitely encourage their parents, older family members, and friends to get the booster.</li> </ul>

Study	Method	Outcomes
Nov 2020-Sep 2021	<p>about COVID-19 vaccines, and likelihood of getting a booster vaccine.</p> <p>Survey 1: Nov-Dec 2020 (n=107)                      Survey 2: Mar 2021 (n=508)                      Survey 3: Sep 2021 (n=405)</p> <p>Only results on acceptability of a booster vaccine are captured from survey 3.</p>	<ul style="list-style-type: none"> <li>88% did not have concerns about the COVID-19 booster. Of the 12% who did, the concerns included chronic health issues, unknown side effects, and side effects from previous COVID-19 vaccinations.</li> </ul>
<p><a href="#">Yadete (2022)</a> <sup>26</sup></p> <p>Cross-sectional study</p> <p>US</p> <p>Jul 2021</p>	<p>COVID-19 vaccine booster hesitancy and its associated factors were evaluated using an online survey. The survey included 2,138 adults from across the US.</p>	<ul style="list-style-type: none"> <li>61.8% were willing to take the booster dose and 38.2% were booster dose hesitant.</li> <li>Those who had already received the primary series of COVID-19 vaccine were more likely to accept booster doses (OR 3.32, 95%CI: 2.20–5.01).</li> <li>Parents who were willing to have their children vaccinated (OR 10.3, 95%CI: 6.78–15.77) and being a Democrat (OR 1.90, 95%CI: 1.17-3.10) were more likely to accept a booster dose. Other factors associated with booster dose acceptability included living with a vulnerable family member, having COVID-19 positive friends or family members, and having pre-existing conditions.</li> <li>Significant factors for those who were hesitant to accept a booster included being younger, female, unvaccinated, having no religious affiliation, never been married, uninsured, being less educated, having little trust in COVID-19 vaccine information, and living in a southern region of the nation.</li> <li>The mean scores of vaccine confidence index and vaccine literacy were lower among the hesitant group compared to the non-hesitant group.</li> <li>Those who would accept a booster were more likely to agree (~85%) with the statements “vaccines are important for my health” and “vaccines are effective” compared to those who were hesitant (~47%).</li> </ul>
<p><a href="#">Lennon (2022)</a> <sup>28</sup></p>	<p>Attitudes towards COVID-19 booster, influenza, and a hypothetical combination influenza-COVID-19 booster</p>	<ul style="list-style-type: none"> <li>As a stand-alone vaccine, 45% of respondents would accept a COVID-19 booster and 58% would accept an influenza vaccine. For a combination influenza-COVID-19 vaccine, overall acceptance was 50%.</li> </ul>

Study	Method	Outcomes
<p>Cross-sectional study</p> <p>US</p> <p>May-Jun 2021</p>	<p>vaccines were evaluated using an online survey of 12,887 adults from across the US.</p>	<ul style="list-style-type: none"> <li>African Americans respondents were less willing to accept the COVID-19 booster alone (OR 0.67, <math>p &lt; 0.01</math>) or a combination influenza-COVID-19 booster (OR 0.60, <math>p &lt; 0.05</math>) compared to White respondents.</li> <li>There was lower acceptance for the COVID-19 booster alone or a combination influenza-COVID-19 boosters among female, Black/African American, Native American/American Indian, and rural respondents. Higher acceptance was found among those who were older, identified as Democrat, had higher education, and those who have previously usually accepted the annual influenza vaccine.</li> </ul>
<p><a href="#">Hagger (2022)</a> 31</p> <p><b>new</b></p> <p>Cross-sectional study</p> <p>US</p> <p>May 2021</p>	<p>This study used an online survey to identify the correlates of intentions to get a booster vaccine when offered among 479 individuals from across the US who had one or two doses of the vaccine.</p>	<ul style="list-style-type: none"> <li>Positive beliefs and intentions toward getting the booster vaccine were reported overall.</li> <li>Participants reported relatively low levels of risk perceptions and vaccine hesitancy.</li> <li>There were statistically significant, positive correlations among the attitude, subjective norms, perceived behavioral control, intention, and free will beliefs constructs (<math>r</math> range = .180 to .755, <math>p</math>s &lt; .001).</li> <li>There were statistically significant, negative correlations among attitude, subjective norms, perceived behavioral control, and intention with risk perceptions, vaccine hesitancy, and political orientation (<math>r</math> range = -.159 to -.492, <math>p</math>s &lt; .01).</li> <li>Vaccine hesitancy was significantly and positively correlated with political orientation (<math>r = .236</math>, <math>p &lt; .001</math>) and risk perceptions (<math>r = .521</math>, <math>p &lt; .001</math>).</li> <li>Those who had a higher level of education were more likely to intend to get a booster vaccine (<math>r = .114</math>, <math>p = .013</math>).</li> </ul>
<p><a href="#">Pal (2021)</a> 36</p> <p>Cross-sectional study</p> <p>US</p> <p>Feb-Mar 2021</p>	<p>An online survey was used to assess vaccine hesitancy and attitudes toward a potential additional booster dose of COVID-19 vaccines among 1,358 healthcare workers (HCWs) across the US.</p> <p>Those who had received both doses or were planning to receive both doses of the vaccine were</p>	<ul style="list-style-type: none"> <li>63.6% were worried that current vaccination may not be effective against new strains and that additional booster doses or new vaccines may be required. These concerns did not differ between the vaccine-hesitant and non-hesitant groups (68.8% vs 63.1%).</li> <li>Overall acceptance for a hypothetical yearly booster vaccine to maintain immunity was 83.6%. Acceptance of a hypothetical annual booster dose was much lower among the vaccine-hesitant group (13.8%) compared to the non-hesitant group (89.9%).</li> </ul>

Study	Method	Outcomes
	labelled as the vaccine non-hesitant group and those who did not accept either dose or were waiting or unsure, were labelled as the vaccine-hesitant group.	
<b>New Zealand (n=1)</b>		
<a href="#">Ministry of Health (2022)</a> 15 grey literature <b>new</b> Cross-sectional study New Zealand Jan-Feb 2022	Online interviews were conducted with 401 parents of children aged 5-11 year olds where the children were not vaccinated to assess barriers and beliefs towards COVID-19 vaccinations. Parents had to be vaccinated and feel neutral to unlikely about getting their children vaccinated to participate.	<ul style="list-style-type: none"> <li>When asked how many vaccines they thought they would need to keep their children safe from COVID-19, 33% of parents thought they would need booster shots similar to the flu shot.</li> <li>Belief that booster doses would need to be frequent like flu shots was higher among parents of Māori children (38%) compared to disabled (28%), and Pasifika (14%).</li> </ul>
<b>Global (n=1)</b>		
<a href="#">Ipsos (2021)</a> <sup>19</sup> grey literature Cross-sectional study Global (Canada, Australia, Brazil, China, France, Germany, Italy, Japan, Mexico, Russia, Spain, US, UK) Aug 2021	Global attitudes towards COVID-19 booster doses of vaccine were evaluated across 13 countries using an online survey. Willingness to receive a third dose was measured in 1,000 adults aged 18-74 from Canada and the US, 1,000 adults aged 16-74 from the UK, France, Germany, and Japan, and 500 adults aged 16-74 in Australia, Brazil, China, Italy, Mexico, Russia, and Spain. Results specific to Australia, Canada, UK, and US.	<ul style="list-style-type: none"> <li>Highest intention to get a booster vaccine if it were available to respondents that day was in Brazil (96%), Mexico (93%), China (90%), Australia (82%), UK (82%), US (81%), Canada (77%), Spain (73%), Japan (72%), France (70%), Germany (70%), Italy (66%), and Russia (62%).</li> </ul> <p><b>Canada</b></p> <ul style="list-style-type: none"> <li>77% of Canadians agreed that if a third dose was available today they would get it, 15% disagreed, and 9% were unsure. Wanting a booster as soon as possible was more frequent among those aged 55+ (85%).</li> <li>69% agreed that they will need a booster at least every year for COVID-19, 15% were unsure, and 17% disagreed.</li> <li>Most fully vaccinated Canadians disagreed (63%) with the statement that once their country returns to pre-COVID life there isn't a reason to get another booster shot.</li> </ul> <p><b>US</b></p> <ul style="list-style-type: none"> <li>82% agreed that if a booster was available today they would get it, 10% disagreed, and 8% were unsure.</li> </ul>

Study	Method	Outcomes
		<p>Wanting a booster as soon as possible was more frequent among those aged 55+ (91%).</p> <ul style="list-style-type: none"> <li>68% agreed that they will need a booster at least every year for COVID-19, 17% were unsure, and 15% disagreed.</li> <li>Most (60%) fully vaccinated Americans disagreed (60%) with the statement that once their country returns to pre-COVID life there isn't a reason to get another booster shot. Agreement with not needing another booster if their country returns to pre-pandemic life was higher among those who were younger (&lt;35) and among males.</li> </ul> <p><b>Australia</b></p> <ul style="list-style-type: none"> <li>82% agreed that if a booster was available today they would get it, 13% disagreed, and 6% were unsure.</li> <li>70% agree that they will need a booster at least every year for COVID-19, 14% were unsure, and 15% disagreed.</li> <li>Most fully vaccinated individuals disagreed (76%) with the statement that once their country returns to pre-COVID life there isn't a reason to get another booster shot. Agreement with not needing another booster if their country returns to pre-pandemic life was higher among those who were younger (&lt;35).</li> </ul> <p><b>UK</b></p> <ul style="list-style-type: none"> <li>82% agreed that if a booster was available today they would get it, 11% disagreed, and 6% were unsure.</li> <li>77% agreed that they will need a booster at least every year for COVID-19, 11% were unsure, and 12% disagreed.</li> <li>Most fully vaccinated individuals disagree (70%) with the statement that once their country returns to pre-COVID life there isn't a reason to get another booster shot. Agreement with not needing another booster if their country returns to pre-pandemic life was higher among those who were younger (&lt;35).</li> </ul>

Abbreviations: CI, confidence interval; HCW, healthcare worker; OR, odds ratio; PP, percentage points; RR, risk ratio.

## References

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